
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 20-F

(Mark One)

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) or (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2019

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report _____

For the transition period from _____ to _____

Commission file number 001-36891

CELLECTIS S.A.

(Exact name of Registrant as specified in its charter)

(Translation of Registrant's name into English)

France

(Jurisdiction of incorporation or organization)

Collectis S.A.

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(Address of principal executive office)

Marie-Bleuenn Terrier

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(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

<u>Title of each class</u>	<u>Trading Symbol</u>	<u>Name of each exchange on which registered</u>
American Depositary Shares, each representing one ordinary share, nominal value €0.05 per share	"CLLS"	Nasdaq Global Market
Ordinary shares, nominal value €0.05 per share*		Nasdaq Global Market*

* Not for trading, but only in connection with the registration of the American Depositary Shares.

Securities registered or to be registered pursuant to Section 12(g) of the Act.

None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

None

Indicate the number of outstanding shares of each of the issuer's class of capital or common stock as of the close of the period covered by the annual report.

Ordinary shares, nominal value €0.05 per share: 42,465,669 as of December 31, 2019

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

If this report is an annual or transition report, indicate by check mark, if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes No

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer", "accelerated filer" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer
Non-accelerated file Emerging Growth Company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards[†] provided pursuant to Section 13(a) of the Exchange Act.

[†] The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow: Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes No

TABLE OF CONTENTS

	PAGE
INTRODUCTION	2
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	3
PART I	
Item 1. Identity of Directors, Senior Management and Advisers	5
Item 2. Offer Statistics and Expected Timetable	5
Item 3. Key Information	5
Item 4. Information on the Company	57
Item 4A. Unresolved Staff Comments	104
Item 5. Operating and Financial Review and Prospects	104
Item 6. Directors, Senior Management and Employees	121
Item 7. Major Shareholders and Related Party Transactions	132
Item 8. Financial Information	140
Item 9. The Offer and Listing	141
Item 10. Additional Information	141
Item 11. Quantitative and Qualitative Disclosures About Market Risk	159
Item 12. Description of Securities Other than Equity Securities	160
PART II	
Item 13. Defaults, Dividend Arrearages and Delinquencies	162
Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds	162
Item 15. Controls and Procedures	163
Item 16. Reserved	163
Item 16A. Audit Committee Financial Expert	163
Item 16B. Code of Ethics	163
Item 16C. Principal Accountant Fees and Services	164
Item 16D. Exemptions from the Listing Standards for Audit Committees	164
Item 16E. Purchases of Equity Securities by the Issuer and Affiliated Purchasers	164
Item 16F. Change in Registrant’s Certifying Accountant	165
Item 16G. Corporate Governance	165
Item 16H. Mine Safety Disclosure	167
PART III	
Item 17. Financial Statements	168
Item 18. Financial Statements	168
Item 19. Exhibits	169

INTRODUCTION

Unless otherwise indicated or the context otherwise requires, references in this Annual Report to, “Collectis,” the “Company,” “we,” “us” and “our” refer to Collectis S.A. and its consolidated subsidiaries. References to “Calyxt” refer to our majority-owned subsidiary, Calyxt, Inc.

We own various trademark registrations and applications, and unregistered trademarks and service marks, including Collectis®, TALEN® and our corporate logos, and all such trademarks and service marks appearing in this Annual Report are the property of Collectis. The trademark Calyxt is owned by Calyxt. All other trade names, trademarks and service marks of other companies appearing in this Annual Report are the property of their respective holders. Solely for convenience, the trademarks and trade names in this Annual Report may be referred to without the ® and ™ symbols, but such references, or the failure of such symbols to appear, should not be construed as any indication that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend to use or display other companies’ trademarks and trade names to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Our audited consolidated financial statements have been prepared in accordance with International Financial Reporting Standards, or IFRS, as issued by the International Accounting Standards Board, or IASB. Our consolidated financial statements are presented in U.S. dollars.

All references in this Annual Report to “\$,” “U.S. dollars” and “dollars” mean U.S. dollars and all references to “€” and “euros” mean euros. Throughout this Annual Report, references to ADSs mean American Depository Shares or ordinary shares represented by ADSs, as the case may be.

Note Regarding Use of Non-GAAP Financial Measures

Collectis presents Adjusted Net Income (Loss) attributable to shareholders of Collectis in this Annual Report on Form 20-F. Adjusted Net Income (Loss) attributable to shareholders of Collectis is not a measure calculated in accordance with IFRS. We have included in this Annual Report on Form 20-F a reconciliation of this figure to Net Income (Loss) attributable to shareholders of Collectis, the most directly comparable financial measure calculated in accordance with IFRS. Because Adjusted Net Income (Loss) attributable to shareholders of Collectis excludes Non-cash stock-based compensation expense—a non-cash expense, we believe that this financial measure, when considered together with our IFRS financial statements, can enhance an overall understanding of Collectis’ financial performance. Moreover, our management views the Company’s operations, and manages its business, based, in part, on this financial measure. In particular, we believe that the elimination of Non-cash stock-based expenses from Net Income (Loss) attributable to shareholders of Collectis can provide a useful measure for period-to-period comparisons of our core businesses. Our use of Adjusted Net Income (Loss) attributable to shareholders of Collectis has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our financial results as reported under IFRS. Some of these limitations are: (a) other companies, including companies in our industries which have similar stock-based compensations, may address the impact of Non-cash stock-based compensation expense differently; and (b) other companies may report Adjusted Net Income (Loss) attributable to shareholders or similarly titled measures but calculate them differently, which reduces their usefulness as a comparative measure. Because of these and other limitations, you should consider Adjusted Net Income (Loss) attributable to shareholders of Collectis alongside our other IFRS financial results, including Net Income (Loss) attributable to shareholders of Collectis.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report contains “forward-looking statements” within the meaning of applicable federal securities laws, including the Private Securities Litigation Reform Act of 1995. All statements other than present and historical facts and conditions contained in this Annual Report, including statements regarding our future results of operations and financial position, business strategy, plans and our objectives for future operations, are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties and are made in light of information currently available to us. Many important factors, in addition to the factors described in this Annual Report, may adversely affect such forward-looking statements. When used in this Annual Report, the words “anticipate,” “believe,” “can,” “could,” “estimate,” “expect,” “intend,” “is designed to,” “may,” “might,” “plan,” “potential,” “predict,” “objective,” “should,” or the negative of these and similar expressions identify forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- the initiation, timing, progress and results of our pre-clinical and clinical studies, and our research and development programs;
- the initiation, timing, progress and results of our agricultural biotechnology research and development programs;
- our ability to advance product candidates into, and successfully complete, clinical studies;
- Calyxt’s ability to advance its plant products into, and successfully complete, field trials;
- the timing of regulatory filings and the likelihood of favorable regulatory outcomes and approvals;
- the regulatory treatment of Calyxt’s plant products;
- regulatory developments in the United States and foreign countries;
- the commercialization of our product candidates, if approved;
- the commercialization of Calyxt’s plant products, and Calyxt’s ability to achieve operating scale for its initial commercial product;
- the pricing and reimbursement of our product candidates, if approved;
- our ability to contract on commercially reasonable terms with CROs, third-party suppliers of biological raw or starting materials and manufacturers;
- the status of the construction of our in-house manufacturing facilities and their operations;
- the implementation of our business model, strategic plans for our and Calyxt’s business, product candidates and technology;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates and technology;
- the ability of third parties with whom we contract to successfully conduct, supervise and monitor clinical studies for our therapeutic product candidates or Calyxt’s plant products;
- estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- our and Calyxt’s ability to obtain additional funding for operations;
- the potential benefits of our strategic alliances and our ability to enter into future strategic arrangements;
- the ability and willingness of collaborators pursuant to our strategic alliances to actively pursue development activities under our collaboration agreements;
- our receipt of milestone or royalty payments pursuant to our strategic alliances with Servier and Allogene;
- our and Calyxt’s ability to maintain and establish collaborations or obtain additional grant funding;
- the rate and degree of market acceptance of, and demand for, our product candidates and of Calyxt’s plant products;
- our status as a passive foreign investment company for U.S. federal income tax purposes;
- our financial performance and Calyxt’s financial performance;
- our and Calyxt’s ability to attract and retain key scientific and management personnel;
- our expectations regarding the period during which we qualify as a foreign private issuer;
- developments relating to our competitors and our industry, including competing therapies and technologies; and

[Table of Contents](#)

- other risks and uncertainties, including those listed under the caption “Risk Factors.”

You should refer to the section of this Annual Report titled “Risk Factors” for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this Annual Report will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame or at all. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. We qualify all of our forward-looking statements by these cautionary statements.

Market Data

This Annual Report contains market data and industry forecasts that were obtained from various industry publications. In presenting this information, we have also made assumptions based on such data and other similar sources, and on our knowledge of, and our experience to date in, the biotechnology industry. Market data and industry forecasts involve a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. While we believe the market position, market opportunity and market size information included in this Annual Report is generally reliable, such information is inherently imprecise. Various risks, including those described in the section of this Annual Report entitled “Risk Factors,” could cause results to differ materially from those expressed in the estimates made by us and independent parties.

Website Disclosure

We use our website (www.collectis.com) and Calyxt’s website (www.calyxt.com) and our respective corporate Twitter accounts (@collectis and @Calyxt_Inc) and our respective corporate LinkedIn accounts (<https://www.linkedin.com/company/collectis> and <https://www.linkedin.com/company/calyxt-inc>) as routine market segments of distribution of company information, including press releases, analyst presentations, and supplemental financial information, as a means of disclosing otherwise material non-public information and for complying with our disclosure obligations under Regulation FD. Accordingly, investors should monitor these corporate websites and corporate Twitter and LinkedIn accounts in addition to following press releases, filings with the SEC, and public conference calls and webcasts. Additionally, we provide notifications of announcements as part of our website. Investors and others can receive notifications of new press releases posted on our website by signing up for email alerts.

None of the information provided on these websites, in our press releases or public conference calls and webcasts or through social media is incorporated into, or deemed to be a part of, this Annual Report on Form 20-F or in any other report or document we file with the SEC, and any references to such websites or corporate Twitter accounts are intended to be inactive textual references only.

PART I

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

ITEM 3. KEY INFORMATION

A. Selected Financial Data

The following selected statements of consolidated operations data for the years ended December 31, 2017, 2018 and 2019 and the selected statement of consolidated financial position data as of December 31, 2018 and 2019 have been derived from our audited consolidated financial statements included elsewhere in this Annual Report. The selected statements of consolidated operations data for the years ended December 31, 2015 and 2016 and the selected consolidated statement of financial position data as of December 31, 2015, 2016 and 2017 have been derived from our audited consolidated financial statements not included in this Annual Report. We applied IFRS 15 with effect from January 1, 2018 using the full retrospective method, therefore the financial statements as of and for the years ended December 31, 2016 and 2017 have been restated to reflect this adoption. The financial statements as of and for the year ended December 31, 2015 have not been restated to reflect the adoption IFRS 15, Revenue from Contracts with Customers. We applied IFRS 16, leases, with effect from January 1, 2019 using the modified retrospective method; therefore, the financial statements for the periods prior to 2019 have not been restated to reflect the adoption. Our audited consolidated financial statements have been prepared in accordance with International Financial Reporting Standards, or IFRS, as issued by the International Accounting Standards Board, or IASB.

The audited consolidated financial statements for the years, and as of, December 31, 2015, 2016, 2017, 2018 and 2019 are presented in U.S. dollars, which differs from the functional currency of Collectis S.A., which is the Euro.

The following selected consolidated financial data for the periods and as of the dates indicated are qualified by reference to and should be read in conjunction with our consolidated financial statements and related notes beginning on page F-1 of this Annual Report, as well as the sections titled “Operating And Financial Review And Prospects” included elsewhere in this Annual Report.

Our historical results for any prior period do not necessarily indicate our results to be expected for any future period.

	2015	2016	2017	2018	2019
	\$ in thousands				
Revenues and other income	62,565	56,444	33,715	21,432	22,990
Operating expenses					
Cost of revenue	(2,746)	(1,777)	(2,620)	(2,739)	(11,392)
Research and development expenses	(58,154)	(78,458)	(79,227)	(76,567)	(92,042)
Selling, general and administrative expenses	(30,223)	(43,413)	(44,750)	(47,248)	(43,017)
Other operating income and expenses	(2,425)	(99)	232	31	(91)
Operating income (loss)	(30,984)	(67,302)	(92,650)	(105,091)	(123,552)
Loss from discontinued operations	—	—	—	—	—
Financial gain (loss)	8,378	46	(11,032)	16,758	8,340
Net income (loss)	(22,606)	(67,255)	(103,683)	(88,333)	(115,212)
Attributable to shareholders of Collectis	(22,796)	(67,255)	(99,368)	(78,693)	(102,091)
Attributable to non-controlling interests	190	—	(4,315)	(9,640)	(13,121)

[Table of Contents](#)

Earnings per share attributable to shareholders of Collectis (1)					
Basic and diluted (2)	(0.67)	(1.91)	(2.78)	(1.93)	(2.41)
Number of shares used for computing					
Basic (1)	34,149,908	35,289,932	35,690,636	40,774,197	42,442,136
Diluted (1)	34,149,908	35,289,932	35,690,636	40,774,197	42,442,136
Other operating data					
Adjusted Net Income (Loss) attributable to shareholders of Collectis (3)	10,606	(8,633)	(50,443)	(44,130)	(78,849)

- (1) See Note 17 to our financial statements for further details on the calculation of basic and diluted loss per ordinary share.
- (2) Potential ordinary shares resulting from the exercise of share warrants and employee warrants are antidilutive.
- (3) Adjusted Net Income (Loss) attributable to shareholders of Collectis is not a measure calculated in accordance with IFRS. We define Adjusted Net Income (Loss) attributable to shareholders of Collectis as our Net Income (Loss) attributable to shareholders of Collectis, adjusted to eliminate the impact of Non-cash stock-based compensation expense. See “Note Regarding Use of Non-GAAP Financial Measures” for important information. Please refer below for a reconciliation of Adjusted Net Income (Loss) attributable to shareholders of Collectis to Net Income (Loss) attributable to shareholders of Collectis, which is the most directly comparable financial measure calculated in accordance with IFRS.

Statement of Consolidated Financial Position Data

	2015 (1)	2016 (2)	As of December 31,		2019 (3)
			2017 (2)	2018	
	\$ in thousands				
Current financial assets and Cash and cash equivalents	342,111	291,159	296,982	451,889	360,907
Total assets	371,314	331,432	332,882	500,840	467,469
Total shareholders' equity	287,002	272,985	285,904	450,272	355,470
Total non current liabilities	547	590	3,443	3,699	49,395
Total current liabilities	83,765	57,857	45,453	46,869	62,604

- (1) Financial statements as of and for the year ended December 31, 2015 have not been restated to reflect the adoption IFRS 15, Revenue from Contracts with Customers.
- (2) Financial statements as of and for the years ended December 31, 2016 and 2017 have been restated to reflect the adoption IFRS 15, Revenue from Contracts with Customers.
- (3) The 2019 Consolidated Financial Statements have been prepared according to the new IFRS 16 “Leases” standard with a new “right-of-use assets” category and a resulting significant increase of “lease debts” compared to the previous period (see note 2.2 for discussion of the application of IFRS 16 “Leases” from January 1, 2019 under the modified retrospective transition method). Prior periods have not been restated for the adoption.

Reconciliation of Adjusted Net Income (Loss) attributable to shareholders of Collectis to Net Income (Loss) attributable to shareholders of Collectis

	2015	2016	2017	2018	2019
	\$ in thousands				
Net Income (Loss) attributable to shareholders of Collectis	(22,796)	(67,255)	(99,368)	(78,693)	(102,091)
Adjustment of non-cash stock-based compensation expense:					
Research and development expenses	20,563	33,207	23,832	18,057	12,260
Selling, general and administrative expenses	12,839	25,415	26,586	19,161	14,621
Total non-cash stock-based compensation expense:	33,402	58,622	50,418	37,218	26,881
Non-cash stock-based compensation expense attributable to non controlling interests	—	—	(1,493)	(2,655)	(3,639)
Adjusted Net Income (Loss) attributable to shareholders of Collectis	10,606	(8,633)	(50,443)	(44,130)	(78,849)

B. Capitalization and Indebtedness

Not applicable.

C. Reasons for the Offer and Use of Proceeds

Not applicable.

D. Risk Factors

Our business and our industry are subject to significant risks. You should carefully consider all of the information set forth in this Annual Report, including the following risk factors. Our business, financial condition or results of operations could be materially adversely affected by any of these risks.

Risks Related to Our Business and Industry

We and Calyxt have limited operating histories, which makes it difficult to evaluate our current business and future prospects and may increase the risk of your investment.

We are a clinical-stage biopharmaceutical company and, as of December 31, 2019, we own 68.9% of Calyxt, Inc., a U.S. technology company focused on delivering plant-based solutions that are healthy and sustainable, each with a limited operating history. Investment in biopharmaceutical and plant-based technology development is a highly speculative endeavor. Biopharmaceutical and plant-based technology product development entails substantial upfront capital expenditures and there is significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, to gain any required regulatory approvals or to become commercially viable. In our therapeutics business, we are focused on developing products using our gene-editing platform to develop genetically modified T-cells that express a CAR and are designed to target and kill cancer cells. While there have been significant advances in cell-based immunotherapy, our gene-editing platform and T-cell and CAR technologies are new and unproven. Several of the product candidates that we are developing or co-developing are in pre-clinical stages. We are sponsoring three clinical studies in the United States. We have started Phase I clinical trials in the United States for UCART123 targeting acute myeloid leukemia (AML), UCART22 targeting B-cell acute lymphoblastic leukemia (B-ALL), and UCARTCS1 targeting Multiple Myeloma (MM). In addition, UCART19, which we exclusively license to Les Laboratoires Servier S.A.S., or Servier, is currently the subject of clinical development through two clinical studies being sponsored by Servier both targeting Acute Lymphoblastic Leukemia (ALL), and one clinical study being sponsored by Allogene Therapeutics, Inc., or Allogene, targeting Diffuse Large B-cell lymphoma (DLBCL) and follicular lymphoma (FL), which are subtypes of Non-Hodgkin Lymphoma (NHL). We have not yet generated any revenue from biopharmaceutical product sales to date. In Calyxt's plant-based technology business, Calyxt is utilizing patented plant breeding technology to develop plant-based solutions that are healthy and sustainable. Although Calyxt has achieved commercialization of its high oleic soybean oil and meal in the first quarter of 2019, it has not yet generated significant revenues from sales of its plant products.

[Table of Contents](#)

Our limited operating history may make it difficult to evaluate our current business and our future prospects. We have encountered, and will continue to encounter, risks and difficulties frequently experienced by growing companies in rapidly developing and changing industries, such as the biopharmaceutical and plant-based technology industries, including challenges in forecasting accuracy, determining appropriate investments of our limited resources, gaining market acceptance of the products created using our gene-editing platform, managing a complex regulatory landscape and developing new product candidates. Our current operating model may require changes in order for us to scale our operations efficiently. You should consider our business and prospects in light of the risks and difficulties we face as an early-stage company focused on developing products in the fields of immunotherapy gene editing and plant-based technology.

We have incurred significant losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future.

We devote most of our financial resources to research and development relating to our CAR T-cell immunotherapy product candidates. We finance our current immuno-oncology operations primarily through strategic alliances with pharmaceutical companies, including Servier and Allogene (pursuant to assets transferred from Pfizer in April 2018), as well as through the sale of equity securities and, to a lesser extent, obtaining public funding in support of innovation, reimbursements of research tax credit claims, and royalties on our licensed technology. For the year ended December 31, 2019, we received \$7.5 million in payments pursuant to our principal collaboration agreements.

In the year ended December 31, 2019, our research and development expenses were \$92.0 million.

We currently have no commercial biopharmaceutical products. Notwithstanding the commencement of several clinical studies, it will be several years, if ever, before we obtain regulatory approval for, and are ready for commercialization of, a biopharmaceutical product candidate. Even if we or our collaborators successfully commence and complete clinical studies and obtain regulatory approval to market a product candidate, any future revenues will depend upon the size of any markets in which the product candidates are approved for sale as well as the market share captured by such product candidates, market acceptance of such product candidates and levels of reimbursement from third-party payors.

Although Calyxt's first commercial sales from its high oleic soybean products occurred in the first quarter of 2019, Calyxt's sales will be limited to a single product and may be limited until Calyxt achieves operating scale.

We expect to continue to incur significant expenses and operating losses for the foreseeable future. We expect our losses and our cash utilization to increase in the near term as we conduct our clinical studies, file IND and/or foreign equivalent filings for additional product candidates, conduct research and development for product candidates invest in and develop our manufacturing capabilities, seek regulatory and marketing approvals, and establish necessary infrastructure for the commercialization of any products for which we obtain marketing approval.

The net losses we incur may fluctuate significantly from year to year and quarter to quarter, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. In any particular period or periods, our operating result could be below the expectations of securities analysts or investors which could cause the price of our ADSs to decline.

We may need to raise additional funding may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate our product development efforts or other operations.

We are currently sponsoring three clinical studies. In addition, we are preparing to file additional IND and/or foreign equivalent filings with respect to new clinical studies for certain of our product candidates and/or to extend the number of investigational sites. We are also advancing additional product candidates to and through pre-clinical testing. The process of developing and manufacturing CAR T-cell product candidates and conducting clinical studies is expensive, lengthy and risky, and we expect our research and development expenses to increase substantially in connection with our ongoing activities. In addition, subject to obtaining regulatory approval of any biopharmaceutical product candidates, we expect to incur significant commercialization expenses.

As of December 31, 2019, we had cash and cash equivalents and current financial assets of approximately \$360.9 million. We believe our cash and cash equivalents and our cash flow from operations (including payments we expect to receive pursuant to our collaboration agreements) and government funding of research programs will be sufficient to fund Collectis' operations into

[Table of Contents](#)

2022 and Calyxt's operations through mid 2021. Also, our operating plan, including our product development plans, may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned. To commercialize our products, if approved, we will require significant working capital to operate our business and maintain our operations.

Our ability to raise additional capital may be limited. To the extent that we raise additional capital through the sale of additional equity or convertible securities, current ownership interests may be diluted and the terms of these securities may include liquidation or other preferences that adversely affect stockholders' rights. Debt financing, if available, would result in increased fixed payment obligations and a portion of our operating cash flows, if any, being dedicated to the payment of principal and interest on such indebtedness. In addition, debt financing may involve agreements that include restrictive covenants that impose operating restrictions, such as restrictions on the incurrence of additional debt, the making of certain capital expenditures or the declaration of dividends. To the extent we raise additional funds through arrangements with collaborators or otherwise, we may be required to relinquish some of our technologies, product candidates or revenue streams, license our technologies or product candidates on unfavorable terms, or otherwise agree to terms unfavorable to us.

In addition, we cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. Even if we believe we have sufficient funds for our current or future operating plans, we may seek additional capital if market conditions are favorable or in light of specific strategic considerations.

If we are unable to obtain funding on a timely basis, we may be required to significantly curtail, delay or discontinue one or more of our research or product candidate development programs or the commercialization of any product candidate or be unable to expand our operations or otherwise capitalize on our business opportunities, as desired, which could materially affect our business, operating results and prospects.

We are limited in our ability to raise additional share capital, which may make it difficult for us to raise capital to fund our operations.

Under French law, our share capital generally may be increased with the approval of a two-thirds majority vote of the shareholders present, represented by proxy, or voting by mail obtained at an extraordinary general shareholders' meeting following the recommendation of our board of directors. The shareholders may delegate to our board of directors either the authority (*délégation de compétence*) or the power (*délégation de pouvoir*) to carry out any increase in the share capital. Accordingly, our board of directors may be precluded from issuing additional share capital if the prior approval of the shareholders is not duly obtained.

Risks Related to the Discovery, Development and Commercialization of Our Therapeutic Product Candidates

Our therapeutic product candidate development programs are in various phases of development and may be unsuccessful.

We are currently sponsoring three clinical studies, and four clinical studies are being sponsored by Allogene and Servier, pursuant to exclusive licenses. Further, several additional therapeutic product candidates are still in discovery or pre-clinical proof of concept stages of development and have only undergone limited testing in animals. Even if certain of our product candidates progress through clinical studies, these product candidates may fail to show the desired safety and efficacy in clinical development despite demonstrating positive preliminary clinical data and/or results in animal studies. The results from animal studies are not necessarily predictive of results in current or future clinical studies.

Because some of our current product candidates are in the early stages of development, there can be no assurance that our research and development activities will result in product candidates we can advance through clinical development. The results of clinical studies are subject to a variety of factors and considerations, and we cannot assure you that we or our collaborators will achieve the applicable targets in these studies.

Because of the early stage of development of our product candidates, we have not yet demonstrated the safety, specificity and clinical benefits of our product candidates in humans, and we cannot assure you that the results of any human trials will demonstrate the value and efficacy of our platform. Moreover, there are a number of regulatory requirements that we must satisfy before additional clinical studies may be commenced in the United States or the European Union with respect to our product candidates. Satisfaction of these requirements will entail substantial time, effort and financial resources. Any time, effort and financial resources we expend on our early-stage product candidate development programs may adversely affect our ability to continue development and commercialization of our more advanced product candidates, and we may never commence additional clinical studies despite expending significant resources in pursuit of their development. Further, our clinical studies may not be successful and such product candidates may never be approved by the U.S. Food and Drug Administration, or FDA, the European Medicines Agency, or EMA, or any other regulatory agency.

[Table of Contents](#)

Even if a product candidate successfully completes clinical trials, those results are not necessarily predictive of results of additional trials that may be needed before regulatory approval may be obtained. Although there are a large number of drugs and biologics in development globally, only a small percentage obtain regulatory approval, even fewer are approved for commercialization, and only a small number achieve widespread physician and consumer acceptance.

If the results of our clinical trials are inconclusive or if there are safety concerns or adverse events associated with the product candidates we develop, we may:

- lose any competitive advantages that such product candidates may have;
- be delayed in obtaining marketing approval for the subject product candidates, if at all;
- obtain approval for indications or patient populations that are not as broad as initially intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions, contraindications or safety warnings;
- be subject to changes with the way the product is administered;
- be required to perform additional clinical trials or broaden current clinical trials to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities withdraw their approval of the product or impose restrictions on its distribution in the form of a modified risk evaluation and mitigation strategy;
- need to modify or terminate contractual relationships with third parties with regard to the performance of said clinical trials;
- be sued;
- experience damage to our reputation; or
- not reach the milestones triggering payments from our collaborators.

Early data from compassionate use treatment and from clinical trials are not predictive of success in later clinical trials.

In December 2016, during a meeting with the National Institutes of Health's Office of Biotechnology Activities' Recombinant DNA Advisory Committee, or the RAC, Pfizer and Servier presented preliminary clinical study data for UCART19 and data from three clinical uses of UCART19 on a compassionate basis. These three compassionate use patients have been treated under U.K. "specials" licenses from the Medicines & Healthcare products Regulatory Agency (MHRA) to administer the UCART19 product candidate to a patient on compassionate use basis. Compassionate use refers to the use of an investigational drug outside of a clinical trial to treat a patient with a serious or immediately life-threatening disease or condition who has no comparable or satisfactory alternative treatment options. More recently, in December 2018, during the American Society of Hematology (ASH) Conference, Servier presented intermediate results from its current pediatric and adult clinical studies on UCART19 in the United Kingdom, the United States, Belgium and France. These preliminary results from the pediatric and adult UCART19 Clinical Studies showed that 82% of patients (14/17) who received a lymphodepletion regimen (consisting of fludarabine, cyclophosphamide and alemtuzumab, an anti-CD52 monoclonal antibody) achieved a complete remission (CR) or complete remission with incomplete blood cell recovery (CRi) by day 28 or day 42 after infusion. Within the 14 responder patients, 71% showed a "minimal residual disease" (MRD) negative (MRD- stands for less than 1 leukemic cell among 10E4 normal cells) assessed by flow or qPCR. When considering all treated patients (lymphodepleted or not), 67% (14/21) achieved CR/CRi. Regarding safety considerations, there were no serious adverse events (grade ³3) for graft versus host disease (GvHD) and neurological events. Grade 3-4 toxicities were events of cytokine release syndrome (14%, 3/21), prolonged cytopenia (29%, 6/21) and viral infections (24%, 5/21).

We cannot assure you that the administration of UCART19 to other patients will have results that are similar to those reported by Servier. Such results are preliminary in nature, do not bear statistical significance and should not be viewed as predictive of ultimate success. It is possible that such results will not continue or may not be repeated in other potential compassionate uses or in ongoing or future clinical trials on UCART19 or other UCART product candidates.

We have limited experience in conducting or managing clinical trials for potential therapeutic products.

We are currently sponsoring clinical studies at three sites for the BALLI-01 Study, at four sites for the AMELI-01 Study and at three sites for the MELANI-01 Study. We anticipate expanding these existing clinical studies to additional sites and commencing additional clinical studies. We have limited experience in conducting or managing the clinical trials necessary to obtain regulatory approvals for any product candidate. We rely on a clinical research organization, or CRO, medical institutions and clinical investigators to conduct our clinical studies. Our reliance on third parties for clinical development activities reduces

[Table of Contents](#)

our control over these activities. Third-party contractors may not complete activities on schedule, or may not conduct clinical trials in accordance with regulatory requirements or our trial design. If these third parties do not successfully carry out their contractual duties or meet required performance standards or expected deadlines, we might be required to replace them or the data that they provide could be rejected by the FDA or comparable foreign regulatory bodies, all of which may result in a delay of the affected trial and additional program costs.

We may encounter substantial delays in our clinical trials or we may fail to demonstrate safety and efficacy to the satisfaction of applicable regulatory authorities.

Pre-clinical testing and clinical trials are long, expensive and unpredictable processes that can be subject to extensive delays. For example, in September 2017, a clinical hold was placed on our UCART123 clinical studies and remained in place until the FDA permitted these clinical studies to restart in November 2017 according to revised protocols, and in 2018, manufacturing events slowed down the advancement of our UCART123 clinical studies and the commencement of our UCART22 Clinical Study.

We cannot guarantee that any pre-clinical studies or clinical trials will be conducted as planned or completed on schedule, if at all. It may take several years to complete the pre-clinical testing and clinical development necessary to commercialize a product candidate, and delays or failure can occur at any stage. Interim results of clinical trials do not necessarily predict final results, and success in pre-clinical testing and early clinical trials does not ensure that later clinical trials will be successful. A number of companies in the pharmaceutical, biopharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials even after promising results in earlier trials, including a number of patient deaths in CAR-T trials conducted in the United States. We cannot be certain that our product candidates will not face similar setbacks. In addition, the design of a clinical trial can determine whether its results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. An unfavorable outcome in one or more clinical trials would be a major setback for our product candidates and for us and may require us or our collaborators to delay, reduce or re-define the scope of, or eliminate one or more product candidate development programs, any of which could have a material adverse effect on our business, financial condition and prospects.

In addition, a number of events, including any of the following, could delay the completion of our current and future clinical trials and negatively impact the ability to obtain regulatory approval for, and to market and sell, a particular product candidate:

- conditions imposed on us or our collaborators by the FDA or any foreign regulatory authority regarding the scope or design of clinical trials;
- delays in obtaining, or our inability to obtain, required approvals from institutional review boards, or IRBs, or other reviewing entities at clinical sites selected for participation in our clinical trials;
- changes in regulatory requirements and guidance that necessitate amendments to clinical trial protocols;
- insufficient supply or deficient quality of the product candidates or other materials necessary to conduct the clinical trials;
- delays in obtaining regulatory agency approval for the conduct of the clinical trials;
- lower-than-anticipated enrollment and retention rate of subjects in clinical trials for a variety of reasons, including size of patient population, sites selection, nature of trial protocol, the availability of approved effective treatments for the relevant disease and competition from other clinical trial programs for similar indications;
- serious and unexpected drug-related side effects experienced by patients in clinical trials (including clinical studies for similar side effects reported in third parties' product candidate); or
- failure of our or our collaborators' third-party contractors to meet their contractual obligations in a timely manner.

Data obtained from pre-clinical and clinical activities are subject to varying interpretations, which may delay, limit or prevent regulatory approval. Clinical trials may be delayed or terminated as a result of ambiguous or negative interim results. In addition, a clinical trial may be suspended or terminated due to a number of factors, including:

- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;
- inspection of the clinical trial operations or trial sites by the FDA or other regulatory authorities resulting in the imposition of a clinical hold;
- unfavorable interpretations by FDA or similar foreign regulatory authorities of data, where clinical study plans call for interim data analysis;
- FDA or similar foreign regulatory authorities determine the plan or protocol for the investigation is deficient in design to meet its stated objectives;

[Table of Contents](#)

- lack of, or failure to, demonstrate efficacy;
- unforeseen safety issues; or
- lack of adequate funding to continue the clinical trial.

Our product candidates are based on a novel technology, which makes it difficult to predict the time and cost of product candidate development and obtaining regulatory approval.

We have concentrated our research and development efforts on our CAR T-cell immunotherapy product development, including our gene-editing technologies, and our future success depends on the successful development of this therapeutic approach. We are in the early stages of developing our UCART product candidates' platform and there can be no assurance that any development problems we experience in the future related to our gene-editing technologies will not cause significant delays or unanticipated costs, or that such development problems can be overcome. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process or transferring that process to commercial partners, which may prevent us from completing our clinical studies or commercializing our products on a timely or profitable basis, if at all.

In addition, the clinical study requirements of the FDA, EMA and other regulatory agencies and the criteria these regulators use to determine the safety and efficacy of a product candidate are determined according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates such as ours can be more complex and consequently more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates.

Currently, only a very limited number of gene therapy products have been approved in the United States and Europe. Approvals by the EMA and FDA for existing gene therapy products may not be indicative of what these regulators may require for approval of further gene therapy products. More generally, approvals by any regulatory agency may not be indicative of what any other regulatory agency may require for approval or what such regulatory agencies may require for approval in connection with new product candidates.

The regulatory landscape that will govern our product candidates is uncertain; regulations relating to more established gene therapy and cell therapy products are still developing, and changes in regulatory requirements could result in delays or discontinuation of development of our product candidates or unexpected costs in obtaining regulatory approval.

Because we are developing novel CAR T-cell immunotherapy product candidates that are unique biological entities, the regulatory requirements that we will be subject to are not entirely clear. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing requirements have changed frequently and may continue to change in the future. Moreover, there is substantial, and sometimes uncoordinated, overlap in those responsible for regulation of existing gene therapy products and cell therapy products. For example, in the United States, the FDA has established the Office of Tissues and Advanced Therapies (OTAT, formerly known as the Office of Cellular, Tissue and Gene Therapies, or OCTGT) within its Center for Biologics Evaluation and Research, or CBER, to consolidate the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Gene therapy clinical trials are also subject to review and oversight by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees basic and clinical research conducted at the institution participating in the clinical trial. Although the FDA decides whether individual gene therapy protocols may proceed, review processes and determinations of other reviewing bodies can impede or delay the initiation of a clinical study, even if the FDA has reviewed the study and approved its initiation. Conversely, the FDA can place an IND application on clinical hold even if such other entities have provided a favorable review. Furthermore, each clinical trial must be reviewed and approved by an independent institutional review board, or IRB, at or servicing each institution at which a clinical trial will be conducted. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other regulatory bodies to change the requirements for approval of any of our product candidates.

Complex regulatory environments exist in other jurisdictions in which we might consider seeking regulatory approvals for our product candidates, further complicating the regulatory landscape. For example, in the EU a special committee called the Committee for Advanced Therapies (CAT) was established within the EMA in accordance with Regulation (EC) No 1394/2007 on advanced-therapy medicinal products (ATMPs) to assess the quality, safety and efficacy of ATMPs, and to follow scientific developments in the field. ATMPs include gene therapy products as well as somatic cell therapy products and tissue engineered products. In this regard, on May 28, 2014, the EMA issued a recommendation that Cellectis' UCART19 be considered a gene therapy product under Regulation (EC) No 1394/2007 on ATMPs. We believe this recommendation is likely to be applicable to our UCART product candidates; however, this recommendation is not definitive until such products obtain regulatory approval for commercialization.

These various regulatory review committees and advisory groups and new or revised guidelines that they promulgate from time to time may lengthen the regulatory review process, require us to perform additional studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our product

candidates or lead to significant post-approval limitations or restrictions. Because the regulatory landscape for our CAR T-cell immunotherapy product candidates is new, we may face even more cumbersome and complex regulations than those emerging for gene therapy products and cell therapy products. Furthermore, even if our product candidates obtain required regulatory approvals, such approvals may later be withdrawn as a result of changes in regulations or the interpretation of regulations by applicable regulatory agencies.

As we or our collaborators advance product candidates, we and they will be required to consult with these regulatory groups and comply with all applicable guidelines, rules and regulations. Because the clinical studies for UCART19 and are being sponsored by Servier and Allogene, they are directly interacting with the relevant regulatory agencies and we are not able to direct such interactions. Some of the discussions among our commercial collaborators and relevant regulatory agencies could generate additional unexpected requirements from regulatory agencies that may apply to our wholly-controlled UCART product candidates, including UCART123, UCARTCS1 and UCART22 and could lead to potential delays or additional requirements, such as additional studies or modifications to our controlled clinical studies.

Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue to maintain our business.

The United Kingdom's withdrawal from the European Union may have a negative effect on our business, results of operations and financial condition.

The United Kingdom's membership in the European Union ended on January 31, 2020. During the current transition period, negotiations between the United Kingdom and the European Union will be conducted to determine terms relating to their future relations, including trade, financial and legal agreements.

The full political and economic effects of this "Brexit" remain quite uncertain to this date. Depending on the outcome of the negotiations, a certain number of risks could materialize, including:

- a deterioration or stagnation of the United Kingdom's economic conditions,
- volatility in the exchange rate between the euro and the pound sterling, which may have a negative impact on our results,
- a rise in inflation in the United Kingdom,
- legal and regulatory uncertainty, in particular regarding the interaction between local and European regulations, regarding taxation or regarding importation or exportation of goods,
- legal and regulatory uncertainty regarding the conduct of clinical trials and/or the approval of our product candidates in the United Kingdom, which may affect our ability to conduct clinical trials and obtain regulatory approvals in the United Kingdom,
- Any delay in the completion of our United Kingdom clinical trials or in obtaining any regulatory approvals in the United Kingdom and/or the European Union,
- increased difficulties in finding financing opportunities in the United Kingdom or finding financing opportunities secured in whole or in part by assets located in the United Kingdom.

The occurrence of such events or risks could adversely affect our business, our prospects, our ability to achieve our objectives, generate revenue and achieve and sustain profitability.

Our gene-editing technology is relatively new, and if we are unable to use this technology in all of our intended applications, our revenue opportunities will be limited.

Even if the use of gene editing technologies increases, our technology involves a relatively new approach to gene editing, using sequence-specific DNA-cutting enzymes, or nucleases, to perform precise and stable modifications in the DNA of living-cells and organisms. Although we have generated nucleases for many specific gene sequences, we have not created nucleases for all gene sequences that we may seek to target, and we may not be able to do so, which could limit the usefulness of our technology.

The expected value and utility of our nucleases is, in part, based on our belief that the targeted modification of genes or specific regulation of gene expression may enable us to develop a new therapeutic approach. There is only a limited understanding of the role of specific genes in these applications. Life sciences companies have only been able to successfully develop or commercialize a few products in this biopharmaceutical space. We or our collaborators may not be able to use our technology to develop commercial products.

In addition, the industry is rapidly developing, and our competitors may introduce new technologies that render our technology obsolete, uneconomical or less attractive. New technology could emerge at any point in the development cycle of our product candidates. As competitors use or develop new technologies, we may be placed at a competitive disadvantage, and

competitive pressures may force us to implement new technologies at a substantial cost. In addition, our competitors have greater financial, technical and personnel resources that allow them to enjoy technological advantages and may in the future allow them to implement new technologies before we can. We cannot be certain that we will be able to implement technologies on a timely basis or at a cost that is acceptable to us. If we are unable to maintain technological advancements consistent with industry standards, our operations and financial condition may be adversely affected.

We cannot be certain that we will be able to obtain regulatory approval for, or successfully commercialize, the product candidates that are central to our business.

Our business depends primarily on the successful clinical development, regulatory approval and commercialization of our CAR T-cell immunotherapy product candidates. Notwithstanding our ongoing clinical studies, we may never be able to develop products that will be approved or commercialized.

Our therapeutic product candidates will require substantial additional clinical development, testing, and regulatory approval before we are permitted to commence their commercialization. The clinical trials of our product candidates are, and the manufacturing and marketing of our product candidates will be, subject to extensive and rigorous review and regulation by numerous government authorities in the United States and in other countries where we intend to test and, if approved, market any product candidate. Before obtaining regulatory approvals for the commercial sale of any product candidate, we must demonstrate, with substantial evidence gathered in well-controlled clinical trials, and, with respect to approval in the United States, to the satisfaction of the FDA or, with respect to approval in other countries, similar regulatory authorities in those countries, that the product candidate is safe and effective for use in each target indication. In the United States, we expect that the requisite regulatory submission to seek marketing approval for our gene therapy products will be a Biologic License Application, or BLA, and the competent regulatory authority is the FDA. In the EU, the requisite approval is a Marketing Authorization, or MA, which for products developed by the means of recombinant DNA technology, gene or cell therapy products as well as tissue engineered products, is issued through a centralized procedure involving the EMA. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. Despite our efforts, our product candidates may not:

This process can take many years and may include post-marketing studies and surveillance, which will require the expenditure of substantial resources beyond our existing cash on hand. Of the large number of drugs in development globally, only a small percentage successfully completes the regulatory approval process and even fewer are commercialized. Furthermore, we have not marketed, distributed or sold any products. Our success will, in addition to the factors discussed above, depend on the successful commercialization of the product candidates we develop on our own and our collaborators' successful commercialization of the products they develop, which may, in each case, require:

- establishing commercial manufacturing arrangements with third-party manufacturers;
- collaborating with third-parties to market and sell any approved drug; or
- acceptance of such commercial products by the medical community and by patients and third-party payors.

Many of these factors are beyond our control. We do not expect any of the product candidates we or our collaborators develop to be commercially available for many years and some or all may never become commercially available. We may never generate revenues through the sale of products.

We face substantial competition from companies many of which have considerably more resources and experience than we have.

The biotechnology and pharmaceutical industries are characterized by intense competition and rapid innovation, and many companies apply significant resources toward developing novel and proprietary therapies for the treatment of cancer, which often incorporate novel technologies and valuable intellectual property. We compete with companies in the immunotherapy space, as well as companies developing novel targeted therapies for cancer. In addition, our product candidates, if approved, will compete with existing standards of care for the diseases that our product candidates target as well as new compounds, drugs or therapies, some of which may achieve better results than our product candidates. We anticipate that we will face intense and increasing competition from many different sources, including new and established biotechnology and pharmaceutical companies, academic research institutions, governmental agencies and public and private research institutions.

Immunotherapy is being pursued by both biotech companies and large-cap pharmaceutical companies. We face competition from gene-editing companies, autologous and allogeneic CAR T-cell companies and cell-therapy companies. We also face competition from non-cell based treatments offered by global biopharmaceutical companies. Many of our competitors, either alone or with their collaboration partners, have substantially greater financial, technical and other resources, such as larger research and development staff and/or greater expertise in research and development, manufacturing, pre-clinical testing and conducting clinical trials. In addition, smaller or early-stage companies may compete with us through collaborative arrangements

[Table of Contents](#)

with more established companies. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these enterprises. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Our competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

Our competitors, either alone or with collaborators, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized, or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products.

Even if we obtain regulatory approval of our product candidates, we may not be the first to market and that may affect the price or demand for our product candidates. Additionally, the availability and price of our competitors' products could limit the demand and the price we are able to charge for our product candidates. We may not be able to implement our business plan if the acceptance of our product candidates is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our product candidates, or if physicians switch to other new drug or biologic products or choose to reserve our product candidates for use in limited circumstances.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

The time required to obtain approval by the FDA and comparable foreign authorities is inherently unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for the commercialization of any product candidate and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain such regulatory approval.

The FDA or other regulatory authority, as applicable, may delay, limit or deny approval of our product candidates for many reasons, including disagreement with clinical trial design or implementation, determinations that a product candidate is not sufficiently safe or efficacious, objections to the statistical significance of data or our interpretation of data, objections to the production, formulation or labeling of our product candidates, and any other discretionary factors such regulators deem relevant.

This lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market the product candidates we develop, which would significantly harm our business, results of operations and prospects. In addition, even if we or our collaborators were able to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a drug candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for the product candidates we develop.

We expect several of the product candidates we develop will initially be available as treatment for patients with advanced disease, or with a rare disease with no other treatment option, which could limit the size of the market for these product candidates.

We expect that, if approved, several of the product candidates we develop will initially receive regulatory approval as treatment for advanced or rare diseases. This could limit the initial size of the market for these product candidates, and we cannot predict when, if ever, such product candidates would receive regulatory approval for indications treating a more expansive patient population.

Any issues that arise in the high complex manufacturing process for our product candidates could have an adverse effect on our business, financial position or prospects.

Our product candidates undergo a complex, highly-regulated manufacturing process that is subject to multiple risks. As a result of the complexities of this process, the cost to manufacture our CAR T-cell immunotherapy products is generally higher than traditional small molecule chemical compounds, and the manufacturing process requires very minimal batch-to-batch variability, which is expensive to ensure. Our manufacturing process is susceptible to product loss or failure due to issues associated with the collection of white blood cells from healthy third-party donors, manufacturing or supply of raw material or

starting material, shipping such material to the manufacturing site, ensuring standardized production batch-to-batch in the context of mass production, freezing the manufactured product, shipping the final product globally, and infusing patients with the product. In addition, we may face manufacturing issues associated with interruptions in the manufacturing process, contamination, equipment or reagent failure, shortage of raw material or starting material and other procurement issues, changes in regulation, improper installation or operation of equipment, vendor or operator error, inconsistency in cell growth, and variability in product characteristics. Even minor deviations from normal manufacturing processes could result in reduced production yields, product defects, and other supply disruptions. If microbial, viral, or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made, the manufacturing may be stopped or such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. Further, as our product candidates are developed through pre-clinical to late stage clinical trials towards approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods, are altered along the way in an effort to optimize processes and results or adapt to the regulatory agencies' requirements. Such changes carry the risk that they will not achieve these intended objectives, and any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials.

Currently, the product candidates we develop are manufactured using processes intended for pre-clinical and clinical stage production by third-party contract manufacturing organizations, or CMOs. Although we work with CMOs to ensure that commercially viable processes will be available for mass production, there are risks associated with scaling to the level required for advanced clinical trials or commercialization, including, among others, cost overruns, potential problems with process scale-up and/or scale-out, process reproducibility, stability issues, lot consistency, and timely availability of reagents or raw materials. We may ultimately be unable to reduce the cost of goods for the product candidates to levels that will allow for an attractive return on investment if and when those product candidates are commercialized.

Our manufacturing strategy for the product candidates we develop contemplates the continued use of one or more CMOs as well as our own manufacturing facility, which we are establishing in Raleigh, North Carolina, and Paris, France. However, we have no experience as a company in developing a manufacturing infrastructure that complies with all standards applicable to the manufacturing of a product to be used by or administered to patients, and may never be successful in developing such in-house manufacturing capabilities. We may engage additional CMOs or establish additional manufacturing facilities as we expand our commercial footprint to multiple geographies, which may lead to regulatory delays or prove costly. Even if we successfully develop our own manufacturing capabilities our manufacturing processes could be affected by cost-overruns, unexpected delays, equipment failures, labor shortages, natural disasters, power failures, regulatory issues and numerous other factors that could prevent us from realizing the intended benefits of our manufacturing strategy and have a material adverse effect on our business.

In addition, the manufacturing process for any products that we may develop is subject to FDA and foreign regulatory authority approval processes for the jurisdictions in which we or our collaborators will seek marketing approval for commercialization as well as ongoing compliance requirements. If the manufacturing process is changed during the course of product development, FDA or foreign regulatory authorities could require us to repeat some or all previously conducted trials or conduct additional bridging trials, which could delay or impede our ability to obtain marketing approval. If we or our CMOs are unable to reliably produce product candidates or products to specifications acceptable to the FDA or other regulatory authorities, we may not obtain or maintain the approvals we need to further develop, conduct clinical trials for, and commercialize such products in the relevant territories. Any of these challenges could delay completion of clinical trials, require bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidate, impair commercialization efforts, increase our cost of goods, and have an adverse effect on our business, financial condition, results of operations and growth prospects.

Negative publicity and increased regulatory scrutiny of genetic research and therapies involving gene editing may damage public perception of our product candidates or adversely affect our ability to conduct our business or obtain regulatory approvals for our product candidates.

Our gene-editing technologies are relatively novel. Public perception may be influenced by claims that gene editing is unsafe, and products incorporating gene editing may not gain the acceptance of the public or the medical community. In particular, our success will depend upon physicians specializing in our targeted diseases prescribing our product candidates as treatments in lieu of, or in addition to, existing, more familiar, treatments. Any increase in negative perceptions of gene editing may result in fewer physicians prescribing our treatments or may reduce the willingness of patients to utilize our treatments or participate in clinical trials for our product candidates. Increased negative public opinion or more restrictive government regulations in response thereto, would have a negative effect on our business or financial condition and may delay or impair the development and commercialization of our product candidates or demand for such product candidates. For example, there have been patient deaths in recent CAR-T trials conducted in the United States by our competitors as well as in our UCART123 clinical studies, which have led to clinical trial holds. Adverse events in clinical studies for the product candidates we develop or those of our competitors, even if not ultimately attributable to our or their product candidates, respectively (such as the many adverse events that typically arise from the transplant process), and any resulting publicity could result in increased governmental regulation, unfavorable public perception, potential regulatory delays in the testing or approval of our product candidates, stronger labeling for those product candidates that are approved and a decrease in demand for any such product candidates.

We or our collaborators may find it difficult to enroll patients in clinical studies on the product candidates we develop, which could delay or prevent clinical studies of the product candidates.

Identifying and qualifying patients to participate in clinical studies is critical to the success of the relevant product candidate. The timing of clinical studies depends, in part, on the speed of recruitment of patients to participate in testing such product candidates as well as completion of required follow-up periods. We or our collaborators may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics to achieve diversity in a study, to complete the clinical studies for our respective product candidates in a timely manner. If patients are unable or unwilling to participate in such studies, the timeline for recruiting patients, conducting studies and obtaining regulatory approval of potential products may be delayed. These delays could result in increased costs, delays in advancing our product candidates, delays in testing the effectiveness of our technology or termination of the clinical studies altogether.

In addition, clinical trials for the product candidates we or our collaborators develop will compete with other clinical trials for product candidates that are in the same therapeutic areas as such product candidates, and this competition may reduce the number and types of patients available to us and our collaborators. Because the number of qualified clinical investigators is limited, we expect to conduct some of the clinical trials at the same clinical trial sites that some of our competitors use, which may reduce the number of patients who are available for our clinical trials at such clinical trial sites. Certain of our competitors may have greater success than us in enrolling patients as a result of a variety of factors. Moreover, because the product candidates we develop represent a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, such as chemotherapy and stem cell transplants, rather than enroll patients in our future clinical trial or clinical trial of our collaborators.

Patient enrollment is affected by a variety of factors, including:

- severity of the disease under investigation;
- design of the clinical trial protocol;
- size and nature of the patient population;
- eligibility criteria for the trial in question;
- perceived risks and benefits of the product candidate under trial, including relative to other available therapies;
- proximity and availability of clinical trial sites for prospective patients;
- availability of competing therapies and clinical trials;
- patient referral practices of physicians; and
- our ability to monitor patients adequately during and after treatment.

If we or our collaborators have difficulty enrolling a sufficient number of patients to conduct clinical studies as planned, we or our collaborators may need to delay, limit or terminate ongoing or planned clinical studies, any of which could have a material adverse effect on our business and financial condition. Even if we are able to enroll a sufficient number of patients in our clinical trials, delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of the product candidates we develop.

Our product candidates may fail safety studies in clinical trials or may cause undesirable side effects that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.

Our gene-editing technologies may not be sufficiently specific for their target sites, or they may not target unique sites within the genome of interest, which may result in random DNA recombination events. For example, off-target cleavage may lead to the production of double-strand breaks that overwhelm the cell's repair machinery and, as a consequence, yield chromosomal rearrangements and/or cell death. Off-target cleavage events also may result in random integration of donor DNA. As a result, off-target cleavage in T-cells may lead to undesirable side effects for patients, and consequently could cause delays, interruptions or suspensions of clinical trials and delays or denial of regulatory approval by the FDA or other regulatory authorities. Because the products we develop have had only very limited clinical application, we do not yet have sufficient information to know whether any of our product candidates will cause undesirable side effects.

[Table of Contents](#)

Any undesirable side effects could cause us, our collaborators or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other regulatory authorities. Further, if the product candidates we develop receive marketing approval and we or others identify undesirable side effects caused by the products or any other similar products after the approval, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw or limit their approval of the products or require the addition of labeling statements, such as a “boxed” warning or a contraindication;
- we or our collaborators may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we or our collaborators may be required to perform additional post marketing safety studies or post marketing safety registries;
- we or our collaborators may be required to change the way the products are distributed or administered or conduct additional clinical trials;
- we or our collaborators may decide to remove the products from the marketplace;
- we could be sued and held liable for injury caused to individuals exposed to or taking our products or products developed with our technologies; and
- our reputation may suffer.

Any of these events could prevent the affected products from achieving or maintaining market acceptance and could substantially increase the costs of commercializing such products and significantly impact the ability of such products to generate revenues. In addition, with respect to product candidates developed by our collaborators, such events could prevent the affected products from reaching milestones that would trigger payments to Cellectis.

If the product candidates we develop do not achieve projected development and commercialization in the announced or expected timeframes, the further development or commercialization of our product candidates may be delayed, and our business may be harmed.

We sometimes estimate, or may in the future estimate, for planning purposes, the timing of the accomplishment of various scientific, clinical, manufacturing, regulatory and other product development objectives. These milestones may include our expectations regarding the commencement or completion of scientific studies, clinical trials, the submission of regulatory filings, the receipt of marketing approval or commercialization objectives. The achievement of many of these milestones may be outside of our control. All of these milestones are based on a variety of assumptions, including assumptions regarding capital resources and constraints, progress of development activities, and the receipt of key regulatory approvals or actions, any of which may cause the timing of achievement of the milestones to vary considerably from our estimates.

If we or our collaborators fail to achieve announced milestones in the expected timeframes, the commercialization of the product candidates may be delayed, our credibility may be undermined, and our business and results of operations may be harmed.

Further development and commercialization of our own product candidates will depend, in part, on strategic alliances with our collaborators. If our collaborators do not diligently pursue product development efforts, the advance of our own programs progress may be delayed and our revenues may be deferred.

We expect to continue to rely, to some extent, on our collaborators to provide funding in support of our own independent research and pre-clinical and clinical testing. Our technology is broad based, and we do not currently possess the financial resources necessary to fully develop and commercialize potential products that may result from our technologies or the resources or capabilities to complete the lengthy marketing approval processes that may be required for such products. Therefore, we plan to rely on strategic alliances to help us finance the development and commercialization of our own biopharmaceutical products. As a result, our success depends, in part, on our ability to collect milestone and royalty payments from our collaborators. To the extent our collaborators do not aggressively pursue product candidates for which we are entitled to such payments or pursue such product candidates ineffectively, we will fail to realize these significant revenue streams, which could have an adverse effect on our business and future prospects.

If collaborators with whom we currently have alliances, such as Allogene and Servier, or future collaborators with whom we may engage, are unable or unwilling to advance their programs, or if they do not diligently pursue product development and product approval, this may slow our progress and defer or negatively impact our revenues. Such failures would have an adverse effect on our ability to collect key revenue streams and, for this reason, would adversely impact our business, financial position and prospects. Our collaborators may assign, sublicense or abandon product candidates or we may have disagreements with our collaborators, which would cause associated product development to slow or cease. There can be no assurance that our current strategic alliances will continue or be successful, and we may require significant time to secure new strategic alliances because we need to effectively market the benefits of our technology to these future alliance partners, which may direct the attention and resources of our research and development personnel and management away from our primary business operations. Further, each strategic alliance arrangement will involve the negotiation of unique terms, and such negotiation efforts may not result in a strategic alliance or may result in unfavorable arrangements.

[Table of Contents](#)

The loss of existing or future collaboration agreements would not only delay or potentially terminate the possible development or commercialization of products derived from our technologies, but it may also delay or terminate our ability to test target candidates for specific genes. If any collaborator fails to conduct the collaborative activities successfully and in a timely manner, the pre-clinical or clinical development or commercialization of the affected product candidates or research programs would be delayed or could be terminated.

Under typical collaboration agreements, we would expect to receive revenue with respect to a CAR T-cell immunotherapy product based on achievement of specific milestones, as well as royalties based on a percentage of sales of the commercialized products. Achieving these milestones will depend, in part, on the efforts of our collaborator as well as, in most cases and for a limited period of time, our own. If we, or any collaborator, fails to meet specific milestones, then the strategic alliance may be terminated, which could reduce our revenues.

In addition, our collaboration agreements are generally terminable at will upon specified prior notice. If one or more collaborators terminates a collaboration agreement, this could have an adverse effect on our revenues. See “Item 4. Information on the Company – B. Business Overview – Our Strategic Alliances.

Even if we or our collaborators successfully complete clinical trials of product candidates, those candidates may not be commercialized successfully for other reasons.

Even if we or our collaborators successfully complete clinical trials for one or more of the product candidates, those candidates may not be commercialized for other reasons, including:

- failing to receive regulatory approvals required to market them as drugs;
- being subject to proprietary rights held by others;
- failing to comply with GMP requirements;
- being difficult or expensive to manufacture on a commercial scale;
- having adverse side effects that make their use less desirable;
- being inferior to existing approved drugs or therapies;
- failing to compete effectively with existing or new products or treatments commercialized by competitors; or
- failing to show long-term benefits sufficient to offset associated risks.

In addition, for any product candidates we develop through our strategic alliances, we will depend entirely upon the other party for marketing and sales of that product. These collaborators may not devote sufficient time or resources to the marketing and commercialization, or may determine not to pursue marketing and commercialization at all. Our business and results of operations will be negatively impacted by any failure of our collaborators to effectively market and commercialize an approved product.

Even if we obtain regulatory approval for a product candidate, our products will remain subject to ongoing regulatory requirements.

Even if we obtain regulatory approval in a jurisdiction for the product candidates we develop, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, and submission of safety and other post-market information. Any regulatory approvals received for the product candidates may also be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials, and surveillance to monitor the safety and efficacy of the product. For example, the holder of an approved BLA in the United States is obligated to monitor and report adverse events and any failure of a product to meet the specifications in the BLA. FDA guidance advises that patients treated with some types of gene therapy undergo follow-up observations for potential adverse events for as long as 15 years. Similarly, in the EU, pharmacovigilance obligations are applicable to all medicinal products. In addition to those, holders of a marketing authorization for gene or cell therapy products must detail, in their application, the measures they envisage to ensure follow-up of the efficacy and safety of these products. In cases of particular concern, marketing authorization holders for gene or cell therapy products in the EU may be required to design a risk management system with a view to identifying, preventing or minimizing risks, and may be obliged to carry out post-marketing studies. In the United States, the holder of an approved BLA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling or manufacturing process. Similar provisions apply in the EU. Advertising and promotional materials must comply with FDA rules and are subject to FDA review, in addition to other potentially applicable federal and state laws. Similarly, in the EU any promotion of medicinal products is highly regulated and, depending on the specific jurisdiction involved, may require prior vetting by the competent national regulatory authority.

[Table of Contents](#)

In addition, product manufacturers and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements and adherence to commitments made in the BLA or foreign marketing application. If we or a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured or if a regulatory agency disagrees with the promotion, marketing or labeling of that product, a regulatory agency may impose restrictions relative to that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing.

If we or our collaborators fail to comply with applicable regulatory requirements following approval of any of the product candidates we develop, national competent authorities may:

- issue a warning letter asserting a violation of the law;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval;
- suspend or terminate any ongoing clinical trials;
- refuse to approve a pending BLA or comparable foreign marketing application (or any supplements thereto) submitted by us or our collaborators;
- restrict the marketing, distribution or manufacturing of the product;
- seize or detain product or otherwise require the withdrawal or recall of product from the market;
- refuse to permit the import or export of products; or
- refuse to allow us to enter into supply contracts, including government contracts.

Any of the foregoing regulatory actions could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit the ability to commercialize products and generate revenues. In addition, the FDA's policies, and policies of foreign regulatory agencies, may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we or our collaborators are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or our collaborators are not able to maintain regulatory compliance, marketing approval that has been obtained may be lost and we may not achieve or sustain profitability, which would adversely affect our business, prospects, financial condition and results of operations.

We expect the product candidates we develop will be regulated as biological products, or biologics, and therefore they may be subject to competition sooner than anticipated.

The Biologics Price Competition and Innovation Act of 2009, or BPCIA, was enacted as part of the 2010 Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the ACA, to establish an abbreviated pathway for the approval of products that are biosimilar to or interchangeable with an FDA-approved biological product. The regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an approved biologic. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the reference product was approved under a BLA. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty.

We believe that any of the product candidates we develop that is approved in the United States as a biological product under a BLA should qualify for the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider the subject product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of the reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

Similarly in Europe, a biosimilar is defined as a biological medicine highly similar to another already approved biological medicine (the 'reference medicine'). Developers of biosimilars are required to demonstrate through comprehensive comparability studies with the reference medicine that:

[Table of Contents](#)

- their biological medicine is highly similar to the reference medicine, notwithstanding natural variability inherent to all biological medicines;
- there are no clinically meaningful differences between the biosimilar and the reference medicine in terms of safety, quality and efficacy.

Biosimilars can only be authorized once the period of data exclusivity on the reference medicine has expired. In general, this means that the biological reference medicine must have been authorized for at least eight years before another company can apply for approval of a similar biological medicine.

Even if we or our collaborators obtain and maintain approval for product candidates in the United States or another jurisdiction, we or our collaborators may never obtain approval for the same product candidates in other jurisdictions, which would limit market opportunities and adversely affect our business.

Approval of a product candidate in the United States by the FDA or by the requisite regulatory agencies in any other jurisdiction does not ensure approval of such product candidate by regulatory authorities in other countries or jurisdictions, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA. The approval process varies among countries and may limit our or our collaborators' ability to develop, manufacture, promote and sell our product candidates internationally. Failure to obtain marketing approval in international jurisdictions would prevent the product candidates from being marketed outside of the jurisdictions in which regulatory approvals have been received. In order to market and sell the product candidates in the EU and many other jurisdictions, we and our collaborators must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and may involve additional pre-clinical studies or clinical trials both before and post approval. In many countries, a product candidate must be approved for reimbursement before it can be approved for sale in that country. In some cases, the intended price for the product is also subject to approval. Further, while regulatory approval of a product candidate in one country does not ensure approval in any other country, a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory approval process in others. If we or our collaborators fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, the target market will be reduced and the ability to realize the full market potential of the subject product candidates will be harmed and our business may be adversely affected.

Depending on the results of clinical trials and the process for obtaining regulatory approvals in other countries, we or our collaborators may decide to first seek regulatory approvals of a product candidate in countries other than the United States, or we or our collaborators may simultaneously seek regulatory approvals in the United States and other countries, in which case we or our collaborators will be subject to the regulatory requirements of health authorities in each country in which we seek approvals. Obtaining regulatory approvals from health authorities in countries outside the United States and the EU is likely to subject us or our collaborators to risks in such countries that are substantially similar to the risks associated with obtaining approval in the United States or the EU described herein.

We plan to seek orphan drug status for some or all of our product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with such status, which may cause our revenue, if any, to be reduced.

We plan to seek orphan drug designation for some or all of our product candidates in specific orphan indications in which there is a medically plausible basis for the use of these products. Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States when there is no reasonable expectation that the cost of developing and making available the drug or biologic in the United States will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages, and user-fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. Although we intend to seek orphan product designation for some or all of our product candidates, we may never receive such designations.

If a product that has orphan drug designation subsequently receives the first FDA approval for a particular active ingredient for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a BLA, to market the same biologic for the same indication for seven years, except in limited circumstances such as a showing of clinical superiority to the product with orphan product exclusivity or if FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. Even if we obtain orphan drug designation for a product candidate, we may not be the first to obtain marketing approval for any particular orphan

indication due to the uncertainties associated with developing pharmaceutical products. Exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective, the disease or condition exceeded the population threshold, or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties can be approved for the same condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug with the same active moiety for the same condition if the FDA concludes that the later drug is safer, more effective, or makes a major contribution to patient care. Furthermore, the FDA can waive orphan exclusivity if we are unable to manufacture sufficient supply of our product.

Similarly, in Europe, a medicinal product may receive orphan designation under Article 3 of Regulation (EC) 141/2000. This applies to products that are intended for a life-threatening or chronically debilitating condition and either (a) such condition affects no more than five in 10,000 persons in the EU when the application is made, or (b) the product, without the benefits derived from orphan status, would unlikely generate sufficient return in the EU to justify the necessary investment. Moreover, in order to obtain orphan designation in the EU it is necessary to demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU, or if such a method exists, the product will be of significant benefit to those affected by the condition.

In the EU, orphan medicinal products are eligible for financial incentives such as reduction of fees or fee waivers and applicants can benefit from specific regulatory assistance and scientific advice. Products receiving orphan designation in the EU can receive ten years of market exclusivity, during which time no similar medicinal product for the same indication may be placed on the market. An orphan product can also obtain an additional two years of market exclusivity in the EU for pediatric studies (Article 37, Regulation 1901/2006). However, the 10-year market exclusivity may be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan designation—for example, if the product is sufficiently profitable not to justify maintenance of market exclusivity. Additionally, marketing authorization may be granted to a similar product for the same indication at any time if:

- the second applicant can establish that its product, although similar, is safer, more effective or otherwise clinically superior;
- the first applicant consents to a second orphan medicinal product application; or
- the first applicant cannot supply enough orphan medicinal product.

Although we may seek fast-track designation from the FDA for some or all of our product candidates, there is no assurance that such designation will be granted or, if granted that it will lead to a faster development or regulatory review or approval process.

We may seek fast-track designation and review for some or all of our product candidates. If a drug is intended for the treatment of a serious or life-threatening condition or disease, the drug sponsor may apply for FDA fast track designation. The FDA has broad discretion whether or not to grant this designation. Thus, even if we believe a particular product candidate is eligible for this designation, we cannot assure that the FDA would decide to grant it. Moreover, even if we do receive fast track designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures and such designation does not assure ultimate approval. In addition, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program.

Although we may seek a regenerative medicine advanced therapy (RMAT) designation, a breakthrough therapy designation and/or priority medicines (PRIME) designation for our product candidates, there is no assurance that such designations will be granted or, if granted that they will lead to a faster development or regulatory review or approval process.

We may seek a RMAT designation or a breakthrough therapy designation from the FDA for some or all of our product candidates.

A drug is eligible for RMAT designation if, (i) the drug is a regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, except for those regulated solely under Section 361 of the Public Health Service Act and part 1271 of Title 21, Code of Federal Regulations; (ii) the drug is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and (iii) preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such disease or condition.

A breakthrough therapy is defined as a product that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints.

We may also seek a PRIME designation from the European Medicines Agency (or EMA) for some or all of our product candidates. Through a PRIME designation, the EMA offers support to medicine developers to optimize the generation of robust data on a medicine's benefits and risks and enable accelerated assessment of medicines applications. This scheme focuses on medicines that may offer a major therapeutic advantage over existing treatments, or benefit patients without treatment options. These medicines are considered priority medicines by the EMA. To be eligible for a PRIME designation, a medicine has to show its potential to benefit patients with unmet medical needs based on early clinical data.

For product candidates that obtain a RMAT, PRIME or breakthrough therapy designation, interaction and communication between the FDA or the EMA (as applicable) and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. However, the granting of such designations is within the discretion of the FDA or the EMA, respectively. In any event, the receipt of a RMAT or a PRIME designation or a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to products considered for approval under conventional agencies procedures and does not assure ultimate approval. In addition, even if one or more of our product candidates qualify as RMAT or a PRIME or a breakthrough therapy, the FDA or the EMA may later decide that such product no longer meet the conditions for qualification.

Even if any of our product candidates are commercialized, they may not be accepted by physicians, patients, or the medical community in general, and may also become subject to market conditions that could harm our business.

Even if any of our product candidates receive marketing approval, the medical community may not accept such products as adequately safe and efficacious for their indicated use. Moreover, physicians may choose to restrict the use of the product, if, based on experience, clinical data, side-effect profiles and other factors, they are not convinced that the product is preferable to existing drugs or treatments. We cannot predict the degree of market acceptance of any product candidate that receives marketing approval, which will depend on a number of factors, including, but not limited to:

- the demonstration of the clinical efficacy and safety of the product;
- the approved labeling for the product and any required warnings;
- the advantages and disadvantages of the product compared to alternative treatments;
- our and any collaborator's ability to educate the medical community about the safety and effectiveness of the product;
- the coverage and reimbursement policies of government and commercial third-party payors pertaining to the product; and
- the market price of the product relative to competing treatments.

Product liability lawsuits could divert our resources, result in substantial liabilities and reduce the commercial potential of our product candidates.

The risk that we may be sued on product liability claims is inherent in the development and commercialization of biopharmaceutical products. Side effects of, or manufacturing defects in, products that we develop could result in the deterioration of a patient's condition, injury or even death. For example, our liability could be sought by patients participating in the clinical trials for our product candidates as a result of unexpected side effects resulting from the administration of these product candidates. Once a product is approved for sale and commercialized, the likelihood of product liability lawsuits increases. Criminal or civil proceedings might be filed against us by patients, regulatory authorities, our collaborators, biopharmaceutical companies and any other third party using or marketing our products. These actions could include claims resulting from acts by our partners, licensees and subcontractors, over which we have little or no control.

In addition, regardless of merit or eventual outcome, product liability claims may result in: impairment of our business reputation; withdrawal of clinical trial participants; initiation of investigations by regulators; costs due to related litigation; distraction of management's attention from our primary business; substantial monetary awards to trial participants, patients or other claimants; loss of revenue; exhaustion of any available insurance and our capital resources; the inability by us and our collaborators to commercialize our product candidates; and decreased demand for our product candidates, if approved for commercial sale.

We maintain product liability insurance coverage for damages caused by our product candidates, including clinical trial insurance coverage, with coverage limits that we believe are customary for companies in our industry. This coverage may be insufficient to reimburse us for any expenses or losses we may suffer. In addition, in the future, we may not be able to obtain or maintain sufficient insurance coverage at an acceptable cost or to otherwise protect against potential product or other legal or administrative liability claims by us or our partners, licensees or subcontractors, which could prevent or inhibit the commercial production and sale of any of our product candidates that receive regulatory approval, which could adversely affect our business.

Coverage and reimbursement may be limited or unavailable in certain market segments for our product candidates, which could make it difficult for us to sell our product candidates profitably.

Successful sales of our product candidates, if approved, depend, in part, on the availability of adequate coverage and reimbursement from third-party payors.

Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid in the United States, and commercial payors are critical to new product acceptance.

Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Policies for coverage and reimbursement for products vary among third-party payors. As a result, obtaining coverage and reimbursement approval of a product from a government or other third-party payor is a time-consuming and costly process that could require us or our collaborators to provide to each payor supporting scientific, clinical and cost-effectiveness data for the use of our products on a payor-by-payor basis, with no assurance that coverage and adequate reimbursement will be obtained. Even if we obtain coverage for a given product, the resulting reimbursement payment rates might not be adequate for us to achieve or sustain profitability or may require co-payments that patients find unacceptably high. Additionally, third-party payors may not cover, or provide adequate reimbursement for, long-term follow-up evaluations required following the use of our product candidates.

Patients are unlikely to use our product candidates unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our product candidates. Because our product candidates represent new approaches to the treatment of cancer and accordingly, may have a higher cost than conventional therapies and may require long-term follow up evaluations, the risk that coverage and reimbursement rates may be inadequate for us to achieve profitability may be elevated.

Government restrictions on pricing and reimbursement, as well as other healthcare payor cost-containment initiatives, may negatively impact our ability to generate revenues if we obtain regulatory approval for any of our product candidates.

Third-party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. The continuing efforts of various governments, insurance companies, managed care organizations and other payors to contain or reduce healthcare costs may adversely affect our ability or our collaborators' ability to set a price for our products that we believe is fair, to achieve profitability, and to obtain and maintain market acceptance by patients and the medical community;

In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory initiatives to contain healthcare costs. By way of example, in the United States, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the ACA) was enacted in March 2010.

The ACA expanded health care coverage through Medicaid expansion and the implementation of a tax penalty for individuals who do not maintain mandated health insurance coverage (the so-called 'individual mandate'). The ACA also contains a number of provisions that affect coverage and reimbursement of drug products. Considerable uncertainty remains regarding the implementation and impact of the ACA. Under the Trump administration, there have been ongoing Congressional and judicial efforts to modify or repeal all or certain provisions of the ACA. For example, tax reform legislation was enacted at the end of 2017 that eliminated the individual mandate beginning in 2019. In December 2018, a federal district court, in a challenge brought by a number of state attorneys general, found the ACA unconstitutional in its entirety because, once Congress repealed the individual mandate provision, there was no longer a basis to rely on Congressional taxing authority to support enactment of the law. In December 2019, a federal appeals court agreed that the individual mandate was unconstitutional, but remanded the case back to the district court to assess more carefully whether any provisions of the ACA were severable and could survive. Pending action by the district court and resolution of any appeals, which could take an extended period of time, the ACA remains operational. We cannot predict the ultimate content, timing or effect of any changes to the ACA or other federal and state reform efforts, and there can be no assurance that any such health care reforms will not adversely affect our future business and financial results.

U.S. federal and state governments have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, waivers from Medicaid drug rebate law requirements, restrictions

on reimbursement and requirements for substitution of generic products for branded prescription drugs. The private sector has also sought to control healthcare costs by limiting coverage or reimbursement or requiring discounts and rebates on products. We are unable to predict what additional legislation, regulations or policies, if any, relating to the healthcare industry or third party coverage and reimbursement may be enacted in the future or what effect such legislation, regulations or policies would have on our business. Any cost containment measures could significantly decrease the available coverage and the price we might establish for our potential products, which would have an adverse effect on our net revenues and operating results.

Moreover, this political and legislative uncertainty could harm our and our collaborators' ability to market any products and generate revenues.

Cost containment measures that healthcare payors and providers are instituting and the effect of further healthcare reform could significantly reduce potential revenues from the sale of any of our product candidates approved in the future, and could cause an increase in our compliance, manufacturing, or other operating expenses.

In some countries, the proposed pricing for a biopharmaceutical product must be approved before it may be lawfully marketed. In addition, in certain foreign markets, the pricing of a biopharmaceutical product is subject to government control and reimbursement may in some cases be unavailable. The requirements governing drug pricing vary widely from country to country. For example, the EU provides options for its Member States to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. An EU Member State may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for biopharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, biopharmaceutical products launched in the EU do not follow price structures of the United States and generally tend to have significantly lower prices.

We believe that pricing pressures will continue and may increase, which may make it difficult for us to sell our potential products that may be approved in the future at a price acceptable to us or any of our future collaborators.

Our future profitability, if any, depends, in part, on our ability to penetrate global markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future profitability, if any, will depend, in part, on our ability and the ability of our collaborators to commercialize the product candidates we develop in markets throughout the world. Commercialization of our product candidates in various markets could subject us to additional risks and uncertainties, including:

- obtaining, on a country-by-country basis, the applicable marketing authorization from the competent regulatory authority;
- the burden of complying with complex and changing regulatory, tax, accounting and legal requirements in each jurisdiction that we pursue;
- differing medical practices and customs affecting acceptance in the marketplace;
- import or export licensing requirements;
- country specific requirements related to the cells used as starting material for manufacturing;
- language barriers for technical training, healthcare professionals and patients documents;
- reduced protection of intellectual property rights in some foreign countries;
- foreign currency exchange rate fluctuations; and
- patients' ability to obtain reimbursement for products in various markets.

Sales of the products could also be adversely affected by the imposition of governmental controls, political and economic instability, trade restrictions and changes in tariffs.

We are subject to healthcare laws and regulations, which could expose us to the potential for criminal sanctions, civil penalties, exclusion from government healthcare programs, contractual damages, reputational harm and diminished profits and future earnings.

Healthcare providers, physicians and others will play a primary role in the recommendation and prescription of our products, if approved. Our arrangements with such persons and third-party payors must be structured in accordance with the broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we research, market, sell and distribute our products, if we obtain marketing approval. Restrictions under applicable federal, state and foreign healthcare laws and regulations include but are not limited to the following:

[Table of Contents](#)

- The federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration (including any kickback, bribe or rebate), directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase or lease, order or recommendation of, any item, good, facility or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid.
- The federal civil and criminal false claims laws and civil monetary penalties laws, which impose criminal and civil penalties, including those from civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, claims for payment that are false or fraudulent or making a false statement to avoid, decrease, or conceal an obligation to pay money to the federal government.
- The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program or knowingly and willingly falsifying, concealing or covering up a material fact or making false statements relating to healthcare matters.
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, which impose certain requirements on covered entities and their business associates, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information.
- The federal transparency requirements under the Physician Payments Sunshine Act, enacted as part of the ACA, that require applicable manufacturers of covered drugs, devices, biologics and medical supplies to track and annually report to CMS payments and other transfers of value provided to physicians and teaching hospitals and certain ownership and investment interests held by physicians or their immediate family members.
- Analogous laws and regulations in various U.S. states, such as state anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payor, including commercial insurers, state marketing and/or transparency laws applicable to manufacturers that may be broader in scope than U.S. federal requirements, state laws that require biopharmaceutical companies to comply with the biopharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. government, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect as HIPAA.
- Similar legislation is applicable in other countries such as EU Member States, including by way of example and without limitation: the UK's Bribery Act 2010 or the French Decree No 2013-414 on Transparency of Benefits Given by Companies Manufacturing or Marketing Health and Cosmetic Products for Human Use (*Décret n° 2013-414 du 21 mai 2013 relatif à la transparence des avantages accordés par les entreprises produisant ou commercialisant des produits à finalité sanitaire et cosmétique destinés à l'homme*).

Ensuring that our business arrangements with third parties comply with applicable healthcare laws and regulations could be costly. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations were found to be in violation of any of any laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, individual imprisonment and exclusion from government funded healthcare programs, such as Medicare and Medicaid, any of which could substantially disrupt our operations. If the physicians or other providers or entities with whom we expect to do business are found not to be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Risks Related to Our Reliance on Third Parties

We expect to continue to rely on third parties to conduct some aspects of our development programs and these third parties may not perform satisfactorily.

We do not, and do not expect in the future to, independently conduct all aspects of our product manufacturing, quality control, protocol development, material supply, research and pre-clinical development, translational activities and clinical testing as well as distribution. We rely, and will continue to rely, on third parties for some of these activities. Under certain circumstances, these third parties may be entitled to terminate their engagements with us. If we need to enter into alternative arrangements, it could delay our product development activities.

In addition, in connection with our engagement of third parties, we control only certain aspects of their activities. Our reliance on these third parties for product manufacturing, quality control, protocol development, material supply, research and pre-

clinical development, translational activities and clinical testing and distribution activities reduces our control over these activities but does not relieve us of our responsibility to ensure compliance with all required regulations and study and trial protocols. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct their activities in accordance with regulatory requirements and our stated study and trial plans and protocols, or if there are disagreements between us and these third parties, we may not be able to complete, or may be delayed in completing, the pre-clinical studies and clinical trials required to support future regulatory submissions and approval of the product candidates we develop. In some such cases we may need to locate an appropriate replacement third-party relationship, which may not be readily available or on acceptable terms, which would cause additional delay with respect to the approval of our product candidates and would thereby have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, reliance on third-party manufacturers, suppliers, research organizations and/or distributors entails risks to which we would not be subject if we conducted the above-mentioned activities ourselves, including:

- that our third-party manufacturers, research organizations or distributors may have little or no experience with our or comparable products and may therefore require a significant amount of support from us in order to implement and maintain the infrastructure and processes required to manufacture, test or distribute our product candidates;
- that our contract manufacturers, research organizations and distributors are not able to execute our manufacturing, testing or distribution procedures and other logistical support requirements appropriately;
- that our contract manufacturers may not perform as agreed or in compliance with applicable laws and requirements, or may not devote sufficient resources to our products or may not remain in the contract manufacturing business for the time required to supply investigational products for our clinical trials or to successfully produce, store and supply our products once approved;
- that we may not own, have equivalent necessary rights in, or access to the intellectual property rights to, or know how residing in any improvements or developments made by our third-party manufacturers or research organizations in the manufacturing process or testing of our products;
- that such third parties may experience business disruptions, such as bankruptcy, that disrupt their ability to perform their obligations to us.

Any of these events could lead to manufacturing, supply and/or clinical study delays or failure to obtain regulatory approval, or impact our ability to successfully commercialize future products.

Our existing collaborations, or any future collaboration arrangements, may not be successful, which could significantly limit the likelihood of receiving the potential economic benefits of the collaboration and adversely affect our ability to develop and commercialize our product candidates.

We have entered into strategic alliances with collaborators, such as Allogene and Servier, under which our collaborators have exclusive development and commercialization rights with respect to certain product candidates, and we may in the future enter into additional collaborations. Our existing collaborations, and any future collaborations we enter into, may pose a number of risks, including the following:

- collaborators may not perform or prioritize their obligations as expected;
- the clinical trials conducted as part of such collaborations may not be successful;
- collaborators may not pursue development and commercialization of product candidates that achieve regulatory approval or may elect not to pursue development or commercialization of product candidates based on clinical trial results, changes in the collaborators' focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for clinical trials, stop a clinical trial, or abandon a product candidate;
- collaborators could develop, independently or with third parties, products that compete directly or indirectly with our product candidates;
- product candidates developed pursuant to collaboration arrangements may be viewed by our collaborators as competitive with their other own product candidates or products, which may cause them to cease to devote resources to the product candidate's development or commercialization;
- a collaborator may not commit sufficient resources to the commercialization, marketing and distribution of any product candidate;

Table of Contents

- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation, or the preferred course of development, may cause delays or termination of the development or commercialization of such product candidates, or may result in time-consuming and expensive legal proceedings;
- collaborators may not properly maintain, protect, defend or enforce intellectual property rights or may improperly use proprietary information;
- disputes may arise with respect to the ownership of intellectual property developed pursuant to our collaborations;
- collaborators may infringe, misappropriate or otherwise violate third party intellectual property rights, which may expose us to litigation and potential liability;
- collaborations may be terminated for the convenience of the collaborator and, if terminated, the development of product candidates may be delayed or stopped; and
- we could face significant competition in seeking appropriate collaborators, and the negotiation process is time-consuming and complex.

If our collaborations do not result in the successful development and commercialization of product candidates, or if one of our collaborators terminates its agreement with us, we may not receive anticipated milestone or royalty payments under the collaborations. If we do not receive anticipated payments, our development of product candidates could be delayed and we may need additional resources to develop our product candidates. All of the risks relating to product development, regulatory approval and commercialization described in this Annual Report apply to the activities of our collaborators.

Significant regulation applies to the manufacturing of our products and the manufacturing facilities on which we rely may not meet regulatory requirements or may have limited capacity.

All entities involved in the preparation of products for clinical studies or commercial sale, including our existing contract manufacturers for our product candidates, are subject to extensive regulations. For example, in the United States, components of a finished CAR T-cell immunotherapy product approved for commercial sale or used in clinical studies must be manufactured in accordance with the current Good Manufacturing Practices (cGMP) requirements. Similarly, all investigational medicinal products in the EU must be manufactured in compliance with Good Manufacturing Practices, or GMP. The FDA's cGMP regulations and comparable regulations in other jurisdictions govern manufacturing processes and procedures (including record keeping) and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of adventitious agents or other contaminants, or to inadvertent changes in the properties or stability of the product candidates we develop that may not be detectable in final product testing. In the United States, we or our contract manufacturers must supply all necessary documentation in support of a BLA on a timely basis and must adhere to the FDA's cGMP requirements enforced by the FDA through its facilities inspection program. Our facilities and quality systems and the facilities and quality systems of our third-party contractors must pass a pre-approval inspection for compliance with the applicable regulations as a condition of regulatory approval of our product candidates. In addition, the regulatory authorities may, at any time, inspect a manufacturing facility involved with the preparation and/or control of our product candidates as well as the associated quality systems for compliance with the regulations applicable to the activities being conducted.

Similarly, in the EU, Directive 2003/94/EC lays down the principles and guidelines of GMP in respect of medicinal products and investigational medicinal products and requires that products are consistently produced and controlled in accordance with the applicable quality standards. It also requires that medicinal products and investigational medicinal products that are imported from third countries are manufactured in accordance with standards at least equivalent to the GMP standards laid down in the EU. Directive 2003/94/EC, together with the detailed EU Guidelines on GMP, govern the quality management, personnel, premises, documentation, production operations, quality control, outsources activities, complaints and product recall and self-inspection. GMP inspections are performed by the competent authorities of the EU Member States, and are coordinated by the EMA in the case of medicinal products that are authorized through the EU centralized procedure.

If we or any of our third-party manufacturers fail to provide appropriate products or maintain regulatory compliance, the regulator can impose regulatory sanctions including, among other things, the imposition of a hold on clinical trials, the refusal to permit a clinical trial to commence, the refusal to use certain batches of product candidates intended to be used in the clinical trials, the refusal to approve a pending application for a new product, the revocation or non-renewal of a pre-existing approval, or the refusal to accept some non-clinical and/or clinical data generated with material for which that third-party was responsible. As a result, our business, financial condition and results of operations may be materially harmed.

In addition, if supply from one approved manufacturer or supplier is interrupted, there could be a significant disruption in commercial and/or clinical supply of our products. Identifying and engaging an alternative manufacturer or supplier that complies with applicable regulatory requirements could result in further delay. Applicable regulatory agencies may also require additional studies if a new manufacturer or supplier is relied upon in connection with commercial production. Switching manufacturers or

Table of Contents

suppliers may involve substantial costs and time and is likely to result in a delay in our desired clinical and commercial timelines. Although we have started construction of two of our own manufacturing facilities, we may never be successful in developing our own manufacturing capabilities. Even if we are successful, developing our own manufacturing capabilities may be costlier than we anticipate or may result in delays.

These factors could cause commercialization of our product candidates, cause us to incur higher costs, or prevent us from commercializing our products successfully. Furthermore, if our suppliers fail to meet contractual requirements, and we are unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, our clinical studies may be delayed or we could lose potential revenue.

Access to raw materials, starting material and products necessary for the conduct of clinical trials and manufacturing of our product candidates is not guaranteed.

We are dependent on third parties for the supply of various of materials, including biological materials, that are necessary to produce our product candidates. The supply of these materials could be reduced or interrupted at any time. In such case, we may not be able to find other acceptable suppliers or on acceptable terms. If key suppliers or manufacturers are lost or the supply of the materials is diminished or discontinued, we may not be able to develop, manufacture, and market our product candidates in a timely and competitive manner. In addition, biological materials are subject to stringent manufacturing process and rigorous testing. Delays in the completion and validation of facilities and manufacturing processes of these materials could adversely affect the ability to complete trials and commercialize our products candidates. In addition, our suppliers or manufacturers may, from time to time, change their internal manufacturing or testing processes and procedures. Such changes may require us to perform or have performed studies to demonstrate equivalence of the materials produced or tested under such new procedures. Such equivalence testing may impose significant delays in the development of our product candidates. Furthermore, our suppliers may face quality issues or findings from regulatory authorities' inspections that could lead to delays or interruption of the supply of our product candidates.

We and our collaborators rely on third parties to conduct, supervise and monitor clinical studies, and if these third parties perform in an unsatisfactory manner, it may harm our business.

We and our collaborators rely on medical institutions, clinical investigators, contract research organizations, or CROs, contract laboratories, and collaborators to carry out or otherwise assist us in connection with our or their clinical trials and to perform data collection and analysis. While we will and our collaborators have agreements governing their activities, we and they will have limited influence over such third parties' actual performance and will control only certain aspects of such third parties' activities. Nevertheless, we or our collaborators will be responsible for ensuring that each of such clinical trials is conducted in accordance with the applicable protocol, legal, regulatory, ethical and scientific standards, and reliance on the third party does not relieve us or our collaborators of our respective regulatory responsibilities.

We, our collaborators, and our CROs are required to comply with the FDA's and other regulatory authorities' good clinical practices, or GCP, cGMP, good laboratory practices, or GLP, and other applicable requirements for conducting, recording and reporting the results of pre-clinical studies and clinical trials to assure that the data and reported results are credible and accurate and that the rights, integrity and confidentiality of clinical trial participants are protected. Regulatory authorities around the world, including the FDA and European authorities, enforce these requirements through periodic inspections of study sponsors, CROs, principal investigators and clinical trial sites. If we, our collaborators, our CROs, our investigators or trial sites fail to comply with applicable GCP, GLP, GMP or other applicable regulatory requirements, the clinical data generated in future clinical trials may be deemed unreliable and the FDA, EMA or other regulatory authorities around the world may require the performance of additional clinical trials before issuing any marketing authorizations for the relevant product candidates. Upon inspection, the FDA or EMA may determine that clinical trials did not comply with GCP, GLP and GMP requirements, which may render the data generated in those trials unreliable or otherwise not usable for the purpose of supporting the marketing authorization applications for the relevant products.

Clinical trials conducted in reliance on third parties may be delayed, suspended, or terminated if:

- we are unable to negotiate agreements with third parties under reasonable terms;
- termination or non-renewal of agreements with third parties occurs in a manner or at a time that is costly or damaging to us;
- the third parties do not successfully carry out their contractual duties or fail to meet regulatory obligations or expected deadlines; or
- the quality or accuracy of the data obtained by third parties is compromised due to their failure to adhere to clinical protocols, regulatory or ethical requirements, or for other reasons.

[Table of Contents](#)

Third party performance failures may increase our costs, delay our ability to obtain regulatory approval, and delay or prevent starting or completion of clinical trials and delay or prevent commercialization of our product candidates. While we believe that there are numerous alternative sources to provide these services, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without incurring delays or additional costs.

We may enter into agreements with third parties to sell, distribute and/or market any of the products candidates we develop for which we obtain regulatory approval, which may adversely affect our ability to generate revenues.

Given our early development stage, we have no experience in sales, marketing and distribution of biopharmaceutical products. However, if any of our product candidates obtain marketing approval, we intend to develop sales and marketing capacity, either alone or with partners, either through contracts or licenses. Outsourcing sales, distribution and marketing may subject us to a variety of risks, including:

- our inability to exercise direct control over sales, distribution and marketing activities and personnel;
- failure or inability of contracted sales personnel to obtain access to or persuade adequate numbers of physicians to prescribe our products; and
- potential disputes with third parties concerning distribution, sales and marketing expenses, calculation of royalties, and sales and marketing strategies.

If we are unable to partner with a third party that has adequate sales, marketing, and distribution capabilities, we may have difficulty commercializing our product candidates, which would adversely affect our business, financial condition, and ability to generate product revenues.

Our reliance on third parties and our collaborations require us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Because we rely on third parties for the advancement of our products platform, pre-clinical testing, quality control, clinical trials, translational activities and manufacturing activities, we must, at times, share trade secrets with them. The sharing of our trade secrets with certain collaborators and CMOs may arise from our collaborations with Servier and Allogene, any collaborations we may enter into in the future, as well as our agreements with our past, present or future CMOs. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, subcontractors, advisors, employees and consultants prior to beginning research, services or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, such as trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have a material adverse effect on our business. In addition, agreements with third parties typically restrict the ability of such third parties to publish data potentially relating to our trade secrets. Our academic collaborators typically have rights to publish data, provided that we are notified in advance and may delay publication for a specified time in order to secure our intellectual property rights arising from the strategic alliance. In other cases, publication rights are controlled exclusively by us, although in some cases we may share these rights with other parties. We also conduct joint research and product development that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements. Our collaborators or CMOs may be acquired by competitors, which may increase the risk that these entities may breach their confidentiality obligations and share our confidential information with the acquirer. For example, in April 2019, Novartis announced its acquisition of CellForCure, which serves as a CMO for us.

Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of these agreements, independent development or publication of information including our trade secrets in cases where we do not have proprietary or otherwise protected rights at the time of publication. A competitor's discovery of our trade secrets would impair our competitive position and have an adverse impact on our business.

Risks Related to Calyxt, Its Business and Operations

Calyxt faces significant competition and many of its competitors have substantially greater financial, technical and other resources than it does.

The market for plant-based technology products is highly competitive, and Calyxt faces significant direct and indirect competition in several aspects of its business. Competition for improving plant genetics comes from conventional and advanced

plant breeding techniques, as well as from the development of advanced biotechnology traits. Competition for providing more nutritious ingredients for food companies come from chemical-based ingredients, additives and substitutes, which are developed by various companies. Mergers and acquisitions in the plant science, specialty food ingredient and agricultural biotechnology, seed and chemical industries may result in even more resources being concentrated among a smaller number of Calyxt's competitors. Most of these competitors have substantially greater financial, technical, marketing, sales, distribution and other resources than Calyxt does, such as larger R&D staff, more experienced marketing and manufacturing organizations and more well-established sales forces. As a result, Calyxt may be unable to compete successfully against its current or future competitors, which may result in price reductions, reduced margins and the inability to achieve market acceptance for its products. We expect Calyxt to continue to face significant competition in the markets in which Calyxt intends to commercialize its products.

Many of Calyxt's competitors engage in ongoing R&D, and technological developments by Calyxt's competitors could render its products less competitive or obsolete, resulting in reduced sales compared to our expectations. Calyxt's ability to compete effectively and to achieve commercial success depends, in part, on Calyxt ability to: control manufacturing and marketing costs; effectively price and market Calyxt's products; successfully develop an effective marketing program and an efficient supply chain; develop new products with properties attractive to customers; and commercialize its products quickly without incurring major regulatory costs. Calyxt may not be successful in achieving these factors and any such failure may adversely affect its business, results of operations and financial condition.

From time to time, certain seed and chemical companies that are potential competitors of Calyxt may seek new traits or trait development technologies and may seek to license its technology. Calyxt has, in the past, entered such licensing arrangements and may continue to enter such arrangements in the future. Some of these companies may have significantly greater financial resources and may even compete with Calyxt's business. In such circumstances, competitors could use its technologies to develop their own products that would compete with Calyxt's product candidates.

Calyxt also anticipates increased competition in the future as new companies enter the market and new technologies become available, particularly in the area of gene editing. Calyxt's technology may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of Calyxt's competitors that are more effective or that enable them to develop and commercialize products more quickly or with lower expense than Calyxt is able to do. At the same time, the expiration of patents covering existing products reduces the barriers to entry for competitors. If for any reason Calyxt's technology becomes obsolete or uneconomical relative to its competitors' technologies, this would prevent or limit Calyxt's ability to generate revenues from the commercialization of Calyxt's products.

Calyxt's business activities are currently conducted at a limited number of locations, which makes Calyxt susceptible to damage or business disruptions caused by natural disasters or acts of vandalism.

Calyxt's current headquarters and R&D facilities, which include an office, labs, greenhouses, field testing acreage, and a demonstration test kitchen, are in Roseville, Minnesota. Calyxt's seed production takes place primarily in the United States and its territories with contra season production also occurring in Argentina. Third party warehousing for seed storage, and Calyxt's limited number of processing partners (e.g. storage, transportation, crushers and refiners) are all located in the Upper Midwest region of the United States. Calyxt takes precautions to safeguard its facilities, including insurance, health and safety protocols, and off-site storage of critical research results and computer data. Particularly in the case of insurance, Calyxt's insurance may not cover certain losses, or Calyxt's losses may exceed its coverage limits. A natural disaster, such as a hurricane, drought, fire, flood, tornado, earthquake, or other intentional or negligent acts, including acts of vandalism, could damage or destroy Calyxt's equipment, inventory, development projects, field trials or data, and cause Calyxt to incur significant additional expenses to repair or replace the damaged physical facilities, which in the case of seed production may be the result of years of development work that is not easily or quickly reproduced, and increase the development schedule for Calyxt's product pipeline candidates.

To compete effectively, Calyxt must introduce new products that achieve market acceptance.

In order to remain competitive and increase revenue, Calyxt must introduce new products from its pipeline of product candidates. If Calyxt fails to anticipate or respond to technological developments, market requirements, or consumer preferences, or if Calyxt is significantly delayed in developing and introducing products, Calyxt's revenues will not increase.

Development of successful agricultural products using gene-editing technologies requires significant levels of investment in R&D, including laboratory, greenhouse and field testing, to demonstrate product effectiveness and can take several years or more. Calyxt incurred R&D expenses, including non-cash stock compensation expenses of \$12.2 million in the year ended December 31, 2019, \$10.4 million in the year ended December 31, 2018, and \$11.5 million in the year ended December 31, 2017. Calyxt must commit significant resources and may incur obligations (such as royalty obligations or milestone fees) to develop new products before knowing whether its investments will result in products the market will accept and without knowing the levels of revenue, if any, that may be derived from these products.

[Table of Contents](#)

Development of new or improved agricultural products involves risks of failure inherent in the development of products based on innovative and complex technologies. These risks include the possibility that:

- Calyxt's products may not perform as expected in the field;
- Calyxt's products may not receive necessary regulatory permits and governmental clearances in the markets in which Calyxt intends to sell them;
- consumer preferences, which are unpredictable and can vary greatly, may change quickly, making Calyxt's products no longer desirable;
- Calyxt's competitors may develop new products that taste better or have other more appealing characteristics than Calyxt's products;
- Calyxt's products may be viewed as too expensive by customers as compared to competitive products;
- Calyxt's products may be difficult to produce on a large scale or will not be economical to grow;
- intellectual property and other proprietary rights of third parties may prevent Calyxt or its collaborators from marketing and selling Calyxt's products;
- Calyxt may be unable to patent or otherwise obtain intellectual property protection for its discoveries in the necessary jurisdictions;
- Calyxt or its customers may be unable to fully develop or commercialize products in a timely manner or at all; and
- third parties may develop superior or equivalent products.

Accordingly, if Calyxt experiences any significant delays in the development or introduction of new products or if its new products do not achieve market acceptance, Calyxt's business, operating results and financial condition would be adversely affected.

Any collaboration arrangements that Calyxt may enter in the future may not be successful, which could adversely affect Calyxt's ability to develop and commercialize its product candidates.

Calyxt may seek collaboration arrangements with third parties for the development or commercialization of its product candidates depending on the merits of retaining commercialization rights for itself as compared to entering collaboration arrangements. Calyxt will face, to the extent that it decides to enter collaboration arrangements, significant competition in seeking appropriate partners. Moreover, collaboration arrangements are complex and time-consuming to negotiate, document, implement and maintain. Calyxt may not be successful in its efforts to establish and implement collaboration or other alternative arrangements should it so chose to enter such arrangements. The terms of any collaborations or other arrangements that Calyxt may establish may not be favorable to Calyxt or to us.

The success of its collaboration arrangements will depend heavily on the efforts and activities of Calyxt's partners. Collaborations are subject to numerous risks, which may include that:

- partners have significant discretion in determining the efforts and resources that they will apply to R&D partnerships;
- partners may not pursue development and commercialization of Calyxt's product candidates or may elect not to continue or renew development or commercialization programs based on trial results, changes in their strategic focus due to the acquisition of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- partners may delay trials, provide insufficient funding for a trial program, stop a trial, abandon a product candidate, repeat or conduct new trials or require a new formulation of a product candidate for testing;
- partners could independently develop, or develop with third parties, products that compete directly or indirectly with Calyxt's products or product candidates;
- a partner with marketing, manufacturing and distribution rights to one or more products may not commit enough resources to or otherwise not perform satisfactorily in carrying out these activities;
- Calyxt could grant exclusive rights to its partners that would prevent Calyxt from collaborating with others;
- partners may not properly maintain or defend intellectual property rights or may use Calyxt's intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate Calyxt's intellectual property or proprietary information or expose Calyxt to potential liability;
- disputes may arise between Calyxt and a partner that causes the delay or termination of the research, development or commercialization of Calyxt's current or future products or that results in costly litigation or arbitration that diverts management attention and resources;
- partnerships may be terminated, and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable current or future products;

[Table of Contents](#)

- partners may own or co-own intellectual property covering Calyxt's products that results from it partnering with them, and in such cases, Calyxt would not have the exclusive right to develop or commercialize such intellectual property; and
- a partner's sales and marketing activities or other operations may not follow applicable laws resulting in civil or criminal proceedings.

If ongoing or future field trials are unsuccessful, Calyxt may be unable to complete the development of product candidates on a timely basis or at all.

Calyxt relies on field trials to demonstrate the efficacy of product candidates that it has developed and evaluated in greenhouse conditions. Field trials allow Calyxt to test product candidates in the field as well as to increase seed production, and to measure performance across multiple geographies and conditions. Successful completion of field trials is critical to the success of Calyxt's product development efforts. If Calyxt's ongoing or future field trials are unsuccessful or produce inconsistent results or unanticipated adverse effects on the agronomic performance of Calyxt's crops, or if the field trials do not produce reliable data, Calyxt's product development efforts could be delayed, subject to additional regulatory review or abandoned entirely. In addition, in order to support Calyxt's commercialization efforts, it is necessary to collect data across multiple growing seasons and from different geographies. Even in cases where initial field trials are successful, Calyxt cannot be certain that additional field trials conducted on a greater number of acres or in different geographies will also be successful. Many factors that are beyond Calyxt's control may adversely affect the success of these field trials, including unique geographic conditions, weather and climatic variations, disease or pests, or acts of protest or vandalism. Field trials, which may take up to two to three years, are costly, and any field trial failures that Calyxt may experience may not be covered by insurance and, therefore, could result in increased costs, which may negatively impact Calyxt's business and results of operations. During the first quarter of 2020, Calyxt was notified that a significant portion of its high fiber wheat plants were damaged in field trials due to improper aerial chemical applications by unaffiliated third parties. While Calyxt is continuing to assess the impact of this damage on the overall development process and timeline, Calyxt expects to harvest the remaining field trial crop in spring 2020 and continue Phase II development in 2020. Calyxt's Phase II development activities in 2020 will include testing the product concept in field conditions, completing food application studies and voluntarily consulting with FDA. Depending on the results of the spring 2020 field trial crop harvest and the success of its other activities in Phase II and Phase III, Calyxt's high fiber wheat product may launch as early as 2022.

Calyxt relies on third parties to conduct, monitor, support, and oversee field trials and other research services for product candidates in development, and any performance issues by third parties, or Calyxt's inability to engage third parties on acceptable terms, may impact Calyxt's ability to successfully commercialize such product candidates.

Calyxt currently relies on third parties, such as growers, consultants, contractors and universities, to conduct, monitor, support and oversee these field trials. In some cases, these field trials are conducted outside of the United States, making it difficult for Calyxt to monitor the work being conducted by the third parties that it engages. Although Calyxt provides its third-party contractors with protocols regarding the production and handling of its product candidates, Calyxt has limited control over the execution of field trials. Poor field trial execution or data collection, failure to follow required agronomic practices, protocols or regulatory requirements, or mishandling of product candidates by these third parties could impair the success of Calyxt's field trials. Any such failures may result in delays in the development of Calyxt's product candidates or the incurrence of additional costs. Even if Calyxt's third-party contractors adhere to its suggested protocols, field trials may fail to succeed for a variety of other reasons, including weather, disease or pests, improper timing of planting Calyxt's seeds, or incorrect fertilizer use. Ultimately, Calyxt remains responsible for ensuring that each of its field trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and Calyxt's reliance on third parties does not relieve Calyxt of its responsibilities. Should such third parties fail to comply with these standards, Calyxt's ability to develop its product candidates could be adversely impacted.

Additionally, if Calyxt is unable to maintain or enter into agreements with third-party contractors on acceptable terms, or if engagement is terminated prematurely, Calyxt may be unable to conduct or complete its field trials in the manner Calyxt anticipates. If Calyxt's relationship with any of these third-party contractors is terminated, Calyxt may be unable to enter arrangements with alternative contractors on commercially reasonable terms, or at all. Switching or adding third-party contractors can involve substantial cost and require extensive management time and focus. In addition, there is a natural transition period when any new third party commences field trial work. As a result, delays may occur, which could materially impact Calyxt's ability to meet its desired development timelines.

The successful commercialization of Calyxt's products depends on Calyxt's ability to produce high-quality plants and seeds cost-effectively on a large scale and to accurately forecast demand for Calyxt's products, and Calyxt may be unable to do so.

The production of commercial-scale quantities of seeds requires the multiplication of the plants or seeds through a succession of plantings and seed harvests. The cost-effective production of high-quality, high-volume quantities of any product candidates Calyxt successfully develops depends on Calyxt's ability to scale its production processes to produce plants and seeds in enough quantity to meet demand. For example, food ingredients such as soybean oil and wheat flour will require optimized

production and commercialization of the underlying plant and seed harvests. Calyxt cannot assure that its existing or future seed production techniques will enable Calyxt to meet its large-scale production goals cost-effectively for the products in its pipeline. Even if Calyxt is successful in developing ways to increase yields and enhance quality, Calyxt may not be able to do so cost-effectively or on a timely basis, which could adversely affect Calyxt's ability to achieve profitability. If Calyxt is unable to maintain or enhance the quality of its plants and seeds as it increases its production capacity, including through the expected use of third parties, Calyxt may experience reductions in customer or farmer demand, higher costs and increased inventory write-offs.

In addition, because of the length of time it takes to produce commercial quantities of marketable seeds, Calyxt will need to make seed production decisions well in advance of product sales. Calyxt's ability to accurately forecast supply can be adversely affected by several factors outside of Calyxt's control, including changes in market conditions, environmental factors, such as pests and diseases, and adverse weather conditions. A shortfall in the supply of Calyxt's products may reduce product revenue, damage our or Calyxt's reputation in the market and adversely affect relationships. Any product surplus Calyxt has on hand may negatively impact cash flows, reduce the quality of Calyxt's inventory and ultimately result in write-offs of inventory. Additionally, we or Calyxt will take financial risk in Calyxt's inventory given that Calyxt will have to keep the inventory at its net realizable value on its balance sheet. Fluctuations in the spot price of Calyxt's crops in inventory could have negative impacts on its consolidated financial statements. Any failure on Calyxt's part to produce enough inventory, or overproduction of a product, could harm its business, results of operations and financial condition. In addition, its customers may cancel orders, request a decrease in quantity, or make returns, which may lead to a surplus of Calyxt's products.

While Calyxt estimates that the potential size of its target markets for its products is significant, that estimate has not been independently verified and is based on certain assumptions that may not prove to be accurate. Calyxt's ability to accurately forecast demand is dependent on the timing of customer decisions, qualification cycles, and other factors outside of its control. As a result, these estimates could differ materially from actual market sizes, which could result in decreased demand for Calyxt's products and therefore adversely impact Calyxt's future business prospects, results of operation and financial condition.

Interruptions in the production or transportation of Calyxt's seeds could adversely affect its operations and profitability.

Calyxt relies on contract seed producers to produce seed for our product candidates. Poor execution, failure to follow required agronomic practices, protocols or regulatory requirements, or mishandling of product candidates by these contract seed producers could adversely affect Calyxt's products. Any such failures may result in delays in Calyxt's ability to obtain seed for its seed production needs in a timely manner. Such delays could adversely affect Calyxt's ability to deliver seed to farmers to meet their planting window. Calyxt's dependency upon timely seed deliveries means that interruptions or stoppages in such deliveries, or delays or limitations with respect to seed production, could adversely affect Calyxt's operations until alternative arrangements could be made. Such a delay would adversely affect our and Calyxt's reputation and revenues. If Calyxt were unable to produce the necessary seed for an extended period for any reason, its business, customer relations, and operating results could suffer.

Calyxt may not be able to identify suitable seed producers to meet its production needs or Calyxt may not be able to enter into cost effective agreements with suitable seed producers on acceptable terms. If any contract seed producers whom Calyxt engages fail to perform their obligations as expected or breach or terminate their agreements with Calyxt, or if Calyxt is unable to secure the services of such third parties when and as needed, it may adversely affect Calyxt's business.

The unintended presence of Calyxt's traits in other products or plants may negatively affect it.

Trace amounts of Calyxt's traits may unintentionally be found in the products of third parties, which may result in negative publicity and claims of liability brought by such third parties or others against us or Calyxt. Furthermore, in the event of an unintended dissemination of Calyxt's gene-edited germplasm into the environment, or the presence of unintended trace amounts of Calyxt's traits in conventional seed, or in the grain or products produced from conventional crops, we or Calyxt could be subject to claims by multiple parties, including environmental advocacy groups, as well as governmental actions such as mandated crop destruction, product recalls, or additional stewardship practices and environmental cleanup or monitoring.

The successful commercialization of Calyxt products may face challenges from public perceptions of gene-edited products and ethical, legal, environmental, health and social concerns.

The successful commercialization of Calyxt's product candidates depends, in part, on public acceptance of gene-edited agricultural products.

Consumers may not understand the nature of Calyxt's technologies or the scientific distinction between Calyxt's non-transgenic gene-edited products and transgenic products of competitors. As a result, they may transfer negative perceptions and attitudes regarding transgenic products to Calyxt's products and product candidates. A lack of understanding of Calyxt's technologies may also make consumers more susceptible to the influence of negative information provided by opponents of biotechnology. Some opponents of biotechnology actively seek to raise public concern about gene editing, whether transgenic or non-transgenic, by claiming that plant products developed using biotechnology are unsafe for consumption or their use, pose a risk of damage to the environment, or creates legal, social and ethical dilemmas. The commercial success of Calyxt's products and product candidates may be adversely affected by such claims, even if unsubstantiated. In addition, opponents of biotechnology

have vandalized the fields of farmers planting biotech seeds and facilities used by biotechnology companies. Any such acts of vandalism targeting the fields of Calyxt's farmer customers, Calyxt field testing sites or Calyxt research, production or other facilities, could adversely affect Calyxt's sales and Calyxt's costs.

Negative public perceptions about gene editing can also affect the regulatory environment in the jurisdictions in which Calyxt is targeting the sale of Calyxt's products and the commercialization of Calyxt's product candidates. Any increase in such negative perceptions or any restrictive government regulations in response thereto, could have a negative effect on Calyxt's business and may delay or impair the sale of Calyxt's products or the development or commercialization of Calyxt's product candidates. Even in light of compliance with regulatory protocols or following receipt of confirmation of non-regulated status in a jurisdiction, public pressure may lead to increased regulation of products produced using biotechnology, further legislation regarding novel trait development technologies, or administrative litigation concerning prior regulatory determinations, each of which could adversely affect Calyxt's ability to sell its product or commercialize its product candidates. In addition, labeling requirements could heighten public concerns and make consumers less likely to purchase food products containing gene-edited ingredients.

Additionally, Calyxt is currently exploring product opportunities in hemp, among other crops. Hemp, as defined in the 2018 Farm Bill as *Cannabis sativa* containing a delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3% on a dry weight basis, has been removed from the Controlled Substances Act and is legally distinct from marijuana/cannabis, which is *Cannabis sativa* containing a THC concentration of more than 0.3% on a dry weight basis. Because the hemp plant and the marijuana plant are both part of the same *Cannabis sativa* species of plant, Calyxt's activities with legal hemp may be incorrectly perceived as Calyxt being involved in federally illegal cannabis/marijuana. Also, despite growing support for the cannabis industry and legalization of cannabis in certain states in the United States, many individuals and businesses remain opposed to the cannabis industry. Any negative press resulting from any incorrect perception that Calyxt has entered the cannabis space could result in a loss of current or future business. It could also adversely affect the public's perception of Calyxt and lead to reluctance by new parties to do business with Calyxt or to own its common stock. Business partners, including but not limited to financial institutions and customers, may attempt to end or limit their relationships with Calyxt due to this incorrect perception, which may negatively affect Calyxt's business, financial condition, and results of operations.

If Calyxt's products become adulterated, misbranded, or mislabeled, Calyxt might need to recall those items and may experience product liability claims if consumers or animals are injured.

Calyxt is targeting sale of its high oleic soybean oil as a premium oil in the foodservice, food manufacturing, animal nutrition, and industrial market segments. Calyxt sells its high oleic soybean meal into the animal nutrition market segment. Calyxt may need to recall its High oleic soybean products if they become adulterated, misbranded, or mislabeled. A widespread product recall could result in significant losses due to the costs of a recall, the destruction of product inventory, and lost sales due to the unavailability of product for a period of time. Calyxt could also suffer losses from a significant product liability judgment against it. A significant product recall or product liability case could also result in adverse publicity, damage to Calyxt's reputation, and a loss of consumer or purchaser confidence in Calyxt's products, which could have an adverse effect on Calyxt's business, results of operations and financial condition and the value of Calyxt's brands.

Products that Calyxt develops, and food containing Calyxt's products, may fail to meet standards established by third-party non-GMO verification organizations, which could reduce the value of Calyxt's products to customers.

Certain third-party organizations offer verification programs that seek to identify non-GMO products to consumers. These organizations verify the status of products (such as foods, beverages and vitamins) as non-GMO based on independently developed standards, and often authorize the display of specific markers or labels illustrating such status on the verified product's packaging.

Standards established by such third-party organizations for the verification of non-GMO status may differ from applicable regulatory legal standards applied by regulators in the United States. As a result, notwithstanding a determination as to the non-regulated status of a product pursuant to APHIS's regulatory procedures (or a similar determination in other jurisdictions), Calyxt's products, and third-party products that utilize Calyxt's gene-edited products as ingredients, may fail to meet more restrictive or non-scientific standards imposed by these independent verification organizations.

For example, there are third-party verification organizations that withhold non-GMO certification from products developed using gene editing technology, including a product that does not contain any foreign DNA, such as Calyxt's high oleic soybean. Such a position means that some non-GMO seals or labels are not available for gene edited products, including our high oleic soybean products. This has limited Calyxt's ability to demand non-GMO premiums for its high oleic soybean meal.

If Calyxt is sued for defective products and if such lawsuits were determined adversely, Calyxt could be subject to substantial damages, for which insurance coverage is not available.

Calyxt may be held liable if any product it develops, or any product that uses or incorporates any of Calyxt's technologies is found unsuitable during marketing, sale or consumption. For example, the detection of an unintended trait in a commercial seed variety or the crops and products produced may result in governmental actions such as mandated crop destruction, product recalls or environmental cleanup or monitoring. Concerns about seed quality could also lead to additional regulations being imposed on Calyxt's business, such as regulations related to testing procedures, mandatory governmental reviews of biotechnology advances, or additional regulations relating to the integrity of the food supply chain from the farm to the finished product.

Calyxt may need to raise additional funding, which may not be available on acceptable terms or at all. Failure to obtain this necessary capital when needed may force Calyxt to delay, limit or terminate its product development efforts or other operations.

As of December 31, 2019, Calyxt had cash and cash equivalents of \$58.6 million. Calyxt believes its cash and cash equivalents will be enough to fund its operations through at least mid-2021.

Calyxt's business plan is to complete the development and regulatory processes for its product candidates and commercialize additional product candidates. Based on Calyxt's history of losses, Calyxt does not expect that it will be able to fund its longer-term capital and liquidity needs to execute its business plan and pursue its strategic goals through its cash balances and operating cash flow alone. To fund Calyxt's longer-term capital and liquidity needs, Calyxt expects it will need to secure additional capital. Calyxt's business plan and financing needs are subject to change depending on, among other things, success of its product development efforts, its revenue and its efforts to continue to effectively manage expenses. If Calyxt is ultimately unable to generate sufficient revenue to meet its financial targets, become profitable and have sustainable positive cash flows, Calyxt may be required to further reduce expenses, which could have a further negative effect on Calyxt's ability to generate revenue, or Calyxt may be required to raise additional capital more quickly than Calyxt expects or Calyxt may need more capital than it expects.

Calyxt may obtain future additional financing by incurring indebtedness or from an offering of Calyxt's equity or convertible securities or both. To the extent that Calyxt raises additional capital through the sale of additional equity or convertible securities, current ownership interests will be diluted, and new investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Debt financing, if available, would result in increased fixed payment obligations and a portion of Calyxt's operating cash flows, if any, being dedicated to the payment of principal and interest on such indebtedness. In addition, debt financing may involve agreements that include restrictive covenants that impose operating restrictions, such as restrictions on the incurrence of additional debt, the making of certain capital expenditures or the declaration of dividends. If Calyxt raises capital in the future, Calyxt cannot assure you that additional capital will be available in the amount or at the time Calyxt needs it, or that it will be available on acceptable terms or at all. If Calyxt is unable to obtain sufficient funding on a timely basis, Calyxt may be required to significantly curtail, delay or discontinue one or more of its research or product candidate development programs or the commercialization of any product candidate or be unable to expand our operations or otherwise capitalize on Calyxt's business opportunities, as desired, which could materially affect Calyxt's business, operating results and prospects and cause the price of its common stock to decline.

Changes in tax laws and regulations could impact Calyxt's financial results and require compliance efforts that could increase Calyxt's cost of doing business.

Calyxt is subject to a variety of tax laws and regulations in the jurisdictions in which it operates. Changes in the tax laws could impact Calyxt's financial results and maintaining compliance with these laws can increase Calyxt's cost of doing business. Most notably, on December 22, 2017, U.S. tax reform legislation known as the Tax Cuts and Jobs Act (the "TCJA") was signed into law. The TCJA makes substantial changes to U.S. tax law, including a reduction in the corporate tax rate, a limitation on deductibility of interest expense, a limitation on the use of net operating losses to offset future taxable income, an allowance of immediate expensing of capital expenditures, the modification or repeal of certain business deductions (including executive compensation) and credits, deemed repatriation of foreign earnings and significant changes to the taxation of foreign earnings going forward, and new rules designed to prevent erosion of the U.S. income tax base (such as a new minimum tax, called the Base Erosion and Anti-abuse Tax, applicable to certain U.S. corporations that make certain payments to related foreign persons). The provisions in the TCJA are subject to additional regulatory or administrative developments, including any regulations or other guidance promulgated by the U.S. Treasury, Internal Revenue Service, and other regulators. Further, there can be no assurance that Calyxt's current interpretations of, and assumptions regarding, the TCJA and any related regulations or guidance will not be reviewed or investigated by regulators in the future.

Calyxt's ability to use its net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2019, Calyxt had approximately \$141.4 million of net operating losses, or NOLs, for federal and state income tax purposes, which may be available to offset income tax liabilities in the future. In addition, Calyxt may generate additional NOLs in future years. Under Section 382 of the Internal Revenue Code of 1986 (as amended, the "Code"), a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change NOLs to offset future taxable income. For this purpose, an ownership change generally means a more than 50 percentage point change in the ownership of a corporation by one or more stockholders or specified groups of stockholders, each of which owns 5% or more of the corporation (determined after the application of certain attribution and grouping rules) over a three-year period. Although Calyxt does not believe that any of its NOLs are currently subject to limitation under Section 382 of the Code, future changes in its stock ownership, some of which may be outside of its control, could result in an ownership change under Section 382 of the Code, which could limit Calyxt's ability to use its existing or future NOLs to offset future taxable income. In addition, for an NOL that was generated in the 2017 taxable year or in an earlier taxable year, Calyxt is permitted to carry forward the NOL from the taxable year in which it arose only to the succeeding twenty taxable years, and, if Calyxt does not generate sufficient taxable income to utilize the NOL carryforward within this period, it may expire unused. NOLs generated in taxable year 2018 and future years have indefinite carryforward periods.

The TCJA contains significant changes to the rules regarding NOLs. These changes include limiting the deduction of NOLs to 80% of current year taxable income, prohibiting the carryback of NOLs, and allowing NOLs to be carried forward indefinitely. These changes apply to NOLs arising in taxable years beginning after December 31, 2017, and therefore Calyxt's ability to use such NOLs to offset any future taxable income may be significantly limited. In addition, the reduction in the federal corporate tax rate under the TCJA potentially diminishes the value of Calyxt's NOLs to it. Historically, Calyxt has established a full valuation allowance for deferred tax assets due to the uncertainty that enough taxable income will be generated in the taxing jurisdiction to utilize the assets. Therefore, Calyxt does not expect changes to the rules regarding NOLs under the TCJA to have a material impact on its consolidated financial statements for the year ending December 31, 2019, as all net deferred tax assets are fully reserved.

The overall agricultural industry is susceptible to commodity price changes and Calyxt is exposed to market risks from changes in commodity prices.

Changes in the prices of commodities products could result in higher overall cost along the agricultural supply chain, which may negatively affect Calyxt's ability to commercialize its products. Calyxt will be susceptible to changes in costs in the agricultural industry as a result of factors beyond its control, such as general economic conditions, seasonal fluctuations, weather conditions, demand, food safety concerns, product recalls and government regulations. As a result, Calyxt may not be able to anticipate or react to changing costs by adjusting its practices, which could cause its operating results to deteriorate. While Calyxt manages its exposure to changing commodity prices underlying sales contracts and supply agreements for grain and seed production by entering into commodity derivative transactions, those activities may not provide full mitigation of Calyxt's exposure to changes in commodity prices, and as a result Calyxt's results of operations and financial condition may be affected.

Adverse weather conditions, natural disasters, crop disease, pests and other natural conditions can impose significant costs and losses on Calyxt.

The ability to grow Calyxt's plant products is vulnerable to adverse weather conditions, including windstorms, floods, drought and temperature extremes, which are quite common but difficult to predict, the effects of which may be influenced and intensified by ongoing global climate change. Unfavorable growing conditions can reduce both crop size and crop quality. This risk is particularly acute with respect to regions or countries in which Calyxt plans to source a significant percentage of Calyxt's plant products. In extreme cases, entire harvests may be lost in some geographic areas. Such adverse conditions can increase costs, decrease revenues and lead to additional charges to earnings, which may have a material adverse effect on Calyxt's business, financial position and results of operations.

The ability to grow Calyxt's plant products is also vulnerable to crop disease and to pests, which may vary in severity and effect, depending on the stage of production at the time of infection or infestation, the type of treatment applied, climatic conditions and the risks associated with ongoing global climate change. The costs to control disease and other infestations vary depending on the severity of the damage and the extent of the plantings affected. Moreover, there can be no assurance that available technologies to control such infestations will continue to be effective. These infestations can also increase costs, decrease revenues and lead to additional charges to earnings, which may have a material adverse effect on Calyxt's business, financial position and results of operations.

Calyxt expects its business will be highly seasonal and subject to weather conditions and other factors beyond its control, which may cause Calyxt's sales and operating results to fluctuate significantly.

The sale of plant products is dependent upon planting and growing seasons, which vary from year to year, and are expected to result in both highly seasonal patterns and substantial fluctuations in quarterly sales and profitability. Furthermore,

significant fluctuations in market prices for agricultural inputs and crops could also have an adverse effect on the value of Calyxt plant products. Weather conditions and natural disasters, such as heavy rains, hurricanes, hail, floods, tornadoes, freezing conditions, drought or fire, also affect decisions by food manufacturers or farmers about the types and amounts of seeds to plant and the timing of harvesting and planting such seeds, as well as adversely impact the agricultural industry as a whole in various regions. Disruptions that cause delays by food manufacturers or farmers in harvesting or planting can result in the movement of orders to a future quarter. Disruptions that cause delays by Calyxt farmers in harvesting could cause Calyxt to be delayed, or to fail entirely in delivering food ingredients to food manufacturers. Any of those delays or failures would negatively affect the quarter in which they occur and cause fluctuations in Calyxt operating results.

The regulatory environment in the United States for our current and future products is uncertain and evolving.

Changes in applicable regulatory requirements could result in a substantial increase in the time and costs associated with developing Calyxt's products and negatively impact Calyxt's operating results. While the USDA and FDA currently have petition processes that Calyxt has successfully completed in the past, these processes and the manner in which the USDA and FDA interpret their own regulations may change in the future, negatively impacting Calyxt's speed to market and cost to launch product candidates. Calyxt cannot predict whether advocacy groups will challenge existing regulations and USDA or FDA determinations or whether the USDA or FDA will alter the manner in which it interprets its own regulations or institutes new regulations, or otherwise modifies regulations in a way that will subject Calyxt's products to more burdensome standards, thereby substantially increasing the time and costs associated with developing Calyxt's product candidates.

Additionally, Calyxt is currently exploring product opportunities in hemp, among other crops. Hemp, as defined in the 2018 Farm Bill as *Cannabis sativa* containing a delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3% on a dry weight basis, has been removed from the Controlled Substances Act. It is legally distinct from marijuana and recognized as an agricultural crop by the United States government. Federal and state laws and regulations on hemp address production, monitoring, manufacturing, distribution, and laboratory testing to ensure that the hemp has a THC concentration of not more than 0.3% on a dry weight basis. Federal laws and regulations may also address the transportation or shipment of hemp or hemp products. As Calyxt continues to explore hemp as a product candidate, Calyxt may become subject to increasing regulation particular to hemp, which could require Calyxt to incur additional costs associated with compliance requirements.

The regulatory environment outside the United States varies greatly from jurisdiction to jurisdiction and there is less certainty how Calyxt's products will be regulated.

The regulatory environment around gene editing in plants for food ingredients is greatly uncertain outside of the United States and varies greatly from jurisdiction to jurisdiction. Each jurisdiction may have its own regulatory framework regarding genetically modified foods, which may include restrictions and regulations on planting and growing genetically modified plants and in the consumption and labeling of genetically modified foods, and which may encapsulate Calyxt's products. To the extent regulatory frameworks outside of the United States are not receptive to Calyxt's gene-editing technologies, this may limit Calyxt's ability to expand into other global markets.

Complying with the regulatory requirements outside the United States will be costly and time-consuming, and there is no guarantee Calyxt will be able to commercialize its products outside the United States.

Calyxt cannot predict whether or when any jurisdiction will change its regulations with respect to its products. Advocacy groups have engaged in publicity campaigns and filed lawsuits in various countries against companies and regulatory authorities, seeking to halt regulatory approval or clearance activities or influence public opinion against genetically engineered and/or gene-edited products. In addition, governmental reaction to negative publicity concerning Calyxt's products could result in greater regulation of genetic research and derivative products or regulatory costs that render Calyxt's products cost prohibitive.

The scale of the commodity food industry may make it difficult to monitor and control the distribution of Calyxt's products. As a result, Calyxt's products may be sold inadvertently within jurisdictions where they are not approved for distribution. Such sales may lead to regulatory challenges or lawsuits against Calyxt, which could result in significant expenses and management attention.

Government policies and regulations, particularly those affecting the agricultural sector and related industries, could adversely affect Calyxt's operations and profitability.

Agricultural production and trade flows are subject to government policies and regulations. Governmental policies and approvals of technologies affecting the agricultural industry, such as taxes, tariffs, duties, subsidies, incentives and import and export restrictions on agricultural commodities and commodity products can influence the planting of certain crops, the location and size of crop production, and the volume and types of imports and exports. Future government policies in the United States or in other countries may discourage food manufacturers or farmers from using Calyxt's products or encourage the use of products

more advantageous to Calyxt's competitors, which would put Calyxt at a commercial disadvantage and could negatively impact its future revenues and results of operations.

Calyxt may use hazardous chemicals and biological materials in its business and is subject to numerous environmental, health and safety laws and regulations. Compliance with such laws and regulations and any claims relating to improper handling, storage or disposal of these materials could be time consuming and costly.

Calyxt is subject to numerous federal, state, local and foreign environmental, health and safety laws and regulations, including those governing laboratory procedures, the handling, use, storage, treatment, manufacture and disposal of hazardous materials and wastes, discharge of pollutants into the environment and human health and safety matters. Calyxt's research and development processes may involve the controlled use of hazardous materials, including chemicals and biological materials. Calyxt cannot eliminate the risk of contamination or discharge and any resultant injury from these materials. Calyxt may be sued for any injury or contamination that results from its use or the use by third parties of these materials, or may otherwise be required to remediate such contamination, and Calyxt's liability may exceed any insurance coverage and its total assets. Compliance with environmental, health and safety laws and regulations may be expensive and may impair Calyxt's research and development efforts. If Calyxt fails to comply with these requirements, it could incur substantial costs and liabilities, including civil or criminal fines and penalties, clean-up costs or capital expenditures for control equipment or operational changes necessary to achieve and maintain compliance. In addition, Calyxt cannot predict the impact on its business of new or amended environmental, health and safety laws or regulations or any changes in the way existing and future laws and regulations are interpreted and enforced. These current or future laws and regulations may impair Calyxt's research, development or production efforts.

Adverse outcomes in future legal proceedings could subject Calyxt to substantial damages, adversely affect Calyxt results of operations, harm our or Calyxt's reputation and result in governmental actions.

We or Calyxt may become party to legal proceedings, including matters involving personnel and employment issues, personal injury, product liability, environmental matters, intellectual property disputes and other proceedings. We or Calyxt may be held liable if Calyxt traits do not perform as anticipated by Calyxt customers, or if any product that Calyxt develops or any product that uses Calyxt's technologies or incorporates any of Calyxt's traits or is found unsuitable during marketing, sale or consumption. Courts could levy substantial damages against us in connection with claims products arising from the use of Calyxt's products.

The detection of unintended traits in Calyxt's seeds could result in governmental actions such as mandated crop destruction, product recalls or environmental cleanup or monitoring. Concerns about seed quality could also lead to additional regulations being imposed on Calyxt's business, such as regulations related to testing procedures, mandatory governmental reviews of biotechnology advances, or the integrity of the food supply chain from the farm to the finished product.

Depending on their nature, certain future legal proceedings could result in substantial damages or payment awards that exceed Calyxt's insurance coverage. Calyxt will estimate its exposure to any future legal proceedings and establish provisions for the estimated liabilities where it is reasonably possible to estimate and where an adverse outcome is probable. Assessing and predicting the outcome of these matters will involve substantial uncertainties. Furthermore, even if the outcome is ultimately in Calyxt's favor, Calyxt's costs associated with such litigation may be material. Adverse outcomes in future legal proceedings or the costs and expenses associated therewith could damage our or Calyxt's market reputation and have an adverse effect on our or Calyxt's results of operations.

Calyxt will be subject to a myriad of different laws and regulations governing hemp and its inability to comply with such laws in a cost-effective manner may have an adverse effect on Calyxt's business and result of operations.

Laws and regulations governing the use of hemp in the United States are broad in scope; subject to evolving interpretations; and subject to enforcement by a myriad of regulatory agencies and law enforcement entities. Under the Agriculture Improvement Act of 2018, also known as the 2018 Farm Bill, a state or Indian tribe that desires to have primary regulatory authority over the production of hemp in the state or territory of the Indian tribe must submit a plan to monitor and regulate hemp production to the Secretary of the United States Department of Agriculture or USDA. The Secretary must then approve the state or tribal plan after determining if the plan complies with the requirements set forth in the Agriculture Improvement Act of 2018. The Secretary may also audit the state or Indian tribe's compliance with the federally approved plan. If the Secretary does not approve the state or Indian tribe's plan, then the production of hemp in that state or territory of that Indian tribe will be subject to a plan established by USDA. USDA has not yet established such a plan. Calyxt anticipates that many states will seek to have primary regulatory authority over the production of hemp. States that seek such authority may create new laws and regulations that limit or restrict the use of hemp.

Federal and state laws and regulations on hemp may address production, monitoring, manufacturing, distribution, and laboratory testing to ensure that that the hemp has a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis. Federal laws and regulations may also address the transportation or shipment of hemp or hemp products, as the Agriculture Improvement Act of 2018 prohibits states and Indian tribes from prohibiting the transportation or shipment of hemp or hemp products produced in accordance with that law through the state or territory of the Indian tribe, as applicable. Calyxt may be

[Table of Contents](#)

subject to many different state-based regulatory regimens for hemp, all of which could require Calyxt to incur substantial costs associated with compliance requirements. Calyxt's research and development operations will be restricted to only where such operations are legal on the local, state and federal levels.

In addition, it is possible that additional regulations may be enacted in the future in the United States and globally that will be directly applicable to Calyxt's research and development operations. Calyxt cannot predict the nature of any future laws, regulations, interpretations, or applications, nor can it determine what effect additional governmental regulations or administrative policies and procedures, when and if promulgated, could have on Calyxt's business.

Calyxt has no operating history in the legal hemp industry, which makes it difficult to accurately assess its future growth prospects.

The legal hemp industry is evolving and may not develop as expected. Furthermore, Calyxt's plans continue to evolve Calyxt they assesses new strategic opportunities for its business within this industry. Assessing the prospects of this industry is challenging in light of both known and unknown risks and difficulties Calyxt may encounter. Growth prospects in the legal hemp industry can be affected by a wide variety of factors including:

- competition from other companies;
- regulatory limitations and changes in regulation; and
- changes in underlying consumer behavior, which may affect the demand of Calyxt's legal hemp traits.

Calyxt may not be able to successfully address the above factors, which could negatively impact its intended business plans.

Because Calyxt has only recently begun its legal hemp operations, Calyxt anticipates its operating expenses will increase prior to earning revenue from these operations.

As Calyxt starts to conduct research and development with respect to legal hemp, Calyxt anticipates significant increases in its operating expenses, without realizing significant revenues from such operations. As a result, Calyxt may incur significant financial losses with respect to such operations in the foreseeable future. There is no history upon which to base any assumption as to the likelihood that these operations will prove successful.

Negative press from working with the hemp crop could have a material adverse effect on Calyxt's business, financial condition, and results of operations.

The hemp plant and the cannabis/marijuana plant are both part of the same cannabis sativa genus/species of plant, except that hemp, by definition, has less than 0.3% THC content, but the same plant with a higher THC content is cannabis/marijuana, which is legal under certain state laws, but which is not legal under federal law. The similarities between these plants can cause confusion, and Calyxt's activities with legal hemp may be incorrectly perceived as Calyxt being involved in federally illegal cannabis. Also, despite growing support for the cannabis industry and legalization of cannabis in certain U.S. states, many individuals and businesses remain opposed to the cannabis industry. Any negative press resulting from any incorrect perception that Calyxt has entered the cannabis space could result in a loss of current or future business. It could also adversely affect the public's perception of Calyxt and lead to reluctance by new parties to do business with Calyxt or to own Calyxt common stock. Calyxt cannot assure you that additional business partners, including but not limited to financial institutions and customers, will not attempt to end or curtail their relationships with Calyxt. Any such negative press or cessation of business could have a material adverse effect on Calyxt's business, financial condition, and results of operations.

Risks Related to Intellectual Property

Our ability to compete may decline if we do not adequately protect our proprietary rights.

Our commercial success depends, in part, on obtaining and maintaining proprietary rights to our and our licensors' intellectual property estate, including with respect to our product candidates, as well as successfully defending these rights against third-party challenges. We will only be able to protect our product candidates from unauthorized use by third parties to the extent that valid and enforceable patents, or effectively protected trade secrets, cover them. Our ability to obtain patent protection for our product candidates is uncertain due to a number of factors, including:

- we or our licensors may not have been the first to invent the technology covered by our or their pending patent applications or issued patents;
- we cannot be certain that we or our licensors were the first to file patent applications covering our product candidates, including their compositions or methods of use, as patent applications in the United States and most other countries are confidential for a period of time after filing;

Table of Contents

- others may independently develop identical, similar or alternative products or compositions or methods of use thereof;
- the disclosures in our or our licensors' patent applications may not be sufficient to meet the statutory requirements for patentability;
- any or all of our or our licensors' pending patent applications may not result in issued patents;
- we or our licensors may not seek or obtain patent protection in countries or jurisdictions that may eventually provide us a significant business opportunity;
- any patents issued to us or our licensors may not provide a basis for commercially viable products, may not provide any competitive advantages, or may be successfully challenged by third parties, which may result in our or our licensors' patent claims being narrowed, invalidated or held unenforceable;
- our compositions and methods may not be patentable;
- others may design around our or our licensors' patent claims to produce competitive products that fall outside of the scope of our or our licensors' patents; and
- others may identify prior art or other bases upon which to challenge and ultimately invalidate our or our licensors' patents or otherwise render them unenforceable.

Even if we own, obtain or in-license patents covering our product candidates or compositions, we may still be barred from making, using and selling our product candidates or technologies because of the patent rights or other intellectual property rights of others. Others may have filed, and in the future may file, patent applications covering compositions, products or methods that are similar or identical to ours, which could materially affect our ability to successfully develop and, if approved, commercialize our product candidates. In addition, because patent applications can take many years to issue, there may be currently pending applications unknown to us that may later result in issued patents that our product candidates or compositions may infringe. These patent applications may have priority over patent applications filed by us or our licensors.

Obtaining and maintaining a patent portfolio entails significant expense of resources. Part of such expense includes periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications due over the course of several stages of prosecuting patent applications, and over the lifetime of maintaining and enforcing issued patents. We or our licensors may or may not choose to pursue or maintain protection for particular intellectual property in our or our licensors portfolio. If we or our licensors choose to forgo patent protection or to allow a patent application or patent to lapse purposefully or inadvertently, our competitive position could suffer. In some cases, the prosecution and maintenance of our licensed patents is controlled by the applicable licensor. If such licensor fails to properly prosecute and maintain such patents, we could lose our rights to them, which could materially impair any competitive advantage afforded by such patents. Furthermore, we and our licensors employ reputable law firms and other professionals to help us comply with the various procedural, documentary, fee payment and other similar provisions we and they are subject to and, in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which failure to make certain payments or noncompliance with certain requirements in the patent prosecution and maintenance process can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Legal action that may be required to enforce our patent rights can be expensive and may involve the diversion of significant management time. In addition, these legal actions could be unsuccessful and could also result in the invalidation of our or our licensors' patents or a finding that they are unenforceable. We or our licensors may or may not choose to pursue litigation or other actions against those that have infringed on our or their patents, or have used them without authorization, due to the associated expense and time commitment of monitoring these activities. In some cases, the enforcement and defense of patents we in-license is controlled by the applicable licensor. If such licensor fails to actively enforce and defend such patents, any competitive advantage afforded by such patents could be materially impaired. In addition, some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we or our licensors can because of their greater financial resources and more mature and developed intellectual property portfolios. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating or from successfully challenging our intellectual property rights. If we fail to protect or to enforce our intellectual property rights successfully, our competitive position could suffer, which could harm our results of operations.

Patents and patent applications involve highly complex legal and factual questions, which, if determined adversely to us, could negatively impact our competitive position.

The patent positions of biotechnology and biopharmaceutical companies and other actors in our fields of business can be highly uncertain and typically involve complex scientific, legal and factual analyses. In particular, the interpretation and breadth of

claims allowed in some patents covering biological and biopharmaceutical compositions may be uncertain and difficult to determine, and are often affected materially by the facts and circumstances that pertain to the patented compositions and the related patent claims. The standards of the United States Patent and Trademark Office, or USPTO, and foreign patent offices are sometimes uncertain and could change in the future. Consequently, the issuance and scope of patents cannot be predicted with certainty. Patents, if issued, may be challenged, invalidated, narrowed or circumvented. U.S. patents and patent applications may also be subject to interference proceedings, and U.S. patents may be subject to reexamination proceedings, post-grant review, *inter partes* review, or other administrative proceedings in the USPTO. Foreign patents as well may be subject to opposition or comparable proceedings in the corresponding foreign patent offices. Challenges to our or our licensors' patents and patent applications, if successful, may result in the denial of our or our licensors' patent applications or the loss or reduction in their scope. In addition, such interference, reexamination, post-grant review, *inter partes* review, opposition proceedings and other administrative proceedings may be costly and involve the diversion of significant management time. Accordingly, rights under any of our or our licensors' patents may not provide us with sufficient protection against competitive products or processes and any loss, denial or reduction in scope of any such patents and patent applications may have a material adverse effect on our business.

Furthermore, even if not challenged, our or our licensors' patents and patent applications may not adequately protect our product candidates or technology or prevent others from designing their products or technology to avoid being covered by our or our licensors' patent claims. If the breadth or strength of protection provided by the patents we own or license with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and could threaten our ability to successfully commercialize, our product candidates. Furthermore, for U.S. patent applications in which claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the USPTO in order to determine who was the first to invent any of the subject matter covered by such patent claims.

In addition, changes in, or different interpretations of, patent laws in the United States and other countries may permit others to use our discoveries or to develop and commercialize our technology and products without providing any notice or compensation to us, or may limit the scope of patent protection that we or our licensors are able to obtain. The laws of some countries do not protect intellectual property rights to the same extent as U.S. laws and those countries may lack adequate rules and procedures for defending our intellectual property rights.

If we or our licensors fail to obtain and maintain patent protection and trade secret protection of our product candidates and technology, we could lose our competitive advantage and competition we face would increase, reducing any potential revenues and have a material adverse effect on our business.

The lives of our patents may not be sufficient to effectively protect our products and business.

Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after its first effective filing date. Although various extensions may be available, the life of a patent, and the protection it affords, is limited. Our or our licensors' issued patents and pending patent applications will expire on dates ranging from 2020 to 2033, subject to any patent extensions that may be available for such patents. In addition, although upon issuance in the United States a patent's life can be increased based on certain delays caused by the USPTO, this increase can be reduced or eliminated based on certain delays caused by the patent applicant during patent prosecution. If we or our licensors do not have sufficient patent life to protect our products, our business and results of operations will be adversely affected.

Developments in patent law could have a negative impact on our business.

From time to time, the United States Supreme Court, or the Supreme Court, other federal courts, the United States Congress, the USPTO and similar foreign authorities may change the standards of patentability and any such changes could have a negative impact on our business.

The Leahy-Smith America Invents Act, or the America Invents Act, which was signed into law in 2011, includes a number of significant changes to U.S. patent law. These changes include a transition from a "first-to-invent" system to a "first-to-file" system, changes to the way issued patents are challenged, and changes to the way patent applications are disputed during the examination process. As a result of these changes, the patent law in the United States may favor larger and more established companies that have greater resources to devote to patent application filing and prosecution. The USPTO continues to promulgate new regulations and procedures to govern the full implementation of the America Invents Act, and many of the substantive changes to patent law associated with the America Invents Act, and, in particular, the first-to-file provisions became effective on March 16, 2013. Substantive changes to patent law associated with the America Invents Act may affect our ability to obtain patents, and if obtained, to enforce or defend them. Accordingly, it is not clear what, if any, impact the America Invents Act will have on the cost of prosecuting our or our licensors' patent applications and the ability of us and our licensors' to obtain patents and to enforce or defend any patents that may issue from such patent applications, all of which could have a material adverse effect on our business.

In addition, recent Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the validity and enforceability of patents, once obtained. Depending on future actions by the Supreme Court, the United States

Congress, the federal courts, the USPTO and similar foreign authorities, the laws and regulations governing patents could change in unpredictable ways that could have a material adverse effect on our existing patent portfolio and our ability to protect and enforce our intellectual property in the future.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to patent protection, because we operate in the highly technical field of development of therapies, we rely in part on trade secret protection in order to protect our proprietary technology and processes. However, trade secrets are difficult to protect. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. We cannot guarantee that our trade secrets and other proprietary and confidential information will not be disclosed or that competitors will not otherwise gain access to our trade secrets. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches.

Because we rely on third parties for the advancement of our products platform, pre-clinical testing, quality control, clinical trials, and manufacturing activities, we must, at times, share trade secrets with them, and our collaborations with Servier and Allogene, and any collaborations we may enter into in the future, may also lead to share certain of our trade secrets with our collaborators.

We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, intellectual property assignment, collaborative research agreements, consulting agreements or other similar agreements with our employees, consultants, outside scientific collaborators, sponsored researchers, and other advisors. These agreements generally require that the other party keep confidential and not disclose to third parties all confidential information developed by the party or made known to the party by us during the course of the party's relationship with us. These agreements also generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, these agreements may be breached or held unenforceable and may not effectively assign intellectual property rights to us.

In addition to contractual measures, we try to protect the confidential nature of our proprietary information using physical and technological security measures. Such measures may not provide adequate protection for our proprietary information. For example, our security measures may not prevent an employee, consultant, or collaborators with authorized access from misappropriating our trade secrets and providing them to a competitor, and the recourse we have available against such misconduct may not provide an adequate remedy to protect our interests fully. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets. Furthermore, our proprietary information may be independently developed by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, including our trade secrets, were to be disclosed or misappropriated, or if any such information was independently developed by a competitor, our competitive position could be harmed.

We will not seek to protect our intellectual property rights in all jurisdictions throughout the world and we may not be able to adequately enforce our intellectual property rights even in the jurisdictions where we seek protection.

Filing, prosecuting and defending patents on our product candidates in all countries and jurisdictions throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States could be less extensive than those in the United States, assuming that rights are obtained in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions.

Competitors may use our technologies in jurisdictions where we or our licensors do not pursue and obtain patent protection to develop their own products and further, may export otherwise infringing products to territories where we or our licensors have patent protection, but where the ability to enforce our or our licensors' patent rights is not as strong as in the United States. These products may compete with our products and our intellectual property rights and such rights may not be effective or sufficient to prevent such competition.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Patent protection must be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we or our licensors may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries. In addition, the legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biopharmaceuticals or biotechnologies, and the requirements for patentability differ, in varying degrees, from country to country, and the laws of some foreign countries do not protect intellectual property rights, including trade secrets, to the same extent as federal and state laws of the United States. As a result, many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. Such issues may make it difficult for us to stop the

infringement, misappropriation or other violation of our intellectual property rights. For example, many foreign countries, including the EU countries, have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our and our licensors' efforts to enforce intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own or license. Similarly, if our trade secrets are disclosed in a foreign jurisdiction, competitors worldwide could have access to our proprietary information and we may be without satisfactory recourse. Such disclosure could have a material adverse effect on our business. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws.

Furthermore, proceedings to enforce our and our licensors' patent rights and other intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our or our licensors' patents at risk of being invalidated or interpreted narrowly, could put our or our licensors' patent applications at risk of not issuing and could provoke third parties to assert claims against us or our licensors. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded to us, if any, may not be commercially meaningful, while the damages and other remedies we may be ordered to pay such third parties may be significant. Accordingly, our or our licensors' efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Third parties may assert rights to inventions we develop or otherwise regard as our own.

Third parties may in the future make claims challenging the inventorship or ownership of our or our licensors' intellectual property. We have written agreements with collaborators that provide for the ownership of intellectual property arising from our strategic alliances. These agreements provide that we must negotiate certain commercial rights with such collaborators with respect to joint inventions or inventions made by our collaborators that arise from the results of the strategic alliance. In some instances, there may not be adequate written provisions to address clearly the allocation of intellectual property rights that may arise from the respective alliance. If we cannot successfully negotiate sufficient ownership and commercial rights to the inventions that result from our use of a third-party collaborator's materials when required, or if disputes otherwise arise with respect to the intellectual property developed through the use of a collaborator's samples, we may be limited in our ability to capitalize on the full market potential of these inventions. In addition, we may face claims by third parties that our agreements with employees, contractors, or consultants obligating them to assign intellectual property to us are ineffective, or are in conflict with prior or competing contractual obligations of assignment, which could result in ownership disputes regarding intellectual property we have developed or will develop and could interfere with our ability to capture the full commercial value of such inventions. Litigation may be necessary to resolve an ownership dispute, and if we are not successful, we may be precluded from using certain intellectual property and associated products and technology, or may lose our rights in that intellectual property. Either outcome could have a material adverse effect on our business.

In addition, the research resulting in certain of our in-licensed patent rights and technology was funded in part by the United States government. As a result, the United States government has certain rights to such patent rights and technology, which include march-in rights. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention or to have others use the invention on its behalf. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, or because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to the United States industry. Any exercise by the government of any of the foregoing rights could have a material adverse effect on our business.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent which might adversely affect our ability to develop and market our products.

We cannot guarantee that any of our patent searches or analyses, including but not limited to the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction.

The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products.

Third parties may assert that our employees or consultants have wrongfully used or disclosed confidential information or misappropriated trade secrets.

We currently employ, and may in the future employ, individuals who were previously employed at universities or other biotechnology or biopharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of a former employer or other third parties. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

A dispute concerning the infringement or misappropriation of our proprietary rights or the proprietary rights of others could be time consuming and costly, and an unfavorable outcome could harm our business.

There is significant litigation in the biopharmaceutical industry regarding patent and other intellectual property rights. Although we are not currently subject to any material pending intellectual property litigation, and are not aware of any such threatened litigation, we may be exposed to future litigation by third parties based on claims that our product candidates, technologies or activities infringe the intellectual property rights of others. If our development activities are found to infringe any such patents, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from using the patented drugs or compositions. We may need to resort to litigation to enforce a patent issued to us, to protect our trade secrets, or to determine the scope and validity of third-party proprietary rights.

If we become involved in litigation, it could consume a substantial portion of our managerial and financial resources, regardless of whether we win or lose. Any adverse ruling or perception of an adverse ruling in defending ourselves against these claims could have a material adverse impact on our cash position. Any legal action against us or our collaborators could lead to:

- payment of damages, potentially including treble damages if we are found to have willfully infringed a party's patent rights;
- injunctive or other equitable relief that may effectively block our ability to further develop, commercialize, and sell products; or
- our or our collaborators' being required to obtain a license under third-party intellectual property, and such license may not be available on commercially acceptable terms, if at all, all of which could have a material adverse impact on our cash position and business, including our ability to further develop, commercialize, and sell products.

Any infringement, misappropriation or other violation by us of intellectual property rights of others may prevent or delay our product development efforts and may prevent or increase the costs of our successfully commercializing our product candidates, if approved.

Our success will depend in part on our ability to operate without infringing, misappropriating or otherwise violating the intellectual property and proprietary rights of third parties.

The biotechnology and biopharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights. Other parties may allege that our or our collaborators' products or product candidates or the use of our or our collaborators' technologies infringe, misappropriate or otherwise violate patent claims or other intellectual property rights held by them or that we or our collaborators' are employing their proprietary technology without authorization. Patent and other types of intellectual property litigation can involve complex factual and legal questions, and their outcome is uncertain. Any claim relating to intellectual property infringement that is successfully asserted against us may require us to pay substantial damages, including treble damages and attorneys' fees if we or our collaborators are found to be willfully infringing another party's patents, for past use of the asserted intellectual property and royalties and other consideration going forward if we are forced to take a license. Such a license may not be available on commercially reasonable terms, or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same intellectual property rights or technologies licensed to us. In addition, if any such claim were successfully asserted against us and we could not obtain a license, we or our collaborators may be forced to stop or delay developing, manufacturing, selling or otherwise commercializing our products, product candidates or other infringing technology, or those we develop with our collaborators.

Even if we are successful in these proceedings, we may incur substantial costs and divert management time and attention pursuing these proceedings, which could have a material adverse effect on us. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, if securities analysts or investors negatively perceive, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales,

marketing or distribution activities. If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, defend an infringement action or challenge the validity of the patents in court, or redesign our products. We may not have sufficient resources to advance these actions to a successful conclusion. In addition, intellectual property litigation or claims could force us to do one or more of the following:

- cease developing, selling or otherwise commercializing our product candidates;
- pay substantial damages for past use of the asserted intellectual property;
- obtain a license from the holder of the asserted intellectual property, which license may not be available on reasonable terms, if at all; and
- in the case of trademark claims, redesign, or rename trademarks we may own, to avoid infringing the intellectual property rights of third parties, which may not be possible and, even if possible, could be costly and time-consuming.

Any of these risks coming to fruition could have a material adverse effect on our business, results of operations, financial condition and prospects.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court.

If we or one of our licensing partners initiated legal proceedings against a third party to enforce a patent covering our product candidate, the defendant could counterclaim that the patent covering our product candidate is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Furthermore, third parties may petition courts for declarations of invalidity or unenforceability with respect to our patents or individual claims. If successful, such claims could narrow the scope of protection afforded our product candidates and future products, if any. Grounds for a validity challenge include alleged failures to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for unenforceability assertions include allegations that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review and equivalent proceedings in foreign jurisdictions. Such proceedings could result in revocation or amendment of our patents in such a way that they no longer cover our product candidates or competitive products. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to validity, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection would have a material adverse impact on our business.

We may be unsuccessful in licensing or acquiring intellectual property that may be required to develop and commercialize our product candidates from third parties.

We have rights, through licenses from third parties and under patents that we own, to the intellectual property to develop our product candidates. Because our programs may involve additional product candidates that may require the use of intellectual property or proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these intellectual property and proprietary rights. In addition, our product candidates may require specific formulations to work effectively and efficiently, and these rights may be held by others. We may be unable to acquire or in-license any third-party intellectual property or proprietary rights or to do so on commercially reasonable terms. The licensing and acquisition of third-party intellectual property and proprietary rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property and proprietary rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size and greater capital resources and development and commercialization capabilities.

For example, we sometimes collaborate with academic institutions to accelerate our research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the strategic alliance. Regardless of such option, we may be unable to negotiate a license within the specified time frame or under terms that are acceptable to us, and the institution may license such intellectual property rights to third parties, potentially blocking our ability to pursue our development and commercialization plans.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license to us intellectual property and proprietary rights. We also may be unable to license or acquire third-party intellectual property and proprietary rights on terms that would allow us to make an appropriate return on our investment or at all. If we are unable to successfully acquire or in-license rights to required third-party intellectual property and proprietary rights or maintain the existing intellectual property and proprietary rights we have, we may have to cease development of the relevant program, product or product candidate, which could have a material adverse effect on our business.

If we fail to comply with our obligations in the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

We are a party to a number of intellectual property license agreements that are important to our business and expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that future license agreements will impose, various diligence, milestone payment, royalty and other obligations on us. If we fail to comply with our obligations under these agreements, or we are subject to a bankruptcy, our licensors may have the right to terminate the license, in which event we would not be able to market products or product candidates covered by the license.

In addition, disputes may arise regarding the payment of the royalties or other consideration due to licensors in connection with our exploitation of the rights we license from them. Licensors may contest the basis of payments we retained and claim that we are obligated to make payments under a broader basis. In addition to the costs of any litigation we may face as a result, any legal action against us could increase our payment obligations under the respective agreement and require us to pay interest and potentially damages to such licensors.

In some cases, patent prosecution of our licensed technology is controlled solely by the licensor. If such licensor fails to obtain and maintain patent or other protection for the proprietary intellectual property we license from such licensor, we could lose our rights to such intellectual property or the exclusivity of such rights, and our competitors could market competing products using such intellectual property. In addition, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. In that event, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected products and product candidates, which could harm our business significantly. In other cases, we control the prosecution of patents resulting from licensed technology. In the event we breach any of our obligations related to such prosecution, we may incur significant liability to our licensing partners. We may also require the cooperation of our licensors to enforce any licensed patent rights, and such cooperation may not be provided. Moreover, we have obligations under these license agreements, and any failure to satisfy those obligations could give our licensor the right to terminate the agreement. Termination of a necessary license agreement could have a material adverse impact on our business.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry. Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the basis of royalties and other consideration due to our licensors;
- the extent to which our products, product candidates, technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed from third parties prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

Risks Related to Our Organization, Structure and Operation

We will need to develop and expand our company, and we may encounter difficulties in managing this development and expansion, which could disrupt our operations.

As of December 31, 2019, we had 264 full-time employees (including Calyxt, Inc.) and we expect to increase our number of employees and the scope and location of our operations. To manage our anticipated development and expansion, including the development and the commercialization of our product candidates, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Also, our management may need to divert a disproportionate amount of its attention away from its day-to-day activities and devote a substantial amount of time to managing these development activities. Due to our limited resources, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. This may result in

weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The physical expansion of our operations may lead to significant costs and may divert financial resources from other projects, such as the development of our product candidates. If our management is unable to effectively manage our expected development and expansion, our expenses may increase more than expected, our ability to generate or increase our revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize our product candidates, if approved, and compete effectively will depend, in part, on our ability to effectively manage the future development and expansion of our company.

We depend on key management personnel and attracting and retaining other qualified personnel, and our business could be harmed if we lose key management personnel or cannot attract and retain other qualified personnel.

Our success depends to a significant degree upon the technical skills and continued service of certain members of our management team, including Dr. André Choulika, our co-founder and Chief Executive Officer; Dr. David Sourdive, our co-founder and Executive Vice President, Strategic Initiatives; and Eric Dutang, our Chief Financial Officer. Although we maintain “key person” insurance policies on the lives of our co-founders, the loss of the services of our co-founders or other key executive officers could have a material adverse effect on us. Our success also will depend upon our ability to attract and retain additional qualified management, regulatory, medical, technical, and sales and marketing executives and personnel. The failure to attract, integrate, motivate, and retain additional skilled and qualified personnel, or to find suitable replacements upon departures, could have a material adverse effect on our business.

We compete for such personnel against numerous companies, including larger, more established companies with significantly greater financial resources than we possess. In addition, failure to succeed in our product candidates’ development may make it more challenging to recruit and retain qualified personnel. There can be no assurance that we will be successful in attracting or retaining such personnel and the failure to do so could have a material adverse effect on our business, financial condition, and results of operations.

In order to induce valuable employees to remain at Collectis, we have provided from time to time free shares and stock options to purchase ordinary shares that vest over time. The value to employees of free shares and stock options that vest over time may be significantly affected by movements in the price of our ordinary shares that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies. In addition, our board authority to grant equity incentive instruments is subject to an approval of a two-thirds majority of the shares held by our shareholders. Our shareholders may vote against some or all resolutions giving authority to our board to grant equity.

The requirements of being a U.S. public company require significant resources and management attention and affect our ability to attract and retain executive management and qualified board members.

As a U.S. public company, we incur significant legal, accounting, and other expenses. We are subject to the US Securities Exchange Act of 1934, of the Exchange Act, including the reporting requirements thereunder, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Nasdaq listing requirements and other applicable securities rules and regulations. Compliance with these rules and regulations results in substantial legal and financial compliance costs and makes some activities more difficult, time-consuming or costly and increases demand on our systems and resources. These costs and other impacts would increase if we cease to qualify as a foreign private issuer, in which case we would be required to comply with the enhanced reporting and governance requirements applicable to U.S. domestic reporting companies.

In addition, our subsidiary Calyxt is a U.S. public company, and is also subject to the Exchange Act, including the reporting requirements thereunder, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Nasdaq listing requirements and other applicable securities rules and regulations. Having a U.S. public company subsidiary has impacted the disclosure of our financial information and has increased our legal and financial compliance costs.

Further, being a U.S. public company and a French public company has impacted the disclosure of information and required compliance with two sets of applicable rules. From time to time, this may result in uncertainty regarding compliance matters and has resulted in higher costs necessitated by legal analysis of dual legal regimes, ongoing revisions to disclosure and adherence to heightened governance practices. As a result of the enhanced disclosure requirements of the U.S. securities laws, business and financial information that we report is broadly disseminated and highly visible to investors, which we believe may increase the likelihood of threatened or actual litigation, including by competitors and other third parties, which could, even if unsuccessful, divert financial resources and the attention of our management from our operations.

We must maintain effective internal control over financial reporting, and if we are unable to do so, the accuracy and timeliness of our financial reporting may be adversely affected, which could have a material adverse effect on our business, investor confidence and market price.

We must maintain effective internal control over financial reporting in order to accurately and timely report our results of operations and financial condition. In addition, as a public company, the Sarbanes-Oxley Act requires, among other things, that we assess the effectiveness of our disclosure controls and procedures and the effectiveness of our internal control over financial reporting at the end of each fiscal year. Pursuant to Section 404 of the Sarbanes-Oxley Act, we are required to furnish a report by our management on our internal control over financial reporting, and we are required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. The rules governing the standards that must be met for our management to assess our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act are complex and require significant documentation, testing and possible remediation. These stringent standards require that our audit and finance committee be advised and regularly updated on management's review of internal control over financial reporting.

Our compliance with applicable provisions of Section 404 requires that we incur substantial accounting expense and expend significant management attention and time on compliance-related issues as we implement additional corporate governance practices and comply with reporting requirements.

If we fail to staff our accounting and finance function adequately or maintain internal control over financial reporting adequate to meet the requirements of the Sarbanes-Oxley Act, our business and reputation may be harmed. Moreover, if we are not able to comply with the applicable requirements of Section 404 in a timely manner, we may be subject to sanctions or investigations by regulatory authorities, including the SEC and Nasdaq. Furthermore, if we are unable to conclude that our internal control over financial reporting is effective or if our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our stock could decline, and we could be subject to sanctions or investigations by the SEC, Nasdaq or other regulatory authorities. Failure to implement or maintain effective internal control systems required of public companies could also restrict our access to the capital markets. The occurrence of any of the foregoing would also require additional financial and management resources.

Our failure to maintain certain tax benefits applicable to French technology companies may adversely affect our results of operations.

As a French technology company, we have benefited from certain tax advantages, including the French research tax credit (*Crédit d'Impôt Recherche*), or CIR. The CIR is a French tax credit aimed at stimulating research and development. The CIR can be offset against French corporate income tax due and the portion in excess (if any) may be refunded at the end of a three fiscal-year period (or, sooner, in certain cases). The Research tax credit receivables as of December 31, 2019 include the accrual for a French research tax credit related to 2019 for \$7.9 million and a portion related to 2017 and 2018 for \$0.8 million. The CIR is calculated based on our claimed amount of eligible research and development expenditures in France. The French tax authority with the assistance of the Research and Technology Ministry may audit each research and development program in respect of which a CIR benefit has been claimed and assess whether such program qualifies in their view for the CIR benefit, in accordance with the French tax code (*code général des impôts*) and the relevant official guidelines.

During December 2018, the French Tax Authority initiated an audit related to the 2014, 2015, 2016 and 2017 French research tax credits. As a result of the audit, the French Tax Authority withheld a portion of the 2018 and 2017 research tax credits payment corresponding to the nature of certain employee costs. We challenged the French Tax Authority's withholding and do not believe that a provision should be recorded at this time. Should the French tax authorities be successful, we may be liable for additional corporate income tax, and penalties and interest related thereto, or we may not obtain the refunds for which we have applied, which could have a significant impact on our results of operations and future cash flows.

Furthermore, if the French Parliament decides to eliminate, modify, or reduce the scope of the CIR benefit, which it could decide to do at any time, our results of operations could be adversely affected.

We may be exposed to significant foreign exchange risk, which may adversely affect our financial condition, results of operations and cash flows.

We incur portions of our expenses and may in the future derive revenues in currencies other than the euro, including, in particular, the U.S. dollar. As a result, we are exposed to foreign currency exchange risk as our results of operations and cash flows are subject to fluctuations in foreign currency exchange rates. While we are engaged in hedging transactions to minimize the impact of uncertainty in future exchange rates on cash flows, we may not hedge all of our foreign currency exchange rate risk. In addition, hedging transactions carry their own risks and costs, including the possibility of a default by the counterpart to the hedge transaction. We cannot predict the impact of foreign currency fluctuations, and foreign currency fluctuations in the future may adversely affect our financial condition, results of operations and cash flows.

We may use hazardous chemicals and biological materials in our business. Any claims relating to improper handling, storage or disposal of these materials could be time consuming and costly.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment, manufacture and disposal of hazardous materials and wastes. Our research and development processes may involve the controlled use of hazardous materials, including chemicals and biological materials. We cannot eliminate the risk of accidental contamination or discharge and any resultant injury from these materials. We may be sued for any injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed any insurance coverage and our total assets. Federal, state, local or foreign laws and regulations govern the use, manufacture, storage, handling and disposal of these hazardous materials and specified waste products, as well as the discharge of pollutants into the environment and human health and safety matters. Compliance with environmental laws and regulations may be expensive and may impair our research and development efforts. If we fail to comply with these requirements, we could incur delays, substantial costs, including civil or criminal fines and penalties, clean-up costs or capital expenditures for control equipment or operational changes necessary to achieve and maintain compliance. In addition, we cannot predict the impact on our business of new or amended environmental laws or regulations or any changes in the way existing and future laws and regulations are interpreted and enforced. These current or future laws and regulations may impair our research, development or production efforts.

Our internal computer systems, or those of our third-party contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product development programs or loss of personal data.

Despite the implementation of security measures, our internal computer systems and those of our third-party contractors and consultants are vulnerable to damage from computer viruses, cyber-attacks, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we do not believe that we have experienced any significant system failure, accident, or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in significant damages including without limitation in a material disruption of our programs. For example, the loss of clinical trial data for our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach results in a loss of or damage to our data or applications or other data or applications relating to our technology or product candidates, or inappropriate disclosure of confidential or proprietary information, we could incur liabilities and the further development of our product candidates could be delayed.

Data privacy regulations could adversely affect our business, results of operations and financial condition.

We are subject to data privacy and protection laws and regulations that impose requirements relating to the collection, transmission, storage and use of personally-identifying information, including comprehensive regulatory systems in the U.S. and EU. The legislative and regulatory landscape for privacy and data protection continues to evolve in jurisdictions worldwide, and there has been an increasing focus on privacy and data protection issues with the potential to affect our business. Failure to comply with any of these laws and regulations could result in enforcement action against us, including fines, imprisonment of company officials and public censure, claims for damages by affected individuals, damage to our reputation and loss of goodwill, any of which could have a material adverse effect on our business, financial condition, results of operations or prospects.

There are numerous U.S. federal and state laws and regulations related to the privacy and security of personal information, including regulations promulgated pursuant to HIPAA that establish privacy and security standards for the use and disclosure of individually identifiable health information and require the implementation of administrative, physical and technological safeguards to protect the privacy of such protected health information. Determining whether protected health information has been handled in compliance with applicable privacy standards and our contractual obligations can be complex and may be subject to changing interpretation. We cannot be sure how these regulations will be interpreted, enforced or applied to our operations. If we fail to comply with applicable privacy laws, including applicable HIPAA privacy and security standards, we could face civil and criminal penalties.

In the EU, we are subject to the European Regulation 2016/679, known as the General Data Protection Regulation (GDPR), as well as EU Member State implementing legislations. GDPR and EU Member State implementing legislation apply to the collection and processing of personal data, including health-related information, by companies located in the EU and processing personal information of individuals located in the EU. These laws impose strict obligations on the ability to process personal data, including health-related information, in particular in relation to their collection, use, disclosure and transfer. These include several requirements relating to (i) obtaining, in some situations, the consent of the individuals to whom the personal data relates, (ii) the information provided to the individuals about how their personal information is used, (iii) ensuring the security and confidentiality of the personal data, (iv) the obligation to notify personal data breaches to regulatory authorities and, as applicable, to communicate such breaches to affected individuals, (v) extensive internal privacy governance obligations, and (vi) obligations to honor rights of individuals in relation to their personal data (for example, the right to access, correct and delete their data). The

GDPR also imposes restrictions on the transfer of personal data to countries outside of the European Economic Area (EEA). The GDPR has increased our responsibility and liability in relation to personal data that we process, and we may be required to put in place additional potential mechanisms to ensure compliance with the new EU data protection rules. Also, some uncertainty remains around the legal and regulatory environment for these evolving privacy and data protection laws and regulations.

We may become the subject of investigations and/or claims in respect of privacy matters and unfavorable outcomes in any of such matters could preclude the commercialization of products, harm our reputation, negatively affect the profitability of our products and subject us to substantial fines. In addition, our ongoing efforts to comply with evolving laws and regulations in the US, EU and elsewhere may be costly and require ongoing modifications to our policies, procedures and systems.

We may acquire businesses or products, or form strategic alliances, in the future, and we may not realize the benefits of such acquisitions.

Our current strategy does not involve acquisition plans. However, if acquisitions were to become necessary or attractive in order to access new products, technologies, research projects or geographical areas, or to express synergies with existing operations, we may not be able to identify appropriate targets or negotiate satisfactory conditions, including price conditions. In addition, we may be unable to obtain the financing for any such acquisitions under favorable conditions, and could be led to finance these acquisitions using cash that could be allocated to existing operations. We may not be able to realize anticipated benefits of acquiring any such businesses and may encounter numerous difficulties in connection therewith.

Risks Related to Ownership of Our Ordinary Shares and ADSs

Although not free from doubt, we do not believe we were a “passive foreign investment company,” or PFIC, for U.S. federal income tax purposes for the 2019 taxable year. However, we cannot assure you that we will not be classified as a PFIC for 2020 or any future taxable year, which may result in adverse U.S. federal income tax consequences to U.S. holders (as defined in the section titled “Taxation—Material U.S. Federal Income Tax Considerations” in this Annual Report).

A non-U.S. corporation will be considered a PFIC for any taxable year if either (1) at least 75% of its gross income for such year is passive income or (2) at least 50% of the value of its assets (based on an average of the quarterly values of the assets during such year) is attributable to assets that produce or are held for the production of passive income. Although the matter is not free from doubt, we do not believe that we were a PFIC for U.S. federal income tax purposes for the 2019 taxable year. Because certain aspects of the PFIC rules are not entirely certain and because this determination is dependent upon a number of factors, there can be no assurance that we were not a PFIC for the 2019 taxable year or that the IRS will agree with our conclusion regarding our PFIC statutes.

Further, no assurances may be given at this time as to our PFIC status for the current or future taxable years. The determination of PFIC status is fact-specific, and a separate determination must be made each taxable year as to whether we are a PFIC (after the close of each such taxable year). It is possible that we could be classified as a PFIC for 2020 or future taxable years due to changes in the composition of our assets or income, as well as changes to the market value of our assets. The market value of our assets may be determined in large part by reference to our market capitalization (and, therefore, the market price of our stock, which has fluctuated and is likely to continue to fluctuate, substantially).

If we are a PFIC for any taxable year during which a U.S. holder holds ADSs, the U.S. holder may be subject to adverse tax consequences, including (1) the treatment of all or a portion of any gain on disposition of the ADSs as ordinary income, (2) the application of an interest charge with respect to such gain and certain dividends and (3) compliance with certain reporting requirements. Each U.S. holder is strongly urged to consult its tax advisor regarding these issues and any available elections to mitigate such tax consequences. See the section titled “Taxation—Material U.S. Federal Income Tax Considerations” in this Annual Report.

The market price for our ADSs may be volatile or may decline regardless of our operating performance.

The trading price of the ADSs has fluctuated, and is likely to continue to fluctuate, substantially. The trading price of our ADSs depends on a number of factors, including those described in this “Risk Factors” section, many of which are beyond our control and may not be related to our operating performance.

Since the ADSs were sold in our initial public offering in March 2015 at a price of \$41.50 per share, the price per ADS has ranged as low as \$9.50 and as high as \$50.00 through March 4, 2020. The market price of the ADSs may fluctuate significant in response to numerous factors, many of which are beyond our control, including:

- actual or anticipated fluctuations in our financial condition and operating results;
- our failure to develop and commercialize our product candidates or to do so in a timely manner;

Table of Contents

- adverse results of delays in our or any of our competitors' pre-clinical studies or clinical trials;
- actual or anticipated changes in our growth rate relative to our competitors;
- competition from existing products or new products that may emerge;
- announcements by us, our collaborators or our competitors of significant acquisitions, strategic partnerships, joint ventures, strategic alliances, or capital commitments;
- adverse regulatory decisions, including failure to receive regulatory approval for any of our product candidates;
- the termination of a strategic alliance or the inability to establish additional strategic alliances;
- unanticipated serious safety concerns related to the use of any of our product candidates;
- failure to meet or exceed financial estimates and projections of the investment community or that we provide to the public;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- inconsistent trading volume levels of our ADSs;
- price and volume fluctuations in trading of our ordinary shares on the Euronext Growth market of the Euronext in Paris;
- additions or departures of key management or scientific personnel;
- disputes or other developments related to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- our inability to obtain reimbursement by commercial third-party payors and government payors and any announcements relating to coverage policies or reimbursement levels;
- announcement or expectation of additional debt or equity financing efforts;
- sales of our ordinary shares or ADSs by us, our insiders or our other shareholders; and
- general economic and market conditions.

These and other market and industry factors may cause the market price and demand for our ADSs to fluctuate substantially, regardless of our actual operating performance, which may limit or prevent holders from readily selling their ADSs and may otherwise negatively affect the liquidity of our capital shares. In addition, the stock market in general, and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies.

Share ownership is concentrated in the hands of our principal shareholders and management, who will continue to be able to exercise substantial influence on us.

Our executive officers, directors, current 5% or greater shareholders and affiliated entities beneficially own approximately 33.28% of our ordinary shares outstanding (including those underlying our ADSs, but excluding shares that may be acquired upon exercise of stock options or warrants) as of December 31, 2019. As a result, these shareholders have significant influence over all matters that require approval by our shareholders, including the election of directors and approval of significant corporate transactions. Corporate action might be taken even if other shareholders oppose them. This concentration of ownership might also have the effect of delaying or preventing a change of control of our company that other shareholders may view as beneficial.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, the price of our ADSs and trading volume could decline.

The trading market for our ADSs depends in part on the research and reports that securities or industry analysts publish about us or our business. If few or no securities or industry analysts cover us, the trading price for our ADSs would be negatively impacted. If one or more of the analysts who covers us downgrades our securities or publishes incorrect or unfavorable research about our business, the price of our ADSs would likely decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly this could also cause the price of our ADSs or trading volume to decline.

We do not currently intend to pay dividends on our securities. In addition, French law may limit the amount of dividends we are able to distribute.

We have never declared or paid any cash dividends on our share capital and do not currently intend to do so for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Therefore, holders of our ordinary shares and ADSs are not likely to receive any dividends for the foreseeable future and any increase in value will depend solely upon any future appreciation. Consequently, holders of our equity securities may need to sell all or part of their holdings after price appreciation, which may never occur, as the only way to realize any future gains.

Further, under French law, the determination of whether we have been sufficiently profitable to pay dividends is made on the basis of our statutory financial statements prepared and presented in accordance with standard applicable in France. Please see the section of this Annual Report titled “Memorandum and Articles of Association” for further details on the limitations on our ability to declare and pay dividends. Therefore, we may be more restricted in our ability to declare dividends than companies not based in France.

Future sales of ordinary shares or ADSs in the public market could depress the market price of the ADSs.

We believe that additional capital may be needed to continue our planned operations, including conducting our planned clinical trials, manufacturing and commercialization efforts, expanded research and development activities and costs associated with operating as a public company. Sales of additional ordinary shares or ADSs by us, or the perception that these sales could occur, could cause the market price of our ADSs to decline.

In addition, if our existing shareholders sell, or indicate an intent to sell, substantial amounts of ordinary shares or ADSs, the market price of our ADSs could decline. In addition, such secondary sales may impair our ability to raise capital through the sale of additional equity securities.

As of December 31, 2019, we had 42,275,882 ordinary shares outstanding. All ADSs representing our ordinary shares are expected to be freely transferable by persons other than our “affiliates” without restriction. As of February 28, 2020, our directors and executive officers beneficially owned approximately 9,507,626 of our ordinary shares. Outstanding shares held by our affiliates, including our officers and directors, may be publicly sold in accordance with the requirements of Rule 144 under the Securities Act, including the volume and manner of sale requirements of that rule.

Risks Relating to Investing in a Foreign Private Issuer or French Company

Our By-laws and French corporate law contain provisions that may delay or discourage a takeover attempt.

Provisions contained in our By-laws and the corporate laws of France, the country in which we are incorporated, could make it more difficult for a third party to acquire us, even if doing so might be beneficial to our shareholders. In addition, provisions of French law and our By-laws impose various procedural and other requirements, which could make it more difficult for shareholders to effect certain corporate actions. These provisions include the following:

- a merger (i.e., in a French law context, stock-for-stock exchange after which our company would be dissolved without being liquidated into the acquiring entity and our shareholders would become shareholders of the acquiring entity) of our company into a company incorporated in the European Union would require the approval of our board of directors as well as a two-thirds majority of the votes cast of by the shareholders present, represented by proxy or voting by mail at the relevant meeting;
- a merger of our company into a company incorporated outside of the European Union would require the unanimous approval of our shareholders;
- under French law, a cash merger is treated as a share purchase and would require the consent of each participating shareholder;
- our shareholders have granted and may in the future grant to our board of directors broad authorizations to increase our share capital or to issue additional ordinary shares or other securities (for example, warrants) to our shareholders, the public or qualified investors, including as a possible defense following the launching of a tender offer for our shares;
- our shareholders have preferential subscription rights proportional to their shareholding in our company on the issuance by us of any additional shares or securities giving the right, immediately or in the future, to new shares for cash or a set-off of cash debts, which rights may only be waived by the extraordinary general meeting (by a two-thirds majority vote) of our shareholders or on an individual basis by each shareholder;

Table of Contents

- our board of directors has the right to appoint directors to fill a vacancy created by the resignation or death of a director, subject to the ratification by the shareholders of such appointment at the next shareholders' meeting, which prevents shareholders from having the sole right to fill vacancies on our board of directors;
- our board of directors can only be convened by its chairman (and our managing director, if different from the chairman, may request the chairman to convene the board) or, when no board meeting has been held for more than two consecutive months, by directors representing at least one-third of the total number of directors;
- our board of directors meetings can only be regularly held if at least half of the directors attend either physically or by way of videoconference or teleconference enabling the directors' identification and ensuring their effective participation in the board of directors' decisions;
- our shares take the form of bearer securities or registered securities, if applicable legislation so permits, according to the shareholder's choice. Issued shares are registered in individual accounts opened by us or any authorized intermediary (depending on the form of such shares), in the name of each shareholder and kept according to the terms and conditions laid down by the legal and regulatory provisions;
- under French law, a non-French resident as well as any French entity controlled by non-French residents may have to file a declaration for statistical purposes with the Bank of France (*Banque de France*) following the date of certain direct or indirect investments in us; see the section of this Annual Report titled "Ownership of Shares and ADSs by Non-French Persons";
- approval of at least a majority of the votes cast of the shareholders present, represented by a proxy, or voting by mail at the relevant ordinary shareholders' general meeting is required to remove directors with or without cause;
- advance notice is required for nominations to the board of directors or for proposing matters to be acted upon at a shareholders' meeting, except that a vote to remove and replace a director can be proposed at any shareholders' meeting without notice;
- transfers of shares shall comply with applicable insider trading rules;
- in the event where certain ownership thresholds would be crossed, a number of disclosures should be made by the relevant shareholder in addition to other certain obligations; see the section of this Annual Report titled "Declaration of Crossing of Ownership Thresholds"; and
- pursuant to French law, the sections of the By-laws relating to the number of directors and election and removal of a director from office may only be modified by a resolution adopted by a two-thirds majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the meeting.

Holders of our ADSs do not directly hold our ordinary shares.

Holders of ADSs are not treated as one of our shareholders and do not have ordinary shareholder rights. French law governs shareholder rights. The depository, Citibank, N.A., is the holder of the ordinary shares underlying all ADSs. Holders of ADSs have only ADS holder rights. The deposit agreement among us, the depository and each ADS holder, sets out ADS holder rights, as well as the rights and obligations of the depository.

Holders of our ADSs may not be able to exercise their right to vote the ordinary shares underlying such ADSs.

Holders of ADSs may exercise voting rights with respect to the ordinary shares represented by the ADSs only in accordance with the provisions of the deposit agreement and not as a direct shareholder. The deposit agreement provides that, upon receipt of notice of any meeting of holders of our ordinary shares, the depository will fix a record date for the determination of ADS holders who shall be entitled to give instructions for the exercise of voting rights. Upon timely receipt of notice from us, if we so request, the depository shall distribute to the holders as of the record date (1) the notice of the meeting or solicitation of consent or proxy sent by us and (2) a statement as to the manner in which instructions may be given by the holders.

Holders of ADSs may instruct the depository of the ADSs to vote the ordinary shares underlying such ADSs. Otherwise, holders of our ADSs will not be able to exercise their right to vote, unless they withdraw the ordinary shares underlying such ADSs. However, holders of our ADSs may not know about the meeting far enough in advance to withdraw those ordinary shares. If we ask for instructions, the depository, upon timely notice from us, will notify holders of our ADSs of the upcoming vote and arrange to deliver our voting materials to such holders. We cannot guarantee that holders of our ADSs will receive the voting materials in time to ensure that they can instruct the depository to vote such ordinary shares or to withdraw such ordinary shares so as to vote them directly. If the depository does not receive timely voting instructions from holders of our ADSs, it may give a proxy to a person designated by us to vote the ordinary shares underlying such ADSs in accordance with the recommendation of

our board of directors. In addition, the depositary and its agents are not responsible for failing to carry out voting instructions or for the manner of carrying out voting instructions. This means that holders of our ADSs may not be able to exercise their right to vote, and there may be nothing such holders can do if the ordinary shares underlying such ADSs are not voted as requested.

The right of holders of our ADSs to participate in any future preferential subscription rights or to elect to receive dividends in shares may be limited, which may cause dilution to holders of ADSs.

According to French law, if we issue additional shares or securities for cash, current shareholders will have preferential subscription rights for these securities proportionally to their shareholding unless they waive those rights at an extraordinary meeting of our shareholders (by a two-thirds majority vote) or individually by each shareholder. However, our ADS holders in the United States will not be entitled to exercise or sell such rights unless we register the rights and the securities to which the rights relate under the Securities Act or an exemption from the registration requirements is available. In addition, the deposit agreement for our ADSs provides that the depositary will not make rights available to holders of our ADSs unless the distribution to ADS holders of both the rights and any related securities are either registered under the Securities Act or exempted from registration under the Securities Act. Further, if we offer holders of our ordinary shares the option to receive dividends in either cash or shares, the depositary may require satisfactory assurances from us that extending the offer to holders of ADSs does not require registration of any securities under the Securities Act before making the option available to holders of ADSs. We are under no obligation to file a registration statement with respect to any such rights or securities or to endeavor to cause such a registration statement to be declared effective. Moreover, we may not be able to establish an exemption from registration under the Securities Act. Accordingly, ADS holders may be unable to participate in our rights offerings or to elect to receive dividends in shares and may experience dilution in their holdings and may receive no value for these rights.

Holders of our ADSs may be subject to limitations on the transfer of such ADSs and the withdrawal of the underlying ordinary shares.

ADSs, which may be evidenced by American Depositary Receipts, or ADRs, are transferable on the books of the depositary. However, the depositary may close its books at any time or from time to time when it deems expedient in connection with the performance of its duties. The depositary may refuse to deliver, transfer or register transfers of ADSs generally when our books or the books of the depositary are closed, or at any time if we or the depositary think it is advisable to do so because of any requirement of law, government or governmental body, or under any provision of the deposit agreement, or for any other reason subject to an ADS holders' right to cancel such ADSs and withdraw the underlying ordinary shares. Temporary delays in the cancellation of such ADSs and withdrawal of the underlying ordinary shares may arise because the depositary has closed its transfer books or we have closed our transfer books, the transfer of ordinary shares is blocked to permit voting at a shareholders' meeting or we are paying a dividend on our ordinary shares. In addition, holders of our ADSs may not be able to cancel such ADSs and withdraw the underlying ordinary shares when such holders owe money for fees, taxes and similar charges and when it is necessary to prohibit withdrawals in order to comply with any laws or governmental regulations that apply to ADSs or to the withdrawal of ordinary shares or other deposited securities.

As a foreign private issuer, we are exempt from a number of rules under the U.S. securities laws and are permitted to file less information with the SEC than a U.S. company. This may limit the information available to holders of ADSs.

We are a "foreign private issuer," as defined in the SEC's rules and regulations and, consequently, we are not subject to all of the disclosure requirements applicable to public companies organized within the United States. For example, we are exempt from certain rules under the Exchange Act that regulate disclosure obligations and procedural requirements related to the solicitation of proxies, consents or authorizations applicable to a security registered under the Exchange Act, including the U.S. proxy rules under Section 14 of the Exchange Act. In addition, our officers and directors are exempt from the reporting and "short-swing" profit recovery provisions of Section 16 of the Exchange Act and related rules with respect to their purchases and sales of our securities. Moreover, while we currently make annual and quarterly filings with the SEC, we are not required to file periodic reports and financial statements with the SEC as frequently or as promptly as U.S. domestic public companies and are not required to file quarterly reports on Form 10-Q or current reports on Form 8-K under the Exchange Act. Accordingly, there may be less publicly available information concerning our company than there would be if we were a U.S. domestic issuer.

As a foreign private issuer, we follow certain home country practices in relation to corporate governance matters that differ significantly from Nasdaq corporate governance standards. These practices may afford less protection to shareholders than they would enjoy if we complied fully with Nasdaq's corporate governance standards.

As a foreign private issuer listed on the Nasdaq Global Market, we are subject to corporate governance standards. However, Nasdaq's rules permit a foreign private issuer like us to follow the corporate governance practices of its home country. Certain corporate governance practices in France, which is our home country, may differ significantly from corporate governance standards of the Nasdaq. For example, neither the corporate laws of France nor our By-laws require a majority of our directors to be independent and our independent directors are not required to hold regularly scheduled meetings at which only independent directors are present. In addition, home country practice in France does not require us to maintain a nominating and corporate governance committee or to maintain a compensation committee composed entirely of independent directors. Currently, we follow

home country practice in certain key respects. Therefore, our shareholders may be afforded less protection than they otherwise would have under corporate governance listing standards applicable to U.S. domestic issuers. A discussion of our corporate governance practices is set forth in the section titled “Management—Corporate Governance Practices.”

We may lose our foreign private issuer status in the future, which could result in significant additional cost and expense.

While we currently qualify as a foreign private issuer, the determination of foreign private issuer status is made annually on the last business day of our most recently completed second fiscal quarter and, accordingly, the next determination will be made with respect to us on June 30, 2020.

In the future, we would lose our foreign private issuer status if we fail to meet the requirements necessary to maintain our foreign private issuer status as of the relevant determination date. For example, if more than 50% of our securities are held by U.S. residents and (i) more than 50% of our executive officers or more than 50% of the members of our board of directors are residents or citizens of the United States, (ii) more than 50% of our assets are located in the United States, or (iii) our business is principally administered within the United States we could lose our foreign private issuer status.

The regulatory and compliance costs to us under U.S. securities laws as a U.S. domestic public company would be significantly more than costs we currently incur as a foreign private issuer.

It may be difficult to enforce civil liabilities against our company and directors and senior management and the experts named in this Annual Report.

Certain members of our board of directors and senior management and those of our subsidiaries, are non-residents of the United States, and all or a substantial portion of our assets and the assets of such persons are located outside the United States. As a result, it may not be possible to serve process on such persons or us in the United States or to enforce judgments obtained in U.S. courts against them or us based on civil liability provisions of the securities laws of the United States. Additionally, it may be difficult to assert U.S. securities law claims in actions originally instituted outside of the United States. Foreign courts may refuse to hear a U.S. securities law claim because foreign courts may not be the most appropriate forums in which to bring such a claim. Even if a foreign court agrees to hear a claim, it may determine that the law of the jurisdiction in which the foreign court resides, and not U.S. law, is applicable to the claim. Further, if U.S. law is found to be applicable, the content of applicable U.S. law must be proved as a fact, which can be a time-consuming and costly process, and certain matters of procedure would still be governed by the law of the jurisdiction in which the foreign court resides. In particular, there is some doubt as to whether French courts would recognize and enforce certain civil liabilities under U.S. securities laws in original actions or judgments of U.S. courts based upon these civil liability provisions. In addition, awards of punitive damages in actions brought in the United States or elsewhere may be unenforceable in France. An award for monetary damages under the U.S. securities laws would be considered punitive if it does not seek to compensate the claimant for loss or damage suffered but is intended to punish the defendant. French law provides that a shareholder, or a group of shareholders, may initiate a legal action to seek indemnification from the directors of a corporation in the corporation’s interest if it fails to bring such legal action itself. If so, any damages awarded by the court are paid to the corporation and any legal fees relating to such action are borne by the relevant shareholder or the group of shareholders.

The enforceability of any judgment in France will depend on the particular facts of the case as well as the laws and treaties in effect at the time. The United States and France do not currently have a treaty providing for recognition and enforcement of judgments (other than arbitration awards) in civil and commercial matters.

Provisions in our collaboration agreement with Servier may prevent or delay a change in control.

Our collaboration agreement with Servier provides that if a third party acquires control of us, directly or indirectly, by any means, or in the event that we sell or otherwise convey to a third party all or substantially all of our assets (or all or substantially all of our assets that are material to the performance of our obligations under the collaboration agreement), and such third party successor conducts research, development, manufacturing or commercialization activities on CD19 or any other CAR-T products within the indications developed by Servier, then Servier has the right to acquire for one lump sum payment an exclusive fully paid-up worldwide license over substantially all of the Cellectis intellectual property relating to the UCART19 products covered by the collaboration agreement (the “Servier buy out”). If we and Servier fail to agree on the amount of payment for the Servier buy out within ten days following Servier’s provision of a buy-out notice, then the amount of the buy-out payment would be determined based a valuation process involving third-party valuers selected by us and Servier, respectively.

The Servier buy-out mechanism may have the effect of delaying or preventing a change in control transaction involving us, or may reduce the number of companies interested in acquiring us. If Servier were to exercise the Servier buy-out, it would gain exclusive development and marketing rights to UCART19 products covered by the collaboration agreement. Were this to happen, our successor would not receive milestone payments or royalty payments on net sales of any of the UCART19 products exclusively licensed to Servier in connection with the Servier buy-out.

The rights of shareholders in companies subject to French corporate law differ in material respects from the rights of shareholders of corporations incorporated in the United States.

We are a French company with limited liability. Our corporate affairs are governed by our By-laws and by the laws governing companies incorporated in France. The rights of shareholders and the responsibilities of members of our board of directors are in many ways different from the rights and obligations of shareholders in companies governed by the laws of U.S. jurisdictions. For example, in the performance of its duties, our board of directors is required by French law to consider the interests of our company, its shareholders, its employees and other stakeholders, rather than solely our shareholders and/or creditors. It is possible that some of these parties will have interests that are different from, or in addition to, the interests of our shareholders. See the sections of this Annual Report titled “Memorandum and Articles of Association” and “Corporate Governance.”

ITEM 4. INFORMATION ON THE COMPANY

A. History and Development of the Company

Our legal name is Collectis S.A. and our commercial name is Collectis. We were incorporated as a *société anonyme*, or S.A., under the laws of the French Republic on January 4, 2000 for a period of 99 years. We are registered at the Paris Registre du Commerce et des Sociétés under the number 428 859 052. Our principal executive offices are located at 8, rue de la Croix Jarry, 75013 Paris, France, and our telephone number is +33 1 81 69 16 00. Our agent for service of process in the United States is Collectis, Inc. located at 430 East 29th Street, New York, New York 10016. We also maintain a website at www.collectis.com. The reference to our website is an inactive textual reference only and the information contained in, or that can be accessed through, our website is not a part of this Annual Report.

Our capital expenditures and additions to intangible assets for the years ended December 31, 2017, 2018 and 2019 together amounted to \$2.7 million, \$4.9 million and \$13.0 million, respectively. These expenditures primarily consisted of the acquisitions of industrial and laboratory equipment and fittings required to conduct our research programs, the improvements of Calyxt’s and Collectis’ sites and the first investments to start the construction of our new manufacturing facilities in Paris and in the United States. We expect our capital expenditures to increase in absolute terms in the near term as we continue to advance our research and development programs and grow our operations. We anticipate our capital expenditure in 2020 to be financed from our cash and cash equivalents on hand. Primarily, these capital expenditures will be made both in France and in the United States, where our research and development facilities are currently located.

On March 7, 2019, we signed a lease for an 82,000 square foot facility in Raleigh, North Carolina where we are building a manufacturing facility to produce our UCART products for clinical and commercial purposes. In addition, we started building a 14,000 square foot manufacturing facility in Paris, France to produce starting material of UCART products for clinical and commercial purposes.

For information on the SEC’s website and our website, please refer to “Item 10.H. Documents on Display”.

B. Business Overview

We are a clinical stage biotechnological company, employing our core proprietary technologies to develop best-in-class products in the field of immuno-oncology. Our product candidates, based on gene-edited T-cells that express chimeric antigen receptors, or CARs, seek to harness the power of the immune system to target and eradicate cancer cells. We believe that CAR-based immunotherapy is one of the most promising areas of cancer research, representing a new paradigm for cancer treatment. We are designing next-generation immunotherapies that are based on gene-edited CAR T-cells. Our gene-editing technologies allow us to create allogeneic CAR T-cells, meaning they are derived from healthy donors rather than the patients themselves. We believe that the production of allogeneic CAR T-cells will allow us to develop cost-effective, off-the-shelf products that are capable of being cryopreserved, stored and distributed worldwide. Our gene-editing expertise also enables us to develop product candidates that feature additional safety and efficacy attributes, including control properties designed to prevent them from attacking healthy tissues, to enable them to tolerate standard oncology treatments, and to equip them to resist mechanisms that inhibit immune-system activity. In addition to our focus on immuno-oncology, we are exploring the use of our gene-editing technologies in other therapeutic applications, as well as to develop, through Calyxt, plant-based solutions designed to be healthy and sustainable.

Cancer is the second-leading cause of death in the United States and accounts for around one in four deaths. Immuno-oncology seeks to harness the power of the body's immune system to target and kill cancer. A key to this effort is a type of white blood cell known as the T-cell, which plays an important role in identifying and killing cancer cells. Unfortunately, cancer cells often develop mechanisms to evade the immune system. CARs, which are engineered receptors that can be expressed on the surface of T-cells, provide the T-cells with a specific targeting mechanism, thereby enhancing its ability to seek, identify, interact with and destroy tumor cells bearing a selected antigen. Research and development of CAR T-cell immunotherapies currently focuses on two approaches: autologous and allogeneic therapies. Autologous CAR T-cell immunotherapies modify a patient's own T-cells to target specific antigens that are located on cancer cells. This type of therapy requires an individualized immunotherapy product for each patient and is currently being tested in clinical trials by several academic institutions, and biotechnology and pharmaceutical companies. In contrast, an allogeneic CAR T-cell immunotherapy is an approach by which a cancer patient is infused with a mass-produced, off-the-shelf immunotherapy product derived from a healthy T-cell donor. Our initial focus is on developing allogeneic treatments, and we believe that we are the leading company pursuing this approach.

Limitations of Current Autologous Treatments and Key Benefits of our UCART approach

Many of the CAR T-cell immunotherapy treatments currently under development are created through an autologous approach in which the patient's own T-cells are engineered to fight cancer cells. Part of our scientific basis for pursuing allogeneic approaches rests in the recognized limitations of autologous approaches, including:

- Autologous treatments must be specifically manufactured for each patient and the resulting engineered cells may have different properties due to significant patient-to-patient variability in the quality of the T-cell;
- Autologous treatments can bear high costs due to the necessity of producing a bespoke treatment for each patient and the effort consumed in modifying and growing each patient's T-cells; and
- At this time, autologous treatments cannot be mass produced, may involve significant delay in production time if the number of patients exceeds the number of productions that can be made in parallel, and require patients be treated at select advanced facilities.

Although some autologous approaches to CAR T-cell have recently demonstrated encouraging clinical data, we believe our CAR-T approach and manufacturing process has the potential to provide the following benefits:

- *Market access.* Enable products to be shipped globally, thereby reducing deployment obstacles and providing accessibility to a broad patient population;
- *Cost-effectiveness and Scalable Manufacturing.* Streamlined manufacturing process has the potential to reduce costs, with potentially hundreds of doses per batch;
- *Novel Features.* Develop products with specific safety and control properties, through a CAR linked to a suicide switch;
- *Engraftment.* Avoid graft-versus-host disease (GvHD) through the inactivation of the T-cell receptor (TCR).
- *Persistence.* Manage rejection and persistence of the UCART product candidate, through notably the option to inactivate CD52 and beta2-microglobulin ($\beta 2M$) genes respectively;

A key enabler of the allogeneic approach is our gene editing technology, relying on a particular class of proteins derived from transcription activator-like effectors fused to the nuclease domain of a type II restriction endonuclease (TALEN). Gene editing is a type of genetic engineering in which DNA is inserted, deleted, repaired or replaced from a precise location in the genome. The most fundamental challenge of gene editing is the need to specifically and efficiently target a precise DNA sequence within a gene. Our proprietary nuclease-based gene-editing technologies, combined with almost 20 years of genome engineering experience, allow us to edit any gene with highly precise insertion, deletion, repair and replacement of DNA sequences. Our nucleases, including TALEN, act like DNA scissors to edit genes at precise target sites and allow us to design allogeneic CAR T-cells. Our patented PulseAgile electroporation technology allows us to efficiently deliver our clinical grade nucleases into human cells while preserving cell viability, making it particularly well-suited for a large-scale manufacturing process. We believe these technologies will enable our clinical-grade drug therapeutic products to be manufactured, cryopreserved, stored, distributed broadly and infused into patients in an off-the-shelf approach.

Our candidate products

We are directly developing product candidates internally and have also enter into strategic alliances with Allogene Therapeutics, Inc. ("Allogene") and Les Laboratoires Servier ("Servier"). We believe that our alliances with Allogene and Servier have validated our technology platform, our strong expertise in the allogeneic CAR T-cells field and the strength of our intellectual property portfolio. Our strategic alliances include potential milestone payments to us of up to \$3.7 billion and royalties on future sales.

[Table of Contents](#)

Under the License Agreement dated March 7, 2019 between Allogene and us (the “Allogene License Agreement”), Allogene has exclusive rights to pursue development and commercialization of products for a total of fifteen selected targets, including BCMA (ALLO-715), FLT3 (ALLO-819), CD70, and DLL3.

Under the License, Development and Commercialization Agreement dated March 6, 2019, between Servier and us, and as amended on March 4, 2020 (as so amended, the “Servier License Agreement”), Servier has an exclusive worldwide license to develop and commercialize gene-edited allogeneic CAR T-cell products targeting CD19, including ALLO-501A (pursuant to a sublicense by Servier to Allogene). When initially entered into in March 2019, the Servier License Agreement extended, updated and replaced a prior collaboration with Servier.

The exclusive rights for the development and commercialization of UCART19 in the United States have been sublicensed by Servier to Allogene (such rights having been previously held by Pfizer, Inc. and transferred to Allogene).

Historical Overview – Product Candidates Being Developed Pursuant to Licenses

In 2016, Servier commenced two Phase I clinical studies for the first version of UCART19, one in adult Acute Lymphoblastic Leukemia (ALL), referred to as the CALM study, and one in pediatric ALL, referred to as the PALL study. We refer in this Annual Report to the CALM and the PALL Studies, collectively as the UCART19 Clinical Studies.

The CALM study has commenced in the United Kingdom, the United States, France and Japan and the PALL study is commenced in the United Kingdom, Belgium, France, Spain and the United States. Currently, the UCART19 Studies in the United States are conducted by Servier, in collaboration with Allogene.

In December 2018, Servier presented pooled intermediate results from the UCART19 Clinical Studies during the American Society for Hematology (ASH) annual conference. After UCART19 infusion, 82% (14/17) of patients who received a lymphodepletion regimen (consisting of fludarabine, cyclophosphamide and alemtuzumab, an anti-CD52 monoclonal antibody) achieved a complete remission, or “CR”, or complete remission with incomplete blood cell recovery (or “Cri”) by day 28 or day 42 after infusion. Within responder patients, 71% (10/14) were ‘minimal residual disease’ (MRD) negative (MRD- stands for less than 1 leukemic cell among 10E4 normal cells) assessed by flow or qPCR. When considering all treated patients, 67% (14/21) did achieve CR/Cri. Regarding safety considerations, there were no serious adverse events (grade 3) for graft versus host disease (GvHD) and neurological events. Grade 3-4 toxicities that occurred were events of cytokine release syndrome (14%, 3/21), prolonged cytopenia (29%, 6/21) and viral infections (24%, 5/21).

In January 2019, Allogene announced, in collaboration with Servier, that the Food and Drug Administration (FDA) approved the Investigational New Drug (IND) for Phase 1 clinical study for ALLO-501, in relapsed/refractory Diffuse Large B-cell lymphoma (DLBCL) and follicular lymphoma (FL), which are subtypes of Non-Hodgkin Lymphoma (NHL), which is referred to the “ALPHA Study”. ALLO-501 corresponds to UCART19 and is licensed to Allogene, pursuant to the sublicense from Servier discussed above.

In June 2019, Allogene announced that the FDA had approved the IND for a Phase 1 clinical study for ALLO-715, in relapsed/refractory Multiple Myeloma (MM), which is referred as to the “UNIVERSAL Study”. ALLO-715 is gene-edited allogeneic CAR T-cell products targeting BCMA and is licensed to Allogene pursuant to the Allogene License Agreement.

Historical Overview – Product Candidate We Are Developing

UCART123

In December 2016, we submitted an IND application for UCART123 with respect to two proposed Phase I studies to be conducted, one in Acute Myeloid Leukemia (AML) and one in Blastic Plasmacytoid Dendritic Cell Neoplasm (BPDCN). In February 2017, the FDA approved the IND and the first patients were enrolled during 2017. Due to a death in the BPDCN study, the FDA placed a clinical hold on both trials in September 2017 which was lifted by the FDA in November 2017, based on revised protocols. In June 2019, we decided to focus on the AML clinical trial and terminated the BPDCN study. This discontinuation of the BPDCN study was not a consequence of any safety concern.

In June 2019, we submitted a new IND application with respect to a proposed Phase I study to be conducted in relapsed/refractory Acute Myeloid Leukemia (r/r AML) with a new version of the UCART123 product candidate. In July 2019, the FDA approved the IND and the first patient was dosed in January 2020 at MD Anderson Cancer Center (Houston, Texas). This study, which is referred to as AMELI-01, replaces the first clinical study for UCART123 on AML. The AMELI-01 study is performed by H. Lee Moffitt Cancer Center & Research Institute (Tampa, Florida), Dana-Farber Cancer Institute (Boston, Massachusetts), Weill Medical College of Cornell University (New York, New York) and MD Anderson Cancer Center (Houston, Texas). We refer in this Annual Report to this study as the UCART123 Clinical Study or the AMELI-01 Study.

UCART22

In April 2018, we submitted an IND application with respect to a proposed Phase I study to be conducted in relapsed/refractory B-cell Acute Lymphoblastic Leukemia (r/r B-ALL). In May 2018, the FDA approved the IND, and the first patient was dosed in December 2019 at MD Anderson Cancer Center (Houston, Texas). This study, which is referred to as BALLI-01, is performed by Weill Medical College of Cornell University (New York, New York), the University of Chicago (Chicago, Illinois) and MD Anderson Cancer Center (Houston, Texas). We refer in this Annual Report to this study as the UCART22 Clinical Study or BALLI-01 Study.

UCARTCS1

In December 2018, we submitted an IND application with respect to a proposed Phase I study to be conducted in relapsed / refractory Multiple Myeloma (r/r MM). In January 2019, the FDA approved the IND, and the first patient was dosed in October 2019 at MD Anderson Cancer Center (Houston, Texas). This study, which is referred to as MELANI-01, is performed by Hackensack Meridian Health (Hackensack, New Jersey), Weill Medical College of Cornell University (New York, New York) and MD Anderson Cancer Center (Houston, Texas). We refer in this Annual Report to this study as the UCARTCS1 Clinical Study or MELANI-01 Study.

Calyxt

Until July 2017, we fully owned Calyxt, Inc. Calyxt a technology company focused on delivering plant-based solutions that are healthy and sustainable.

As of December 31, 2019, Collectis owns approximately 68.9% of Calyxt's common stock. In connection with Calyxt's initial public offering, we and Calyxt entered into certain agreements which have been subsequently amended, that provide a framework for our ongoing relationship with Calyxt.

Our Strategy

Our strategy is to leverage the transformative potential of our unique gene-editing technologies and expertise through our cell therapy platform.

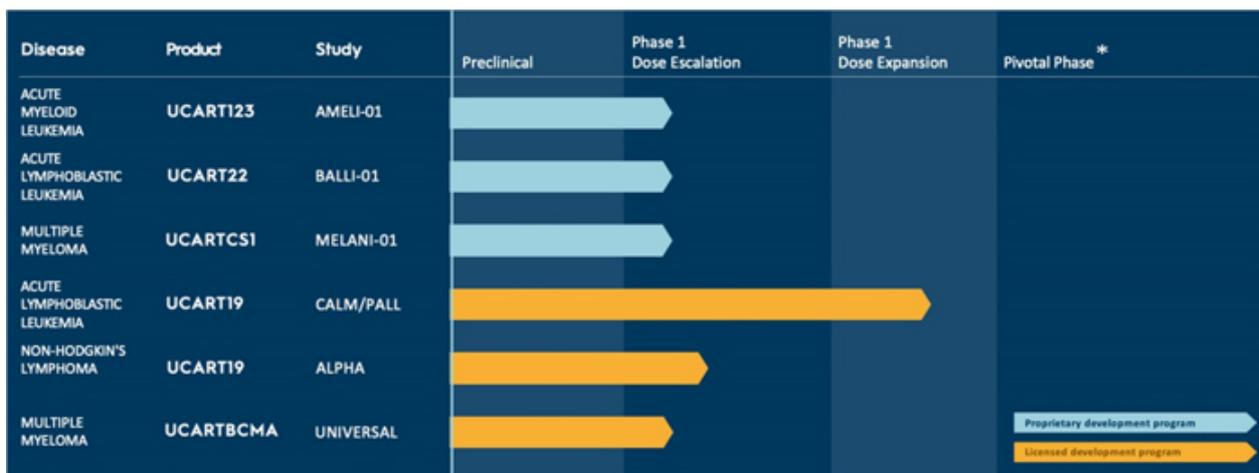
The key elements of our strategy are to:

- **Advance our self-owned allogeneic UCART portfolio** of product candidates up to the Biologics License Application (BLA) and commercialize them;
- **Build a self-owned manufacturing network** to produce commercial-grade UCART products for clinical use, as well as critical raw and starting material of the UCART product candidates;
- **Structure a commercial launch plan** for our wholly-owned product candidates;
- Prepare our next innovative project through **an hematopoietic stem cells (HSC) platform**;
- **Utilize our gene-editing platform to develop and commercialize products, through our 68.9% (as of December 31, 2019) ownership in Calyxt, for the multibillion dollar agricultural-biotechnology market.** Calyxt is applying patented breeding technology, including our gene-editing technologies to create products with human health benefits and that are more sustainable than others available on the market today. By selecting and inactivating target genes in selected crops, we believe Calyxt can produce unique variants with consumer benefits. Calyxt is developing a pipeline of traits for soybeans, wheat, alfalfa, potatoes, canola, hemp, oats, and other crops.

UCART Pipeline

We are developing a series of product candidates for advanced hematologic cancers. Our lead immuno-oncology product candidates, which we refer to as Universal CAR T-cells (UCARTs), are allogeneic CAR T-cells engineered to be used as an "off-the-shelf" treatment for any patient with a particular cancer type. Each UCART product candidate is designed to target a selected antigen expressed on tumor cells and bears specific engineered attributes, such as inhibition of alloreactivity and compatibility with specific medical regimens that cancer patients may undergo. UCART is the first therapeutic product line that we are developing with our gene-editing platform to address unmet medical needs in oncology. We are focusing our initial internal pipeline in the hematologic cancer space, targeting diseases with high unmet needs such as ALL, AML, MM and other types of cancers.

All of our other product candidates are currently in the pre-clinical phase, and the following chart highlights our key product candidates:



(*) We expect the Pivotal phase to be the last clinical phase before commercialization

Targeted Indications

r/r Acute Lymphoblastic Leukemia (ALL)

ALL is a heterogeneous hematologic disease characterized by the proliferation of immature lymphoid cells in the bone marrow, peripheral blood, and other organs. The proliferation and accumulation of blast cells in the marrow results in suppression of hematopoiesis and, thereafter, anemia, thrombocytopenia, and neutropenia. Extramedullary accumulations of lymphoblasts may occur in various sites, especially the meninges, gonads, thymus, liver, spleen, or lymph nodes. Data from the Surveillance, Epidemiology, and End Results (SEER) database have shown an age-adjusted incidence rate of ALL in the United States of 1.7 per 100,000 individuals per year, with approximately 5,960 new cases and 1,470 deaths estimated in 2018. The median age at diagnosis for ALL is 15 years with 55.4% of patients diagnosed at younger than 20 years of age. In contrast, 28% of cases are diagnosed at 45 years or older and only 12.3% of patients are diagnosed at 65 years or older. ALL represents 75% to 80% of acute leukemia among children, making it the most common form of childhood leukemia; by contrast, ALL represents approximately 20% of all leukemia among adults. The cure rates and survival outcomes for patients with ALL have improved dramatically over the past several decades, primarily among children. Improvements are largely owed to advances in the understanding of the molecular genetics and pathogenesis of the disease, the incorporation of risk-adapted therapy, and the advent of new targeted agents. Despite great progress in the development of curative therapies, ALL remains a leading cause of pediatric cancer-related mortality for patients presenting with a relapsed or refractory disease. New therapies are needed to overcome chemotherapy resistance and reduce non-specific treatment associated side effects.

r/r Acute Myeloid Leukemia (AML)

AML is a form of cancer that is characterized by infiltration of the bone marrow, blood, and other tissues by proliferative, clonal, abnormally and/or poorly differentiated cells of the hematopoietic system called blast cells. These cells interfere with normal hematopoiesis, thus contributing to the bone marrow failure which is the most common underlying cause of death. AML is the most common type of acute leukemia in adults with an age-adjusted incidence rate in the United States of 4.3 per 100,000 individuals per year, with approximately 19,520 new cases and 10,670 deaths estimated in 2018. Although it can occur in children and adults, AML is primarily a disease of the elderly. The median age at onset is 68 years and only 16.2% of patients are younger than 45 years of age at diagnosis. While complete response rates can be as high as 80% in patients undergoing initial induction cytotoxic chemotherapy, the majority of AML patients will ultimately be diagnosed with relapsed or refractory disease with a poor prognosis. The outcome in older patients who are unable to receive intensive chemotherapy without unacceptable side effects remains dismal, with a median survival of only 5 to 10 months. CD123 is highly expressed on AML leukemic stem cells and blast cells, as well as in other hematologic malignancies, and constitutes an attractive target for AML.

r/r Multiple Myeloma (MM)

MM is a clonal plasma cell malignant neoplasm that is characterized by the proliferation of a single clone of plasma cells producing a monoclonal immunoglobulin. This clone of plasma cells proliferates in the bone marrow and often results in extensive skeletal destruction with osteolytic lesions, osteopenia, and/or pathologic fractures. Additional disease-related complications include hypercalcemia, renal insufficiency, anemia, and infections. MM accounts for approximately 10% of hematologic malignant disorders. The annual incidence, age-adjusted to the US population, is 6.7 per 100,000, resulting in over 30,770 new patients in the United States in 2018. The median age at onset is 69 years, and only 3.3% of patients are younger than 45 years of age at diagnosis. Several drugs have been approved over the last few years for the treatment of MM, substantially expanding the number of treatment regimens available for patients in all stages of the disease. In the last decade, survival of MM patients has markedly improved with a median survival of approximately 7 to 10 years but with major variation depending on host factors, stage of the disease, cytogenetic abnormalities, and response to therapy. However, despite this progress, patients with disease refractory to both immunomodulatory drugs (IMiDs) and proteasome inhibitors have a median overall survival (OS) of only 9 to 13 months.

r/r Non-Hodgkin Lymphoma (NHL)

NHL is a heterogeneous disease resulting from the malignant transformation of lymphocytes with distinctive morphologic, immunophenotypic, genetic, and clinical features. NHL is more common than the other general type of lymphoma, Hodgkin lymphoma (HL). The past several decades have seen a steady increase in incidence rates of NHL, with overall rates in the United States nearly doubling over the period 1975 to 2008. In 2018, there were 74,680 estimated new cases with 19,910 estimated deaths. In 2015, there were an estimated 686,042 people living with NHL in the United States. Many different subtypes of non-Hodgkin's lymphoma exist. The most common NHL subtypes include diffuse large B-cell lymphoma (DLBCL) and follicular lymphoma (FL).

UCART19 for ALL

UCART19 is an allogeneic, off-the-shelf product candidate designed to exhibit high efficacy in fighting hematological malignancies bearing the B-lymphocyte antigen CD19. In November 2015, Servier acquired the exclusive rights to the first UCART19 product from Cellectis. Servier and Allogene collaborate on a joint clinical development program for this UCART19 product, and Allogene has the exclusive rights from Servier to develop and commercialize this UCART19 product in the United States.

Product Features

UCART19 is an allogeneic T-cell product intended for the treatment of CD19-expressing hematologic malignancies such as ALL.

UCART19 is designed to become active, proliferate, secrete cytokines and kill CD19-bearing B-cell malignancies upon contact with such cells, following administration to patients. Activation of UCART19 is driven by contact between its anti-CD19 CAR and the CD19 protein on the surface of tumor cells.

UCART19 cells bear a CAR targeting the CD19 antigen that drives their capacity to kill CD19-bearing cells. Moreover, as all UCART product candidates, UCART19 lacks the TCR responsible for recognition of non-self antigens by the T-cells, which allows use of healthy donor T-cells to produce UCART19, with reduced potential for GvHD. In addition, some UCART19 cells lack CD52, a protein expressed on the cell surface that makes T-cells sensitive to alemtuzumab. This feature permits the use of UCART19 in patients recently treated or being treated with the immunosuppressing/lymphodepleting agent alemtuzumab.

UCART19 activation could potentially lead to eradication of CD19-expressing cancer cells through T-cell mediated killing of such cancer cells and potentially pro-inflammatory immune system production as well as CAR T-cell amplification.

Clinical Findings

In December 2018, Servier presented pooled intermediate results from the UCART19 Clinical Studies during the ASH annual conference. After UCART19 infusion, 82% (14/17) of patients who received a lymphodepletion regimen (consisting of fludarabine, cyclophosphamide and alemtuzumab, an anti-CD52 monoclonal antibody) achieved a complete remission (CR) or complete remission with incomplete blood cell recovery (CRi) by day 28 or day 42 after infusion. Within responder patients, 71% (10/14) were 'minimal residual disease' (MRD) negative (MRD- stands for less than 1 leukemic cell among 10E4 normal cells) assessed by flow or qPCR. When considering all treated patients (lymphodepleted or not), 67% (14/21) did achieve CR/CRi. Regarding safety considerations, there were no serious adverse events (grade 3/3) for graft versus host disease (GvHD) and neurological events. Grade 3-4 toxicities that occurred were events of cytokine release syndrome (14%, 3/21), prolonged cytopenia (29%, 6/21) and viral infections (24%, 5/21).

We are encouraged by these promising preliminary results reported for the UCART19 Clinical Studies.

Clinical Development Status

In 2016, Servier commenced the UCART19 Clinical Studies — a Phase I clinical study in pediatric ALL, the PALL study, and a Phase I clinical study in adult patients with ALL, the CALM study.

The PALL Study has commenced in the United Kingdom at UCL Great Ormond Hospital (London), in Belgium at Het Kinderziekenhuis Prinses Elisabeth (Gent), in France at Hôpital Robert-Debré (Paris), in Spain at Hospital San Juan De Dios (Barcelona), and in the United States at the Children’s Hospital of Philadelphia (Pennsylvania), at the Children’s Hospital of Los Angeles (Los Angeles, California) and at the University of Texas Southwestern Medical Center (Dallas, Texas). The CALM Study is commenced in the United Kingdom at King’s College Hospital NHS Foundation Trust (London) and at the Christie NHS Foundation Trust (Manchester), in the United States at the Hospital of the University of Pennsylvania (Philadelphia, Pennsylvania), at University of Texas MD Anderson Cancer Center (Houston, Texas) and at the Massachusetts General Hospital (Boston, Massachusetts), in France at Hôpital Saint-Antoine (Paris) and Hôpital Saint-Louis (Paris), and in Japan at Kyushu University Hospital (Fukuoka) and Hokkaido University Hospital (Sapporo).

UCART19, or ALLO-501, for DLBCL and FL

ALLO-501 (or UCART19, which we exclusively license to Servier pursuant to the Servier License Agreement, and which has been sublicensed to Allogene by Servier in the United States) is an allogeneic engineered T-cell product intended for the treatment of CD19-expressing hematologic malignancies.

Development Status

In January 2019, Allogene announced, in collaboration with Servier, that the FDA approved the IND for Phase 1 clinical study for ALLO-501 in relapsed/refractory DLBCL and FL (the “ALPHA Study”).

UCART123 for AML

UCART123 is an allogeneic engineered T-cell product designed for the treatment of hematologic malignancies expressing the alpha chain of the interleukin-3 receptor (IL3RA), or CD123, and is currently being developed for the treatment of AML.

Product Features

UCART123 is an allogeneic T-cell product candidate intended for the treatment of CD123-expressing hematologic malignancies.

UCART123 is designed to become active, proliferate, secrete cytokines and kill CD123 expressing cells. UCART123 bears a CAR targeting the CD123 antigen, providing specificity for CD123 expressing cells. In addition, as with all UCART products, UCART123 lacks the TCR and is intended to be used in an allogeneic context. UCART123 activity could potentially lead to eradication of CD123-expressing cancer cells through T-cell mediated killing, pro-inflammatory cytokine production as well as CAR T-cell amplification. The current version of UCART123 has, in addition of the suppression of the TCR α gene, the suppression of the CD52 gene in order to potentially induce resistance to alemtuzumab preconditioning.

Pre-clinical Findings

UCART123 has been evaluated both *in vitro* and in animal studies, with promising results.

In vitro studies demonstrated efficient killing of human CD123-bearing cell lines by UCART123. In addition, UCART123 has also demonstrated efficient killing of human CD123-expressing cells derived from AML and BPDCN patients. Animal studies were conducted in mice injected both with UCART123 and human CD123-bearing tumor cells, and have shown anti-tumor activity in an immunodeficient mouse model. In addition, in another animal model, limited toxicity against normal, healthy cells, has been observed.

UCART123 was also tested for its potential to induce GvHD. Mice receiving unmodified T-cells from a human donor showed GvHD, while mice receiving the UCART123 cells that lack the TCR showed no sign of GvHD. Pre-clinical and translational activities on UCART123 in AML were performed in collaboration with Weill Cornell.

Clinical Development Status

The AMELI-01 Study, which replaced the first clinical study for UCART123 on AML, is an open-label, Phase 1, single arm, multicenter clinical trial designed to evaluate the safety, expansion, persistence and clinical activities of UCART123 in patients with r/r AML. This trial will be a dose-escalation study for UCART123 with 4 separate dose cohorts. The primary endpoints of the trial are to assess the safety and tolerability of Universal Chimeric Antigen Receptor (UCAR) T-cells targeting CD123 (UCART123) administered to patients with relapsed/refractory acute myeloid leukemia (r/r AML); and to determine the Maximum Tolerated Dose (MTD) of UCART123. An optimal dose of UCART123 will be recommended for Phase 2. The clinical study protocol provides a maximum of 22 patients to enroll in the dose escalation period and 18-37 patients in the dose expansion period of the Phase 1 study.

The AMELI-01 Study is currently open for patient recruitment at MD Anderson Cancer Center (Houston, Texas), H. Lee Moffitt Cancer Center & Research Institute (Tampa, Florida), Dana-Farber Cancer Institute (Boston, Massachusetts), and Weill Medical College of Cornell University (New York, New York). As of today, we are enrolling patients in the first cohort of the AMELI-01 Study.

UCART22 for B-ALL

UCART22 is an allogeneic engineered T-cell product candidate designed for the treatment of B-ALL.

Product Features

UCART22 is an allogeneic engineered T-cell product candidate intended for the treatment of CD22-expressing hematologic malignancies. UCART22 is designed to become active, proliferate, secrete cytokines and kill CD22 expressing cells (i.e. either CD22 positive tumor cells or non-malignant CD22-positive B lineage cells). UCART22 bears a CAR targeting the CD22 antigen, providing specificity for CD22 expressing cells. As with all UCART products, UCART22 lacks the TCR and is intended to be used in an allogeneic context. In addition, some UCART22 cells lack CD52, a protein expressed on the cell surface that makes T-cells sensitive to alemtuzumab, a drug often used to treat CLL patients. This feature should allow for improved engraftment of the cells in conjunction with a potential alemtuzumab treatment.

UCART22 activity could potentially lead to eradication of CD22-expressing cancer cells through T-cell mediated killing, pro-inflammatory cytokine production as well as CAR T-cell amplification.

Pre-clinical findings

UCART22 has been evaluated both *in vitro* and in animal studies, with promising results.

In vitro studies demonstrated efficient killing of human CD22-bearing cell lines by UCART22. In addition, UCART22 has also demonstrated efficient killing of human CD22-expressing cells derived from ALL patients. Animal studies were conducted in mice injected both with UCART22 and human CD22-bearing tumor cells, and have shown anti-tumor activity in an immunodeficient mouse model. Further *in vitro* and *in vivo* studies are ongoing to further investigate the safety and the activity of UCART22.

Pre-clinical and translational activities on UCART22 in ALL were performed in collaboration with MD Anderson Cancer Center.

Clinical Development Status

The BALLI-01 Study is an open-label, Phase 1, single arm, multicenter clinical trial designed to evaluate the safety, expansion, persistence, and clinical activities of UCART22 in patients with r/r ALL. This trial is a dose-escalation study for UCART22 with 3 separate dose cohorts. The primary endpoints are: to assess the safety and tolerability of Universal Chimeric Antigen Receptor (UCAR) T-cells targeting CD22 (UCART22) administered to patients with relapsed or refractory B-cell Acute Lymphoblastic Leukemia (r/r B-ALL); and to determine the Maximum Tolerated Dose (MTD) of UCART22. Secondary endpoints include assessment of the efficacy of UCART22 (rate of objective response) in relapsed or refractory B-ALL patients, and Minimal Residual Disease (MRD)+ B-ALL patients; assessment of the duration of response (DoR), time to response, progression-free survival (PFS), and overall survival. An optimal dose of UCART22 will be recommended for Phase 2. The clinical study protocol provides a maximum of 30 patients to enroll in the dose escalation period and 12-30 patients in the dose expansion period of the Phase 1 study.

The BALLI-01 Study is currently open to patient recruitment at Weill Medical College of Cornell University (New York, New York), the University of Chicago (Chicago, Illinois) and MD Anderson Cancer Center (Houston, Texas). As of today, we are enrolling patients in the first cohort of the BALLI-01 Study.

[Table of Contents](#)

We are planning on filing an amendment to the clinical protocol of the BALLI-01 Study to evaluate the addition of alemtuzumab to the lymphodepletion regimen compared to the current regimen. An alemtuzumab-based lymphodepletion regimen would be evaluated in a separate cohort of patients, to guide the future development of UCART22 product in CD22+ B-ALL. The optimal lymphodepletion regimen prior to the administration of CAR-T product candidates remains an area of investigation in the field of CAR T-cell therapy.

UCARTCS1 for MM

UCARTCS1 is an allogeneic engineered T-cell product candidate designed for the treatment of CS1-expressing hematologic malignancies which is being developed in MM.

Product Features

UCARTCS1 is an allogeneic T-cell drug candidate intended for the treatment of CS1 (also known as SLAMF7)-expressing hematologic malignancies, in particular MM. UCARTCS1 is designed to become active, proliferate, secrete cytokines and kill CS1 expressing cells. As CS1 is strongly expressed on the cell surface of CD8 T-cells but also mildly expressed on CD4 cells, B cells, NK cells and macrophages, CS1 will be inactivated in UCART cells prior to transduction with a viral vector encoding an anti-CS1 CAR. The inactivation of the CS1 gene may improve the production and activity of UCARTCS1 by preserving the balance between CD8 and CD4 T-cell population. In addition, as with all UCART products, UCARTCS1 lacks the TCR and is intended to be used in an allogeneic context. We believe that UCARTCS1 might have a potential lymphodepleting activity by attacking the immune cells of the patient expressing CS1.

As compared to BCMA, another target frequently addressed by MM CAR-T candidates, CS1 expression has been observed to be higher and more uniform. In certain mouse models, CS1 CAR-T therapy is showing deeper response than what is seen with BCMA CAR-T therapy.

Pre-clinical Findings

In vitro studies demonstrated efficient killing of human CS1-bearing cell lines by UCARTCS1. In addition, UCARTCS1 has also demonstrated efficient killing of human CS1-expressing cells derived from MM patients. Furthermore, while non-gene-edited T-cells expressing an anti-CS1 CAR display limited cytolytic activity *in vitro* against MM cell lines and result in a progressive loss of CD8 T-cells, CS1-gene-edited CAR cells (UCARTCS1) display significantly increased cytotoxic activity, with the percentage of CD8 T-cells remaining unaffected. Experiments in an orthotopic MM mouse model showed that UCARTCS1 was able to mediate an *in vivo* anti-tumoral activity. Further *in vitro* and *in vivo* studies are ongoing to further investigate the safety and the activity of UCARTCS1.

Pre-clinical and translational activities for UCARTCS1 in MM are performed in collaboration with the MD Anderson Cancer Center.

Clinical Development Status

The MELANI-01 Study is an open-label, Phase 1, single arm, multicenter clinical trial designed to evaluate the safety and efficacy of UCARTCS1 in patients with r/r MM. This trial will be a dose-escalation study for UCARTCS1 with 3 separate dose cohorts. The primary endpoints are to assess the safety and tolerability of UCARTCS1 administered to patients with relapsed or refractory Multiple Myeloma (r/r MM); and to determine the Maximum Tolerated Dose (MTD) of UCARTCS1 in this population. Secondary endpoints include assessment of the efficacy of UCARTCS1 as measured by International Myeloma Working Group response criteria; assessment of the duration of response, time to response, progression-free survival, and overall survival. An optimal dose of UCARTCS1 will be recommended for Phase 2. The clinical study protocol provides a maximum of 18 patients to enroll in the dose escalation period and 12-30 patients in the dose expansion period of the Phase 1

The MELANI-01 Study is currently open to patient recruitment at Hackensack Meridian Health (Hackensack, New Jersey), Weill Medical College of Cornell University (New York, New York) and MD Anderson Cancer Center (Houston, Texas).

ALLO-715, for MM

ALLO-715, is an allogeneic engineered T-cell product intended for the treatment of multiple myeloma and other BCMA-expressing hematologic malignancies. ALLO-715, is a product candidate under the Allogene License Agreement.

[Table of Contents](#)

Development Status

In June 2019, Allogene announced that the FDA approved the IND for Phase 1 clinical study for ALLO-715 in r/r MM (the “UNIVERSAL Study”).

UCART programs for solid tumors

We are currently applying our UCART platform to develop CAR-T candidates targeting solid tumors, currently in preclinical phase.

Other gene editing programs

Beyond our CAR-T programs, we are leveraging our TALEN gene editing platform to pursue additional development opportunities, both internally and in collaboration with third party companies and academics centers. We aim to enter the clinic with one or more gene editing programs beyond UCARTs in the future.

Our Strategic Alliances

In addition to the development of our own portfolio of product candidates targeting tumor-associated antigens, we have pursued a strategy of forging strong pharmaceutical alliances.

License Agreement with Allogene

In June 2014, we entered into a Research Collaboration and License Agreement (the “Collaboration and License Agreement”) with Pfizer, Inc. (“Pfizer”) pursuant to which we agreed to collaborate to conduct discovery and pre-clinical development activities to generate CAR T-cells directed at Pfizer- and Collectis-selected targets in the field of human oncology. We granted Pfizer an exclusive, worldwide, royalty-bearing, sublicensable license, on a target-by-target basis, under certain of our intellectual property to make, use, sell, import, and otherwise commercialize products directed at the Pfizer-selected targets in the field of human oncology. Pursuant to the Collaboration and License Agreement, Pfizer made an upfront, non-refundable \$80.0 million payment to us, concurrent with Pfizer’s €25.8 million equity investment in our company.

On April 3, 2018, Pfizer and Allogene Therapeutic, Inc. (“Allogene”), a new company started by former Kite Pharmaceuticals executives Dr. Arie Belldegrun and Dr. David Chang, announced that they entered into an asset contribution agreement, pursuant to which Allogene purchased Pfizer’s portfolio of assets related to allogeneic CAR T-cell therapy (the “Asset Contribution Transaction”). Pursuant to the Asset Contribution Transaction, effective as of April 6, 2018, Allogene purchased Pfizer’s portfolio of assets related to allogeneic CAR T-cell Therapy, including the Collaboration and License Agreement.

On March 8, 2019, we and Allogene agreed to terminate the Collaboration and License Agreement and entered into a new license agreement (the “Allogene License Agreement”) to reflect the relationship between us and Allogene following the Asset Contribution Transaction. The Allogene License Agreement establishes the rights and obligations of Collectis and Allogene with respect to their collaboration program.

Pursuant to the Allogene License Agreement, we granted to Allogene an exclusive, worldwide, royalty-bearing, license, on a target-by-target basis, with sublicensing rights under certain conditions, under certain of our intellectual property, including our TALEN and electroporation technology, to make, use, sell, import, and otherwise exploit and commercialize chimeric antigen receptor (CAR) T products directed at a total of 15 selected targets, including BCMA, FLT3, DLL3 and CD70, for human oncologic therapeutic, diagnostic, prophylactic and prognostic purposes. In addition, the Allogene License Agreement accommodates an exclusive global license and collaboration agreement under which Allogene has obtained from Servier exclusive rights to develop and commercialize UCART19 in the United States. Further, Allogene granted us a non-exclusive, worldwide, royalty-free, perpetual and irrevocable license, with sublicensing rights under certain conditions, under certain of Allogene’s intellectual property, to make, use, sell, import and otherwise commercialize CAR T products directed at certain targets.

The Allogene License Agreement provides for development and sales milestone payments by Allogene of up to \$185.0 million per target, with aggregate potential development and sales milestone payments totaling up to \$2.8 billion. In connection with the dosing of the first patient in its UNIVERSAL Study for ALLO-715, Allogene made a milestone payment of \$5.0 million. We are also eligible to receive tiered royalties on annual worldwide net sales of any products that are commercialized by Allogene that contain or incorporate, are made using or are claimed or covered by, our intellectual property licensed to Allogene under the Allogene License Agreement at rates in the high single-digit percentages.

Unless earlier terminated in accordance with the agreement, our agreement with Allogene will expire on a product-by-product and country-by-country basis, until the later of (1) the expiration of the last to expire of the licensed patents covering such product; (2) the loss of regulatory exclusivity afforded such product in such country, and (3) the tenth anniversary of the date of the first commercial sale of such product in such country; however, in no event shall the term extend, with respect to a particular licensed product, past the twentieth anniversary of the first commercial sale for such product. At any time after the first anniversary of the effective date of the agreement, Allogene will have the right to terminate the agreement at will upon 60 days' prior written notice, either in its entirety or on a target-by-target basis. Either party may terminate the agreement, in its entirety or on a target-by-target basis, upon 90 days' prior written notice in the event of the other party's uncured material breach. The agreement may also be terminated upon written notice by Allogene at any time in the event that we become bankrupt or insolvent or upon written notice within 60 days of a consummation of a change of control of Cellectis.

License, Development and Commercialization Agreement with Servier

In February 2014, we entered into a Research, Product Development, Option, License and Commercialization Agreement (the "Prior Servier Agreement") with Servier. Pursuant to the Prior Servier Agreement, we were responsible for the research and development up to and including the Phase I clinical trial of candidate products directed against five targets, including the UCART19 product candidate. Pursuant to the Prior Servier Agreement, we granted Servier the right to exercise an exclusive option to obtain an exclusive, worldwide license, on a product candidate-by-product candidate basis, with respect to each product candidate selected by Servier and developed under the agreement. Pursuant to the Prior Servier Agreement, Servier made upfront payments of \$48.5 million.

On March 6, 2019, we and Servier entered into a License, Development and Commercialization Agreement (the "March Servier License Agreement"). The March Servier License Agreement superseded the Prior Servier Agreement in order to modify the targets covered by our license to Servier, to establish the terms of our and Servier's collaboration and to reflect the status of products in development.

On February 18, 2020, we and Servier entered into a binding term sheet to enter into an amendment to the March Servier License Agreement to grant to Servier an exclusive license limited to CD19 target, but extended to all gene-edited allogeneic CAR T-cell products targeting CD19 and gene edited exclusively by Cellectis' TALEN. On March 4, 2020, we and Servier entered into the amendment to the March Servier License Agreement contemplated by this term sheet (such March Servier License Agreement as amended on March 4, 2020, the "Servier License Agreement").

Under the Servier License Agreement, Cellectis grants to Servier, an exclusive worldwide, royalty bearing license with sublicensing rights under certain conditions, under certain of our patents and know-how to develop, manufacture and commercialize gene-edited allogeneic CAR T-cell products targeting CD19 and gene edited exclusively by Cellectis' TALEN. Servier, directly or through its sublicensees, will be solely responsible for the research, development and commercialization of these products.

In addition, Servier confirms it will not pursue the development of five other targets for products using Cellectis technology and consequently Cellectis regains control over them.

Promptly after the date of execution of the amendment, Servier shall make an upfront payment of 25 million Euros. In addition, the Servier License Agreement provides for aggregate additional payments of up to \$410 million (370 million Euros), comprising payments for certain specified development and commercial milestones. We are also eligible to receive flat low double-digit royalties based on annual net sales of commercialized products. We are also entitled to a low double-digit royalty on certain development milestone payments received by Servier under sublicenses.

For so long as the agreement remains in effect, we are restricted from researching, developing, or commercializing any product directed against a CD19 target that is used for the same purpose as it is used with a product candidate developed under the agreement.

The agreement will expire, unless earlier terminated in accordance with its terms, upon the expiration of the last to expire of the patents covering a product licensed pursuant to the agreement. The parties may terminate the Servier License Agreement at any time by mutual consent. At its sole discretion, Servier has the right to terminate the agreement in its entirety or with respect to specific products, upon three months' prior written notice to us.

In addition, either party may terminate the agreement following the other party's uncured material breach upon 90 days' prior written notice to the breaching party, or 30 days' notice if such breach relates to a payment obligation. The agreement immediately and automatically terminates upon the expiration of Servier's last license option in the event Servier has not exercised any option to license in accordance with the agreement prior to such expiration. Servier may terminate the agreement at any time for product-related safety reasons.

Either party may terminate the agreement in the event of the other party's bankruptcy or insolvency.

Research Collaboration and Exclusive License Agreement with Iovance Biotherapeutics

On December 30, 2019, we entered into a research collaboration and exclusive worldwide license agreement with Iovance Biotherapeutics. Iovance will license certain TALEN® technology in order to develop tumor infiltrating lymphocytes (TIL) that have been genetically edited to create more potent cancer therapeutics. The worldwide exclusive license enables Iovance use of TALEN® technology to address multiple gene targets to modify TIL for therapeutic use in several cancer indications. Financial terms of this license include development, regulatory and sales milestone payments to us, as well as royalty payments based on net sales of TALEN®-modified TIL products.

Collaboration with research and clinical centers

Alliance with The University of Texas MD Anderson Cancer Center

On September 1, 2015, Cellectis and the University of Texas MD Anderson Cancer Center (the MD Anderson Cancer Center) entered into a research and development alliance (the Strategic Alliance Agreement) aimed at bringing novel cellular immunotherapies to patients suffering from different types of liquid tumors, particularly MM, ALL, T-cell ALL (T-ALL) and BPDCN. Under this strategic alliance, the MD Anderson Cancer Center and Cellectis have collaboratively conducted several pre-clinical studies on candidate products: UCART123 in BPDCN, UCART38 for T-ALL and UCART22 for ALL, and the parties currently conduct pre-clinical studies on product candidate UCARTCS1 for multiple myeloma. Cellectis has agreed to provide funding and other support for these studies. The objective of the studies was to build on complementary expertise from the MD Anderson Cancer Center and Cellectis for the development of the product candidates. The MD Anderson Cancer Center and Cellectis work together to develop and implement improvements to the research plan for the programs under joint direction of the MD Anderson Cancer Center and Cellectis' investigators. The objective of the studies is to demonstrate the functionalities and specificity of the UCART candidate products listed above, define the pre-clinical package required for clinical trial applications, prepare a clinical trial protocol and the regulatory documents required for interactions with FDA and the clinical trial applications. Pursuant to the alliance, Cellectis is responsible for generation and manufacturing of the UCART candidate products and some of the in vitro and in vivo pre-clinical work. The MD Anderson Cancer Center is responsible for evaluation of the candidate products against primary patient samples and for some activities to be performed in animal models. The alliance also includes the possibility for Cellectis and the MD Anderson Cancer Center to collaborate on one or more early phase clinical studies on the same product candidates.

Immunotherapy: Turning the Immune System into “Smart Drugs”

The immune system has evolved to protect the body from invading pathogens or external harmful materials by identifying these foreign bodies through “non-self” antigens, which are molecular signatures that they carry and are foreign to the body. A central function of the immune system is to discriminate between “self,” which is recognized through antigens normally present in the body and borne by cells, proteins, sugars or lipids, and “non-self”, which is detected through abnormal or foreign antigens. Cancer cells thrive, in part, because they trick the immune system into treating them as self, even though they express abnormal antigens, and thus immune tolerance occurs when the immune system fails to recognize and attack tumors. Breaking immune tolerance is an important aspect of most immuno-oncology-based therapeutics because it enables the immune system to recognize and treat tumors as non-self and lead to tumor destruction.

The immune system recognizes non-self danger signals and responds to threats at a cellular level. The immune system may be conceptualized as comprising two arms. The first arm, known as the innate immune system, recognizes non-specific signals of infection or abnormalities as a first line of defense. The innate immune system is the initial response to an infection, and the response is the same every time regardless of prior exposure to the infectious agent. The second arm, known as the adaptive immune system, is composed of highly specialized cells and provides long-term specific recognition and protection from infectious agents and abnormal processes such as cancer. The adaptive immune response is further subdivided into antibody-based responses and cellular responses, which include T-cell-based immune responses. The most significant components of the cellular aspect of the adaptive immune response are T-cells, which are specialized cells that generally mature in the thymus. T-cells are involved in sensing and killing infected or abnormal cells, as well as coordinating the activation of other cells and mounting an immune response.

[Table of Contents](#)

Although the immune system is designed to identify and destroy foreign or abnormal protein-bearing tumor cells, this process is often defective in cancer patients. Additionally, cancer cells employ a number of mechanisms to escape immune detection and attack to suppress the effect of the immune response.

Immunotherapy is a type of treatment that modifies, stimulates, or re-directs certain parts of the immune system to fight diseases, such as cancer. Immunotherapy works by stimulating a patient's own immune system or by turning its attacks towards harmful targets, such as cancer cells. Immunotherapy can also be pursued by giving patients engineered immune cells, such as CAR T-cells to target certain cells. Immunotherapy is playing an increasingly large role in treating cancer, chronic infectious diseases, autoimmune diseases and allergic diseases.

T-cells and T-cell Receptors (TCRs)

T-cells are a class of white blood cells that carry a specific TCR at their surface that allows them to recognize and kill other cells that express antigens foreign to the individual. Normal cells express a set of specific molecules, called human leukocyte antigen, or HLA, at their surface. HLA is associated with small fragments, or peptides of the proteins expressed inside the cell or processed from the extracellular body fluids. Abnormal or foreign proteins (viruses, for example) can attach to HLAs and be presented at the cell's surface and be recognized by T-cells through these HLA-peptide complexes and identified as foreign antigens. This recognition triggers the activation of the T-cells, which destroy the foreign HLA-peptide complex-bearing cell, secrete specific cytokines attracting other immune-competent cells to their location, and start multiplying to establish a full immune response.

Unlike antibodies that mainly diffuse passively through the body and its circulating fluids, T-cells actively leave blood vessels or lymphoid organs and travel through the tissues of the body where they can attack foreign antigens. Once the antigen is eliminated from the body, the T-cells run out of stimulation and die off, with only a fraction surviving as "memory T-cells," which can react promptly should the antigen reappear in the body.

There is a high variability of HLA molecules in the population. Therefore, if a cell is introduced into a person and originally comes from another individual that is not HLA-matched, it will bear, at its surface, HLA-peptide complexes that are recognized as foreign and will be killed by the T-cells of the recipient. This mechanism of graft rejection has been a major limitation to transplanting patients with allogeneic tissues. Reciprocally, if T-cells are grafted from one individual to another and start recognizing as foreign the normal HLA-peptide complexes at the surface of all tissues of the grafted individual, then they may attack and kill those healthy tissues, leading to Graft-versus-Host disease (GvHD), which can be very severe, and potentially fatal, if left untreated.

Cancerous cells express abnormal antigens and can be killed by T-cells. However, cancer may grow and spread to various organs when T-cells with cancer-specific receptors are in low numbers, of poor quality, or rendered inactive by suppressive mechanisms employed by tumor tissues. T-cells are a key armament when fighting cancers. They play a particularly significant role if they are tailored to target tumors, and potentially even more so if their genes are edited to overcome tumor defenses, to make T-cells compatible with other anti-cancer drugs that can be combined with them, and to prevent GvHD, which would allow the use of allogeneic T-cells.

Chimeric Antigen Receptor (CAR)

CARs are engineered molecules that, when present at the surface of T-cells, enable them to recognize specific proteins or antigens that are present on the surface of other cells. These receptors are typically used to graft the specificity of an antibody derived from a single cell, or a monoclonal antibody, onto a T-cell and provide it with a specific targeting mechanism to seek, identify, interact with and destroy the tumor cells bearing a selected antigen associated with that tumor also known as tumor-associated antigen, or TAA and tumor-specific antigens, or TSA. The expression of some genes, or combinations of genes, can be associated with certain classes of cancers. It is sometimes possible to identify TAAs that are expressed at various levels by tumor cells from a given cancer type. These TAAs may also be normally expressed by other tissues at different stages of development.

T-cells with CARs are referred to as CAR T-cells. Whereas natural T-cell receptors, or TCRs, only recognize antigens bound to an HLA molecule at a cell's surface, a CAR is able to directly recognize antigens that are present at the targeted cell's surface. It is believed that upon cell-to-cell contact between a CAR T-cell and an antigen-bearing targeted cell, antigen recognition by the CAR "activates" the CAR T-cell, triggering it to multiply, attack and kill its target through the release of "hole-forming" proteins, known as perforins, and "degradation enzymes," known as granzymes, that enter the targeted cell through the perforin-formed holes and carry out the killing. The activation of a T-cell through a CAR results in a target-associated "kill and amplify" chain reaction that eradicates the tumor.

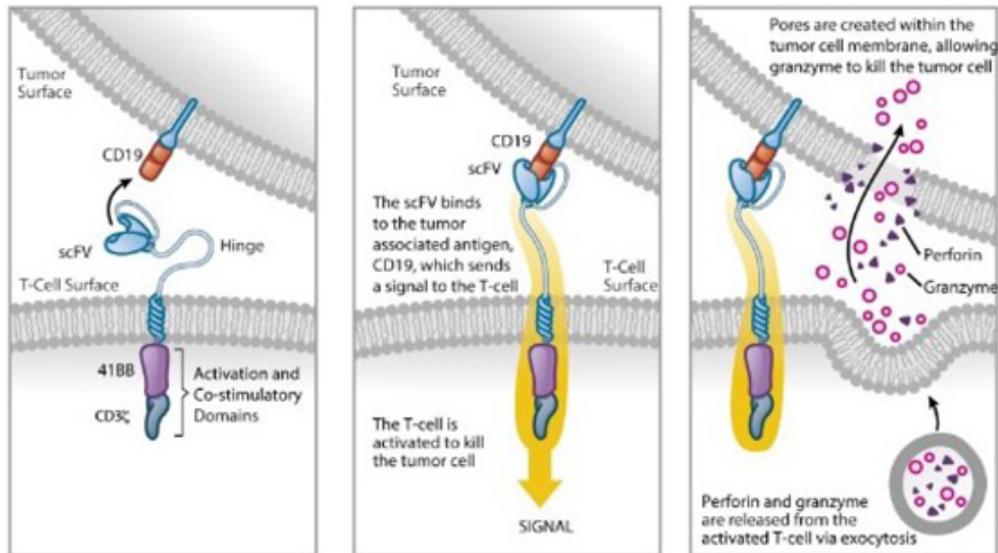
CARs are constructed by assembling components, or domains, from different proteins, including:

- In the extracellular space, one or more target binding domains, coming from ligands, such as antibodies or receptors, that can recognize their targets on the outside of the T-cell;

[Table of Contents](#)

- A hinge that helps position the target binding domains relative to their targets;
- Trans-membrane domains that anchor the CAR at the T-cell's surface relative to the T-cells; and
- A set of activating or signaling domains, which are located within the T-cell's interior, that deliver appropriate signals to the T-cells leading to T-cell activation or repression according to the T-cell environment. Such signals may induce tumor cell killing, cytokine secretion and CAR T-cell multiplication.

The following diagram shows the mechanism by which a CAR T-cell is believed to attack a tumor cell:



Recent immuno-oncology advancements have supported the potential to cure certain cancers by harnessing the body's immune system to fight cancer cells (see "Competition" section for more details). Based on these, immuno-oncology has become a new frontier for treatment, and we believe it is one of the most promising areas of development within oncology.

Our Gene-Editing Approach to Allogeneic CAR T-cell Therapy

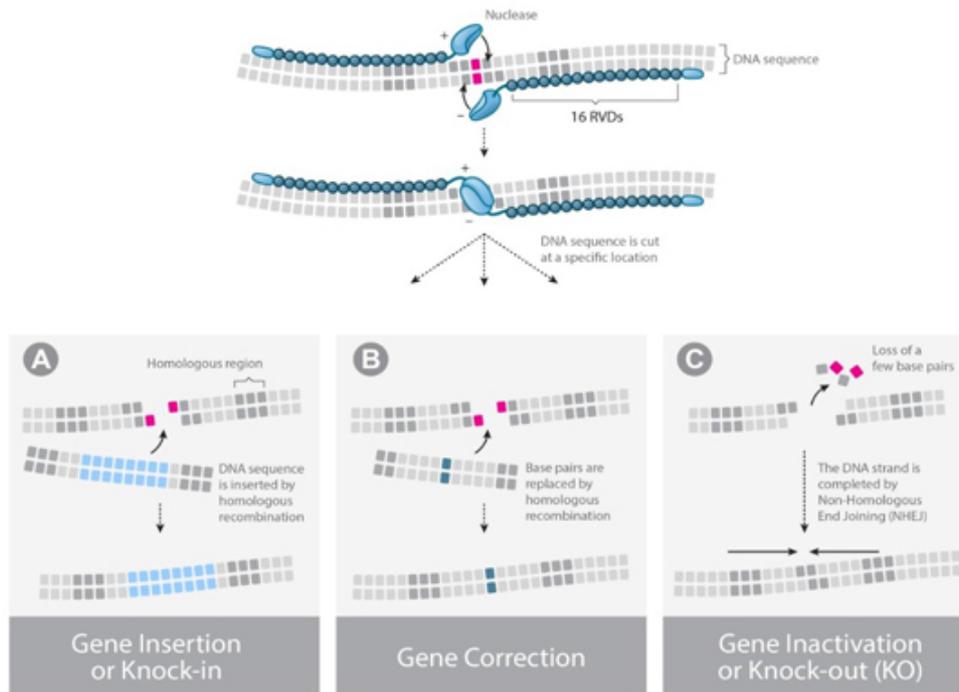
The most fundamental challenge of genome engineering is the need to specifically and efficiently target a precise DNA sequence within a complex genome. Our founder, Chairman and CEO, Dr. André Choulika, was one of the pioneers and first researchers in nuclease-based genome engineering in the early 1990s and has been integral in the development and advancement of gene-editing tools.

Our proprietary gene-editing platform relies on our capacity to custom design DNA-sequence specific cutting enzymes, or nucleases, for any chosen gene we need to modify and our capability to introduce such custom-made nucleases into the living cells we want to engineer. Our platform relies on precisely chosen protein families that can specifically recognize unique DNA sequences and can be tailored to target such sequences in any chosen gene or genetic region.

We are currently developing an allogeneic CAR T-cell therapy approach based on our technology platform that combines CARs, TALEN and PulseAgile, our electroporation device, to address the opportunities for improvement discussed above. Our approach aims to deliver an off-the-shelf product with the following benefits:

- *Market access.* Enable products to be shipped globally, thereby reducing deployment obstacles and providing accessibility to a broad patient population;
- *Cost-effectiveness and Scalable Manufacturing.* Streamlined manufacturing process has the potential to reduce costs, with potentially hundreds of doses per batch;
- *Novel Features.* Develop products with specific safety and control properties, through a CAR linked to a suicide switch;

The following diagram shows the various gene editing mechanisms enabled by TALEN:



We are able to assemble long arrays of modular domains with predictable specificity for a chosen sequence of DNA unique within a genome. When a TALEN is present, its TALE domains recognize its target DNA sequence and thereby direct the enzyme to the proper chromosomal location. Once bound to its target DNA sequence, the DNA cleaving-domain of the TALEN induces a DNA break at the targeted location to induce permanent DNA modifications. We believe TALEN stands out among nucleases as exceptionally precise, accurate and efficient to perform gene inactivation.

Other Types of Gene Editing Technologies

We have developed a strong expertise and capacity in meganuclease technologies, which involve enzymes capable of recognizing very large unique DNA sequences. In addition, using the flexibility of the TALE domain, we have developed new classes of custom-designed nucleases, such as compact TALEN and mega-TALE nucleases that combine meganucleases and TALEN technology. Compact-TALEN is built with a single TALE molecule fused to a fragment of a chosen meganuclease that carries limited DNA sequence recognition functionality but fully functional DNA-cleaving activity. These chimeric proteins are smaller in size than classical TALEN, which can facilitate their delivery to cells. In contrast, mega-TALE use a full-size meganuclease to enhance their DNA sequence recognition capacities, while demonstrating enhanced precision. We also have discovered a new class of nuclease that we named BurrH nucleases, also based on arrays of single DNA-base recognizing modular domains. Recently, we announced the issuance of two US CRISPR (clustered regularly interspaced short palindromic repeats) patents, covering certain uses of RNA-guided endonucleases, such as Cas9 or Cpf1, for the genetic engineering of T-cells.

PulseAgile—Electroporation Technology

In order to perform gene editing, we use our proprietary PulseAgile electroporation technology to introduce nucleases inside the target T-cell where they can access the cell's DNA. Electroporation allows messenger RNA, or mRNA, molecules coding for the nuclease to enter into the cell, where it is translated into the nuclease protein that can cut into the cell's DNA. The mRNA molecules are rapidly degraded by the cell, which means that the nuclease is only expressed for a short time.

PulseAgile electroporation uses a unique electrical field wave-form that, in combination with a proprietary buffer solution, enables molecules, such as nucleases, to enter efficiently into the cell while maintaining a high percentage of viable cells. PulseAgile technology is particularly effective due to the shape of the electrical field that includes high voltage peaks, which are optimized to create transient holes in the cell membrane, followed by lower voltage pulses that help mRNA (for example TALEN-encoding mRNA) migrate into the cells. In addition, PulseAgile is optimized to preserve high cell viability and thus suited for large-scale manufacturing.

Nuclease Technology and T-cells: The Design Process

Our T-cell gene-editing process involves two engineering rounds:

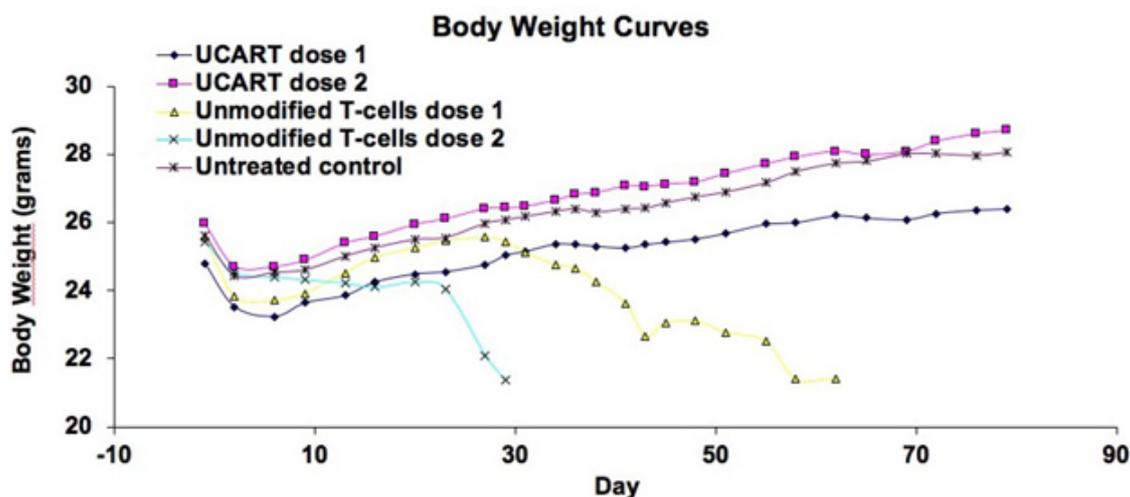
Gene Editing to add Genes, such as a CAR

Genetic material is added to the T-cell's genome using a viral vector—a benign modified virus that cannot replicate autonomously but can efficiently deliver such genetic material into a cell with which it is in contact. The genetic material added includes a gene coding for a CAR, which becomes a new receptor at the T-cell's surface that allows it to recognize and bind to a target molecule that is present at the surface of other cells. At this stage, we can also add other genes to these cells that confer specific properties. For example, we add suicide genes, which code for proteins that can make T-cells susceptible to certain drugs and enable us to deplete our engineered T-cells at our discretion by administering a drug to the patient. This system can also be integrated within the CAR itself.

Gene Editing to Inactivate Genes, such as the TCR α and CD52

We use our PulseAgile electroporation technology to introduce specific TALEN mRNA into the T-cells to inactivate a number of genes that are naturally present in the genome of these T-cells.

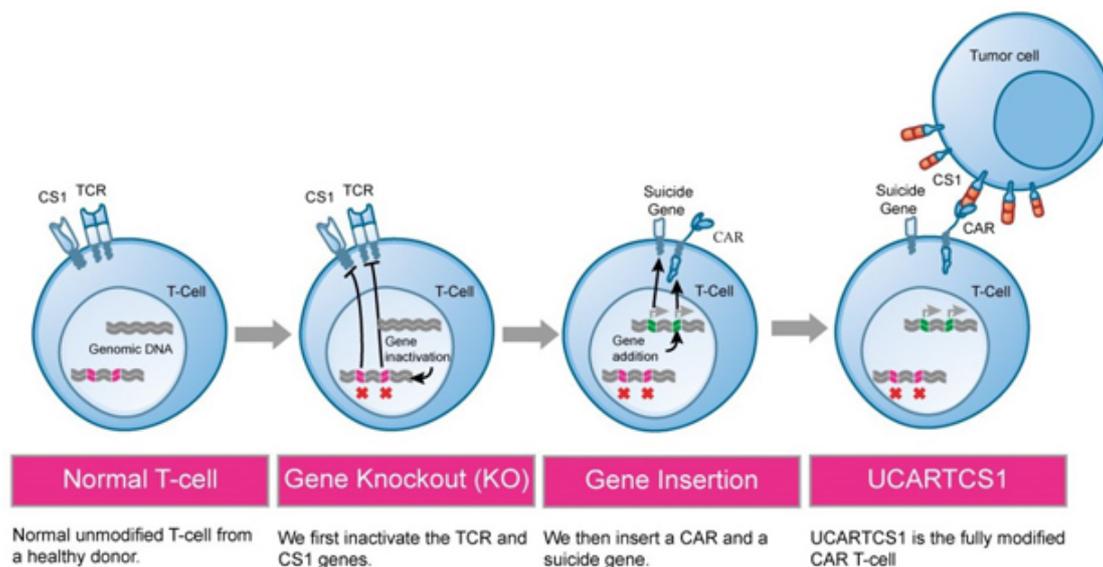
TCRs at the surface of T-cells allow them to recognize cells that express foreign, non-self, antigens (for example, cells infected by a virus or cells coming from another individual). Non-modified allogeneic T-cells bear functional TCRs and, if injected into a patient, can potentially recognize non-self on that patient's tissues and start to attack them. For this reason, all of our UCART product candidates undergo the inactivation of a gene coding for TCR $\alpha\beta$, a key component of the natural antigen receptor of T-cells, to suppress their alloreactivity. The engineered T-cells lack functional TCRs and are no longer capable of recognizing foreign antigens. As a result, when injected into a patient, the engineered T-cell would not recognize the tissues of the host patient as foreign and thus would avoid attacking the patient's tissues. This could avoid the GvHD that can sometimes be observed when allogeneic TCR-positive T-cells are infused into some patients. The figure below depicts the suppression of alloreactivity in T-cells engineered to lack functional TCRs. The figure summarizes experiments in which we injected mice with T-cells engineered for the inactivation of TCR α while injecting other mice with non-engineered T-cells with functional TCRs. We then measured the effects of such injections on mean body weight, which serves as a proxy for the impact of GvHD.



During the manufacturing process, the T cells from a healthy donor are first engineered. The CAR gene is transduced and cell attributes like the TCR alpha gene are knocked out by TALEN. Then, the T-cells of our UCART products are amplified. The desired TCR alpha deleted are finally purified from the cells that may still bear a TCR, and are finally frozen. We perform a battery of specialized testing techniques and various quality assurance and quality control assays to further validate cellular functional integrity following gene editing.

The lack of a TCR at the surface of our UCART product candidates is a key feature that allows them to be used as allogeneic off-the-shelf products. Other genes can also be inactivated in this round to confer additional specific attributes to the T-cells. They can be made resistant, and therefore compatible, with specific medical regimens used during the course of cancer treatments. For example, we inactivate the CD52 gene, which codes for the target of alemtuzumab, a monoclonal antibody sometimes used in CLL patients, that would otherwise destroy our engineered T-cells. Likewise, we believe we can inactivate the deoxycytidine kinase (dCK) or glucocorticoid receptor (GR) genes in order to make our T-cells respectively resistant to purine nucleotide analogs (e.g., fludarabine, clofarabine or cytarabine) or to corticoids that are used for several types of cancer patients.

The following diagram shows the key stages in our engineering of UCARTCS1:



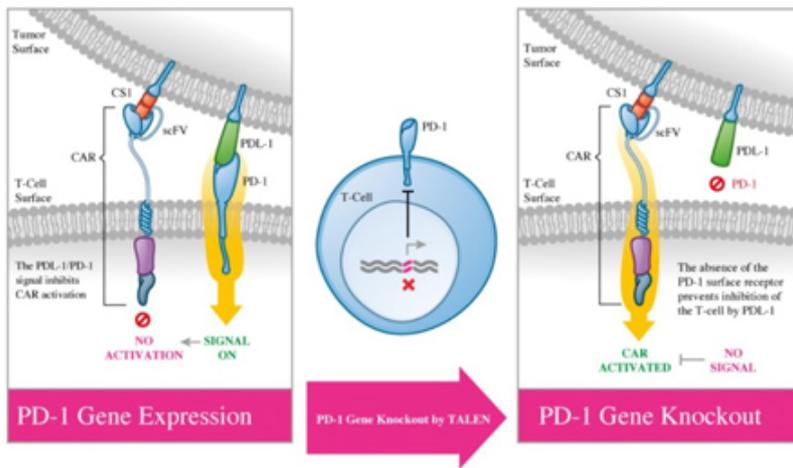
Next-Generation Products – Inactivate Additional Genes, such as β 2M and PD-1

The allogeneic CAR T-cell approach developed by Cellectis aims at increasing accessibility to treatment for patients by using healthy donor cells to manufacture CAR T-cells. As evidenced above, the inactivation of the TRAC gene reduces the risk of graft vs. host disease, and the lymphodepletion regimen of the patients aims at supporting early engraftment of the candidate product.

We are investigating the inactivation of the beta2-microglobulin (β 2M) gene to increase persistence of allogeneic cells in this context. β 2M is necessary for presentation of antigens on class I major histocompatibility complex (MHC) to cytotoxic T-cells. Allogeneic TRAC/ β 2M double knock-out CAR T-cells infused into a patient are expected not to be recognized by the patient's own T-cells and therefore to potentially show prolonged survival after patients' T-cells recover following lymphodepletion.

We developed several β 2M-specific TALEN allowing high efficiency of gene inactivation in combination with TRAC TALEN (up to 88% double knock-out). We have shown on human cells and on mouse cells that β 2M inactivation improves allogeneic cell survival in the presence of alloreactive T-cells, and we are pursuing the β 2M inactivation approach for some of our preclinical candidates.

Our engineered T-cell could also be made insensitive to inhibition signals, which diminishes immune system activity, that may be present within the tumor microenvironment and that usually block T-cell attacks. For example, we inactivate the programmed cell death 1 (PD-1) gene in our engineered T-cells in order to suppress the checkpoint regulator inhibition by tumors expressing PD-L1, a common anti-immune defense mechanism found in cancer. The following diagram shows the inactivation of the PD-1 gene to suppress checkpoint inhibition in the T-cell:

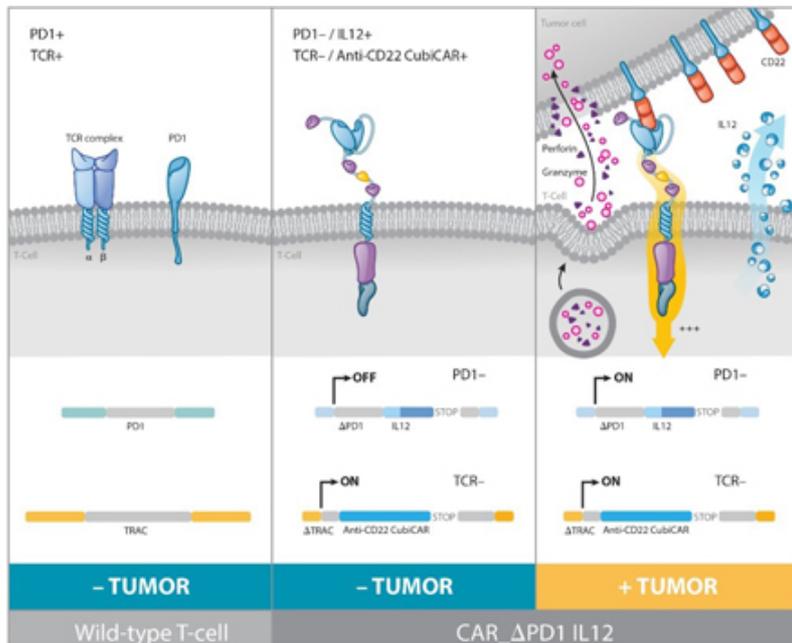


Using our ability to add and to inactivate genes, our platform has the potential to deliver smart T-cells designed for specific indications and purposes.

Next-Generation Products – Armored CARs

While CAR T-cell therapies have led to complete remission in previously untreatable diseases such as relapse/refractory ALL, not all patients respond, and even among those that respond, a fraction ends up relapsing. There is therefore a need to investigate strategies to make CAR T-cells even more effective, such as boosting their activity by overexpression of an immunomodulatory molecule (i.e. a cytokine or a costimulatory receptor). In order to limit toxicity effects due to immunostimulatory molecules being produced uncontrollably and systemically, we have developed strategies exploiting cellular endogenous pathways to restrict expression of a gene of interest only when CAR T-cells are activated. This is made possible by inserting genes of interest at a desired position in the genome by combining a locus-specific nuclease and a donor template vectorized with an adeno-associated viral (AAV) vector. Since PD-1 and CD25 are known to be upregulated upon T-cell activation, inserting certain cytokine coding sequence under the control of PD-1 or CD25 genetic regulatory elements allows secretion of that certain cytokine only upon activation of the CAR T-cells and enhances *in vitro* antitumor activity.

This strategy could be extended to the use of various genetic loci to express genes with therapeutic benefits at desirable expression level or with a specific temporal or regional expression pattern.



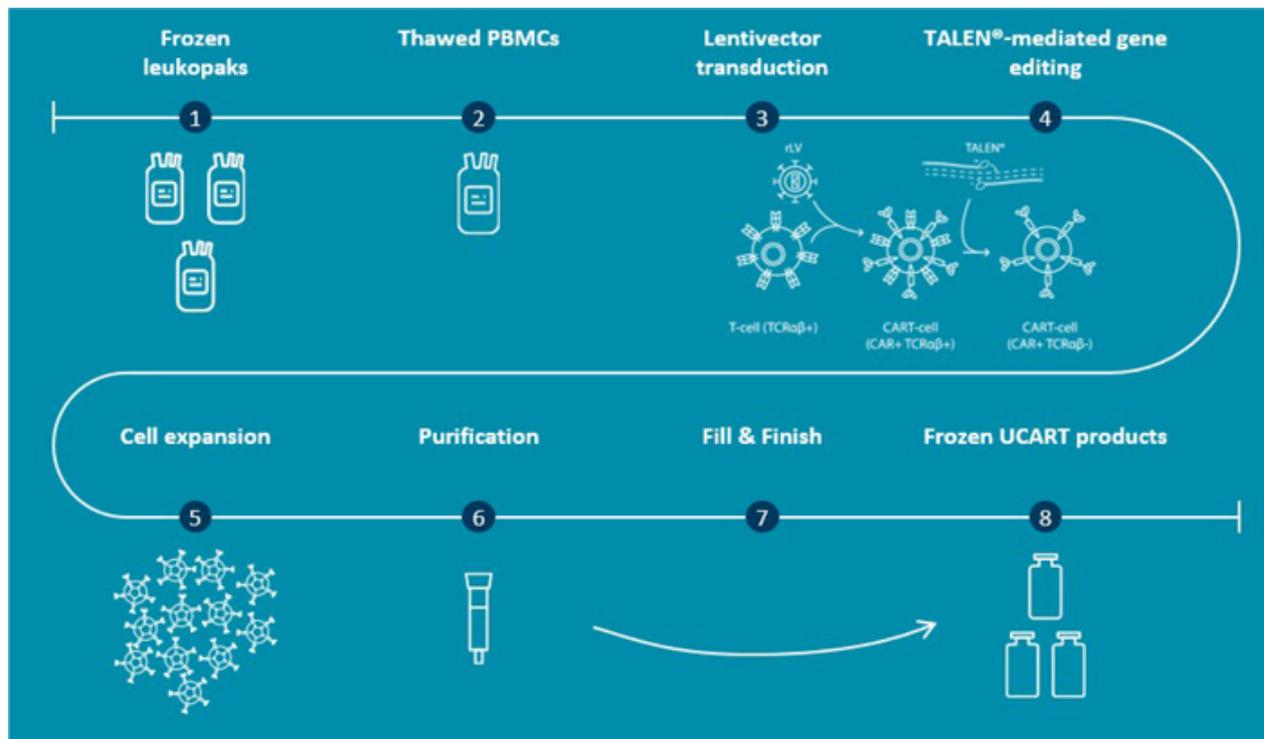
UCART Manufacturing: How can we turn a procedure into a large-scale, widely available drug?

Autologous CAR-T cell approaches are therapeutic procedures conducted for each patient, which involve the engineering of T-cells by addition of a transgene coding for a chimeric antigen receptor into the patient’s own T cells. Our UCART approach goes one step further in engineering and also in moving the CAR concept from a patient-by-patient therapeutic procedure to an off-the-shelf widely available pharmaceutical compound.

The manufacturing process of our allogeneic CAR T-cell product line, Universal CARTs or UCARTs, yields frozen, off-the-shelf, allogeneic, engineered CAR T-cells. UCARTs are meant to be readily available CAR T-cells for a large patient population. The specificity of those allogeneic therapies is that T-cells from healthy donors are genetically edited with our proprietary technology, TALEN, to seek and destroy cancer cells. TALEN-based gene editing is designed to suppress T-cell alloreactivity (and, for certain UCART product candidates, to confer resistance to alemtuzumab) to the T-cells.

Our UCARTs are designed and manufactured through a common platform that relies on defined unit operations and technologies combined into a single process adapted to each individual UCART. The process is gradually developed from small to larger scales, incorporating elements that are eventually used in GMP conditions. Notwithstanding this central unit operations-based model, each product is unique and for each new UCART, a developmental phase is necessary to individually customize each engineering step and to create a robust procedure that can later be implemented in a GMP environment to ensure the production of clinical batches. This work is performed in our research & development environment to evaluate and assess variability in each step of the process in order to define the most reliable experimental conditions.

The following diagram summarizes the generic UCART production process made of distinct unit operations. The engineering steps for transduction and electroporation can take place one before another (and several times), depending on the product.



We aim to continuously improve our manufacturing processes for better safety and robustness of our product lines. Collectis currently manufactures its allogeneic UCART clinical trial supply and starting materials through contract manufacturing organizations (CMOs), including MolMed S.p.A., CELLforCURE (a subsidiary of Novartis) and Lonza Netherlands B.V. These CMOs will continue to be strategic business partners, complementing Collectis’ internal manufacturing facilities in assuring a robust supply chain for the manufacture of Collectis’ UCART.

In June 2018, CELLforCURE informed us that GMP grade batches of dimethyl-sulfoxide (DMSO) and Dulbecco’s phosphate-buffered saline (dPBS) used during manufacturing of UCART123 and UCART22 contained particles, and that some batches of final product had been produced using this DMSO and dPBS batches. We informed the FDA and voluntarily decided not to use the batches that could potentially contain particles until receiving clearance from the FDA. Subsequently, CELLforCURE informed us that the GMP grade water for injection (WFI) they had used during manufacturing contained glass particles and that some batches of UCART123 and UCART22 had been manufactured with this WFI. We informed the FDA and voluntarily decided not to use the batches that could potentially contain glass particles until receiving clearance from the FDA. We worked with the FDA to assess the risk-benefit profile of vials produced during these campaigns, as well as produced new batches of UCARTCS1 and UCART123 which were not affected. Such steps allowed us to successfully initiate clinical trials with all three products (UCART123, UCART22, UCARTCS1) in the US.

Towards manufacturing autonomy: building two state-of-the-art plants

In order to enhance our manufacturing autonomy, we have started the construction of two manufacturing facilities, dedicated to critical raw and starting materials for clinical supply and clinical & commercial UCART products, respectively. First, in Raleigh, North Carolina, USA, we are developing an ~80,000 sq. ft. in-house manufacturing facility, which will be dedicated to the production of clinical and commercial UCART products. Second, in Paris, France, we are constructing an ~14,000 sq. ft. in-house manufacturing facility, which will be dedicated to the production of certain raw and starting material for clinical supply, with the potential to supply commercial raw and starting materials.

Raw Materials

We are currently dependent on specialized third parties, who are subject to stringent manufacturing requirements and regulations, for the supply of various critical and biological materials – such as cells, chemicals, water, cytokines, vectors, nucleic acids, antibodies, medium, serum, buffers—that are necessary to produce our product candidates. We source these raw and starting materials through service agreements and do not systematically have long-term supply contracts in place. However, we believe that competitive pricing is achieved because there are a number of potential long-term replacements to each of our suppliers. Generally, the prices of the principal biological raw and starting materials that we purchase are stable or fluctuate within a limited range. To the extent that we are exposed to price fluctuations, we generally do not expect, in the near term, to be able to pass on cost increases because of the early development stage of our product candidates. However, with the manufacturing facility project in Paris, we expect to become independent for the supply of the most critical raw and starting materials.

Applications of Calyxt's Technology in Agriculture

Calyxt was incorporated in the State of Delaware in the United States in 2010. Calyxt is a technology company focused on delivering plant-based solutions that are healthy and sustainable. Calyxt intends to bring these products to market in two ways. First, through an integrated business model where Calyxt leverages third party assets in the agricultural supply chain to process grains and sell the resulting products. Second, through collaboration arrangements or license agreements with third parties to develop or license products. In a collaboration arrangement Calyxt expects to receive payments for the use of its innovations, upon the achievement of development milestones, and from royalties upon commercial sale of products. In addition, Calyxt has an option to monetize its technology platform by strategically licensing its innovations to others. Calyxt expects to use the integrated business model in soybeans and wheat and collaborate or license in all other crops. Calyxt may also choose to collaborate in wheat and soybeans to increase margins and reduce its need for working capital. Calyxt is currently exploring product opportunities in alfalfa, canola, hemp, oats, peanuts, peas, potato, soybeans, wheat, and other crops.

Before its initial public offering, which closed on July 25, 2017, Calyxt was a wholly-owned subsidiary of ours. As of December 31, 2019, we owned approximately 68.9 % of Calyxt's outstanding common stock. Calyxt's common stock is listed on the Nasdaq market under the ticker symbol "CLXT".

Calyxt uses its proprietary technologies and expertise, including TALEN gene-editing technology exclusively licensed to it in the field of agriculture, to develop crops with targeted traits quickly and more cost effectively than through traditional methods. Calyxt's technologies enable precise cuts to DNA in a single plant cell, and then the plant's natural repair mechanism occurs resulting in the edited plant. Calyxt then regenerate the edited single cell. Calyxt believes that it can assess the viability of a trait in less than two years by utilizing these proprietary technologies.

Calyxt's high oleic soybean products are designed to produce a "heart healthy"¹ oil that has increased heat stability with zero grams trans fat per serving. Calyxt derives high oleic oil and meal from its soybean and completed its first sales in the first quarter of 2019. Among Calyxt's other product candidates are an improved digestibility alfalfa, a high fiber wheat and a cold storable potato. Calyxt also intends to explore the ability to add value to its existing product candidates by combining traits in the same crop, which may allow it to deliver products with additional benefits without adding significant supply chain cost.

Calyxt's current commercial focus is North America. This may expand over time to other geographies, subject to customer demand and regulatory requirements, among other factors.

Market and Industry Overview

Calyxt is poised to take advantage of trends that include healthier eating, improved traceability and global sustainability.

Consumers have developed an increasingly heightened awareness of the role that dietary habits play in long-term wellness. This trend is especially prevalent in wealthier, developed nations where consumers have greater access to information that is helping to shift their consumption habits. In the United States and other developed nations, changes in buying habits are creating dynamic shifts in the grocery aisle and for out-of-home eating. Consumers view food as a key to good health. More food, functional food and supplement products are being launched that go beyond basic nutrition to support wellness, digestive health, and higher energy levels. Locally sourced foods are becoming more attractive to consumers and the demand for transparency in food origin, growing method, sourcing, production and labeling is gaining traction. Calyxt believes that as consumers continue the shift from production-driven food culture to a modern demand-driven food culture, they will continue to demand more information and accountability about how ingredients are sourced and processed, how "real" their food products are, and how responsive food companies are to consumers' desire for choice and customization. Regulatory changes including labeling will also help drive change in consumer consumption and expectation.

¹ Supportive but not conclusive scientific evidence suggests that daily consumption of about 1 ½ tablespoons (20 grams) of oils containing high level of oleic acid, may reduce the risk of coronary heart disease. To achieve this possible benefit, oleic acid-containing oils should replace fats and oils higher in saturated fat and not increase the total number of calories you eat in a day. One serving of Calyxt high oleic soybean oil provides 16 grams of oleic acid (which is 16.3 grams of nonsaturated fatty acid).

Table of Contents

As these consumer demands for sourcing, transparency, traceability, environmental impact, and climate impact data increase for food products, they are also increasing for non-food products. Calyxt sees plant-based products having a significant role in addressing these consumer demands for non-food products as well.

Furthermore, Consumers and investors alike are concerned about the impact agricultural practices may have on climate change, and climate change itself will pressure the world's food supply, food chain and adjacent non-food value chains. Whether the concern is methane gas output from livestock and dairy production, the fossil fuel impact of importing vegetable oils into the United States, the direct use of a oilseed crops for energy, or the ability to raise wheat in Kansas in 2040, Calyxt believes its technologies will allow Calyxt to collaborate with others to bring sustainability solutions to market. For example, Calyxt's first collaboration project in alfalfa has been designed to improve alfalfa digestibility and thereby reduce methane gas output per gallon of milk production.

For Calyxt's first product, high oleic soybean oil, Calyxt anticipates taking share within the premium vegetable oil market. The premium vegetable oil market in the United States was estimated to be nearly 15 billion pounds, valued at \$7.5 billion, in 2018. Calyxt expects its oil to compete against other premium oils in the foodservice, food ingredient, animal nutrition, and industrial market segments. All these segments represent a multi-billion-pound addressable market for Calyxt's oil, and Calyxt believes the potential premiums offer it better economics than other segments of the market. Calyxt sells its high oleic soybean meal to dairy, poultry and pork producers.

From a sustainability perspective, most other premium oils are imported and therefore have a higher carbon footprint than Calyxt. Calyxt is also focused on an environmental stewardship, biodiversity and sustainable practices in agriculture through Calyxt's agreements with contracted growers. Calyxt is also able to trace its product to the field level to meet customer and consumer demands for sustainable sourcing, environmental impact and transparency of production.

TALEN Technology in Plant-Based Technology



Calyxt's proprietary technologies and intellectual property portfolio enable Calyxt to edit the plant genome by knocking out genes or making precise gene edits. Calyxt takes advantage of its knowledge about plant gene function to identify and select beneficial novel genetic variation that results in traits of value. A key difference between Calyxt's gene-edited products and genetically modified organisms, commonly referred to as GMOs, is a GMO product contains foreign DNA whereas Calyxt's products contain no foreign DNA.

Calyxt's gene-editing platform relies on Calyxt's capacity to custom design DNA-sequence specific cutting enzymes (nucleases) for a chosen gene and its capability to enable such custom-made nucleases to make a desired edit into the living plant cells that Calyxt wants to edit. Calyxt's platform also relies on precisely chosen binding elements that can specifically recognize unique DNA sequences and can be tailored to target such sequences in a chosen gene or genetic region.

Calyxt uses transcription activator-like effector nucleases, or TALEN, as the foundation of its gene editing platform. TALEN enable gene editing by first recognizing a specific DNA sequence and then precisely inducing a controlled DNA double-strand break. A DNA double-strand break is the key to unlocking gene editing. The removal of nucleotides (through non-homologous end-joining) can result in gene inactivation or a gene knock-out. If a DNA fragment from a different region of the genome with a similar sequence to the TALEN binding site is provided at the time of the DNA break, then the DNA fragment can be moved or copied into the targeted region of the plant genome to repair a broken gene (through homologous recombination). Calyxt is currently focused on using gene knockouts and gene repair to develop new traits, which result in products containing no foreign DNA.

Calyxt Plant-Based Technology Products

Calyxt identifies product concepts from its own research and inbound interest from potential collaborators. Calyxt continues to refine its portfolio and seek to take advantage of the largest market opportunities.

Table of Contents

Calyxt categorizes its stages of pre-commercial development as follows:

- Discovery, where Calyxt identifies genes of interest or make initial development crosses between favorable breeding lines;
- Phase I, where Calyxt conducts its gene editing and/or produces its initial breeding stock with desired traits, and produces the initial seed for testing;
- Phase II, where Calyxt performs validation testing and voluntarily consults with applicable regulatory authorities, if necessary; and
- Phase III, where Calyxt or its collaborator develops the first commercial-scale pilot production and performs final testing prior to commercialization.

Calyxt is currently exploring product opportunities in alfalfa, canola, oats, peanuts, potato, soybeans, wheat, and other crops. In the future, Calyxt expects to expand its product pipeline to include other crops.

As of December 31, 2019, Calyxt had a total of 15 products or product candidates, comprised of one commercial product, three product candidates in Phase II, and eleven product candidates in Phase I or Discovery. Calyxt continues to evaluate additional product concepts as part of its development process and innovation efforts. Calyxt expects to launch at least six product candidates from now through 2024, including its alfalfa product in 2021 through its collaboration with S&W, its high fiber wheat product candidate as early as 2022, and four additional product candidates either via its integrated business model or in collaboration with third parties. As of December 31, 2018, Calyxt had six product candidates in its development funnel.

A summary of Calyxt's pipeline at December 31, 2019 is as follows:

CROP	TRAIT	DISCOVERY	PHASE I	PHASE II	PHASE III	COLLABORATORS	CURRENT PROJECTED LAUNCH
 Alfalfa	Improved Digestibility	●	●	●			2021
 Wheat	High Fiber	●	●	●			2022
 Potato	Cold Storable	●	●	●			Post-2024
Hemp, Oats, Canola, Peanuts, Peas, Soybeans	Focused on Wellness and Sustainability	⑩	①				Various

High Oleic Soybean

Soybean oil has historically been partially hydrogenated to enhance its oxidative stability in order to increase shelf life and improve frying characteristics. This process creates trans-unsaturated fatty acids, or trans fats, which have been demonstrated to raise low-density lipoprotein (LDL) cholesterol levels and lower high-density lipoprotein (HDL) cholesterol levels. High LDL and low HDL have been tied to increased risk for cardiovascular disease. The discovery that dietary trans fats increase the risk of several adverse health issues led the FDA to rule in 2003 that manufacturers must include trans-fat content information on the "Nutrition Facts" label of foods. In 2015, the FDA banned the addition of partially hydrogenated oils to food products in a phased approach, with the first phase effective June 2018.

Monounsaturated fats, such as oleic acid, have been linked to reducing LDL cholesterol and triglycerides and raising HDL cholesterol. Diets rich in monounsaturated acids are associated with lower fat mass and decreased blood pressure. High levels of oleic acids can be found in olive, canola, sunflower and safflower oils.

Calyxt developed a soybean trait that has produced oils with a fatty acid profile that contains 80% oleic acid, 20% less saturated fatty acids compared to commodity soybean oil and zero grams of trans fats per serving.

Oil produced from Calyxt's high oleic soybean also has multiple desirable characteristics as an ingredient for the food industry. The high level of oleic acid in Calyxt's soybean oil enhances oxidative stability compared to other premium and commodity oils. This eliminates the need for partial hydrogenation, and thus little to no trans fats are produced during oil production. Furthermore, Calyxt's high oleic soybean oil offers additional potential benefits, including a threefold increase in fry-life, and reduced polymerization upon frying at high temperatures. Calyxt's high oleic soybean oil is also neutral in flavor, odorless and colorless, and is therefore desired as a food ingredient because it has limited impact on the sensory characteristics of the final food product. Because Calyxt requires segregation of Calyxt's soybeans from others in the supply chain, which Calyxt refers to as identity preservation, Calyxt's customers can make traceability statements if they elect to do so. In addition, Calyxt's high oleic soybean oil requires less fuel to process and transport to customer manufacturing sites than imported premium oils. Calyxt is currently targeting sales of its high oleic soybean oil to foodservice, food manufacturing, animal nutrition, and industrial market segments. Calyxt is targeting sales of its high oleic soybean meal to dairy, poultry, and pork producers.

Calyxt's high oleic soybean seed is sold either directly by them or through distributors to farmers. Calyxt introduced a single variety of its high oleic soybean in the northern United States in 2017. This single variety was designed to grow well in parts of South Dakota and Minnesota. In 2019 and 2018 Calyxt operates with that single variety as their only seed product. In 2019 Calyxt contracted more than 36,000 acres with nearly 125 growers in South Dakota and Minnesota to grow Calyxt's high oleic soybean. In 2019 Calyxt completed the processing and sale of all grain harvested from crops grown in 2018 and prior. Calyxt also took delivery of the bushels from approximately 30% of the acres grown pursuant to Calyxt's 2019 grain production contracts. In 2018 Calyxt contracted more than 17,000 acres with nearly 80 growers in South Dakota and Minnesota to grow its high oleic soybean.

Calyxt's 2020 acreage goal is 100,000 acres contracted. As of March 1, 2020, Calyxt had exceeded this goal and has over 250 contracts with growers. To drive this acreage expansion, Calyxt is planning to launch five new soybean seed varieties for the 2020 planting season. These launches will expand Calyxt's maturity groups and enable north to south expansion of growers, as well as a move east to Iowa. Calyxt will also diversify its weather risk. In 2019 Calyxt added three distributors for its seed: Agtegra Cooperative, focused on South Dakota and North Dakota; Landus Cooperative, focused on Iowa; and Central Valley Agriculture, focused on Nebraska and Kansas. These cooperatives will also all assist Calyxt with agronomy

support, grain storage and transportation. Landus Cooperative is also a key soybean crusher in Calyxt's supply chain. As a result of this expansion Calyxt will have access to distribution in states where over 45% of the total U.S. soybean acres are grown. Going forward, Calyxt expects to continue to double its acres for each of the next several years. Calyxt intends to support continued acreage growth with the launch of three to five new soybean varieties in 2021 and 2022 and adding additional seed distributors and other processors to Calyxt's portfolio as needed.

Calyxt operates an identity-preserved supply chain to segregate its soybeans from field to processor. In 2019 Calyxt built a supply chain network by contracting on a toll basis with elevators, processors, refiners and transportation companies. As Calyxt moves forward, it will work to optimize its supply chain, including where it contracts acres, whether and how it transports grain, and what level of toll charges it pays as it scales. Calyxt expects these activities will help Calyxt increase its product margins on a go-forward basis.

Calyxt intends to continue growing, processing, and storing its high oleic soybeans using existing third-party infrastructure and standard industry practices currently used for non-transgenic products. Calyxt believes a supply chain of this nature enables it to maintain flexibility and allows it to apply its resources toward maximizing innovation and product development while minimizing its capital expenditures and overhead.

Improved Digestibility Alfalfa

Alfalfa is a key feedstock in the production of milk from dairy cattle. The dairy industry is a significant producer of greenhouse gas and user of water. The dairy herds also produce substantial amounts of solid waste. Calyxt's alfalfa is designed to enable those producers to reduce their footprint in all three areas. Calyxt developed an alfalfa that has reduced lignin content in the stem of the plant, enabling it to be more digestible by livestock. Because the alfalfa is more digestible, fewer cows are needed to produce the same quantity of milk, reducing the aggregate amount of water consumed and waste produced. Calyxt developed this product in collaboration with S&W Seed (S&W) (NASDAQ: SNSW) and expects it to launch in 2021 following the completion of field trials, testing and any voluntary regulatory consultations. Pursuant to its collaboration agreement, Calyxt is negotiating the commercial terms with S&W and expects to receive ongoing royalties from S&W's sales of alfalfa seed.

High Fiber Wheat

Fiber is the indigestible portion of food that is essential for healthy digestion. Research has shown that fiber may play a large role in maintaining bowel health, lowering cholesterol, stabilizing blood glucose levels and controlling weight gain. A high fiber diet has the potential to lower the rate of glucose entry into circulation, thus decreasing the risk of food-related chronic diseases, such as coronary artery disease and diabetes. The average American adult consumes approximately 15-18 grams of fiber daily, only half of the amount recommended by the U.S. Department of Health's dietary guidelines based on the average caloric intake. In recent years, the awareness of the health benefits of high fiber diets has increased. This has translated to a strong growth in demand for high fiber food products, with approximately 35% of grocery shoppers now seeking high fiber foods.

Calyxt is developing its high fiber wheat product candidate that could be used to produce white flour with up to three times more dietary fiber than standard white flour while maintaining the same flavor and convenience of use. By altering the proportion of certain slower digested carbohydrates in the wheat grain, Calyxt has developed a product candidate that it believes will exhibit increased dietary fiber. This would allow consumers to reach their daily value of fiber without changing their existing food preferences.

Calyxt believes its high fiber wheat flour will be able to be incorporated into many food products—from pasta to bread. Whereas a single serving of whole wheat flour can provide 49% of an individual's daily fiber needs, a single serving of its high fiber wheat flour may provide up to 100% of the recommended daily requirement thereby allowing food manufacturers to make high fiber products sought after by many consumers.

This product candidate is currently in Phase II of Calyxt's development process and is expected to launch as early as 2022. In March 2018 Calyxt received confirmation from USDA that its high fiber wheat is deemed non-regulated pursuant to APHIS's regulatory procedures. Previously, Calyxt successfully harvested high fiber wheat in field trials. In 2020 Calyxt intends to further confirm the product concept in field conditions and to complete food application studies.

Intellectual Property

We seek to protect and enhance proprietary technology, inventions, and improvements that are commercially important to the development of our business by seeking, maintaining, and defending patent rights, whether developed internally or licensed from third parties. We will also seek to rely on regulatory protection afforded through orphan drug designations, data exclusivity, market exclusivity and patent term extensions where available.

To achieve this objective, we maintain a strategic focus on identifying and licensing key patents that provide protection and serve as an optimal platform to enhance our intellectual property and technology base.

Historical Perspectives

Collectis was founded in early 2000. In June 2000, Institut Pasteur provided us with exclusive rights to its gene-editing patent portfolio. This patent portfolio includes patents relating to homologous recombination and rare-cutting endonucleases (also named meganucleases), respectively, for genetic engineering in living cells.

Since 2002, we have filed a large number of patent applications, many now issued as patents, for custom-made meganucleases, and uses thereof, that specifically target a desired genetic sequence in a genome. In 2014, we entered into a cross-licensing agreement with Precision Biosciences, Inc., or Precision, in settlement of patent litigation and patent proceedings related to this technology. Pursuant to this cross-license, we licensed our patents and patent applications in this area to Precision, and Precision licensed its relevant patents and patent applications to us.

In 2010, we acquired a portfolio of patents and patent applications relating to electroporation methods and devices. In 2011, we entered into an exclusive license agreement with the Regents of the University of Minnesota (UMN) pursuant to which we in-licensed one patent family related to customized rare-cutting endonucleases, in connection with which we have registered the trademark TALEN in certain jurisdictions. This patent portfolio comprises six patents in the United States and two European patents. In addition, in 2014, we entered into a series of agreements with Life Technologies Corporation (controlled by Thermo Fisher Scientific Inc.) pursuant to which we received a non-exclusive sublicense under certain patents and patent applications related to the research and therapeutic uses of TALE-nucleases and we granted certain rights to Life Technologies under our TALEN technology. In addition, we entered into a license agreement with Calyxt, pursuant to which Calyxt has been granted certain rights in connection with our gene editing and plant intellectual property portfolio.

Since 2012, we have filed about 60 new patent applications related to the CAR T-cell technology. Included in this patent portfolio are patent applications relating to manufacturing allogeneic immune cells and to CAR design, including multi-subunit CARs and conditional expression CARs. In addition, we have filed a number of patent applications related to new TALEN structures (for example, compact TALEN, methylation TALEN) and alternatives to the TALEN structure (BurrH, CRISPR-Cas9).

In October 2014 and March 2014, we exclusively in-licensed two patent portfolios from Ohio State Innovation Foundation and University College London, respectively. The Ohio State Innovation Foundation patent portfolio includes patent applications relating to CARs directed to cancer marker CS1. The University College London patent portfolio includes patent applications relating to a polypeptide expressing the suicide gene RQR8, and uses thereof.

Current Intellectual Property Portfolio

As a result of the licensing opportunities described below and our continuing research and development efforts, our intellectual property estate now contains patent applications that cover our products, including claims that cover:

- methods central to genome engineering and gene editing, including methods of homologous recombination, nuclease-based gene targeting, replacement, insertions and/or knock-out;
- the main products we use in the manufacturing process, including nucleases;
- manufacturing steps, including cell electroporation, transformation and genetic modifications;
- engineered cells;
- single-chain and multi-subunit CARs expressed at the surface of T-cells;
- specific gene inactivation and suicide gene expression;
- allogeneic and autologous treatment strategies using our T-cell products; and
- plant traits and methods for gene editing plant cells.

[Table of Contents](#)

The most relevant issued patents in our portfolio consist of approximately 34 Collectis-owned and 21 in-licensed U.S. patents, 35 Collectis-owned and 6 in-licensed European patents, and 72 Collectis-owned and 14 in-licensed patents in other jurisdictions, such as Australia, Canada, China, Hong Kong, India, Israel, Japan, Korea, Mexico and Singapore.

The most relevant pending patent applications in our portfolio consist of approximately 68 Collectis-owned and 4 in-licensed U.S. patent applications, 52 Collectis-owned and 2 in-licensed European patent applications, 298 Collectis-owned and 27 in-licensed patent applications pending in other jurisdictions, such as Australia, Brazil, Canada, China, Hong Kong, India, Israel, Japan, Korea, Mexico and Singapore.

Our most relevant portfolio includes a total of 216 owned and in-licensed granted patents, and 555 owned and in-licensed patent applications.

Our UCART product candidates rely for each product candidate upon one or more patent rights protecting various aspects of the technologies, including rights relating to:

- the genetic editing of T-cells, using TALEN technology, covered by approximately twelve Collectis-owned patent families and three in-licensed patent families;
- the insertion of transgenes into T-cells using electroporation of mRNA, covered by approximately five Collectis-owned patent families;
- the appending of attributes to T-cells, covered by approximately eight Collectis-owned patent families and one in-licensed patent family;
- the molecular structure of CARs, covered by approximately six Collectis-owned patent families; and
- specific CARs that target selected antigen markers are covered by approximately fifteen Collectis-owned patent applications and one in-licensed patent family.

For additional information, see “—Gene-Editing Platform” below.

Similarly, our most advanced agricultural product candidates each rely upon one or more patent rights relating to:

- the genetic editing of plants using TALEN technology, covered by approximately six Collectis-owned patent families and two in-licensed patent families;
- the genetic editing of plants using meganuclease technology, covered by approximately eight Collectis-owned patent families and one in-licensed patent family;
- the genetic editing of plants using CRISPR-Cas9 technology, covered by approximately two Collectis-owned patent families and three in-licensed patent families; and
- specific plant traits, which are covered by approximately twelve Collectis-owned patent families.

Individual patent terms extend for varying periods of time, depending upon the date of filing of the patent application, the date of patent issuance, and the legal term of patents in the countries in which they are obtained. In most countries in which we file patent applications, including the United States, the patent term is 20 years from the date of filing of the first non-provisional application to which priority is claimed. In certain instances, a patent term can be extended under certain circumstances. For example, in the United States, the term of a patent that covers an FDA-approved drug may be eligible for a patent term restoration of up to five years to effectively compensate for the patent term lost during the FDA regulatory review process, subject to several limitations discussed below under “—Our Intellectual Property Strategy.” Also, in the United States, a patent’s term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent. Our issued patents will expire on dates ranging from 2020 to 2035. If patents are issued on our pending patent applications, the resulting patents are projected to expire on dates ranging from 2023 to 2035. However, the actual protection afforded by a patent varies on a product-by-product basis, from country-to-country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country, and the validity and enforceability of the patent.

The patent portfolio for our most advanced product candidates, UCART19, UCART123, UCARTCS1, and UCART 22, are summarized below.

Gene Editing Platform

Each of our UCART product candidates relies upon our gene-editing platform and T-cell and CAR technology platforms. The patent portfolio covering these platforms and technologies, includes approximately 92 patents or pending patent applications in various countries, comprising 19 in-licensed and 14 Collectis owned issued patents among which 11 are U.S. granted patents and 6 European granted patents. These issued patents and pending patent applications, which expire between 2019 and 2033, cover product claims or process claims relevant to each of our product candidates, including UCART19 and UCART123.

[Table of Contents](#)

Our gene-editing platform and each of our UCART product candidates benefits from the protections of several patents and patent applications in our patent portfolio. As a result of this broad range of patent protection, very few individual patents in our portfolio are critical to our ability to effectively conduct our product development activities. Although certain patents relating to our electroporation technology have expired, other patents and patent applications covering this technology remain in force, and additional patents protect the nucleases delivered by our electroporation technology, as well as the methods to modify the cells by use of such nucleases. Our patents EP3004349, EP3008186 and EP3105317 are under opposition before the European Patent Office.

UCART19

In addition to the patent portfolio relating to our platform and technologies, described above, our patent portfolio relating specifically to UCART19 includes pending patent applications from the patent family WO2014184143 (CD19 Specific Chimeric Antigen Receptor and Uses Thereof). We believe these pending patent applications, which, if issued, would expire in 2034, include claims to cover the composition of matter of UCART19, methods of manufacture of UCART19, and methods to use UCART19 in treatment.

UCART123

In addition to the patent portfolio relating to our platform and technologies, described above, our patent portfolio relating specifically to UCART123 includes granted patents and pending patent applications from the family WO2015140268 (CD123 Specific Chimeric Antigen Receptors for Cancer Immunotherapy). We believe these patents and patent applications, which, if issued, would expire in 2035, include claims directed to the composition of matter of UCART123, methods of manufacture of UCART123, methods to use UCART123 in cancer treatments.

UCARTCS1

Our patent portfolio relating specifically to UCARTCS1 includes granted patents and pending patent applications from the patent family WO2014179759 (CS1-SPECIFIC CHIMERIC ANTIGEN RECEPTOR ENGINEERED IMMUNE EFFECTOR CELLS1) licensed exclusively from the Ohio State University. We believe these patents and patent applications, if used, would expire in 2034. This patent family is directed to composition of matters including a CAR anti-CS1 per se. Our patent portfolio also includes patent and patent applications filed by Cellectis from the family WO2015166056 (CS1 SPECIFIC MULTI CHAIN CHIMERIC ANTIGEN RECEPTOR) and WO2015121454 (T-CELLS FOR IMMUNOTHERAPY ENGINEERED FOR TARGETING ANTIGEN PRESENT BOTH ON T-CELLS AND PATHOLOGICAL CELLS), which, if issued, would expire on 2035. Both families relate to the use of CAR anti CS1 in allogeneic T-cells, methods of manufacture of UCARTCS1, and methods to use UCARTCS1 in cell therapy treatment.

UCART22

In addition to the patent portfolio relating to our platform and technologies, described above, our patent portfolio relating specifically to UCART22 includes pending patent applications from the families WO201817378 and WO2028278377. We believe these patent applications, which if issued, would expire in 2038, include claim directed to the composition of matter of UCART22, methods of manufacture of UCART22, and methods to use UCART22 in cancer treatment.

In each case, some of the issued patents and pending patent applications, if issued, may be eligible for patent term extension and patent term adjustment, thereby extending their terms, as described above.

Material Exclusive Licenses Granted to Collectis

Licenses from Institut Pasteur

In 2000, we entered into series of license agreements with L'Institut Pasteur, or Pasteur, pursuant to which we in-licensed a substantial portion of Pasteur's gene-editing patent portfolio. The details of these license agreements which are still effective are provided below.

In June 2000, we entered into an agreement with Pasteur, later amended in 2003 (collectively, the "Second June 2000 Agreement"), acting on its own behalf and on the Boston Children Hospital's behalf, pursuant to which it granted to us an exclusive, worldwide, royalty-bearing, sublicenseable license under certain patents and know-how owned by Pasteur and the Boston Children's Hospital relating to certain chimeric endonucleases for chromosomal gene editing by homologous recombination in cells to use, manufacture, and sell products and to practice processes covered by such patents. The license granted under the Second June 2000 Agreement is non-exclusive, however, with respect to the licensed processes applied to human gene therapy. In the event that Pasteur has the possibility to grant exploitation rights for applications to human gene therapy, it must immediately inform us, and we may amend our agreement with Pasteur to obtain such exploitation rights.

The exclusivity of each of the licenses granted under the Second June 2000 Agreement is further contingent upon our continued diligence in designing, developing, and obtaining the required regulatory authorizations necessary to sell the respective licensed products and processes.

In October 2000, we entered into an agreement with Pasteur, later amended in 2003, 2004, 2005, and 2007 (collectively, the "October Agreement"), pursuant to which we obtained an exclusive, worldwide, royalty-bearing, sublicenseable license under certain patents and know-how owned by Pasteur relating to a method of homologous recombination to make, use, and sell products and to implement processes covered by such patents. The exclusivity of the license granted under the October Agreement is subject to a license granted to a third party under the licensed patents in the domain of genes that encode for Erythropoietin.

We may only grant sub-licenses under our Pasteur agreements with Pasteur's prior approval, which is deemed to have been given if Pasteur does not object to a proposed sub-license within a specified period of time from notice of the proposed sublicense and which may only be withheld for serious cause.

Pursuant to the terms of each of the Second June 2000 Agreement, we made cash payments to Pasteur in an aggregate amount of 600,000 French Francs with respect to the entry into the agreement and the reimbursement of license fees. Pursuant to the terms of the October Agreement, we made cash payments to Pasteur in the aggregate amount of 500,000 French Francs with respect to the entry into the agreement and the reimbursement of license fees and 250,000 Euros in connection with the execution of amendments. Under the Second June 2000 Agreement, we are also required to pay Pasteur an ongoing royalty fee equal to a low- to mid-single digit percentage of our net income with respect to licensed products under the respective agreement. With respect to sublicenses granted under the Second June 2000 Agreement, we are also required to pay Pasteur a percentage of all payments received under such sublicenses, subject in certain cases to minimum payment amounts based on net revenues of the applicable sublicensee. Under the October Agreement, we are also required to pay Pasteur an ongoing royalty fee equal to a low-single digit percentage of our net income with respect to licensed products under the October Agreement. With respect to sublicenses granted under the October Agreement, we are required to pay Pasteur a tiered percentage of all compensation received by us during the applicable year under the sublicense agreement, subject in certain cases to minimum payment amounts based on net revenues of the applicable sublicensee.

The terms of each of our agreements with Pasteur will expire upon the expiration of the last-to-expire of the respective patents licensed to us pursuant to the applicable agreement. We expect the last to expire patent under the Second June 2000 Agreement to expire on February 3, 2020 and the last to expire patent under the October Agreement to expire on March 4, 2020. Pasteur and we may each terminate any of our agreements with Pasteur in the event of the other party's breach of an obligation under the applicable agreement, which remains uncured for 90 days following receipt of notice of such breach from the terminating party. Pasteur may immediately terminate such agreements if we challenge or contest the validity of any of the licensed patents under the respective agreement before a court or patents office. In addition, Pasteur and we may terminate any of the agreements, upon 60 days' prior notice, in connection with certain insolvency-related judicial proceedings instituted against the other party. Further, we have the right to terminate any of these agreements for any reason immediately upon notice to Pasteur.

License from Regents of the University of Minnesota

In January 2011, we entered into an exclusive license agreement with Regents of the University of Minnesota, or UMN. Pursuant to this agreement, as amended in 2012, 2014, and 2015 we and our affiliates were granted an exclusive, worldwide, royalty-bearing, sublicenseable license, under certain patents and patent applications owned by UMN, to make, use, sell, import, and otherwise dispose of products covered by the licensed patents, for all fields of use. These licensed patents relate to TALEN molecules and their use in gene editing. Pursuant to the agreement, we are required to achieve certain specified research- and sales-related milestones.

Pursuant to the terms of the agreement, we paid UMN an upfront license fee in the amount of \$250,000 upon the effective date of the license agreement, and a second upfront payment in the amount of \$1,000,000 following execution of the third amendment. In the non-agricultural field we are also required to pay to UMN low single digit percentage royalties on net sales of licensed products, as well as a percentage of all revenues received by us under sublicenses. Pursuant to the agreement, UMN is entitled to a minimum annual royalties of \$30,000 per year. In the agricultural field, no royalties are due on net sales of licensed products, but an annual fee of \$150,000 per year is due to UMN and commercial milestones are due upon the occurrence of certain commercial sale milestones. We are also required to pay UMN milestone payments up to a total of \$290,000 in the aggregate upon the occurrence of specified events and to pay certain patent-related expenses incurred under the agreement for prosecuting and maintaining the licensed patents. If we undergo a change of control and wish to assign our rights and duties under the agreement, we will be required to pay UMN an additional transfer fee.

The license agreement will expire upon the expiration of the last to expire valid claim of the licensed patents. UMN may terminate the agreement upon advance written notice in the event of our insolvency or bankruptcy, and immediately upon written notice in the event that we challenge the validity or enforceability of any licensed patent in a court or other applicable authority. UMN and we may terminate the agreement by written notice in the event of the other party's breach that has not been cured within a specified number of days after receiving notice of such breach.

License from Ohio State Innovation Foundation

In October 2014, we entered into an exclusive license agreement with Ohio State Innovation Foundation. Pursuant to this agreement, we were granted an exclusive, worldwide, royalty-bearing, sublicenseable license under certain patents and patent applications owned by Ohio State Innovation Foundation to use, make, distribute, sell, lease, loan or import products or process covered by the licensed patents, for any and all activities relating to cancer immunotherapy. The licensed portfolio includes an international patent application relating to CAR directed to cancer marker CS1. Pursuant to the agreement, we must use diligence and commercially reasonable efforts to commercialize licensed products or processes, including achieving certain milestone events by specified deadlines, subject to our ability to extend such deadlines upon payment of certain fees.

Pursuant to the terms of the agreement, we paid Ohio State Innovation Foundation an upfront license fee in the amount of \$100,000. We are required to pay an annual license maintenance fee of \$20,000 from 2015 onward until our first sale of a licensed product. We are also required to pay to Ohio State Innovation Foundation low single-digit percentage royalties on net sales of licensed products and licensed processes by us and are subject to minimum annual royalties due to Ohio State Innovation Foundation of \$100,000. We are also required to pay Ohio State Innovation Foundation a percentage of royalties paid to us by sublicensees. We are also required to pay Ohio State Innovation Foundation milestone payments up to a total of \$1,950,000 in the aggregate upon the occurrence of certain development-related events prior to deadlines specified in the agreement.

Unless earlier terminated, the license agreement will expire upon the expiration of the last to expire valid claim of the licensed patents, which we expect will be on May 2, 2034. We may terminate the agreement at our option by giving 90 days' written notice. Ohio State Innovation Foundation may immediately terminate the agreement, any part of the licensed patent rights or the agreement's exclusivity if we fail to make required payments under the agreement and such breach continues for sixty days after delivery of written notice from Ohio State Innovation Foundation or if we breach any other provision of the agreement and fail to cure such breach within 60 days after delivery of written notice from Ohio State Innovation Foundation. Ohio State Innovation Foundation may also terminate the agreement if we or our affiliate initiates any proceeding or action challenging the validity, enforceability or scope of any of the patent rights or assists a third party in such a proceeding or action. The agreement automatically terminates if we file for bankruptcy or become bankrupt or insolvent, our board of directors elects to liquidate our assets or dissolve our business, we cease business operations, we make an assignment for the benefit of creditors or if we are otherwise placed in the hands of a receiver, assignee or trustee, whether by our voluntary act or otherwise.

Our Intellectual Property Strategy

We believe our current layered patent estate, together with our efforts to develop and patent next generation technologies, provides us with substantial intellectual property protection. However, the area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties.

Our strategy is also to develop and obtain additional intellectual property covering innovative manufacturing processes and methods for genetically engineering T-cells expressing new constructs and for genetically engineering plants expressing new traits. To support this effort, we have established expertise and development capabilities focused in the areas of pre-clinical research and development, manufacturing and manufacturing process scale-up, quality control, quality assurance, regulatory affairs and clinical trial design and implementation. Thus, we expect to file additional patent applications to expand this layer of our intellectual property estate.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the date of filing of the first non-provisional application to which priority is claimed. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent. The term of a patent that covers an FDA-approved drug may also be eligible for a patent term restoration of up to five years under the Hatch-Waxman Act, which is designed to compensate for the patent term lost during the FDA regulatory review process. The length of the patent term restoration is calculated based on the length of time the drug is under regulatory review. A patent term restoration under the Hatch-Waxman Act cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug may be restored. Moreover, a patent can only be restored once, and thus, if a single patent is applicable to multiple products, it can only be extended based on one product. Similar provisions are available in Europe and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug. When possible, depending upon the length of clinical trials and other factors involved in the filing of a BLA, we expect to apply for patent term extensions for patents covering our product candidates and their methods of use.

Our commercial success may depend in part on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business; defend and enforce our patents; preserve the confidentiality of our trade secrets; and operate without infringing the valid enforceable patents and proprietary rights of third parties. Our ability to stop third parties from making, using, selling, offering to sell or importing our products may depend on the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities. With respect to both licensed and company-owned intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our commercial products and methods of manufacturing the same.

We may rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our consultants, contractors or collaborators use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Competition

The biotechnology and pharmaceutical industries put significant resources toward developing novel and proprietary therapies for the treatment of cancer, which often incorporate novel technologies and incorporate valuable intellectual property. We compete with companies in the immunotherapy space, as well as companies developing novel targeted therapies for cancer. In addition, our products will compete with existing standards of care for the diseases that our product candidates target. We anticipate that we will face intense and increasing competition from many different sources, including new and established biotechnology and pharmaceutical companies, academic research institutions, governmental agencies and public and private research institutions.

The immuno-oncology cell therapy competitive landscape is increasing, with the main approaches including CAR-T cells (autologous and allogeneic), autologous T-cell receptors (TCRs) and natural killer (NK) cells approaches.

The most advanced autologous CAR-T cell programs are:

- In August 2017, the FDA approved tisagenlecleucel (Kymriah®) from Novartis AG for the treatment of patients up to 25 years of age with B-cell precursor ALL that is refractory or in second or later relapse. In May 2018, the FDA approved a label extension for Kymriah® for the treatment of adult patients with relapsed or refractory large B-cell lymphoma after two or more lines of systemic therapy. Sales of Kymriah® were \$76 million in 2018 and \$278 million in 2019.
- In October 2017, the FDA approved axicabtagene ciloleucel (Yescarta®) commercialized by Kite Pharma, a subsidiary of Gilead Sciences, for the treatment of adult patients with relapsed or refractory large B-cell lymphoma after two or more lines of systemic therapy. Sales of Yescarta® were \$264 million in 2018 and \$456 million in 2019.
- In December 2019, Bristol-Myers Squibb announced the submission to the FDA of a Biologics License Application (BLA) for lisocabtagene maraleucel (liso-cel), formerly known as JCAR017, in relapsed or refractory large B-cell lymphoma. In December 2019, Kite announced the submission to the FDA of a Biologics License Application (BLA) for the CAR T cell therapy KTE-X19 in relapsed or refractory mantle cell lymphoma. In January 2020, Kite announced that the Marketing Authorization Application (MAA) for KTE-X19 in relapsed or refractory mantle cell lymphoma has been fully validated and is now under evaluation by the European Medicines Agency (EMA).
- 3 product candidates in pivotal clinical trials in the United States: Bristol-Myers Squibb's (formerly Celgene/Juno's) product candidate liso-cel (targeting CD19 in Large B-cell Lymphoma), bluebird's product candidate bb2121 (targeting BCMA in Multiple Myeloma; in partnership with Celgene), Janssen's JNJ-68284528 (target BCMA in Multiple Myeloma; formerly known as LCAR-B38M and in partnership with Legend Biotech).

Due to the promising therapeutic effect of T-cell therapies in clinical exploratory trials, we anticipate substantial direct competition from other existing and new competitors developing these therapies. In particular, we expect to compete with therapies with tumor infiltrating lymphocytes, or TILs, that are naturally occurring tumor-reactive T-cells harvested, propagated *ex vivo* and re-infused into patients. We also expect to compete with therapies using genetically engineered T-cells, rendered reactive against tumor-associated antigens prior to their administration to patients. While a substantial part of our competitors are currently focused on autologous therapies, we believe that an increasing number of companies are developing an allogeneic CAR-T cell approach. Here, we differentiate ourselves by using our proprietary gene-editing capabilities to add specific features to our T-cell products, such as cancer drug resistance or resistance to checkpoint inhibition.

Our competitors include:

- Autologous and Allogeneic CAR T-cell space: Juno Therapeutics, Inc. (in collaboration with Editas Medicine Inc.), acquired by Celgene Corporation and acquired since by Bristol-Myers Squibb; Bluebird bio, Inc. (in collaboration with Celgene Corporation, acquired since by Bristol-Myers Squibb), Ziopharm Oncology Inc. (in collaboration with Intrexon Corporation), Kite Pharma Inc. (in collaboration with Amgen Inc. and with Sangamo Therapeutics Inc.), acquired by Gilead Sciences Inc., Novartis AG (in collaboration with Intellia Inc.), Johnson & Johnson (in collaboration with Transposagen Biopharmaceuticals Inc.), Precision Biosciences (in collaboration with Servier), Regeneron Pharmaceuticals Inc. (in collaboration with Adicet Bio Inc), Fate Therapeutics Inc., CRISPR Therapeutics Inc., Takeda Pharmaceutical Company Limited, and Celyad S.A.
- Gene-editing space: CRISPR Therapeutics Inc. (in collaboration with Bayer AG and Vertex Inc.), Editas Medicine, Inc. (partnered with Allergan and Celgene), Intellia Therapeutics, Inc. (partnered with Novartis), Precision BioSciences, Inc., Sangamo BioSciences, Inc. (partnered with Kite/Gilead and Pfizer), acquired by Gilead Sciences Inc., and Vertex/Exonics Therapeutics (partnered with CRISPR Therapeutics).
- Cell-therapy space: Adaptimmune Ltd, Iovance Biotherapeutics, Unum Therapeutics, Inc., NantKwest, Inc., Atara Biotherapeutics, Inc., and Immunocore Ltd.

We also face competition from non-cell based treatments offered by companies such as Amgen Inc., AstraZeneca plc, Bristol-Myers Squibb Company, Incyte Corporation, Merck & Co., Inc., and F. Hoffman-La Roche AG. Immunotherapy is further being pursued by several biotech companies as well as by large-cap pharmaceuticals. Many of our current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, pre-clinical testing, conducting clinical trials, and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market or make our development more complicated. The key competitive factors affecting the success of all of our programs are likely to be their efficacy, safety, and convenience.

In the plant-based technology industry, Calyxt faces significant direct and indirect competition in several aspects of its business. Competition for improving plant genetics comes from conventional and advanced plant breeding techniques, as well as from the development of genetically modified traits. Other potentially competitive sources of improvement in crop yields include improvements in crop protection chemicals, fertilizer formulations, farm mechanization, other biotechnology, and information management. Programs to improve genetics and chemistry are generally concentrated within a relatively small number of large companies, while non-genetic approaches are underway with a broader set of companies. Additionally, competition for providing more nutritious ingredients for food companies come from chemical-based ingredients, additives and substitutes, which are developed by various companies.

In general, Calyxt faces competition from both large agricultural biotechnology, seed and chemical companies, certain of which have been actively involved in new trait discovery, development, and commercialization, and from specialty food ingredient companies, which are generally focused on providing solutions to the food industry through chemical, synthetic or other methods. Many of Calyxt's competitors—particularly large chemical companies—have substantially larger budgets for research and development (R&D), product commercialization and regulatory process management than Calyxt.

Calyxt also faces competition from trait research and development companies as well as agricultural research universities and institutions. Given the global importance of agriculture, there are several companies, research universities and institutions that specialize in R&D of agricultural yield and product quality traits. Because these competitors typically focus on a limited number of traits and do not generally have the product development, gene-editing technologies and regulatory infrastructure necessary to bring traits to market, they generally out-license trait technologies to large industry players with in-house development and regulatory capabilities at a relatively early stage of development.

Government Regulation and Product Approval

Government Regulation of Biological Products

We are subject to extensive regulation. Our product candidates are regulated as biologics, gene therapies. Governmental authorities, including the FDA and comparable regulatory authorities in other countries, regulate the design, development, production / manufacturing, testing, safety, efficacy, labeling, storage, record-keeping, advertising, promotion and marketing of pharmaceutical products, including biologics. Non-compliance with applicable requirements can result in fines and other judicially imposed sanctions, including product seizures, import restrictions, injunctive actions and criminal prosecutions of both companies and individuals. In addition, administrative remedies can involve requests to recall violative products; the refusal of the government to enter into supply contracts; or the refusal to approve pending product approval applications until manufacturing or other alleged deficiencies are brought into compliance. The FDA and similar authorities around the world also have the authority to cause the withdrawal of approval of a marketed product, to impose labeling restrictions or to require that we redo some non-clinical and/or clinical studies.

The FDA categorizes human cell- or tissue-based products as either minimally manipulated or more than minimally manipulated, and has determined that more than minimally manipulated products require clinical trials to demonstrate product safety and efficacy and the submission of a BLA for marketing authorization.

Our product candidates must be approved by the FDA before they may be legally marketed in the United States and by the appropriate foreign regulatory agencies before they may be legally marketed in foreign countries. Generally, our activities in foreign countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences. Additionally, some significant aspects of regulation in Europe are addressed in a centralized way, but country-specific regulation remains essential in many respects. The process for obtaining regulatory marketing approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

Ethical, social and legal concerns about gene therapy, gene modifications, genetic testing and genetic research could result in additional regulations restricting or prohibiting the processes we may use. Federal and state agencies, congressional committees and foreign governments have expressed interest in further regulating biotechnology. More restrictive regulations or claims that our products are unsafe or pose a hazard could prevent us from commercializing any products in one or more jurisdictions. New

[Table of Contents](#)

government requirements may be established that could delay or prevent regulatory approval of our product candidates under development. It is impossible to predict whether legislative changes will be enacted, regulations, policies or guidance changed, or interpretations by agencies or courts changed, or what the impact of such changes, if any, may be.

Set forth below is a description of the process of obtaining U.S. government approval for biological product development. Similar processes apply in other jurisdictions.

U.S. Biological Product Development

In the United States, the FDA regulates biologics under the Federal Food, Drug, and Cosmetic Act, or FDCA, and the Public Health Service Act, or PHSA, and their implementing regulations. Biologics are also subject to other federal, state and local statutes and regulations. The process required by the FDA before biologic product candidates may be marketed in the United States and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, untitled or warning letters, product recall requests or withdrawals from the market, labeling restrictions, non-clinical and/or clinical studies to be performed again, product seizures, total or partial suspension of production or distribution injunctions, import restrictions, fines, refusals of government contracts, restitution, disgorgement, or civil or criminal penalties for both companies and individuals. Any agency or judicial enforcement action could have a material adverse effect on us.

Our biological product candidates must be approved by the FDA through the Biologics License Application, or BLA, process before they may be legally marketed in the United States. The process required by the FDA before a biologic may be marketed in the United States generally involves the following:

- completion of extensive nonclinical, sometimes referred to as pre-clinical laboratory tests, pre-clinical animal studies and formulation studies in accordance with applicable regulations, including the FDA's GLP regulations;
- production and testing of clinical products according to the current Good Manufacturing Practices (cGMP) and possible FDA product specific requirements
- submission to the FDA of an IND, which must become effective before clinical trials may begin and must be updated at least annually;
- performance of adequate and well-controlled clinical trials in accordance with applicable IND and other clinical trial-related regulations, sometimes referred to as Good Clinical Practices, or GCPs, to establish the safety and efficacy of the proposed product candidate for each proposed indication;
- submission to the FDA of a BLA;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities where the active pharmaceutical ingredient, or API, and finished product are manufactured to assess compliance with the IND/BLA and FDA's cGMP requirements to assure that the facilities, methods and controls are adequate to preserve the product's identity, strength, quality, purity and potency;
- FDA review and approval of the BLA prior to any commercial marketing or sale of the product in the United States.

The data required to support a BLA is generated in three distinct development stages: manufacturing, pre-clinical and clinical. The manufacturing development stage generally involves laboratory evaluations of drug chemistry and biology properties, formulation and stability, the pre-clinical stage generally involves studies to evaluate pharmacology and toxicity in animals, which support subsequent clinical testing. The conduct of the manufacturing and pre-clinical studies must comply with federal regulations, including GMPs and GLPs for the main Toxicology Studies.

The sponsor must submit the results of the pre-clinical studies, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of an IND before any clinical testing may proceed. An IND is a request for authorization from the FDA to administer an investigational drug product to humans. The IND must become effective before clinical trials may begin. The IND is automatically approved 30 days after receipt by the FDA, unless during that time the FDA raises concerns or questions regarding the proposed clinical trials. In such a case, the FDA may place the IND on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. The FDA may also impose clinical holds on a product candidate at any time before or during clinical trials due to safety concerns or non-compliance. Accordingly, we cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that could cause the trial to be suspended or terminated.

Before the IND becomes active, the Clinical Protocol will also need to be approved by the relevant Institutional Review Boards (IRBs) and Institutional Biosafety Committees (IBCs), which are the cornerstone of institutional oversight of recombinant DNA clinical research.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control, in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to the FDA as part of the IND. Further, each clinical trial must be reviewed and approved by an independent institutional review board, or IRB, at or servicing each institution at which the clinical trial will be conducted. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative and must monitor the clinical trial until completed.

All gene therapy experiments and clinical trials are also subject to review and oversight by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees basic and clinical research conducted at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment.

There are also requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries. Sponsors of clinical trials of FDA-regulated products, including biologics, are required to register and disclose certain clinical trial information, which is publicly available at www.clinicaltrials.gov. Information related to the product, patient population, phase of investigation, study sites and investigators, and other aspects of the clinical trial is then made public as part of the registration. Sponsors are also obligated to discuss the results of their clinical trials after completion. Disclosure of the results of these trials can be delayed until the new product or new indication being studied has been approved.

Human clinical trials are typically conducted in three sequential phases. However, these phases may overlap or be combined:

- *Phase I.* The biological product candidate is initially introduced into healthy human subjects and tested for safety. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, if pre-clinical testing warrants, the initial human testing may be conducted in patients with the condition of interest.
- *Phase II.* The biological product candidate is evaluated in a limited patient population with the condition of interest to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- *Phase III.* Clinical trials are undertaken to further evaluate dosage, clinical efficacy, potency and safety in an expanded patient population with the condition of interest at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk to benefit ratio of the product and provide an adequate basis for approval, including appropriate product labeling.

Post-approval clinical trials, sometimes referred to as "Phase 4" clinical trials, may be conducted after initial marketing approval. These clinical trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication, particularly for long-term safety follow-up. The FDA recommends that sponsors observe subjects for potential gene therapy-related delayed adverse events for a 15-year period, including a minimum of five years of annual examinations followed by ten years of annual queries, either in person or by questionnaire, of study subjects.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data, and clinical trial investigators. Annual progress reports detailing the results of the clinical trials must be submitted to the FDA. Written IND safety reports must be promptly submitted to the FDA, IRB, and the investigators for serious and unexpected adverse events, any findings from other studies, tests in laboratory animals or *in vitro* testing that suggest a significant risk for human patients, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information.

Phase I, Phase II and Phase III clinical trials may not be completed successfully within any specified period, if at all. The FDA or the sponsor or its data safety monitoring board may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research patients are being exposed to an unacceptable health risk, including risks inferred from other unrelated immunotherapy trials. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the biological product has been associated with unexpected serious harm to patients.

Human immunotherapy products and gene therapy products are a new category of therapeutics. Because this is a relatively new and expanding area of novel therapeutic interventions, there can be no assurance as to the length of the trial period, the number of patients the FDA will require to be enrolled in the trials in order to establish the safety, efficacy, purity and potency of immunotherapy products, or that the data generated in these trials will be acceptable to the FDA to support marketing approval.

Concurrently with clinical trials, companies usually complete additional animal studies and must also develop additional information about the biological and physical characteristics of the biological product as well as finalize a process for production and testing the product in commercial quantities in accordance with cGMP requirements. To help reduce the risk of the introduction of adventitious agents with use of biological products, the PHSA emphasizes the importance of manufacturing control for products whose attributes cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must develop and validate methods for testing the identity, strength, quality, potency and purity of the final biological product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the biological product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes for Biological Product Candidates

After the completion of clinical trials, non-clinical and manufacturing activities of a biological product candidate, FDA approval of a BLA must be obtained before commercial marketing of the biological product. The BLA must include results of product development, laboratory and animal studies, human trials, information on the manufacture and composition of the product, proposed labeling and other relevant information. The approval processes require substantial time and effort and there can be no assurance that the FDA will accept the BLA for filing and, even if filed, that any approval will be granted on a timely basis, if at all.

Under the Prescription Drug User Fee Act, or PDUFA, as amended, each BLA must be accompanied by a significant user fee. The FDA adjusts the PDUFA user fees on an annual basis. PDUFA also imposes an annual product fee for biological products and an annual establishment fee on facilities used to manufacture prescription biological products. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. Additionally, no user fees are assessed on BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

Within 60 days following submission of the application, the FDA reviews a BLA submitted to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review of the BLA. The FDA reviews the BLA to determine, among other things, whether the proposed product is safe and potent, or effective, for its intended use, and has an acceptable purity profile, and whether the product is being manufactured in accordance with cGMP regulations to assure and preserve the product's identity, safety, strength, quality, potency and purity. The FDA may refer applications for novel biological products or biological products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the biological product approval process, the FDA also will determine whether a Risk Evaluation and Mitigation Strategy, or REMS, is necessary to assure the safe use of the biological product candidate. A REMS may be imposed to ensure safe use of the drug, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. If the FDA concludes a REMS is needed, the sponsor of the BLA must submit a proposed REMS. The FDA will not approve a BLA without a REMS, if required.

Before approving a BLA, the FDA will inspect the facilities at which the product candidate and the associated vector are manufactured. The FDA will not approve the product candidate unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. For cell based immunotherapy products, the FDA also will not approve the product if the manufacturer is not in compliance with the current good tissue practice, or GTP requirements, to the extent applicable. These requirements are set out in FDA regulations and guidance documents and govern the methods used in, and the facilities and controls used for, the manufacture of human cells, tissues, and cellular and tissue based products, or HCT/Ps, which are human cells or tissue intended for use in implantation, transplantation, infusion, or transfer into a human recipient. The primary intent of the GTP requirements is to ensure that cell and tissue based products are manufactured in a manner designed to prevent the introduction, transmission and

spread of communicable disease. FDA regulations also require tissue establishments to register and list their HCT/Ps with the FDA and, when applicable, to evaluate donors through screening and testing. Additionally, before approving a BLA, the FDA may inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with IND trial requirements and GCP requirements. To assure cGMP, GTP and GCP compliance, an applicant must incur significant expenditure of time, money and effort in the areas of training, record keeping, production, and quality control.

Notwithstanding the submission of relevant data and information, the FDA may ultimately decide that the BLA does not satisfy its regulatory criteria for approval and deny approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than we interpret the same data. If the agency decides not to approve the BLA in its submitted form, the FDA will issue a complete response letter that describes all of the specific deficiencies in the BLA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical trials. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, or withdraw the application.

If a product candidate receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product.

Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. The FDA may impose restrictions and conditions on product distribution, prescribing, or dispensing in the form of a REMS, or otherwise limit the scope of any approval. In addition, the FDA may require post marketing clinical trials, sometimes referred to as Phase 4 clinical trials, or additional studies like safety studies, designed to further assess a biological product's safety and effectiveness, and testing and surveillance programs to monitor the safety of approved products that have been commercialized.

In addition, unless a waiver is granted, under the Pediatric Research Equity Act, or PREA, a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The Food and Drug Administration Safety and Innovation Act, or FDASIA, requires that a sponsor who is planning to submit a marketing application for a drug or biological product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration submit an initial Pediatric Study Plan, or PSP, within sixty days after an end-of-Phase II meeting or as may be agreed between the sponsor and FDA. The initial PSP must include, among other things, an outline of the pediatric study or studies that the sponsor plans to conduct, including to the extent practicable study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. FDA and the sponsor must reach agreement on the PSP. A sponsor can submit amendments to an agreed-upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from nonclinical studies, early phase clinical trials, and/or other clinical development programs. The FDA may grant deferrals for submission of data or full or partial waivers. Unless otherwise required by regulation, PREA does not apply to any product for an indication for which orphan designation has been granted. However, if only one indication for a product has orphan designation, a pediatric assessment may still be required for any applications to market that same product for the non-orphan indications.

One of the performance goals agreed to by the FDA under the PDUFA is to review 90% of standard BLAs in 10 months and 90% of priority BLAs in six months, whereupon a review decision is to be made. The FDA does not always meet its PDUFA goal dates for standard and priority BLAs and its review goals are subject to change from time to time. The review process and the PDUFA goal date may be extended by three months if the FDA requests or the BLA sponsor otherwise provides additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

Orphan Drug Designation

Under the Orphan Drug Act, a sponsor may request and the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or if it affects more than 200,000 individuals in the United States and there is no reasonable expectation that the cost of developing and making available in the United States drug or biologic for this type of disease or condition will be recovered from sales in the United States for that product. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic and trade name, if any, of the drug or biologic and the rare disease or condition for which orphan-drug designation was granted are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage during, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same drug or biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application user fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. Orphan exclusivity also could block the approval of one of our products for seven years if a competitor obtains approval of the same drug or biologic as defined by the FDA or if our product candidate is determined to be contained within the competitor's product for the same indication or disease. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

The criteria for designating an "orphan medicinal product" in the EU are similar to those in the United States. Such designation can be requested in the case of products that are intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition and either (a) such condition affects no more than five in 10,000 persons in the EU when the application is made, or (b) the product, without the benefits derived from orphan status, would unlikely generate sufficient return in the EU to justify the necessary investment. Moreover, in order to obtain orphan designation it is necessary to demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU, or if such a method exists, the product will be of significant benefit to those affected by the condition.

In the EU, orphan medicinal products are eligible for financial incentives as well as specific regulatory assistance and scientific advice. Products receiving orphan status in the EU can receive ten years of market exclusivity, during which time no similar medicinal product for the same indication may be placed on the market. An orphan product can also obtain an additional two years of market exclusivity in the EU for pediatric studies. No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications.

However, the 10-year market exclusivity may be reduced to six years in certain circumstances, including for example if, at the end of the fifth year, it is established that the product is sufficiently profitable not to justify maintenance of market exclusivity.

There can be no assurance that we will receive orphan drug designation for any product candidates in the United States, in the EU or in any other market. There can be no assurance that an Orphan exclusivity from a competitor could not block the approval of one of our products for a certain period of time, in the United States, in the EU or in any other market.

Expedited Development and Review Programs

The FDA has a Fast Track program that is intended to expedite or facilitate the process for reviewing new drugs and biological products that meet certain criteria. Specifically, new products are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast Track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a new drug or biologic may request the FDA to designate the drug or biologic as a Fast Track product candidate at any time during the clinical development of the product candidate. Unique to a Fast Track product, the FDA may consider the review of sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

Any product candidate, submitted to the FDA for approval, including a product with a Fast Track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A product candidate is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new product candidate designated for priority review in an effort to facilitate the review, and aims to review such applications within six months as opposed to ten months for standard review. Additionally, a product candidate may be eligible for accelerated approval. Product candidates studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may receive accelerated approval which means that they may be approved on the basis of adequate and well-controlled clinical trials establishing that the product candidate has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on the basis of an effect on a clinical endpoint other than

irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require that a sponsor of a drug or biological product candidate receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. Fast Track designation, priority review and accelerated approval do not change the standards for approval but may expedite the development or approval process.

Breakthrough Therapy / Regenerative Medicine Advanced Therapy Designation

Under the provisions of the Food and Drug Administration Safety and Innovation Act, or FDASIA, enacted in 2012, the FDA established a Breakthrough Therapy Designation which is intended to expedite the development and review of products that treat serious or life-threatening conditions. A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the features of Fast Track designation, as well as more intensive FDA interaction and guidance. The Breakthrough Therapy Designation is a distinct status from both accelerated approval and priority review, but these can also be granted to the same product candidate if the relevant criteria are met.

The FDA must take certain actions, such as holding timely meetings and providing advice, intended to expedite the development and review of an application for approval of a breakthrough therapy. All requests for breakthrough therapy designation will be reviewed within 60 days of receipt, and FDA will either grant or deny the request.

In addition, as described in Section 3033 of the 21st Century Cures Act, signed into law in December 2016, a drug is eligible for Regenerative Medicine Advanced Therapy (RMAT) Designation if:

- the drug is a regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, except for those regulated solely under Section 361 of the Public Health Service Act and part 1271 of Title 21, Code of Federal Regulations;
- the drug is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and
- preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such disease or condition.

The RMAT designation carries all of benefits of Breakthrough and Fast Track therapy designations, including: intensive interaction with FDA on an efficient drug development program beginning as early as phase 1, organizational commitment involving senior FDA personnel, and rolling BLA review. RMAT designees are also eligible for *accelerated approval and priority review if relevant criteria are met*.

Where applicable, we plan to request Fast Track and/or Breakthrough Therapy Designation for our product candidates. Even if we receive one of these designations for our product candidates, the FDA may later decide that our product candidates no longer meet the conditions for qualification. In addition, these designations may not provide us with a material commercial advantage.

Post-Approval Requirements

Maintaining compliance with applicable federal, state, and local statutes and regulations requires the expenditure of substantial time and financial resources. Rigorous and extensive FDA regulation of biological products continues after approval, particularly with respect to cGMP and pharmacovigilance requirements as well as post marketing commitments. Any products for which we receive FDA approval will be subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, and complying with FDA promotion and advertising requirements, which include, among others, standards for direct-to-consumer advertising, restrictions on promoting products for uses or in patient populations that are not described in the product's approved uses (known as off-label use), limitations on industry-sponsored scientific and educational activities, and requirements for promotional activities involving the internet. Although physicians may prescribe legally available products for off-label use that they deem to be appropriate in their professional medical judgment, manufacturers may not market or promote such off-label uses.

Other post-approval requirements applicable to biological products include reporting of cGMP deviations that may affect the identity, potency, purity and overall safety of a distributed product, record-keeping requirements, reporting of adverse effects, reporting updated safety and efficacy information, and complying with electronic record and signature requirements. After a BLA is approved, the product may also be subject to official lot release. In this case, as part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is

subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency, and effectiveness of biological products.

In addition, we and any third-party manufacturers of our products will be required to comply with applicable requirements in the cGMP regulations, including quality control and quality assurance and maintenance of records and documentation. We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our products in accordance with cGMP regulations. cGMP regulations require among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation and the obligation to investigate and correct any deviations from cGMP. Manufacturers and other entities involved in the manufacture and distribution of approved products are required to register their establishments with the FDA and certain state agencies, and are subject to periodic announced and unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other The FDA also may require post-marketing studies, known as Phase 4 studies, and surveillance to monitor the effects of an approved product. laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved BLA, including, among other things, recall or withdrawal of the product from the market. In addition, changes to the manufacturing process are strictly regulated, and depending on the significance of the change, may require prior FDA approval before being implemented. Other types of changes to the approved product, such as adding new indications and claims, are also subject to further FDA review and approval.

Discovery of previously unknown problems with a product or the failure to comply with applicable FDA requirements can have negative consequences, including adverse publicity, judicial or administrative enforcement, warning letters from the FDA, mandated corrective advertising or communications with doctors, and civil or criminal penalties, among others. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, and also may require the implementation of other risk management measures. Also, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products under development.

U.S. Patent Term Restoration and Marketing Exclusivity

The Biologics Price Competition and Innovation Act, or BPCIA, amended the PHSA to authorize the FDA to approve similar versions of innovative biologics, commonly known as biosimilars. A competitor seeking approval of a biosimilar must file an application to establish its molecule as highly similar to an approved innovator biologic, among other requirements. The BPCIA, however, bars the FDA from approving biosimilar applications for 12 years after an innovator biological product receives initial marketing approval. This 12-year period of data exclusivity may be extended by six months, for a total of 12.5 years, if the FDA requests that the innovator company conduct pediatric clinical investigations of the product.

The first biological product submitted under the abbreviated approval pathway that is determined to be interchangeable with the reference product has exclusivity against other biologics submitting applications under the abbreviated approval pathway for the lesser of (1) one year after the first commercial marketing, (2) 18 months after approval if there is no legal challenge, (3) 18 months after the resolution in the applicant's favor of a lawsuit challenging the biologic's patents if an application has been submitted, or (4) 42 months after the application has been approved if a lawsuit is ongoing within the 42-month period.

Depending upon the timing, duration and specifics of the FDA approval of the use of our product candidates, some of our U.S. patents, if granted, may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years, as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA plus the time between the submission date of a BLA and the approval of that application. Only one patent applicable to an approved product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future as applicable, we may apply for restoration of patent term for one of our currently owned or licensed patents seeking restored patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA.

Pediatric exclusivity is another type of regulatory market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which attaches to and runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric trial in accordance with an FDA-issued "Written Request" for such a trial.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our activities are subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services (e.g., the Office of Inspector General), the U.S. Department of Justice, or DOJ, and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, sales, marketing and scientific/educational grant programs must comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the privacy provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the Anti-Kickback Statute was amended by the ACA to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act (discussed below).

The civil monetary penalties statute imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

The federal False Claims Act prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes “any request or demand” for money or property presented to the U.S. government. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of the product for unapproved, and thus non-reimbursable, uses.

HIPAA created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

We may also be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA’s privacy and security standards directly applicable to business associates independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties,

amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions.

In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Additionally, the federal Physician Payments Sunshine Act, enacted as part of the ACA, and its implementing regulations, require certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members.

In order to distribute products commercially, we will need to comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are also potentially subject to federal and state consumer protection and unfair competition laws.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Sales of our products will depend, in part, on the extent to which our products, if approved, will be covered and reimbursed by third-party payors, such as government health programs, commercial insurance and managed healthcare organizations. These third-party payors are increasingly reducing reimbursements for medical products and services. The process for determining whether a third-party payor will provide coverage for a drug product typically is separate from the process for setting the price of a drug product or for establishing the reimbursement rate that a payor will pay for the drug product once coverage is approved. Third-party payors may limit coverage to specific drug products on an approved list, also known as a formulary, which might not include all of the approved drugs for a particular indication.

In order to secure coverage and reimbursement for any product candidate that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product candidate, in addition to the costs required to obtain FDA or other comparable regulatory approvals. Whether or not we conduct such studies, our product candidates may not be considered medically necessary or cost-effective. A third-party payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Even if coverage is obtained from third party payors, reimbursement may not be sufficient to enable us to maintain price levels high enough to realize an appropriate return on our investment in product development.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of drugs have been a focus in this effort. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Similar policies and laws have been adopted by many EU Member States. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our net revenue and results. Decreases in third-party reimbursement for our product candidate or a decision by a third-party payor to not cover our product candidate could reduce physician usage of the product candidate and have a material adverse effect on our sales, results of operations and financial condition.

In addition, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the EU provides options for its Member States to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A Member State may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. For example, in France, effective access to the market assumes that our future products will be supported by the hospital (through an agreement for local communities) or reimbursed by social security. The price of medications is negotiated with the Economic Committee for Health Products, or CEPS. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our product candidates. Historically, products launched in the EU do not follow price structures of the United States and generally tend to be significantly lower.

Healthcare Reform and Subsequent Legislation

In March 2010, President Obama enacted the ACA, which has the potential to substantially change healthcare financing and delivery by both governmental and private insurers, and significantly impact the pharmaceutical and biotechnology industry. The ACA will impact existing government healthcare programs and will result in the development of new programs.

Among the ACA's provisions of importance to the pharmaceutical and biotechnology industries, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively and a cap on the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

We anticipate that, absent to further legislative changes, the ACA will result in additional downward pressure on coverage and the price that we receive for any approved product in the United States, and could seriously harm our business. Any reduction in reimbursement from Medicare and other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our product candidates, if approved. In addition, it is possible that there will be further legislation or regulation that could change parts of the ACA that affect public and private healthcare coverage. Those changes could harm our business, financial condition, and results of operations.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. On August 2, 2011, the Budget Control Act of 2011 among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of 2% per fiscal year, which started in April 2013. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, or the ATRA, which, among other things, also reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from

three to five years. Further, in January 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the ACA to waive, defer, grant exemptions from, or delay the implementation of any provisions of the ACA that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturer of pharmaceutical products. Congress may also consider subsequent legislation to replace elements of the ACA that are repealed. As a result, the full impact of the ACA, any law repealing and/or replacing elements of it, and the political uncertainty surrounding any repeal or replacement legislation remains unclear.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern our use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on our business. We cannot predict, however, how changes in these laws may affect our future operations.

European Union Drug Development

In the EU, our future product candidates may also be subject to extensive regulatory requirements. As in the United States, medicinal products can only be marketed if a marketing authorization from the competent regulatory agencies has been obtained.

Similar to the United States, the various phases of pre-clinical and clinical research in the European Union are subject to significant regulatory controls. Although the EU Clinical Trials Directive 2001/20/EC has sought to harmonize the EU clinical trials regulatory framework, setting out common rules for the control and authorization of clinical trials in the EU, the EU Member States have transposed and applied the provisions of the Directive differently. This has led to significant variations in the Member State regimes. To improve the current system, a new Regulation No. 536/2014 on clinical trials on medicinal product candidates for human use, which will repeal Directive 2001/20/EC, was adopted on April 16, 2014 and published in the European Official Journal on May 27, 2014. The new Regulation aims at harmonizing and streamlining the clinical trials authorization process, simplifying adverse event reporting procedures, improving the supervision of clinical trials, and increasing their transparency. The new Regulation entered into force on June 16, 2014 and was set to apply not earlier than May 28, 2016. Based on announcements of the European Medicines Agency, it is now expected that the mentioned Regulation will not enter into force before 2020. Until then the Clinical Trials Directive 2001/20/EC will continue to apply. In addition, the transitional provisions of the new Regulation offer, under certain conditions, the clinical trial sponsors the possibility to choose between the requirements of the Directive and the Regulation for a limited amount of time.

Under the current regime, before a clinical trial can be initiated it must be approved in each of the EU Member States where the trial is to be conducted by two distinct sets of bodies: the National Competent Authority, or NCA, and one or more Ethics Committees, or ECs. Under the current regime all suspected unexpected serious adverse reactions, or SUSARs, to the investigational product that occur during the clinical trial have to be reported to the NCA and ECs of the Member State where they occurred as well as in the European safety database, EudraVigilance.

In the EU, medicinal products can only be commercialized after obtaining a Marketing Authorization, or MA. The same rules also apply in the EFTA Member States (Norway, Iceland and Liechtenstein). There are two types of marketing authorizations:

The Community MA, which is issued by the European Commission through the Centralized Procedure, based on the opinion of the Committee for Medicinal Products for Human Use, or CHMP, of the European Medicines Agency, or EMA, and which is valid throughout the entire territory of the EU. The Centralized Procedure is mandatory for certain types of products, such as biotechnology medicinal products, orphan medicinal products, and medicinal products containing a new active substance indicated for the treatment of AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and viral diseases. The Centralized Procedure is also mandatory for so-called Advance Therapy Medicinal Products (or ATMPs). ATMPs comprise gene therapy, somatic cell and tissue engineered products. In this regard, on May 28, 2014, the EMA issued a recommendation that Collectis' UCART19 be considered a gene therapy product under Regulation (EC) No 1394/2007 on ATMPs. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU. Under the Centralized Procedure, the CHMP serves as the scientific committee that renders opinions about the safety, efficacy and quality of human products on behalf of the EMA. The CHMP is composed of experts nominated by each Member State's national drug authority, with one of them appointed to act as Rapporteur for the co-ordination of the evaluation with the possible assistance of a further member of the Committee acting as a Co-Rapporteur. The CHMP has 210 days to adopt an opinion as to whether a marketing authorization should be granted. The process usually takes longer as additional information is requested, which triggers clock-stops

[Table of Contents](#)

in the procedural timelines. Based on the CHMP's opinion the European Commission will adopt a decision on the granting of the marketing authorization. In case of ATMPs, the EMA's Committee for Advanced Therapies, a multidisciplinary committee of experts on ATMPs, will prepare a draft opinion which will be submitted to the CHMP before the latter adopts its final opinion.

Under the above-described procedure, before granting the MA, the EMA makes an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

In the EU, new products authorized for marketing (i.e., reference products) qualify for eight years of data exclusivity and an additional two years of market exclusivity upon marketing authorization. The data exclusivity period prevents generic applicants from relying on the pre-clinical and clinical trial data contained in the dossier of the reference product when applying for a generic marketing authorization in the EU during a period of eight years from the date on which the reference product was first authorized in the EU. The market exclusivity period prevents a successful generic applicant from commercializing its product in the EU until ten years have elapsed from the initial authorization of the reference product in the EU. The ten-year market exclusivity period can be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies.

The EU also provides opportunities for market exclusivity. For example, products receiving orphan designation in the EU can receive ten years of market exclusivity, during which time no similar medicinal product for the same indication may be placed on the market. An orphan product can also obtain an additional two years of market exclusivity in the EU for pediatric studies. No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications.

The criteria for designating an "orphan medicinal product" in the EU are similar in principle to those in the United States. Under Article 3 of Regulation (EC) 141/2000, a medicinal product may be designated as orphan if (1) it is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition; (2) either (a) such condition affects no more than five in 10,000 persons in the EU when the application is made, or (b) the product, without the benefits derived from orphan status, would not generate sufficient return in the EU to justify investment; and (3) there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU, or if such a method exists, the product will be of significant benefit to those affected by the condition, as defined in Regulation (EC) 847/2000. Orphan medicinal products are eligible for financial incentives such as reduction of fees or fee waivers and are, upon grant of a marketing authorization, entitled to ten years of market exclusivity for the approved therapeutic indication. The application for orphan drug designation must be submitted before the application for marketing authorization. The applicant will receive a fee reduction for the marketing authorization application if the orphan drug designation has been granted, but not if the designation is still pending at the time the marketing authorization is submitted. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

The 10-year market exclusivity may be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan designation, for example, if the product is sufficiently profitable not to justify maintenance of market exclusivity. Additionally, marketing authorization may be granted to a similar product for the same indication at any time if:

- The second applicant can establish that its product, although similar, is safer, more effective or otherwise clinically superior;
- The applicant consents to a second orphan medicinal product application; or
- The applicant cannot supply enough orphan medicinal product.

Principal Regulations Applicable to Calyxt

Agriculture and Food – United States

In the United States, the Environmental Protection Agency (EPA), the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) are primarily responsible for overseeing agriculture and food regulation and safety. Biotechnology is regulated in the United States under the U.S. federal government's "Coordinated Framework for Biotechnology".

Biotechnology products are subject to EPA regulatory review if they contain plant-incorporated protectants, which refer to pesticides (such as insecticides) produced plants. As Calyxt's product candidates do not contain any plant-incorporated protectors, Calyxt's product candidates are not subject to the regulatory review by the EPA.

Under the Plant Protection Act (PPA), the USDA requires anyone who wishes to import, transport interstate, or plant a regulated article to apply for a permit or notify the Animal and Plant Health Inspection Service (APHIS) that the introduction will be made. Regulated articles are defined in the Code of Federal Regulations (CFR) 7 CFR Part 340.1 as "any organism which has been altered or produced through genetic engineering which USDA determines is a plant pest or has reason to believe is a plant pest." If APHIS determines the product to be regulated, the product may be subject to extensive regulation, including permitting requirements for import, handling, interstate movement, release into the environment, and inspections.

[Table of Contents](#)

In the last six years, Calyxt submitted petitions to APHIS for seven of its product candidates and received confirmation from APHIS that it does not consider any of the seven to be regulated under the Plant Production Act. The seven product candidates include our high oleic soybean, high fiber wheat, improved digestibility alfalfa, and cold storable potato. The remaining three submissions were for product candidates for which Calyxt is either pursuing derivatives or no longer pursuing at this time. There can be no guarantee of the timing or success in obtaining nonregulated status from APHIS for additional crops or that the governing regulations will not change.

The FDA has oversight of food safety and security pursuant the Food, Drug, and Cosmetic Act, or FDCA and is primarily carried out by its Center for Food Safety and Applied Nutrition. The FDA regulates ingredients, packaging, and labeling of foods, including nutrition and health claims and the nutrition facts panel. Foods are typically not subject to premarket review and approval requirements, with limited exceptions.

The FDA offers a voluntary consultation process to determine whether foods derived from new plant varieties including genetically modified plant varieties require premarket review and approval. Developers routinely consult with the FDA prior to marketing and, in most cases, foods derived from plant varieties developed with biotechnology are not subjected to premarket review and approval processes.

Calyxt has completed voluntary consultation with the FDA for its high oleic soybean. After review, the FDA had no further questions concerning human food ingredients or animal food derived from Calyxt's high oleic soybean.

Agriculture and Food – European Union

If Calyxt wants to market and sell its products in the European Union (the EU), Calyxt would only do so once they have gained appropriate regulatory clearance. The procedures for evaluation and authorization of GMOs are established by Regulation (EC) 1829/2003 on genetically modified food and feed and Directive 2001/18/EC on the release of GMOs into the environment. An application for authorization must be submitted under Directive 2001/18/EC if a company seeks to release GMOs for experimental purposes (e.g., field tests) and/or to sell GMOs, as such or in products, in the market (e.g., cultivation, importation or processing). In turn, an application for authorization must be submitted under Regulation (EC) 1829/2003 if a company seeks to sell GMOs in the market for food and feed use and/or food and feed products containing or produced from GMOs. At the national level, EU member states can restrict or prohibit GMO cultivation in their territories by invoking grounds such as environmental or agricultural policy objectives, town and country-planning, land use, coexistence, socio-economic impacts or public policy.

In addition, Directive 2001/18/EC, Regulation (EC) 1829/2003 and Regulation (EC) 1830/2003 establish specific labeling and traceability requirements for GMOs and products that contain or are produced from GMOs. Finally, Directives 2002/53/EC and 2002/55/EC require genetically modified varieties to be authorized before they can be included in a Common Catalogue of Varieties, which would permit the seeds of such genetically modified varieties to be marketed in the EU.

A ruling of the European Court of Justice (ECJ) in July 2018 clarified that only mutagenesis techniques which (a) have been used in several applications and (b) have a long safety record, can be exempted from these requirements. EU member states remain free to subject even such exempted organisms to the obligations under Directive 2001/18/EC, or to other obligations. The impact of this ruling on, and the ultimate treatment by the EU of, products produced using other advanced plant breeding techniques is not yet known and the final determination could have a negative impact on Calyxt's business.

Other Regulatory Matters

French Pharmaceutical Company Status

To date, we do not have the status of pharmaceutical establishment, and therefore, cannot either manufacture the product candidates we develop or directly consider their marketing. Obtaining the pharmaceutical establishment license, either as distributor, operator, importer or as manufacturer, requires the submission of a request file specific to each of the mentioned qualifications with the *Agence nationale de sécurité du médicament et des produits de santé* (ANSM), which only grants it after review of this file and evaluation, usually after verification that the company has adequate premises, the necessary personnel and an adapted structure with satisfactory procedures for carrying out the proposed pharmaceutical activities.

We currently entrust CMOs with the manufacturing of clinical batches and intend to continue relying on CMOs for the production of the first commercial batches. We may consider internalizing production once our first product candidate is approved by regulatory authorities.

Legal Proceedings

From time to time, we may be involved in various claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

C. Organizational Structure

Collectis, or Collectis S.A., is a *société anonyme*, or S.A., organized under the laws of the French Republic.

Group Structure as of December 31, 2019

Subsidiary Name	Jurisdiction of Incorporation	Ownership & Voting Interest Held By Collectis S.A.
Calyxt, Inc.	Delaware	68.9% (held directly)
Collectis, Inc.	Delaware	100% (held directly)
Collectis Biologics, Inc.	Delaware	100% (held indirectly through Collectis, Inc.)

See “Item 7. Major Shareholders and Related Party Transactions—B. Related Party Transactions—Transactions with subsidiaries: Calyxt IPO and Key Arrangements” for a discussion of certain agreements that provide a framework for Collectis S.A.’s ongoing relationship with Calyxt.

D. Property, Plant and Equipment

Collectis S.A. leases a 4,679 square-meter facility in Paris for administrative and research and development activities. The lease commenced on April 1, 2011 and was amended on December 1, 2018 and January 17, 2020 with a 10-year initial term expiring on November 30, 2028.

Collectis, Inc. leases a 15,532 square-foot facility in New York, New York for administrative and research and development activities. The lease commenced on March 30, 2015 and was amended on December 1, 2018 with a 60-month initial term expiring on December 31, 2023. In addition, in March 2016, Collectis, Inc. entered into a lease agreement for a 26,928 square-foot facility in Montvale, New Jersey. As of December 31, 2018, the Montvale facility is not operational and the lease will be discontinued on April 1, 2020.

Collectis Biologics, Inc. leases an 82,000 square foot facility in Raleigh, North Carolina. The lease commenced in April 2019 with a 15-year initial term expiring in March, 2034. We are constructing a new commercial manufacturing facility at this property, which will be dedicated to the production of clinical and commercial UCART products. We estimate that construction of the facility will be completed in 2020 and commissioned and qualified in 2021.

Calyxt, Inc. entered into a sale-leaseback transaction on September 6, 2017 with a third party for its corporate headquarters and laboratory facilities in Roseville, Minnesota. Calyxt, Inc. committed to an initial lease term of ten years, with four options to extend the term of the Lease Agreement for five years each. The transaction also included a construction contract for Calyxt, Inc. 40,000 square-foot corporate headquarters which includes office, research laboratory space and outdoor growing plots. Under the lease, which commenced in May 2018, Calyxt, Inc. pays an annual base rent of \$1.4 million. Collectis entered into a Lease Guaranty with the landlord for the facilities, whereby Collectis has guaranteed Calyxt Inc.’s obligations under the Lease Agreement. Collectis’ guarantee of Calyxt’s obligations under the sale-leaseback transaction will terminate at the end of the second consecutive calendar year in which Calyxt, Inc.’s tangible net worth exceeds \$300 million, as determined in accordance with generally accepted accounting principles. Calyxt, Inc. agreed to indemnify Collectis for any obligations incurred by Collectis under the Lease Guaranty. This indemnification agreement takes effect when Collectis owns 50% or less of Calyxt, Inc.’s outstanding common stock.

In December 2018 Calyxt, Inc. consummated a sale-leaseback transaction with a third party to finance equipment. The lease has a term of four years and Calyxt, Inc. may add up to \$1.1 million of future purchases to the financing agreement. Calyxt, Inc. was required to deposit cash into a restricted account in an amount equal to the future rent payments required by the lease.

ITEM 4A. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

The following Operating and Financial Review and Prospects should be read in conjunction with our audited consolidated financial statements and related notes included elsewhere in this Annual Report. In addition to historical consolidated financial information, this discussion also contains forward-looking statements, based on current expectations and related to future events and our future financial performance, that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of certain factors, including but not limited to those set forth under “Risk Factors” and elsewhere in this Annual Report.

Overview

We are a clinical stage biotechnological company, employing our core proprietary technologies to develop best-in-class products in the field of immuno-oncology. Our product candidates, based on gene-edited T-cells that express chimeric antigen receptors, or CARs, seek to harness the power of the immune system to target and eradicate cancers. We believe that CAR-based immunotherapy is one of the most promising areas of cancer research, representing a new paradigm for cancer treatment. We are designing next-generation immunotherapies that are based on gene-edited CAR T-cells. Our gene-editing technologies allow us to create allogeneic CAR T-cells, meaning they are derived from healthy donors rather than the patients themselves. We believe that the allogeneic production of CAR T-cells will allow us to develop cost-effective, “off-the-shelf” products and are capable of being stored and distributed worldwide. Our gene-editing expertise also enables us to develop product candidates that feature additional safety and efficacy attributes, including control properties designed to prevent them from attacking healthy tissues, to enable them to tolerate standard oncology treatments, and to equip them to resist mechanisms that inhibit immune-system activity. In addition to our focus on immuno-oncology, we are exploring the use of our gene-editing technologies in other therapeutic applications, as well as to develop, through our 69.8% (as of December 31, 2019) ownership in Calyxt, plant-based solutions designed to be healthy and sustainable.

We currently conduct our operations through two business segments, Therapeutics and Plants. Our Therapeutics segment is mainly focused on the development of products in the field of immuno-oncology. Our Plants segment focuses on applying our gene-editing technologies to develop new generation plant products in the field of agricultural biotechnology through its own efforts or through alliances with other companies in the agricultural market.

Since our inception in early 2000, we have devoted substantially all of our financial resources to research and development efforts. Our current research and development focuses primarily on our CAR T-cell immunotherapy product candidates, including preparing to conduct clinical studies of our product candidates, providing general and administrative support for these operations and protecting our intellectual property. In addition, by leveraging our plant-engineering platform and the transformative potential of gene editing, we aim to develop, through Calyxt, plant products focused on delivering human health benefits and plant products that are more sustainable than others available in the market today. We do not have any therapeutics products approved for sale and have not generated any revenues from immunotherapy or agricultural biotechnology product sales. Although Calyxt achieved commercialization in the first quarter of 2019, it has not yet generated significant revenue from sales of its initial high oleic soybean products.

We currently derive all of our revenues from payments pursuant to our collaboration agreements with Allogene and Servier, patent licensing arrangements and royalties on licensed technologies.

In 2017, 2018 and 2019, we received respectively \$8.1 million, \$11.0 million and \$7.5 million in payments pursuant to the Allogene and Servier collaborations. As of December 31, 2019, we were eligible to receive up to \$914.4 million in potential option exercise fees, and development, clinical and sales milestones, as well as royalties commercial sales pursuant to the Servier License Agreement.

As of December 31, 2019, we were eligible to receive up to \$2.8 billion in potential clinical and commercial milestone payments pursuant to the Allogene License Agreement. In addition, we invoice certain research and development costs to Servier and Allogene, respectively. See “Item 4. Information of the Company—B. Business Overview—Our Strategic Alliances” for additional information on our collaborations with Allogene and Servier.

[Table of Contents](#)

We are also party to research and development agreements with MD Anderson Cancer Center pursuant to which we collaborate with this center to accelerate the pre-clinical and clinical development of UCARTCS1. Under this agreement, we fund the pre-clinical research activities performed at this center.

We are currently sponsoring clinical studies at three sites for the BALLI-01 Study, at four sites for the AMELI-01 Study and at three sites for the MELANI-01 Study, as follows:

- AMELI-01 Study, the Phase 1 dose-escalation clinical trial under the protocol UCART123_01 for UCART123 targeting AML, which is being conducted at Weill Cornell Medical Center (New York, USA), MD Anderson Cancer Center (Texas, USA), H. Lee Moffitt Cancer Center (Florida, USA) and Dana Farber (Massachusetts, USA).
- BALLI-01 Study, the Phase 1 dose-escalation clinical trial under the protocol UCART22-01 for UCART22 targeting B-ALL, which is being conducted at MD Anderson Cancer Center (Texas, USA), The University of Chicago Comprehensive Cancer Center (Illinois, USA), and Weill Cornell Medical Center (New York, USA).
- MELANI-01 Study, the Phase 1 dose-escalation under the protocol UCARTCS1_01 for UCARTCS1 targeting multiple myeloma, which is being conducted at MD Anderson Cancer Center (Texas, USA), Hackensack University Medical Center (New Jersey, USA), and Weill Cornell Medicine (New York, USA).

Our cash consumption is driven by our internal operational activities, as well as our outsourced activities, including the preclinical activities and the manufacturing activities of the requisite raw materials for the manufacturing of UCART123, UCART22 and UCARTCS1, the technology transfer to CELLforCURE, MolMed and Lonza, and the GMP manufacturing of UCART123, UCART22 and UCARTCS1 at CELLforCURE, MolMed and Lonza. In addition, we incurred significant annual payment and royalty expenses related to our in-licensing agreements with different parties including Institut Pasteur, LifeTechnologies and University of Minnesota. In addition, in 2017 and 2018, we initiated clinical studies at Weill Cornell and the MD Anderson Cancer Center, leading to additional cash burn through payments to the clinical research centers, the Contract Research Organization involved and the companies involved in the logistics and testing of the clinical sample material.

In addition to our cash generated by operations (including payments under our strategic alliances), we have funded our operations primarily through private and public offerings of our equity securities, grant revenues, payments received under intellectual property licenses, and reimbursements of research tax credits. Our ordinary shares have traded on the Euronext Growth market of Euronext in Paris since February 7, 2007. In March 2015, we completed our U.S. initial public offering of 5,500,000 American Depositary Shares on the Nasdaq Global Market for gross proceeds of \$228.2 million. On April 10, 2018, Cellectis closed a follow-on offering of 5,646,000 ADS at a public offering price of \$31.00 per ADS resulting in gross proceeds of \$175 million. On May 11, 2018, in connection with the exercise by the underwriters of the follow-on offering of their option to purchase additional shares, Cellectis closed the sale of an additional 500,000 ADS at the public offering price of \$31.00 per ADS resulting in additional gross proceeds of \$15.5 million.

On July 25, 2017, Calyxt completed an initial public offering of its common stock on the Nasdaq, selling an aggregate of 8,050,000 shares of common stock at a price of \$8.00 per share (including 1,050,000 shares of common stock pursuant to the exercise by the underwriters of their option to purchase additional shares). Calyxt received net proceeds of approximately \$58.0 million, after deducting underwriting discounts and commissions and offering expenses. As part of the Calyxt IPO, Cellectis purchased 2,500,000 shares of common stock for a value of \$20.0 million, which is included in the net proceeds that Calyxt received. On May 22, 2018, Calyxt closed a follow-on offering with \$60.9 million in gross proceeds, inclusive of \$8.25 million from Cellectis' purchase of shares in the follow-on offering

Financial Operations Overview

We have incurred net losses in nearly each year since our inception. Substantially all of our net losses resulted from costs incurred in connection with our development programs and from selling, general and administrative expenses associated with our operations. As we continue our intensive research and development programs, we expect to continue to incur significant expenses and may again incur operating losses in future periods. We anticipate that such expenses will increase substantially if and as we:

- progress the clinical trial of our wholly-controlled UCART123, UCARTCS1 and UCART22 product candidates and initiate additional clinical trials for other wholly-controlled product candidates;
- continue to advance the research and development of our current and future immuno-oncology product candidates;
- continue, through Calyxt, to advance the research and development of our current and future agricultural product candidates;

[Table of Contents](#)

- initiate additional clinical studies for, or additional pre-clinical development of, our immuno-oncology product candidates;
- conduct and multiply, through Calyxt, additional field trials of our agricultural product candidates;
- further develop and refine the manufacturing process for our immuno-oncology product candidates;
- change or add additional manufacturers or suppliers of biological materials;
- seek regulatory and marketing approvals for our product candidates, if any, that successfully complete development;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain marketing approval;
- seek to identify and validate additional product candidates;
- acquire or in-license other product candidates, technologies, germplasm or other biological material;
- make milestone or other payments under any in-license agreements;
- maintain, protect and expand our intellectual property portfolio;
- build our manufacturing facilities and secure arrangements for clinical and commercial manufacturing;
- seek to attract and retain new and existing skilled personnel;
- create additional infrastructure to support our operations as a public company; and
- experience any delays or encounter issues with any of the above.

We do not expect to generate material revenues from sales of our product candidates unless and until we successfully complete development of, and obtain marketing approval for, one or more of our product candidates, which we expect will take a number of years and is subject to significant uncertainty. Accordingly, we anticipate that we will need to raise additional capital prior to completing clinical development of any of our product candidates. Until such time that we can generate substantial revenues from sales of our product candidates, if ever, we expect to finance our operating activities through a combination of milestone payments received pursuant to our strategic alliances, equity offerings, debt financings, government or other third-party funding and collaborations, and licensing arrangements. However, we may be unable to raise additional funds or enter into such arrangements when needed on favorable terms, or at all, which would have a negative impact on our financial condition and could force us to delay, limit, reduce or terminate our development programs or commercialization efforts or grant to others rights to develop or market product candidates that we would otherwise prefer to develop and market ourselves. Failure to receive additional funding could cause us to cease operations, in part or in full.

Our consolidated financial statements for 2017, 2018 and 2019 have been prepared in accordance with International Financial Reporting Standards, or IFRS, as issued by the International Accounting Standards Board, or IASB.

Financial Operations Overview

Revenues and Other Income

Collaboration agreements and licenses

We currently derive our revenues from payments pursuant to our collaboration agreements with Allogene and Servier, patent licensing arrangements and royalties on licensed technologies. Our collaboration agreements may generate non-refundable upfront payments related to the licensing of rights to technology and research and development programs, milestone payments, research and development cost reimbursements and royalty payments.

Upfront payments for research and development programs are deferred as a contract liability and recognized when the performance obligation is satisfied, as the customer receives the benefits of the services. When a specific research and development program is put on hold, as agreed by our customer as part of a joint executive committee decision, the revenue recognition continues to be deferred until research and development efforts resume. If the joint decision is to abandon the project, deferred revenue is fully recognized.

The triggering event for a milestone payment may be scientific results achieved by us or another party to the arrangement, regulatory approvals, or the marketing of products developed under the arrangement.

Research and development costs reimbursements are recognized on a time and material basis over the length of the specific research and development project.

[Table of Contents](#)

Royalties are based on sales of licensed products or technologies. They are recognized in accordance with the terms of the licensing agreement when performance obligation can be determined reliably and there is reasonable assurance that the receivables from outstanding royalties will be collected.

Our ability to generate product revenues and become profitable depends upon our and our collaborators' ability to successfully develop and commercialize products. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce our operations.

Sales of products and services

Revenues on sales of products are recognized once the control over the delivered products is transferred to the customer. Sales include shipping and handling charges if billed to the customer and are reported net of trade promotion and other costs, including estimated allowances for returns, unsalable product and prompt pay discounts. Sales, use, value-added and other excise taxes are not recognized in revenue. Trade promotions are recorded based on estimated participation and performance levels for offered programs at the time of sale. We generally do not allow a right of return.

We also offer research services, which revenue is recognized over time, as the customer receives the benefits of the services.

Other Income

Research Tax Credit

The main research tax credit that we benefit from is the *Crédit d'Impôt Recherche*, or CIR, which is granted to companies by the French tax authorities in order to encourage them to conduct technical and scientific research. Companies demonstrating that they have research expenditures that meet the required CIR criteria receive a tax credit that may be used for the payment of their income tax due for the fiscal year in which the expenditures were incurred and during the next three fiscal years. If taxes due are not sufficient to cover the full amount of the tax credit at the end of the three-year period, the difference is repaid to us in cash by the French tax authorities. We also satisfy certain criteria that qualify us as a small/middle size company and permit us to request immediate payment of the CIR. The expenditures taken into account for the calculation of the CIR only involve research expenses.

The main characteristics of the CIR are the following:

- the CIR results in a cash inflow to us from the tax authorities;
- a company's corporate income tax liability does not limit the amount of the CIR; and
- the CIR is not included in the determination of the corporate income tax.

We have concluded that the CIR meets the definition of a government grant as defined in IAS 20, *Accounting for Government Grants and Disclosure of Government Assistance*, and that the classification as other income within operating loss in our statement of operations is appropriate.

In December 2018, the French Tax Authority initiated an audit related to the 2014, 2015, 2016 and 2017 French research tax credits. Based on our current evaluation of the status of the audit, we do not believe that a provision should be recorded as of December 31, 2019. During the last quarter of 2019, we received payments of \$7.4 million and \$7.3 million related to 2017 and 2018 tax credit receivables.

Operating Expenses

Our operating expenses consist primarily of cost of revenue, research and development expenses and selling, general and administrative expenses.

Cost of revenue

Cost of goods sold

Prior to 2019, cost of goods sold represented immaterial costs associated with Calyxt's out-licensing activities. Costs Calyxt incurred associated with the purchasing, storing transporting and processing grain, net of proceeds of seed sales (Grain Costs), were expensed as R&D. Beginning in the first quarter of 2019, Calyxt began to capitalize all grain and seed costs into inventory. Grain and risk management costs, net of the benefit from Calyxt's seed activity, are capitalized to inventory and relieved to cost of goods sold as the high oleic soybean oil and soybean meal is sold. Any valuation adjustments to inventory are recognized as incurred. Cost of goods sold also includes crush and refining losses that are expensed as incurred since they do not add to the value of the finished products.

[Table of Contents](#)

Royalty expenses

We have entered into several license agreements to obtain access to technology that we use in our product development efforts. Royalty expenses consist of in-licensing costs, which reflect royalties we pay to use rights granted to us. Depending on the contractual provisions, royalty expenses are either proportional to revenues generated by using the patents or fixed annual royalties or conditioned by milestones.

Research and Development Expenses

We engage in substantial research and development efforts to develop innovative CAR T-cell immunotherapy and agricultural product candidates.

Research and development expenses consist primarily of:

- personnel costs, including salaries, related benefits and share-based compensation, for our employees engaged in scientific research and development functions;
- cost of third-party contractors such as contract research organizations, or CROs, and academic institutions involved in pre-clinical or clinical trials that we may conduct, or third-party contractors involved in field trials;
- purchases and manufacturing of biological materials, real-estate leasing costs as well as conferences and travel costs;
- costs to write and support the research for filing patents and;
- certain other expenses, such as expenses for use of laboratories and facilities for our research and development activities.

We classify personnel and other costs related to information technology, human resources, business development, legal, intellectual property and general management in research and development expense based on the time that employees spent contributing to research and development activities versus general and administrative activities.

Our research and development efforts are focused on our existing product candidates, (i) UCART123 product candidate, which entered into clinical trials in the United States in February 2017, (ii) UCART22 product candidate, which entered into clinical trials in the United States in November 2019, (iii) UCARTCS1 product candidate, which entered into clinical trials in the United States in October 2019, and (iv) other undisclosed target which are in the development phases. We use our employee and infrastructure resources across multiple research and development programs directed toward developing our cell-based platform and for identifying and developing product candidates. We manage certain activities such as pre-clinical and clinical research and manufacture of product candidates through our partner institutions or other third-party vendors. Due to the number of ongoing projects and our ability to use resources across several projects, we do not record or maintain information regarding the costs incurred for our research and development programs on a program-specific basis.

Our research and development efforts are central to our business and account for a significant portion of our operating expenses. We expect that our research and development costs will increase in the foreseeable future as we continue to implement our new clinical trials, manufacture pre-commercial clinical trial and pre-clinical study materials, expand our research and development and process development efforts, seek regulatory approvals for our product candidates that successfully complete clinical trials, as well as access and develop additional technologies, and hire additional personnel to support our research and development efforts. This is because product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of development, primarily due to the increased size and duration of later-stage clinical trials. Likewise, in our plant products business, we expect our research and development expenses will continue to increase over the next several years as we develop new agricultural product candidates and advance them through field trials toward commercial proof of concept.

We cannot determine with certainty the duration and completion costs of our future clinical trials of our therapeutic product candidates or if, when, or to what extent we will generate revenues from the commercialization and sale of any of such product candidates, or those of our collaborators, that might obtain regulatory approval. We may never succeed in achieving regulatory approval for any therapeutic product candidates. We also cannot determine with certainty the duration and completion costs of our future field trials of our agricultural product candidates or if, when, or to what extent we will generate revenues from the commercialization and sale of any of our agricultural product candidates that might obtain regulatory approval. The duration, costs and timing of clinical trials and development of our product candidates will depend on a variety of factors, including:

- the scope, rate of progress and expense of our ongoing as well as any additional pre-clinical studies, clinical trials and other research and development activities;

[Table of Contents](#)

- clinical trial and early-stage results;
- the terms and timing of regulatory approvals;
- the expense of filing, prosecuting, defending and enforcing patent claims and other intellectual property rights;
- the ability to market, commercialize and achieve market acceptance for any product candidate that we may develop in the future; and
- the scope, rate of progress and expense of our ongoing as well as any additional studies for our agricultural product candidates, field trials and other research and development activities.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of employee-related expenses for executive, business development, intellectual property, finance, legal and human resource functions. Administrative expenses also include facility-related costs and service fees, other professional services and recruiting fees.

We classify personnel and other costs related to information technology, human resources, business development, legal, intellectual property and general management in research and development expense based on the time that employees spent contributing to research and development activities versus general and administrative activities.

We anticipate that our selling, general and administrative expenses will increase in the future as we increase our headcount to support the expected growth in our research and development activities and the potential commercialization of our product candidates. We also expect to continue to incur significant expenses associated with Collectis S.A. and Calyxt Inc. being a public company in the United States, including costs related to audit, legal, regulatory and tax-related services associated with maintaining compliance with U.S. exchange listing and SEC requirements, director and officer insurance premiums, and investor relations costs.

Financial Gain (Loss)

Financial gain (loss) mainly consists of interest income related to our savings accounts and bank deposits, exchange gains and losses associated with transactions in foreign currencies and fair value of our financial assets and derivative instruments. Significant transactions in foreign currencies are translated into euros at the exchange rates effective at the transaction dates, while the average rate for the previous month is used for non-significant transactions. Monetary assets and liabilities denominated in foreign currencies at the reporting date are translated into euros using the exchange rate effective at that date. The resulting exchange gains or losses are recorded in the statements of consolidated operations as financial income or expense. Financial gain (loss) reflects the net impact of financial income and financial expenses.

Critical Accounting Policies and Estimates

Some of the accounting methods and policies used in preparing our financial statements under IFRS are based on complex and subjective assessments by our management or on estimates based on past experience and assumptions deemed realistic and reasonable based on the circumstances concerned. The actual value of our assets, liabilities and shareholders' equity and of our losses could differ from the value derived from these estimates if conditions changed and these changes had an impact on the assumptions adopted. We believe that the most significant management judgments and assumptions in the preparation of our financial statements are named below. For further details, see Notes to our consolidated financial statements.

- Revenue Recognition: Collaboration Agreements and Licenses, Sales of Products and Services (Note 3.1)
- Research Tax Credit (Note 3.1)
- Share-Based Compensation (Note 15)

A. Operating Results

The following table sets forth our selected consolidated statement of income data:

	For the year ended December 31,		
	2017	2018	2019*
	(\$ in thousands)		
Revenues and other income			
Revenues	25,188	12,731	15,190
Other income	8,528	8,701	7,800
Total revenues and other income	33,715	21,432	22,990
Operating expenses			
Cost of revenue	(2,620)	(2,739)	(11,392)
Research and development expenses	(79,227)	(76,567)	(92,042)
Selling, general and administrative expenses	(44,750)	(47,248)	(43,017)
Other operating income (expenses)	232	31	(91)
Operating income (loss)	(92,650)	(105,091)	(123,552)
Financial income	7,262	20,572	11,971
Financial expenses	(18,294)	(3,813)	(3,631)
Financial gain (loss)	(11,032)	16,758	8,340
Income tax	—	—	—
Net income (loss)	(103,683)	(88,333)	(115,212)
Attributable to shareholders of Collectis	(99,368)	(78,693)	(102,091)
Attributable to non-controlling interests	(4,315)	(9,640)	(13,121)

(*) The 2019 Consolidated Financial Statements have been prepared according to the new IFRS 16 “Leases” standard with a new “right-of-use assets” category and a resulting significant increase of “lease debts” compared to the previous period (see note 2.2 for discussion of the application of IFRS 16 “Leases” at January 1, 2019).

Years Ended December 31, 2017, 2018 and 2019

Revenues.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Collaboration agreements	22,821	10,497	6,055	-54.0%	-42.3%
Other revenues	2,367	2,234	9,135	-5.6%	309.0%
Revenues	25,188	12,731	15,190	-49.5%	19.3%

The increase in revenues of \$2.5 million, or 19.3%, between the years ended December 31, 2018 and 2019 primarily reflects (i) a decrease of \$4.4 million in revenues under our collaboration agreements of which \$7.1 million relates to a decrease in recognition of upfront fees already paid to Collectis due to the termination of Pfizer collaboration agreement in June 2018, partially offset by a \$2.7 million increase in collaboration revenue primarily driven by the recognition of a milestone of \$5.0 million related to ALLO-715 clinical development and (ii) a \$0.4 million decrease in licensing revenues, offset by (iii) a \$7.3 million increase in Calyxt revenue primarily attributable to the commercialization of Calyxt’s high oleic soybean oil and soybean meal products.

Table of Contents

The decrease in revenues of \$12.5 million, or 49.5%, between the years ended December 31, 2017 and 2018 primarily reflects a decrease of \$12.3 million in revenues under our collaboration agreements, of which \$7.8 million relates to a decrease in recognition of upfront fees already paid to Cellectis and \$4.6 million relates to lower research and development cost reimbursements, and a decrease of \$0.1 million of licensing revenues.

Other income.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Research tax credit	8,327	8,561	7,800	2.8%	-8.9%
Other income	201	140	0	-30.4%	-100.0%
Other income	8,528	8,701	7,800	2.0%	-10.4%

The decrease in other income of \$0.9 million, or 10.4%, between the years ended December 31, 2018 and 2019 reflects a decrease of \$0.8 million in research tax credits, due to timing in invoicing of research and development purchases and external expenses during the years ended December 31, 2019 that are eligible for the tax credit and a decrease of \$0.1 million in other income.

The increase in other income of \$0.2 million, or 2.0%, between the years ended December 31, 2017 and 2018 reflects an increase of \$0.2 million in research tax credits, due to higher research and development purchases and external expenses that are eligible for the tax credit.

Cost of revenue

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Cost of goods sold	0	0	(9,280)	n.a.	n.a.
Royalty expenses	(2,620)	(2,739)	(2,112)	4.5%	-22.9%
Cost of revenue	(2,620)	(2,739)	(11,392)	4.5%	315.9%

The increase in cost of goods sold of \$9.3 million between the years ended December 31, 2018 and 2019 relates to the commercial launch of Calyxt's products and is partially offset by the decrease of \$0.6 million, or 22.9% in royalty expenses between the years ended December 31, 2018 and 2019. The \$9.3 million Calyxt cost of goods sold increase reflects the cost of product sold in the period and a \$0.8 million adjustment to the net realizable value of our inventories that reflects the higher costs we have experienced at this early stage of commercialization.

The increase in royalty expenses of \$0.1 million, or 4.5%, between the years ended December 31, 2017 and 2018 primarily reflects higher royalty expenses paid to our existing partners.

Research and development expenses.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Personnel expenses	(37,906)	(34,608)	(34,911)	-8.7%	0.9%
Purchases, external expenses and other	(41,321)	(41,959)	(57,131)	1.5%	36.2%
Research and development expenses	(79,227)	(76,567)	(92,042)	-3.4%	20.2%

Between the years ended December 31, 2018 and 2019 research and development expenses increased by \$15.5 million, or 20.2%. Personnel expenses increased by \$0.3 million from \$34.6 million in 2018 to \$34.9 million in 2019 primarily due to (i) a \$4.8 million increase in wages and salaries explained by an increase in R&D headcount in both therapeutic and plants activities and (ii) a \$1.3 million increase in social charges on stock option grants, partly offset by a \$5.8 million decrease in non-cash stock

[Table of Contents](#)

based compensation expense. Purchases and external expenses and other increased by \$15.2 million from \$42.0 million in 2018 to \$57.1 million in 2019 of which \$13.9 million relates to Collectis due to increased spending on research and development, and a \$2.6 million provision related to discussions with suppliers, and \$1.3 million relates to Calyxt research and development efforts.

Between the years ended December 31, 2017 and 2018 research and development expenses decreased by \$2.6 million or 3.4%. Personnel expenses decreased by \$3.3 million from \$37.9 million in 2017 to \$34.6 million in 2018 primarily due to a \$5.8 million decrease in non-cash stock-based compensation expense and \$1.0 million decrease in social charges on stock options offset by a \$3.5 million increase in wages and salaries mainly explained by increase in R&D headcount in therapeutic activity. Purchases and external expenses increased by \$2.0 million from \$38.5 million in 2017 to \$40.5 million in 2018, mainly due to an increase in costs to acquire grain prior to our achievement of commercial milestones at Calyxt. Other expenses, which relate to continuing leasing and other commitments, decreased by \$1.4 million between the years ended December 31, 2017 and 2018.

Selling, general and administrative expenses.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Personnel expenses	(34,486)	(30,563)	(27,934)	-11.4%	-8.6%
Purchases, external expenses and other	(10,264)	(16,685)	(15,083)	62.6%	-9.6%
Selling, general and administrative expenses	(44,750)	(47,248)	(43,017)	5.6%	-9.0%

Between the years ended December 31, 2018 and 2019, selling, general and administrative expenses decreased by \$4.2 million, or 9.0%. The decrease reflects (i) a decrease of \$2.6 million in personnel expenses from \$30.6 million in 2018 to \$27.9 million in 2019, attributable to a decrease of \$4.5 million in non-cash stock based compensation, partly offset by an increase of \$1.4 million in wage and salaries and an increase of \$0.5 million in social charges on stock option grants and (ii) a decrease of \$2.8 million in purchases and external expenses of which \$2.1 million relates to Calyxt explained by the benefits of internalizing certain services previously provided by Collectis partly offset by (iii) an increase of \$1.2 million in other of which \$1.0 million relates to Calyxt.

Between the years ended December 31, 2017 and 2018, the increase in selling, general and administrative expenses of \$2.5 million, or 5.6%, primarily reflects (i) a \$5.1 million increase in purchases and external expenses from \$9.1 million in 2017 to \$14.3 million in 2018, particularly linked to Calyxt's increasing activity (from \$4.3 million in 2017 to \$7.8 million in 2018) explained by costs incurred to ramp up capabilities in advance of commercialization and increases in professional services expenses associated with being a public company, (ii) an increase of \$1.3 million in other expenses related to taxes, various depreciation and amortization, and (iii) a decrease of \$3.9 million in personnel expenses from \$34.5 million to \$30.6 million, attributable to a \$7.4 million decrease in non-cash stock based compensation and \$0.9 million decrease in social charges on stock options partially offset by a \$4.4 million increase in wages and salaries, mainly explained by increase in SG&A headcount at Calyxt.

Other operating income and expenses.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Other operating income (expenses)	232	31	(91)	-86.6%	-394.8%

The decrease in other operating income and expenses between the years ended December 31, 2018 and 2019 amounted to \$0.1 million. During the year ended December 31, 2019, other operating income and expenses primarily include reversal of a subsidy provision for \$1.2 million, offset by a net loss of \$1.3 on subsidies termination.

[Table of Contents](#)

The decrease in other operating income and expenses between the years ended December 31, 2017 and 2018 amounted to \$0.2 million. During the year ended December 31, 2018, other operating income and expenses primarily include reversal of commercial litigation provision for \$0.6 million, partially offset by social charges paid on former employee compensation for \$0.2 million, reversal of a subsidy for \$0.2 million and other immaterial variances.

Financial income.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Financial income	7,262	20,572	11,971	183.3%	-41.8%

The decrease in financial income of \$8.6 million, or 41.8%, between the years ended December 31, 2018 and 2019 was mainly attributable to a decrease of \$9.1 million in foreign exchange gain (from a \$13.6 million gain in 2018 to a \$4.5 million gain in 2019), partly offset by the increase of interest received from financial investment for \$0.2 million and the increase in fair value adjustment for \$0.3 million.

The increase in financial income of \$13.3 million, or 183.3%, between the years ended December 31, 2017 and 2018 was mainly attributable to an increase in foreign exchange realized and unrealized gain of \$12.4 million and an increase in interest income of \$4.8 million and partly offset by a decrease in fair value of financial derivative instruments and current financial assets of \$3.9 million.

Financial expenses.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Financial expenses	(18,294)	(3,813)	(3,631)	-79.2%	-4.8%

The decrease in financial expenses of \$0.2 million, or 4.8%, between the years ended December 31, 2018 and 2019 was mainly attributable to \$2.4 million decrease in foreign exchange loss (from a \$3.1 million loss in 2018 to a \$0.7 million loss in 2019), the decrease in fair value adjustment for \$0.3 million and other immaterial variances for \$0.1 million, partly offset by a \$2.6 million increase in financial expenses related to IFRS16 application.

The decrease in financial expense of \$14.5 million, or 79.2%, between the years ended December 31, 2017 and 2018 was mainly attributable to a decrease in foreign exchange realized and unrealized gain of \$14.6 million and partly offset by an increase in other financial expense of \$0.1 million.

Net Income / loss.

	For the year ended December 31,			% change	
	2017	2018	2019	2017 vs 2018	2019 vs 2018
Net income (loss)	(103,683)	(88,333)	(115,212)	-14.8%	30.4%

The increase in net loss of \$26.9 million between the years ended December 31, 2018 and 2019 was mainly due to (i) a \$8.4 million decrease in financial gain, (ii) a \$13.6 million increase in purchases and external expenses and others, (iii) a \$6.3 million increase in wages and salaries, (iv) a \$1.7 million increase in social charges on free shares and stock option grants, (v) a \$8.7 million increase in cost of revenue and (vi) a \$0.1 million decrease in other operating income and expenses, as well as other immaterial variances for \$0.1 million, partly offset by a \$10.4 million decrease in non-cash stock based compensation expense and a \$1.6 million increase in revenues and other income.

[Table of Contents](#)

The decrease in net loss of \$15.4 million between the years ended December 31, 2017 and 2018 was mainly due to (i) a \$27.8 million increase in financial result, (ii) a \$13.2 million decrease in non-cash stock-based compensation expense and (iii) a decrease of \$1.8 million in social charges on stock options, partially offset by (a) a \$12.3 million decrease in revenues and other income, (b) a \$7.8 million increase in wages, (c) a \$7.1 million increase in purchases, external expenses and other, (d) a \$0.2 million decrease in other operating income and (e) a \$0.1 increase in royalty expenses.

Gain/Loss attributable to non-controlling interests.

	<u>For the year ended December 31,</u>			<u>% change</u>	
	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2017 vs 2018</u>	<u>2019 vs 2018</u>
Gain (loss) attributable to non-controlling interests	(4,315)	(9,640)	(13,121)	123.4%	36.1%

During the year ended December 31, 2019, we recorded \$13.1 million in loss attributable to non-controlling interests. The increase in net loss attributable to non-controlling interests of \$3.4 million is a result of an increase in Calyxt's net loss.

During the year ended December 31, 2018, we recorded \$9.6 million in loss attributable to non-controlling interests. The increase in net loss attributable to non-controlling interests of \$5.3 million is a result of increase in Calyxt's net loss and an increase in % of Calyxt common shares being owned by minority shareholders after the follow-on offering in May 2018.

Segment Results

Information related to each of our reportable segments is set out below. Segment revenues and Other income, Research and development expenses, Selling, general and administrative expenses, and Royalties and other operating income and expenses, and Adjusted net income (loss) attributable to shareholders of Collectis (which does not include non-cash stock-based expense) are used by the CODM to measure performance. The CODM does not review any asset or liability information by segment or by region.

Adjusted Net Income (Loss) attributable to shareholders of Collectis is not a measure calculated in accordance with IFRS. Because Adjusted Net Income (Loss) attributable to shareholders of Collectis excludes Non-cash stock based compensation expense—a non-cash expense, we believe that this financial measure, when considered together with our IFRS financial statements, can enhance an overall understanding of Collectis' financial performance. Moreover, our management views the Company's operations, and manages its business, based, in part, on this financial measure.

There are inter-segment transactions between the two reportable segments, including the allocation of corporate general and administrative expenses by Collectis S.A. and the allocation of research and development expenses among the reportable segments. With respect to corporate general and administrative expenses, Collectis S.A. has provided Calyxt, Inc. with general sales and administrative functions, accounting and finance functions, investor relations, intellectual property, legal advice, human resources, communication and information technology pursuant to a management agreement. Under the management agreement, Collectis S.A. charges Calyxt, Inc. in euros at cost plus a mark-up ranging between zero to 10%, depending on the nature of the service. Amounts due to Collectis S.A. pursuant to inter-segment transactions bear interest at a rate of 12-month Euribor plus 5% per annum. Effective with the end of the third quarter of 2019, Calyxt has internalized nearly all of the services Collectis provided.

The intersegment revenues represent the transactions between segments. Intra-segment transactions are eliminated within a segment's results and intersegment transactions are eliminated in consolidation as well as in key performance indicators by reportable segment.

Years Ended December 31, 2017, 2018 and 2019

The following table summarizes segment revenues and segment operating profit (loss) for the years ended December 31, 2017, 2018 and 2019:

	For the year ended December 31, 2017			For the year ended December 31, 2018			For the year ended December 31, 2019		
	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments
\$ in thousands									
External revenues	508	24,680	25,188	236	12,495	12,731	7,294	7,896	15,190
External other income	239	8,290	8,528	178	8,523	8,701	—	7,800	7,800
External revenues and other income	747	32,969	33,715	414	21,018	21,432	7,294	15,696	22,990
Cost of revenue	(390)	(2,230)	(2,620)	(595)	(2,144)	(2,739)	(9,275)	(2,117)	(11,392)
Research and development expenses	(6,057)	(73,170)	(79,227)	(8,638)	(67,929)	(76,567)	(12,390)	(79,652)	(92,042)
Selling, general and administrative expenses	(13,143)	(31,607)	(44,750)	(21,067)	(26,180)	(47,248)	(26,090)	(16,927)	(43,017)
Other operating income and expenses	6	225	232	(50)	81	31	25	(116)	(91)
Total operating expenses	(19,584)	(106,782)	(126,366)	(30,351)	(96,172)	(126,523)	(47,730)	(98,812)	(146,542)
Operating income (loss) before tax	(18,837)	(73,813)	(92,650)	(29,937)	(75,154)	(105,091)	(40,436)	(83,116)	(123,552)
Financial gain (loss)	—	(11,032)	(11,032)	1,420	15,339	16,758	294	8,045	8,340
Net income (loss)	(18,837)	(84,846)	(103,683)	(28,517)	(59,816)	(88,333)	(40,142)	(75,071)	(115,212)
Non controlling interests	4,315	—	4,315	9,640	—	9,640	13,121	—	13,121
Net income (loss) attributable to shareholders of Collectis	(14,522)	(84,846)	(99,368)	(18,877)	(59,816)	(78,693)	(27,021)	(75,071)	(102,091)
R&D non-cash stock-based expense attributable to shareholder of Collectis	967	22,623	23,590	838	16,852	17,689	1,619	10,010	11,629
SG&A non-cash stock-based expense attributable to shareholder of Collectis	4,990	20,345	25,335	5,218	11,655	16,873	6,673	4,940	11,613
Adjustment of share-based compensation attributable to shareholders of Collectis	5,957	42,967	48,924	6,056	28,507	34,563	8,292	14,950	23,242
Adjusted net income (loss) attributable to shareholders of Collectis	(8,565)	(41,877)	(50,443)	(12,821)	(31,309)	(44,130)	(18,729)	(60,121)	(78,849)
Depreciation and amortization	(551)	(2,820)	(3,371)	(637)	(1,740)	(2,377)	(1,233)	(5,642)	(6,875)
Additions to tangible and intangible assets	792	1,849	2,642	1,871	3,040	4,911	2,998	14,668	17,666
Impairment of tangible assets	—	(798)	(798)	—	—	—	—	—	—

Therapeutics segment—2018 vs. 2019

External revenues and other income in our Therapeutics segment decreased by \$5.3 million, from \$21.0 million for the year ended December 31, 2018, to \$15.7 million the year ended December 31, 2019. The decrease was primarily due to a decrease of \$4.4 million in collaboration agreement revenues, as described in sections “Revenues” and “Other income” under “Results of Operation” for the consolidated Group.

The decrease in total operating expenses of \$2.6 million from the year ended December 31, 2018 to the year ended December 31, 2019 resulted primarily from (i) lower personnel expenses, attributable, to a decrease of \$13.6 million in non-cash stock-based compensation expenses partly offset by an increase of \$1.0 million in personnel wages and salaries and an increase of \$1.7 million in social charges on stock option grants; partially offset by (ii) an increase of \$13.3 million in purchases and external purchases and other expenses and (iii) a decrease of \$0.2 million in other operating income and expenses.

Operating loss before tax for our Therapeutics segment increased by \$8.0 million from the year ended December 31, 2018 to the year ended December 31, 2019.

Adjusted net loss attributable to shareholders of Collectis for our Therapeutics segment increased by \$28.8 million from the year ended December 31, 2018 to the year ended December 31, 2019.

Therapeutics segment—2017 vs. 2018

External revenues and other income in our Therapeutics segment decreased by \$12.0 million, from \$33.0 million for the year ended December 31, 2017 to \$21.0 million for the year ended December 31, 2018. The decrease was primarily due to a decrease of \$12.3 million in collaboration agreement revenues, partially offset by a \$0.2 million increase in research tax credit, as described in sections “Revenues” and “Other income” under “Results of Operation” for the consolidated Group.

The decrease in total operating expenses of \$10.6 million, from \$106.8 million for the year ended December 31, 2017 to \$96.2 million for the year ended December 31, 2018 resulted primarily from (i) lower personnel expenses, attributable, to a decrease of \$14.5 million in non-cash stock-based compensation expenses and a decrease of \$1.8 million in social charges on stock options, lower other operating expenses for \$0.7 million partly offset by an increase of \$4.7 million in personnel wages and salaries, and higher purchases, external expenses for \$1.7 million.

Operating loss before tax for our Therapeutics segment increased by \$1.4 million from \$73.8 million for year ended December 31, 2017, to \$75.2 million for year ended December 31, 2018.

Adjusted net loss attributable to shareholders of Collectis for our Therapeutics segment decreased by \$10.6 million from \$41.9 million for year period ended December 31, 2017 to \$31.3 million for the year ended December 31, 2018.

Plants segment—2018 vs. 2019

External revenues and other income in our Plants segment increased by \$6.9 million from \$0.4 million for the year ended December 31, 2018 to \$7.3 million for the year ended December 31, 2019 due to the commercial launch of Calyxt’s initial high oleic soybean products.

The increase in total operating expenses of \$17.4 million from the year ended December 31, 2018 to the year ended December 31, 2019 resulted primarily from an increase in Calyxt’s commercialization activities, which contributed to (i) an increase of \$8.3 million in personnel expenses, including an increase of \$5.3 million in wages and salaries and an increase of \$3.2 million in non-cash stock based compensation expense, (ii) an increase of \$0.2 million in purchase and external expenses and other, and (iii) an increase of \$8.7 million in cost of revenue.

Operating loss before tax for our Plants segment increased by \$10.5 million from the year ended December 31, 2018 to the year ended December 31, 2019.

Adjusted net loss attributable to shareholders of Collectis for our Plants segment increased by \$5.9 million from the year ended December 31, 2018 to the year ended December 31, 2019.

Plants segment—2017 vs. 2018

External revenues and other income in our Plants segment decreased by \$333 thousand from \$747 thousand for the year ended December 31, 2017 to \$414 thousand for the year ended December 31, 2018, the decrease was attributable to a strategic decision to focus on in-house development of product candidates and to reduce the amount of subcontracted R&D that we were performing for third parties.

[Table of Contents](#)

The increase in total operating expenses of \$10.8 million from \$19.6 million for the year ended December 31, 2017 to \$30.4 for the year ended December 31, 2018 resulted primarily from a significant increase in Calyxt's activities, which contributed to (i) an increase of \$4.4 million in personnel expenses, that includes an increase of \$1.3 million in non-cash stock-based compensation expenses and an increase of \$3.1 million in personnel wages and salaries, (ii) an increase of \$6.1 million in purchases, external expenses and other. Increase in these costs is mainly explained to acquire grain prior to our achievement of commercial milestones and to ramp up our capabilities in advance of commercialization and increases in professional services expenses associated with being a public company.

Operating loss before tax for our Plants segment increased by \$11.2 million from \$18.8 million for the year ended December 31, 2017 to \$30.0 million for the year ended December 31, 2018.

Adjusted net loss attributable to shareholders of Collectis for our Plants segment increased by \$4.2 million from \$8.6 million for the year ended December 31, 2017 to \$12.8 million for the year ended December 31, 2018.

B. Liquidity and Capital Resources

Introduction

We have incurred losses and cumulative negative cash flows from operations since our inception in 2000, and we anticipate that we will continue to incur losses for at least the next several years. We expect that our research and development and selling, general and administrative expenses will continue to increase and, as a result, we will need additional capital to fund our operations, which we may raise through a combination of equity offerings, debt financings, other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements.

We have funded our operations since inception primarily through private and public offerings of our equity securities, grant revenues, payments received under patent licenses, reimbursements of research tax credit claims and payments under our strategic alliances with Pfizer and Servier. Our ordinary shares have been traded on the Euronext Growth market of Euronext in Paris since February 7, 2007 and our ADSs have traded on the Nasdaq Global Market in New York since March 30, 2015.

Liquidity management

As of December 31, 2019, we had current financial assets and cash and cash equivalents of \$360.9 million comprising cash and cash equivalents of \$340.5 million and current financial assets of \$20.4 million exclusively composed by current restricted cash. Long term restricted cash amounts to \$3.5 million.

Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation. Currently, our cash and cash equivalents are held in bank accounts, money market funds, fixed bank deposits primarily in France. The portion of cash and cash equivalent denominated in U.S. dollars is \$214.6 million as of December 31, 2019. Current financial assets denominated in U.S. Dollars amounted to \$20.4 million as of December 31, 2019.

Historical Changes in Cash Flows

The table below summarizes our sources and uses of cash for the years ended December 31, 2017, 2018 and 2019:

	For the year ended December 31,		
	2017	2018	2019
Net cash flows provided by (used in) operating activities	(52,327)	(68,137)	(69,142)
Net cash flows provided by (used in) investing activities	1,784	35,623	(35,872)
Net cash flows provided by (used in) financing activities	41,266	236,494	(3,862)
Total	(9,277)	203,981	(108,876)
Effect of exchange rate changes on cash	11,089	(8,860)	(2,103)

Year Ended December 31, 2019

The net cash flows used in operating activities are mainly due to Collectis cash payments of \$48.5 million to suppliers, wages and social expenses of \$24.1 million, and Calyxt operating activities of \$28.7 million, partly offset by \$14.7 million of

Table of Contents

research credit taxes received, \$7.5 million of payments received from Servier and Allogene pursuant to our collaboration agreements, \$1.5 million of payments received from licenses and other revenue, \$5.1 million of interest received and \$3.4 million of VAT and other taxes reimbursement as well as other variances.

The net cash flows used in investing activities primarily reflects (i) our investments in R&D equipment and building fittings in both the United States and France of \$13.0 million including \$12.3 million of assets under construction relates to Collectis' new raw material manufacturing facility in Paris (\$4.4 million) and new commercial manufacturing facility in Raleigh, North Carolina (\$5.4 million) and the rest relates to the Plants Segment activity, (ii) the \$23.3 million change in current and non-current financial asset mainly related to letters of credit related to our Raleigh facility in non-current (\$2.5 million) and current financial asset (\$20.0 million) and (iii) \$1.1 million of deposits related to Raleigh manufacturing facility (\$0.9 million) and the rest relates to Paris lease extension, partially offset by \$0.4 million of funds received from Calyxt sale and leaseback agreement for equipment.

The net cash used by financing activities reflects the payments on lease debts for \$3.4 million and Calyxt payment of \$0.8 million in withholding taxes in connection with the net settlement of RSUs, partially offset by Calyxt stock options exercises during the period for \$0.3 million.

Year Ended December 31, 2018

The net cash flows used in operating activities are mainly due to cash payments of \$41.8 million to suppliers, wages and social expenses of \$19.3 million, rent payments of \$4.3 million and \$20.3 million of other operating payments and payments to Calyxt suppliers, partially offset by \$4.7 million of payments received from Servier and Pfizer/Allogene pursuant to our collaboration agreements, \$1.5 million of payments received from licenses, \$6.9 million of interest received and \$4.5 million of VAT and other taxes reimbursement as well as other variances.

The net cash flows used in investing activities primarily reflects our investments in R&D equipment and building fittings in both the United States and France of \$4.9 million included \$0.2 million of intangible assets, offset by (i) the proceeds from disposal of \$1.3 million included Calyxt's sale and leaseback agreement transaction for certain equipment for \$1.2 million, (ii) the reimbursement of \$0.2 million related to the termination of a liquidity contract that we were party to with Natixis Securities and by (iii) the proceeds from current financial assets of \$39.0 million.

The net cash flows provided by financing activities mainly reflects (i) the net proceeds after deducting underwriting discounts and commissions and offering expenses of \$178.6 million from the Collectis follow-on offering, (ii) the net proceeds, after deducting underwriting discounts and commissions and offering expenses and the purchase price paid by Collectis with respect to our purchase of 550,000 shares of Calyxt common stock purchased by Collectis in the offering, of \$48.8 million, (iii) the exercise of 322,068 Collectis stock options during the period for \$7.5 million, (iv) the exercise of 592,342 Calyxt stock options during the period for \$2.4 million, (v) the subscription of non-employee warrants for \$0.2 million and (vi) the reimbursement of \$0.3 million related to the termination of our liquidity contract with Natixis Securities, partially offset by Collectis' purchase on June 14, 2018 of 63,175 shares of Calyxt common stock from employees and nonemployees of Calyxt and Collectis at a price of \$19.49 per share (the closing price reported on the Nasdaq Global Market on June 14, 2018) for \$1.2 million.

Year Ended December 31, 2017

The net cash flows used in operating activities are mainly due to cash payments of \$53.9 million to suppliers, wages and social expenses of \$19.8 million and rent payments of \$3.7 million, partially offset by \$8.4 million of payments received from Servier and Pfizer pursuant to our collaboration agreements and \$8.1 million of research tax credit as well as other variances.

The net cash flows used in investing activities primarily reflects, the proceeds from disposal of \$7.0 million related to Calyxt's sale and leaseback agreement, partially offset by our acquisition of \$2.6 million of financial current assets at Collectis and our investments in research and development equipment and intangible assets in both the United States and France of \$2.7 million.

The net cash flows provided by financing activities mainly reflects the net proceeds of the Calyxt IPO of \$38.1 million, on a consolidated basis, the subscription of non-employee warrants for \$0.3 million, and exercises of 121,492 BSPCE warrants and 31 873 stock options by employees during the period for \$2.7 million.

Operating capital requirements

To date, we have not generated any revenues from therapeutics. We do not know when, or if, we will generate any revenues from product sales. We do not expect to generate significant revenues from product sales unless and until we obtain regulatory approval of and commercialize one of our current or future product candidates. Although Calyxt completed their first sales of its

[Table of Contents](#)

high oleic soybean oil and soybean meal in the first quarter of 2019, it has not yet generated significant revenues from sales of these products. We anticipate that we will continue to generate losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our product candidates, and begin to commercialize any approved products. We are subject to all risks incident in the development of new gene therapy products, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. We are also subject to all risks incident in the development of new agricultural products, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business.

We also anticipate substantial expenses related to audit, legal, regulatory and tax-related services associated with our public company obligations in the United States and our continued compliance with applicable U.S. exchange listing and SEC requirements. We anticipate that we will need additional funding in connection with our continuing operations, including for the further development of our existing product candidates and to pursue other development activities related to additional product candidates.

We believe our cash and cash equivalents, our cash flow from operations (including payments we expect to receive pursuant to our collaboration agreements) and government funding of research programs will be sufficient to fund our operations into 2022. However, we may require additional capital for the further development of our existing product candidates and may also need to raise additional funds sooner to pursue other development activities related to additional product candidates.

Until we can generate a sufficient amount of revenues from our products, if ever, we expect to finance a portion of future cash needs through public or private equity or debt offerings. Additional capital may not be available on reasonable terms, if at all. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our product candidates. If we raise additional funds through the issuance of additional debt or equity securities, it could result in dilution to our existing shareholders, increased fixed payment obligations and these securities may have rights senior to those of our ordinary shares. If we incur indebtedness, we could become subject to covenants that would restrict our operations and potentially impair our competitiveness, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. Any of these events could significantly harm our business, financial condition and prospects.

Our assessment of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the initiation, progress, timing, costs and results of pre-clinical and clinical studies for our product candidates;
- the initiation, progress, timing, costs and results of field trials for our agricultural product candidates;
- the capacity of manufacturing our products in France and in the United States;
- the outcome, timing and cost of regulatory approvals by U.S. and non-U.S. regulatory authorities, including the possibility that regulatory authorities will require that we perform more studies than those that we currently expect;
- the ability of our product candidates to progress through clinical development successfully;
- the ability of our agricultural product candidates to progress through late stage development successfully, including through field trials;
- the cost of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights;
- our need to expand our research and development activities;
- our need and ability to hire additional personnel;
- our need to implement additional infrastructure and internal systems, including manufacturing processes for our product candidates;
- the effect of competing technological and market developments; and
- the cost of establishing sales, marketing and distribution capabilities for any products for which we may receive regulatory approval.

If we cannot expand our operations or otherwise capitalize on our business opportunities because we lack sufficient capital, our business, financial condition and results of operations could be materially adversely affected.

C. Research and Development, Patents and Licenses, etc.

Our research and development teams utilize our deep expertise to contribute to the growth of our business. As of December 31, 2019, we had 171 employees engaged in research and development activities. In the years ended December 31, 2017, 2018 and 2019 we spent \$79.2 million, \$76.6 million and \$92.0 million, respectively, on research and development. For a discussion of our research and development activities, see “Item 4.B—Business Overview” and “Item 5.A—Operating Results.”

D. Trend Information

For a discussion of trends, see “Item 4.B—Business Overview,” “Item 5.A—Operating Results” and “Item 5.B—Liquidity and Capital Resources.” Other than as disclosed in these sections, we are not aware of any trends, uncertainties, demands, commitments or events since December 31, 2015 that are reasonably likely to have a material adverse effect on our revenues, income, profitability, liquidity or capital resources, or that would cause the disclosed financial information to be not necessarily indicative of future operating results or financial condition.

E. Off-Balance Sheet Arrangements.

We entered into seed and grain production agreements with settlement value based on commodity market future pricing. Otherwise, we do not have any off-balance sheet arrangements as defined under SEC rules.

F. Tabular Disclosure of Contractual Obligations

The following table discloses aggregate information about material contractual obligations and periods in which payments were due as of December 31, 2019. Future events could cause actual payments to differ from these estimates.

As of December 31, 2019	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
	\$ in thousands				
Lease agreements	73,181	4,014	18,886	9,764	40,516
License agreements	18,607	1,389	2,778	2,778	11,662
Manufacturing agreements	6,218	6,218	—	—	—
Clinical & R&D agreements	2,086	1,424	662	—	—
Construction agreements	39,741	39,741	—	—	—
Other agreements	50,896	30,851	20,045	—	—
Total contractual obligations	190,728	83,637	42,371	12,542	52,179

The commitment amounts in the table above are associated with contracts that are enforceable and legally binding and that specify all significant terms, including fixed or minimum services to be used, fixed, minimum or variable price provisions, and the approximate timing of the actions under the contracts. The table does not include obligations under agreements that we can cancel without a significant penalty. We have collaboration agreements whereby we are obligated to pay royalties and milestones based on future events that are uncertain and therefore they are not included in the table above.

We also provided Letters of Credit to the landlords of our facilities in New York and Raleigh.

For further detail, please see Note 19 – Commitments of our consolidated financial statements.

G. Safe Harbor

This Annual Report contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act and as defined in the Private Securities Litigation Reform Act of 1995. See “Special Note Regarding Forward-Looking Statements.”

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES**A. Directors and Senior Management**

The following table sets forth information regarding our executive officers and directors as of March 4, 2020. Unless otherwise stated, the address for our executive officers and directors is 8, rue de la Croix Jarry, 75013 Paris, France.

<u>Name</u>	<u>Age</u>	<u>Position(s)</u>
Executive Officers:		
André Choulika, Ph.D.	55	Chairman of the Board, Chief Executive Officer, and Co-Founder
Philippe Duchateau, Ph.D.	57	Chief Scientific Officer
Eric Dutang	46	Chief Financial Officer
William (Bill) Monteith	62	Executive Vice President Technical Operation
Stephan Reynier	51	Chief Regulatory Officer
David Sourdive, Ph.D.	53	Director, Executive Vice President, Strategic Initiatives and Co-Founder
Arthur Stril	31	Vice President Corporate Development
Marie-Bleuenn Terrier	38	General Counsel
Jon Voss	60	Executive Vice President Global Quality
Non-Employee Directors:		
Laurent Arthaud	57	Director
Pierre Bastid	65	Director
Rainer Boehm	59	Director
Alain Godard	74	Director
Hervé Hoppenot	60	Director
Annick Schwebig, M.D.	69	Director

André Choulika, Ph.D., is one of the founders of Collectis and served as Chief Executive Officer since the company's inception in 1999. He is Chairman of the Board of Directors since 2011 and President of the board of directors of Calyxt, Inc. since August 2010. He is CEO and Chairman of Collectis, Inc. since December 2014 and Collectis Biologics, Inc. since January 2019. From 1997 to 1999, Dr. Choulika worked as a post-doctoral fellow in the Division of Molecular Medicine at Boston Children's Hospital, where he was one of the inventors of nuclease-based genome editing technologies and a pioneer in the analysis and use of meganucleases to modify complex genomes. After receiving his Ph.D. in molecular virology from the University of Paris VI (Pierre et Marie Curie), he completed a research fellowship in the Harvard Medical School Department of Genetics. His management training is from HEC (Challenge +). Since June 2019, Dr. Choulika served at the board of directors of Institut Pasteur. Based on Dr. Choulika's deep knowledge of the company and scientific experience, we believe Dr. Choulika has the appropriate set of skills to serve as our chief executive officer and a member of our board of directors.

Philippe Duchateau, Ph.D., joined Collectis in 2001 to pioneer the field of genome engineering and has served as Chief Scientific Officer since 2012. After receiving his PhD in 1993 in biochemistry and molecular biology at the Institut Pasteur (Lille, France), he completed a research fellowship from 1993 to 2001 at the University of California, San Francisco (United States) within the Cardiovascular Research Institute. He is co-inventor of numerous patents in the field of nucleases and genome engineering and co-authors on more than 50 scientific publications and co-editor of one book entitled "Site-directed Insertion of Transgenes." As head of Collectis's Research department since 2004, he helped to the development of the Collectis Technologies.

Eric Dutang joined us as Deputy Chief Financial Officer in May 2015 and was appointed Chief Financial Officer in 2016. Eric began his career as financial auditor with KPMG, first in Paris for five years and then in New York for two years. He worked for listed companies in France and the United States such as Vivendi, Veolia Environnement or Cablevision. He then became a member of the transactions and advisory teams in Paris for seven years where he carried out acquisitions / disposals for listed companies and private equity funds. After serving at KPMG, he worked on international business developments for French public listed groups, including Air Liquide and Thales. Eric holds a Master of Finance and Executive MBA from HEC Paris (France)/Babson Massachusetts (USA).

William (Bill) Monteith, joined Collectis in November 2018 as Senior Vice President US Manufacturing responsible for the selection, construction and buildout of Collectis' manufacturing facility located at Raleigh, North Carolina. Bill Monteith was named Executive Vice President of Technical Operations in July 2019. Before joining Collectis, Mr. Monteith was the Chief Operating Officer for Hitachi Chemical Advanced Therapeutic Solutions (formerly PCT). While at Hitachi, Mr. Monteith was part of the executive team overseeing the merger with Hitachi and went on to build a cell and gene therapy facility in Yokohama Japan in

addition to being responsible for the US based facilities in Allendale New Jersey and Mountain View California. Prior to that, Mr. Monteith was the VP and General Manager, and then Executive VP, Technical Operations, for Dendreon which was the first autologous cellular therapy to get approval in the United States. Mr. Monteith has also held leadership roles at Sandoz, Shire, and Wyeth pharmaceuticals, ranging from technical operations to quality assurance. Mr. Monteith received his Bachelor of Science in pre-medical studies with a major in Chemistry from Saint Lawrence University in Canton, NY.

Stephan Reynier, MSc, joined Collectis in April 2011. He serves as Chief Regulatory and Compliance Officer after holding the position of Head of Programs at Ectycell, a former subsidiary of Collectis, from April 2011 to 2014 with the mission of managing and coordinating internal and external collaborative programs. As Chief Regulatory and Compliance Officer, Mr. Reynier is in charge of ensuring a speedy and successful development of the UCART product family by establishing close interactions with regulatory agencies such as EMA and FDA, while securing compliance to applicable regulations, regulatory guidelines and quality assurance standards. Mr. Reynier has extensive experience, from his previous positions as Senior Director at Voisin Consulting Life Sciences and European Associate Director Medical Affairs at Gilead Sciences, in the design and implementation of regulatory strategies for the development of drugs and biologics, with a strong focus on cell and gene therapy. Mr Reynier graduated as Agro-Engineer in France and received a Master of Science in Chemical Engineering from the University of Toronto, Canada.

David Sourdivé, Ph.D., is a co-founder of Collectis and has held the position of Executive Vice President, Technical Operations since 2017. Prior to that date, Dr. Sourdivé served as Executive Vice President, Corporate Development since 2008. Dr. Sourdivé has also been a member of our board of directors since 2000. Since February 2014, Dr. Sourdivé has also served on the board of directors of Mediterranean Institute for Life Sciences. Since June 2015, he has served on the board of directors of Eukarys SAS. Since 2017 Dr. Sourdivé has served on the Board of Omics SAS. Since December 2018, he has served on the board of directors of Enobraq SAS, and since September 2019, he has served on the Board of Exeliom S.A.S. He previously served on the boards of directors of Collectis AB, Medicen Paris Region and Seine Saint Denis Avenir. From 1998 to 2000, he directed the biotechnologies laboratory of the Centre d'Etudes du Bouchet for the French Ministry of Defense. From 1997 to 1998, Dr. Sourdivé worked at one of the leading laboratories in viral immunology at Emory University in Atlanta, Georgia. His work there was focused on immunological T-cell memory. Dr. Sourdivé graduated from the École Polytechnique and received his PhD in molecular virology at the Institut Pasteur. He also has management training from the HEC (Challenge +). We believe Dr. Sourdivé's extensive experience in business and the biotechnology industry qualifies him to serve on our board of directors.

Arthur Stril joined Collectis in July 2018 as Vice President, Corporate Development and is responsible for program management, strategy and business development. Arthur began his career at the European Commission's Directorate-General for Competition, controlling global pharmaceutical mergers. He later became Head of the Hospital Financing Unit at the French Ministry of Health. Mr. Stril graduated from the École Normale Supérieure, Paris & Cambridge University, and holds a diploma in Immunotherapy from the Université Paris-Descartes. Mr. Stril is also a member of the French Corps des Mines.

Marie-Bleuenn Terrier joined Collectis as Legal Counsel in 2008, and was appointed General Counsel in 2013. Prior to joining Collectis, she worked as Legal Counsel for Pfizer from 2004 to 2006, and for Boehringer-Ingelheim from 2006 to 2008. Marie-Bleuenn Terrier has also served as Secretary of our board of directors since 2015. She holds a Master's degree in Law from the Panthéon La Sorbonne University in Paris.

Jon Voss joined Collectis in July 2019 as Executive Vice President of Global Quality. Mr. Voss has over 30 years of US and international Quality expertise in gene therapy, small molecule, biologic and medical device products working as VP of Quality for such companies as Generation Bio, Sarepta Therapeutics and Genzyme. Having worked in early stage pre-clinical, clinical and commercial organizations, Mr. Voss has unique experience in moving companies from the development to commercial stage. As EVP of Global Quality, Mr. Voss is building the Collectis global quality organization to support the existing Collectis UCART clinical programs as well as ensuring that Collectis is prepared for commercial licensure and the associated operations. Mr. Voss earned his Bachelor of Science degree from the University of California at Davis and received his Master of Science in Biomedical Engineering from Boston University.

Laurent Arthaud has served as a member of our board of directors since October 28, 2011. Mr. Arthaud has been the Managing Director of Life Sciences and Ecotechnologies for Bpifrance Investissement (formerly CDC Enterprises, a subsidiary of Caisse des Dépôts) since 2012. He currently serves on the boards of directors of Kurma Life Sciences Partners, Adocia, Sparingvision, Aledia and Ribogenics, Inc. and Enyo Pharma. He served on the board of directors of TxCell from 2012 to 2018, on the board of directors of Emertee Gestion from 2006 to 2016, and on the board of directors of Scynexis, Inc. from 200 to 2015. From 2006 to 2012, Mr. Arthaud held the position of Deputy CEO at CDC Entreprises. Since 2009 Mr. Arthaud has also directed InnoBio, an investment fund managed by Bpifrance Investissement as part of the FSI France Investissement program. From 1999 to 2004 he served as Vice President of Aventis Capital, an investment subsidiary of the pharmaceuticals group Aventis, and as President of Pharmavent Partners from 2004 to 2006. Mr. Arthaud is a graduate of the École Polytechnique and the École Nationale de Statistique et d'Administration Économique. We believe Mr. Arthaud's extensive investment experience in the biotechnology industry qualifies him to serve as a member on our board of directors.

Pierre Bastid has served as a member of Collectis' board of directors since 2011. Mr. Bastid has 25 years experience in turning around, developing and running technology businesses in Asia, Europe and the United States. In addition to Collectis, Mr. Bastid is currently serving on the board of directors of Pharnext (a biotechnology company), and DCTV Center New-York, and of a series of his owned investment and private equity companies. Mr. Bastid also advises a number of investment and private equity firms. Mr. Bastid is a trustee of the Juilliard School of Music and other non-profit organizations based in the United States. We believe Mr. Bastid's extensive business experience qualifies him to serve as a member on our board of directors.

Rainer Boehm has served as a member of Collectis' board of directors since 2017. In addition, Mr. Boehm is currently serving on the board of directors of Humanigen, Inc. and Nordic Nanovector ASA since 2018. Since 2019, he served on the board of directors of BioCopy AG. Mr. Boehm spent 29 years at Novartis, working locally, regionally and globally in various Senior Management roles, after building his career in Marketing & Sales and Medical Affairs. He led all emerging markets regions as well as the United States and Canada, either for Oncology or the Pharmaceuticals division. His most recent assignments were Chief Commercial and Medical Affairs Officer globally for Novartis Pharma, as well as ad interim CEO and Division Head Pharma. Rainer launched and oversaw the commercialization of many brands during his career, amongst them Femara, Zometa and Glivec, as well as Cosentyx and Entresto. Rainer has a medical degree from the University of Ulm in Germany, and a Master of Business Administration from Schiller University in France. We believe Mr. Boehm's extensive business and medical experience in pharmaceutical industry qualifies him to serve as a member on our board of directors.

Alain Godard has served as a member of Collectis' board of directors since 2007. In addition, Mr. Godard is currently serving on the board of directors of Calyxt, Inc. He is a graduate of the Ecole Nationale Supérieure Agronomique de Toulouse and began his agronomy career in 1967 in Africa as a researcher at the *Institut de Recherche pour les Huiles et Oléagineux*. He joined the French chemical group Rhône-Poulenc in 1975 where he held various management positions in France and abroad before becoming CEO of the agrochemical subsidiary in 1991. In 1999 he was directly involved in the merger of Rhône-Poulenc and Hoechst to create Aventis and was appointed CEO of the Aventis CropScience subsidiary with a significant involvement in seeds and agricultural biotechnology. He left Aventis in 2002 to create a consulting company, SARL Godard & Co., specialized in agriculture and biotechnology, where he has served as Chief Executive Officer since 2009. Until 2016, Mr. Godard also served on the board of directors of Fermentalg S.A. We believe Mr. Godard's leadership and management expertise in the plant biotechnology field qualifies him to serve as a member of our board of directors.

Hervé Hoppenot has served as a member of Collectis' board of directors since 2017. He serves as President and Chief Executive Officer of Incyte Corporation since 2014, and was appointed Chairman of the Board of Directors in 2015. Incyte is one of the fastest growing biopharmaceutical companies in the U.S. Prior to joining Incyte, Mr. Hoppenot was the President of Novartis Oncology, which included \$11 billion in global sales, the largest oncology pipeline in the industry and 8000 employees in 50 countries. Prior to joining Novartis in 2003, Mr. Hoppenot started his career in 1983 with Rhone Poulenc, later known as Aventis, where he served in several senior roles of increasing responsibility, including Vice President of Oncology and Head of the US Oncology business unit. He and his family are dual citizens of France and the United States, having moved to the U.S. in 1991. We believe Mr. Hoppenot's business experience in the biotechnology industry qualifies him to serve as a member of our board of directors.

Annick Schwebig, M.D., has served as a member of our board of directors since October 28, 2011. In 2000, she founded the French subsidiary of Actelion, of which she is a Senior Advisor. She formerly served as the General Manager of Actelion from 2000 to 2015. Actelion is a biopharmaceutical company specializing in innovative treatments to serve unmet medical needs. She is also a director of Inventiva Pharma, a biopharmaceutical company, and B Cell Design, a biotechnologies company. A graduate of the University of Paris medical school, Dr. Schwebig worked as a senior manager at the biopharmaceuticals company Bristol-Myers Squibb for 17 years from 1983 to 2000. We believe Dr. Schwebig's extensive experience in the biopharmaceutical industry qualifies her to serve as a member on our board of directors.

Family Relationships

There are no family relationships among any of our executive officers or directors.

B. Compensation

Compensation of Directors and Executive Officers

The aggregate cash compensation paid and benefits in kind granted by us to our current executive officers and directors, for the year ended December 31, 2019, was \$5.2 million. For the year ended December 31, 2019, 541,000 stock options with an exercise price of €18.25 per ordinary share and 55,000 stock options with an exercise price of €11.06 were issued to executive officers as compensation under the 2018 Stock Option Plan and 6,000 free shares were issued to executive officers as compensation under the Second Free Shares 2018 Plan. The total amount set aside or accrued to provide pension, retirement or similar benefits was \$36,138 for the year ended December 31, 2019.

Directors	Compensation (Gross Salary+Bonus)*	Board fees*	Out-of-pocket expenses*	Equity awards granted in 2019
A. Choulika	\$ 1,001,637	—	—	140,000 stock-options
D. Sourdive	\$ 452,659	—	—	70,000 stock-options
A. Godard	—	\$ 55,980	\$ 2,599	—
L. Arthaud	—	—	—	—
A. Schwebig	—	\$ 55,980	—	—
P. Bastid	—	\$ 55,980	\$ 6,718	—
H. Hoppenot	—	\$ 55,980	\$ 23,763	—
R. Boehm	—	\$ 55,980	\$ 1,262	—

* The conversation rate used is the average rate of the period

Service Agreements

Mr. Godard, a member of the Board of Directors, entered into a service agreement with us and provided consultancy services in the area of global development strategy, especially in the field of agricultural biotechnology activities. Compensation paid for those services in the years ended December 31, 2017, 2018 and 2019 amounted to \$38 thousand, \$70 thousand and \$71 thousand respectively. No balances were outstanding at the end of each fiscal year.

Change of Control Benefits

We seek to balance the potential costs of change of control provisions with the costs that would arise from fear of job loss and other distractions that may result from potential, rumored or actual changes of control. As a result, after careful evaluation of the implications and economics of a change of control plan, on September 4, 2014, our board of directors adopted a change of control plan. As amended on December 11, 2014, the change of control plan provides benefits for certain of our executive officers and several other senior employees of our company.

Pursuant to the change of control plan, the severance package shall be paid if, within the 36-month period following a change of control of our company, one of the following events occurs:

- non-renewal or dismissal other than for gross misconduct (*faute lourde*) of the employees or executives concerned; and
- for Drs. Choulika and Sourdive only, resignation as a result of a significant reduction of their duties or compensation, or end or non-renewal of their corporate appointments.

The severance package shall be equal to 24 months of compensation increased by an amount equal to the maximum target bonus to which the employees or executives concerned may be entitled for the year of their departure (or for Dr. Choulika only, two times such target bonus), or, in the absence of such a target bonus, 1.5 times the last annual bonus paid to them during the 12 months prior to their departure.

The severance package shall be in addition to any legal and conventional severance payments owed to the employees or executives concerned.

A “change of control” is defined by reference to Article L.233-3 of the French Commercial Code, which provides that one or more persons acting alone or in concert are considered to control a company if (1) they have direct or indirect ownership of a majority of the voting rights or a proportion of the voting rights allowing de facto control of the decisions made by the shareholders, provided that such control is presumed if said persons hold more than 40% of the voting rights and no shareholder holds a greater proportion thereof; or (2) they have the power to appoint or dismiss a majority of the board of directors

Limitations on Liability and Indemnification Matters

Under French law, provisions of By-laws that limit the liability of directors and officers are prohibited. However, French law allows *sociétés anonymes* to contract for and maintain liability insurance against civil liabilities incurred by any of their directors and officers involved in a third-party action, provided that they acted in good faith and within their capacities as directors or officers of the company. Criminal liability cannot be indemnified under French law, whether directly by the company or through liability insurance.

We expect to maintain customary liability insurance coverage for our directors and executive officers, including insurance against liability under the Securities Act. With certain exceptions and subject to limitations on indemnification under French law, this insurance coverage will provide for indemnification for damages and expenses including, among other things, attorneys’ fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding arising out of his or her actions in that capacity. We believe that this insurance coverage is necessary to attract qualified directors and executive officers.

This insurance coverage may discourage shareholders from bringing a lawsuit against our directors and executive officers for breach of their fiduciary duty. It also may have the effect of reducing the likelihood of derivative litigation against directors and executive officers, even though such an action, if successful, might otherwise benefit us and our shareholders. Furthermore, a shareholder’s investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to this insurance coverage.

Certain of our non-employee directors may, through their relationships with their employers or partnerships, be insured against certain liabilities in their capacity as members of our board of directors.

Equity Incentives

We believe that our ability to grant equity awards is a valuable and necessary compensation tool that allows us to attract and retain the best available personnel for positions of substantial responsibility, provides additional incentives to employees and promotes the success of our business. In accordance with French corporate law and tax considerations, we have granted several different equity incentive instruments to our directors, executive officers, employees and other service providers. These are:

- employee warrants (otherwise known as *bons de souscription de parts de créateur d’entreprise* or BSPCE), granted only to employees of Collectis;
- non-employee warrants (otherwise known as *bons de souscription d’actions* or BSA), granted only to non-employee directors and other service providers or consultants not eligible for employee warrants;
- restricted, or free, shares (otherwise known as *actions gratuites*); and
- stock options (otherwise known as *options de souscription d’actions*).

Our board of directors’ authority to grant these equity incentive instruments and the aggregate number of shares authorized to be granted under these instruments must be approved by a two-thirds majority of the shares held by our shareholders present, represented or voting by mail at the relevant extraordinary shareholders’ meeting. Such extraordinary general meeting shall determine the aggregate amount of equity incentive instruments to be granted and the period during which such authorization may be used by our board of directors, which cannot exceed 18 months for non-employee warrants and employee warrants and 38 months for stock option and restricted (free) shares, in each case beginning from the date of the applicable shareholders’ approval. The authority of our board of directors to grant equity incentives may be extended or increased only by extraordinary shareholders’ meetings. As a result, we typically request that our shareholders authorize new pools of equity incentive instruments at every annual shareholders’ meeting and cancel the unallocated portions of the previous pool.

Employee warrants and non-employee warrants are usually granted under similar terms. They expire ten years after the date of grant if not exercised earlier according to their vesting schedule (see below). In general, employee warrants (BSPCE) and non-employee warrants (BSA) no longer continue to vest following termination of the employment, office or service of the holder and all vested shares must be exercised within post-termination exercise periods set forth in the applicable equity award grant documents. In the event of certain changes in our share capital structure, such as a consolidation or share split or dividend, French law and applicable equity award grant documentation provide for appropriate adjustments of the numbers of shares issuable and/or the exercise price of the outstanding warrants or share options.

Employee Warrants (BSPCE)

Employee warrants were granted only to employees of Collectis who are French tax residents, since these employee warrants carry favorable tax and social security treatment for French tax residents. Employee warrants may also be granted to corporate officers of the company having an employee tax status (chairman, general manager or deputy general manager) and directors. Similar to stock options, they entitle a holder to exercise the warrant for the underlying vested shares at an exercise price per share determined by our board of directors equal to the higher of (1) the fair market value of an ordinary share on the date of grant and (2) if the company has carried out a capital increase within six months prior to the attribution of employee warrants, the issue price of such capital increase.

Employee warrants may only be issued by growth companies meeting certain criteria, which we no longer meet. Most significantly, the issuer must have been registered for less than 15 years and 25% of the issuer's share capital must have been continuously held since the company's formation by natural persons or by holding companies, of which 75% of such holding company's share capital is held by natural persons. The calculation of such threshold does not include venture capital mutual investment fund (*fonds commun de placement à risques*), specialized professional funds (*fonds professionnels spécialisés*), private equity funds (*fonds professionnels de capital investissement*), local investment funds (*fonds d'investissement de proximité*) and innovation-focused mutual funds (*fonds commun de placement dans l'innovation*).

We are no longer eligible to issue employee warrants since we no longer satisfy the legal conditions necessary to issue such employee warrants.

Our outstanding employee warrants were generally granted (1) either subject to a three-year vesting schedule under which one-third (1/3) of the employee warrants vest upon the first anniversary of grant and one-third (1/3) at the expiration of each year thereafter, subject to continued service, or (2) subject to a five-year vesting schedule under which 40% of the employee warrants vest upon the second anniversary of grant and 20% at the expiration of each year thereafter, subject to continued service. In each case, any warrant which is not exercised before the tenth anniversary of the date of grant will automatically lapse. Some of our employee warrants provide that in the event of a change in control, as defined in the relevant grant documents, unvested warrants will automatically vest in full.

The term of each employee warrant is 10 years from the date of grant or, in the case of death or disability of the beneficiary during such ten-year period, 6 or 9 months respectively from the death or disability of the beneficiary. An employee warrant shall remain exercisable for three months following a beneficiary's termination of continuous status with the company.

Employee warrants are not transferable and may not be sold, pledged, assigned, hypothecated, transferred or disposed of in any manner other than by will or by laws of descent or distribution and may be exercised, during the lifetime of the warrant holder, only by the warrant holder.

As of December 31, 2019, 19,702 employee warrants exercisable for an aggregate of 20,464 ordinary shares at a weighted average exercise price of €7.97 per share, were outstanding.

Non-Employee Warrants (BSA)

Non-employee warrants are granted by our board of directors to third-party service providers, consultants and directors who are not eligible for employee warrants. In addition to any exercise price payable by a holder upon the exercise of any non-employee warrant, non-employee warrants need to be subscribed for at fair market value and in any case at a price at least equal to five percent (5%) of the average price for a company share weighted by volume on the market or markets on which the company shares are listed during the five (5) trading days prior to the date of the grant of said non-employee warrant by the board of directors (rounded up to the next euro cent, if necessary).

Pursuant to delegations granted at our annual shareholders' meeting, our board of directors determines the recipients, dates of grant and exercise price of non-employee warrants, the number of non-employee warrants to be granted and the terms and conditions thereof, including their vesting schedule. The term of each non-employee warrant is generally 10 years from the date of grant.

Our non-employee warrants are generally granted subject to a three-year vesting, subject to continued service.

[Table of Contents](#)

As of December 31, 2019, 832,558 non-employee warrants exercisable for an aggregate of 899,225 ordinary shares at a weighted average exercise price of €27.38 per share, were outstanding, all of which are held by certain of our directors and some of our consultants and exercisable at the date hereof.

Free Shares

Under our 2012, 2013, 2014, 2015, 2018 and Second 2018 Free Share Plans, we have granted free shares to certain of our employees and officers. Our current plan, the Second 2018 Free Share Plan, was adopted by our board of directors on August 1, 2018.

Free shares may be granted to any individual employed by us or by any affiliated company. Free shares may also be granted to our Chairman, and our Chief Executive Officer. However, no free share may be granted to a beneficiary holding more than 10% of our share capital or to a beneficiary who would hold more than 10% of our share capital as a result of such grant.

Our board of directors has the authority to administer the 2012, 2013, 2014, 2015, 2018 and Second 2018 Free Share Plans. Subject to the terms of these Free Share Plans, our board of directors determines the recipients, the dates of grant, the number of free shares to be granted and the terms and conditions of the free shares, including the length of their vesting period (starting on the grant date, during which the beneficiary holds a right to acquire shares for free but has not yet acquired any shares) and holding period (starting when the shares are issued and definitively acquired but may not be transferred by the recipient) within the limits determined by the shareholders. Our shareholders have determined that the vesting period must be at least two years from the date of grant and the holding period must be two years from the end of the vesting period, with no holding period applicable to beneficiaries for whom the vesting period was four years or longer for the 2012, 2013, 2014 and 2015 Free Shares Plans. For the 2018 Free Share Plans, our shareholders have determined that the vesting period must be at least one year from the date of grant and the holding period must be one year from the end of the vesting period, with no holding period applicable to beneficiaries for whom the vesting period was two years or longer.

The board of directors has the authority to modify awards outstanding under our Free Share Plans, subject to the consent of the beneficiary for any modification adverse to such beneficiary. For example, the board has the authority to release a beneficiary from the continued service condition during the vesting period after the termination of the employment.

The free shares granted under the Free Share Plans will be definitively acquired at the end of the vesting period as set by our board of directors subject to continued service during the vesting period, except if the board releases a given beneficiary from this condition upon termination of his/her employment contract. At the end of the vesting period, the beneficiary will be the owner of the shares. However, the shares may not be sold, transferred or pledged during the holding period. In the event of disability before the end of the vesting period, the free shares shall be definitively acquired by the beneficiary on the date of disability. In the event the beneficiary dies during the vesting period, the free shares shall be definitively acquired at the date of the request of allocation made by his or her beneficiaries in the framework of the inheritance provided that such request is made within six months from the date of death.

Stock Options

On March 24, 2015, according to the authorization granted by our shareholders meeting held on February 16, 2015, our board of directors adopted the 2015 Stock Option Plan, on October 28, 2016, according to the authorization granted by our shareholders meeting held on May 17, 2018, our board of directors adopted the 2016 Stock Option Plan, on October 11, 2017, according to the authorization granted by our shareholders meeting held on June 26, 2017, our board of directors adopted our 2017 Stock Option Plan; and on August 1, 2018, according to the authorization granted by our shareholders meeting held on June 26, 2018, our board of directors adopted our current 2018 Stock Options Plan. The 2015 Stock Option Plan, the 2016 Stock Option Plan, the 2017 Stock Option Plan and the 2018 Stock Option Plan (collectively, the "Stock Option Plans") follow the same rules. Stock Options issued pursuant to the Stock Option Plans provide the holder with the right to purchase a specified number of ordinary shares from the Company at a fixed exercise price payable at the time the Stock Option is exercised, as determined by our board of directors. The Stock Option Plans generally provides that the exercise price for any Stock Option will be no less than ninety-five percent (95%) of the average selling prices of a share at close of trading on said market quoted during the twenty trading days immediately preceding the day of the board of directors decision to grant the options. The maximum number of ordinary shares, which may be subject to stock options issued is 9,672,382, provided that our board of directors may decide of new grant of options only under our current 2018 Stock Option Plan with a maximum of 2,990,546 additional ordinary shares. Incentive Stock Options and Non-qualified stock options may be granted under the Stock Option Plans.

Table of Contents

Stock Options may be granted to any individual employed by us or by any affiliated company. Stock Options may also be granted to our Chairman, our general manager and to our deputy general managers. Incentive Stock Options granted to owners of shares possessing 10% or more of the total voting power in the Company will be subject to limitations on their exercise price and term.

Our board of directors has the authority to administer and interpret the Stock Option Plans. Subject to the terms of the Stock Option Plans, our board of directors determines the recipients, the dates of grant, the exercise price of the stock options, the number of stock options to be granted and the terms and conditions of the stock options, including the length of their vesting period. Our board of directors is not required to grant stock options with vesting and exercise terms that are the same for every participant. The term of each stock option granted under the Stock Option Plans will generally be 10 years from the date of grant. Further, Stock Options will generally terminate on the earlier of when the beneficiary ceases to be an employee or the Company or upon certain transactions involving the Company.

The board of directors has the authority to modify awards outstanding under our Stock Option Plans, subject to the written consent of the beneficiary for any modification adverse to such beneficiary. For example, the board has the authority to extend a post-termination exercise period.

Stock Options granted under the Stock Option plans generally may not be sold, transferred or pledged in any manner other than by will or by the laws of descent or distribution. In the event of disability, unless otherwise resolved by our board of directors, the beneficiary's right to exercise the vested portion of his or her option generally terminates six months after the last day of such beneficiary's service, but in any event no later than the expiration of the maximum term of the applicable stock options. In the event the beneficiary dies during the vesting period, then, unless otherwise resolved by our board of directors, the beneficiary's estate or any recipient by inheritance or bequest may exercise any vested portion within the six months following the date of death, but in any event no later than the expiration of the maximum term of the applicable stock options. In the 2015, 2016 and 2018 Stock Options Plans, in the event of a voluntary retirement of the beneficiary, the beneficiary will continue to benefit from the options which may be exercised according to the vesting schedule decided by the board during the grant of the corresponding options until their expiration date.

During the year ended December 31, 2019:

Collectis S.A.

- 85,000 stock options have been granted in November, 2019 under the 2018 Stock Option Plan of which 60,000 are under the vesting period of four year and 25,000 are under non-market performance vesting conditions, of which 55,000 stock options have been granted to our officers;
- 38,000 free shares have been granted in November, 2019 under the Second 2018 Free Share Plan and are under the vesting period of two years for the US residents, of which 6,000 free shares have been granted to our officers;
- 9,000 free shares have been granted in July, 2019 under the Second 2018 Free Share Plan and are under the vesting period of two years for the US residents;
- 1,562,000 stock options have been granted in April, 2019 under the 2018 Stock Option Plan and are under the vesting period of four year, of which 541,000 stock options have been granted to our officers;
- 6,500 free shares have been granted in April, 2019 under the Second 2018 Free Share Plan and are under the vesting period of two years for the US residents;
- 3,000 stock options have been granted in March, 2019 under the 2018 Stock Option Plan and are under the vesting period of four year;
- 3,500 free shares have been granted in March, 2019 under the Second 2018 Free Share Plan and are under the vesting period of one year and a holding period of one year for the French residents and vesting period of two years for the US residents.

Calyxt, Inc.

During the year ended December 31, 2019, our subsidiary Calyxt granted options, restricted stock unit and performance stock unit representing a 6.1% interest to a group of its employees, directors, executive officers and consultants.

C. Board Practices

Board Composition

Under French law and our By-laws, our board of directors must be composed of between three and eighteen members. Within this limit, the number of directors is determined by our shareholders. Directors are elected, re-elected and may be removed at a shareholders' general meeting with a simple majority of the votes cast of our shareholders. Pursuant to our By-laws, our directors are elected for three-year terms. In accordance with French law, our By-laws also provide that our directors may be removed with or

[Table of Contents](#)

without cause by a resolution adopted by a majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the relevant ordinary shareholders' meeting, and that any vacancy on our board of directors resulting from the death or resignation of a director, provided there are at least three directors remaining, may be filled by vote of a majority of our directors then in office provided that there has been no shareholders meeting since such death or resignation. Directors chosen or appointed to fill a vacancy shall be elected by the board for the remaining duration of the current term of the replaced director. The appointment must then be ratified at the next shareholders' general meeting. In the event the board would be composed of less than three directors as a result of a vacancy, the remaining directors shall immediately convene a shareholders' general meeting to elect one or several new directors so there are at least three directors serving on the board, in accordance with French law.

We currently have eight directors. The following table sets forth the names of our directors, the years of their initial appointment as directors and the expiration dates of their current term.

<u>Name</u>	<u>Current Position</u>	<u>Year of Initial Appointment</u>	<u>Term Expiration Year</u>
André Choulika, Ph.D.	Chairman	2000	2021
David Sourdive, Ph.D.	Director	2000	2021
Alain Godard	Director	2007	2021
Pierre Bastid	Director	2011	2020
Laurent Arthaud	Director	2011	2020
Annick Schwebig, M.D.	Director	2011	2020
Hervé Hoppenot	Director	2017	2020
Rainer Boehm	Director	2017	2020

Pursuant to new French regulations, which entered into effect on January 1, 2018, any company having more than 10 employees must, on or before January 1st, 2020, implement a Comité Social et Économique or Social and Economic Committee, which replaces and regroups the various employee representative bodies, including the Délégation Unique du Personnel initially in place at Collectis. We proceeded with the election, for a four-year term, of this Social and Economic Committee in September 21, 2018.

Director Independence

As a foreign private issuer, under the listing requirements and rules of Nasdaq, we are not required to have independent directors on our board of directors, except with respect to our audit and finance committee, for which the Nasdaq listing requirements permit specified phase-in schedules.

Our board of directors has determined that, applying the applicable rules and regulations of the SEC and the Nasdaq listing standards, all of our directors, except Drs. Choulika and Sourdive, qualify as "independent directors." In making such determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances our board of directors deemed relevant in determining the director's independence, including the number of ordinary shares beneficially owned by the director and his or her affiliated entities.

Role of the Board in Risk Oversight

Our board of directors is primarily responsible for the oversight of our risk management activities and has delegated to the audit and finance committee the responsibility to assist our board of directors in this task. While our board of directors oversees our risk management, our management is responsible for day-to-day risk management processes. We believe this division of responsibilities is the most effective approach for addressing the risks we face. Our board of directors expects our management to consider risk and risk management in each business decision, to proactively develop and monitor risk management strategies and processes for day-to-day activities and to effectively implement risk management strategies adopted by the board.

Corporate Governance Practices

As a French *société anonyme*, we are subject to various corporate governance requirements under French law. In addition, as a foreign private issuer listed on the Nasdaq Global Market, we will be subject to the Nasdaq corporate governance listing standards. However, the Nasdaq Global Market's listing standards provide that foreign private issuers are permitted to follow home country corporate governance practices in lieu of the Nasdaq rules, with certain exceptions. Certain corporate governance practices in France may differ significantly from corporate governance listing standards. For example, neither the corporate laws of France nor our By-laws require that (i) a majority of our directors be independent, (ii) our compensation committee include

Table of Contents

only independent directors, or (iii) our independent directors hold regularly scheduled meetings at which only independent directors are present. Other than as set forth below, we currently intend to comply with the corporate governance listing standards of Nasdaq to the extent possible under French law. However, we may choose to change such practices to follow home country practice in the future.

Although we are a foreign private issuer, we are required to comply with Rule 10A-3 of the Exchange Act, relating to audit committee composition and responsibilities. Rule 10A-3 provides that the audit committee must have direct responsibility for the nomination, compensation and choice of our auditors, as well as control over the performance of their duties, management of complaints made, and selection of consultants. Under Rule 10A-3, if the laws of a foreign private issuer's home country require that any such matter be approved by the board of directors or the shareholders of the Company, the audit committee's responsibilities or powers with respect to such matter may instead be advisory. Under French law, the audit committee may only have an advisory role and appointment of our statutory auditors, in particular, must be decided by our shareholders at our annual meeting.

In addition, Nasdaq rules require that a listed company specify that the quorum for any meeting of the holders of share capital be at least 33 $\frac{1}{3}$ % of the outstanding shares of the company's common voting stock. We follow our French home country practice, rather than complying with this Nasdaq rule. Consistent with French Law, our By-laws provide that when first convened, general meetings of shareholders may validly deliberate only if the shareholders present or represented hold at least (1) 20% of the voting shares in the case of an ordinary general meeting or of an extraordinary general meeting where shareholders are voting on a capital increase by capitalization of reserves, profits or share premium, or (2) 25% of the voting shares in the case of any other extraordinary general meeting. If such quorum required by French law is not met, the meeting is adjourned. There is no quorum requirement under French law when an ordinary general meeting or an extraordinary general meeting where shareholders are voting on a capital increase by capitalization of reserves, profits or share premium is reconvened, but the reconvened meeting may consider only questions that were on the agenda of the adjourned meeting. When any other extraordinary general meeting is reconvened, the required quorum under French law is 20% of the shares entitled to vote. If a quorum is not met at a reconvened meeting requiring a quorum, then the meeting may be adjourned for a maximum of two months.

Further, Nasdaq rules require that listed companies have a nominations committee comprised solely of independent directors. We follow our French home country practice rather than complying with this Nasdaq rule.

Finally, Nasdaq rules require shareholder approval when a plan or other equity compensation arrangement is established or materially amended. While the Company may, from time to time, obtain shareholder approval of an equity compensation arrangement in order to obtain advantageous tax treatment or otherwise, as a general matter, we intend to follow our French home country practice, which does not require shareholder approval of such plans or arrangements, rather than complying with this Nasdaq rule.

Board Committees

The board of directors has established an audit and finance committee and a compensation committee, each of which operates pursuant to a separate charter adopted by our board of directors. The board of directors has also established a scientific committee. The composition and functioning of all of our committees will comply with all applicable requirements of the French Commercial Code, the Exchange Act, the Nasdaq Global Market, and the rules and regulations of the SEC.

In accordance with French law, committees of our board of directors will only have an advisory role and can only make recommendations to our board of directors. As a result, decisions will be made by our board of directors taking into account non-binding recommendations of the relevant board committee.

Audit and Finance Committee. Our audit and finance committee reviews our internal accounting procedures, consults with and reviews the services provided by our independent registered public accountants and assists our board of directors in its oversight of our corporate accounting and financial reporting. Currently, our audit and finance committee is comprised of three members of the board of directors: Messrs. Bastid, Arthaud, and Hoppenot.

The duties specifically assigned to the audit and finance committee by our board of directors include, but are not limited to:

with regard to our financial statements:

- review on a preliminary basis and express its opinion on the draft annual and quarterly financial statements prior to the board of directors officially receiving the financial statements;

Table of Contents

- examine the critical accounting policies and practices of the Company, including their relevance and consistency used for the preparation of the Company's consolidated financial statements and rectify any failure to comply with these policies and practices;
- monitor the scope of consolidation and review, where necessary, any explanations in connection thereto;
- interview, when necessary, the statutory auditors, the chairman of the board of directors, the chief executive officer, the chief financial officer, the employees in charge of our internal controls or any other management personnel; these discussions may take place, where required, without the presence of the chairman of our board of directors and the chief executive officer; and
- examine—prior to their publication—the draft annual and interim financial statements, the draft annual report and any other draft financial statements (including projected financial statements) prepared for the needs of upcoming material transactions together with the related press releases;

with regard to internal controls:

- assess the efficiency and quality of internal control systems and procedures within the consolidated Company;
- examine, with the persons in charge of the internal audit, and, if necessary, outside of the presence of the chairman of the board of directors and the chief executive officer, the contingency and action plans with respect to internal audit, the findings following the implementation of these actions and the recommendations and follow-up actions in connection therewith; and
- entrust the internal audit department with any mission which the committee deems necessary;

with regard to external controls:

- examine any question relating to the appointment, renewal or dismissal of our statutory auditors and their fees regarding the performance of their control review functions;
- oversee the rules relating to the use of the statutory auditors for assignments other than the audit of the financial statements and, more generally, ensure that we comply with the principles guaranteeing the statutory auditors' independence;
- at least annually, review and discuss the information provided by management and the auditors relating to the independence of the audit firm;
- pre-approve any services entrusted to the statutory auditors which is outside of the scope of the annual audit;
- review every year with the statutory auditors all fees paid to by the Company and its subsidiaries to any networks to which the auditors belong, their work plan, their findings and recommendations, as well as actions taken by us following such recommendations;
- review and discuss with the statutory auditors their comments on internal controls over financial reporting and any matters that have come to the attention of the statutory auditors that lead them to believe that modification to our disclosures about changes in internal control over financial reporting is necessary for management's certifications pursuant to Section 302 of the Sarbanes-Oxley Act;
- discuss if necessary any points of disagreement between the statutory auditors and the officers of the Company that may arise within the scope of these operations; and
- review and discuss with the statutory auditors the plans for, and the scope of, the annual audit and other examinations; and

with regard to risks:

- review on a regular basis the financial situation, the cash position and the material risks and undertakings of the Company and its subsidiaries; and
- review the risk management policy and the process implemented to evaluate and manage these risks.

Compensation Committee. Our compensation committee assists our board of directors in reviewing the compensation of our executive officers and directors and makes recommendations in respect thereof. Currently, our compensation committee is comprised of two members of the board of directors: Mr. Godard and Dr. Schwebig. The principal duties and responsibilities of our compensation committee include, but are not limited to:

- review the compensation of our employees and managers of the Company and its subsidiaries (fixed and variable compensations, bonus, etc.) and make any recommendation to our board of directors in connection therewith;

Table of Contents

- review equity incentive plans (non-employee warrants, stock options, restricted (free) shares, etc.) and make recommendations to our board of directors in connection therewith;
- make recommendations to our board of directors regarding the compensation, pension and insurance plans, benefits in kind and other various pecuniary rights, of officers, as well as the allocation of equity incentive instruments granted to executive officers and directors of the Company;
- evaluate and make recommendations on the compensation policies and programs of executive officers and on the compensation of directors;
- recommend the approval, adoption and amendment of all cash- and equity-based incentive compensation plans in which any of our executive officers or directors participate and all other equity-based plans;
- review any proposed employment agreement with, and any proposed severance or retention plans or agreements applicable to, any of our executive officers;
- review, at least annually, corporate goals and objectives relevant to the compensation of our executive officers; and
- evaluate the performance of the executive officers in light of corporate goals and objectives and recommend compensation levels for these executive officers based on those evaluations and any other factors the compensation committee deems appropriate.

Code of Business Conduct and Ethics

We have adopted a Code of Business Conduct and Ethics, or the Code of Conduct, that is applicable to all of our employees, executive officers and directors. The Code of Conduct is available on our website at www.cellectis.com. Our board of directors will be responsible for overseeing the Code of Conduct and will be required to approve any waivers of the Code of Conduct for employees, executive officers and directors. We expect that any amendments to the Code of Conduct, or any waivers of its requirements, will be disclosed on our website.

D. Employees

As of December 31, 2019, we had 264 employees, 253 of whom are full-time, 75 of whom hold M.D, Ph.D. or Pharm.D. degrees, 171 of whom were engaged in research and development activities and 93 of whom were engaged in business development, commercial, legal, finance, information systems, facilities, human resources or administrative support. As of December 31, 2019, 110 of our employees were located in France and 154 of our employees were located in the United States. None of our employees is subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

E. Share Ownership

For information regarding the share ownership of our directors and executive officers, see “Item 6.B—Compensation” and “Item 7.A—Major Shareholders.”

ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

A. Major Shareholders.

The following table sets forth information with respect to the beneficial ownership of our ordinary shares as of February 29, 2020 for:

- each beneficial owner of more than 5% of our outstanding ordinary shares;
- each of our directors and executive officers; and
- all of our directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities and include ordinary shares that can be acquired within 60 days of February 29, 2020. The percentage ownership information shown in the table is based upon 42,465,669 ordinary shares outstanding as of December 31, 2019.

Except as otherwise indicated, all of the shares reflected in the table are ordinary shares and all persons listed below have sole voting and investment power with respect to the shares beneficially owned by them, subject to applicable community property laws. The information is not necessarily indicative of beneficial ownership for any other purpose.

[Table of Contents](#)

In computing the number of ordinary shares beneficially owned by a person and the percentage ownership of that person, we deemed outstanding ordinary shares subject to options and warrants held by that person that are immediately exercisable or exercisable within 60 days of February 29, 2020. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person. Beneficial ownership representing less than 1% is denoted with an asterisk (*). The information in the table below is based on information known to us or ascertained by us from public filings made by the shareholders in France. Except as otherwise indicated in the table below, addresses of the directors, executive officers and named beneficial owners are in care of Collectis, 8, rue de la Croix Jarry, 75013 Paris, France.

<u>Name of Beneficial Owner</u>	<u>Ordinary Shares Beneficially Owned</u>	
	<u>Number</u>	<u>Percentage</u>
5% Shareholders:		
Bpifrance Participations	2,879,500	6.78%
Capital International Investors (1)	2,519,384	5.93%
FMR LLC (2)	3,183,946	7.50%
Pfizer, Inc. (3)	2,789,356	6.57%

<u>Name of Beneficial Owner</u>	<u>Ordinary Shares Beneficially Owned</u>	
	<u>Number</u>	<u>Percentage</u>
Directors and Executive Officers:		
André Choulিকা, Ph.D (3)	1,893,448	4.46%
David Sourdive, Ph.D. (4)	1,714,890	4.04%
Philippe Duchateau, Ph.D. (5)	625,543	*
Eric Dutang (6)	376,423	*
Marie-Bleuenn Terrier (7)	585,170	*
Stephan Reynier (8)	255,090	*
William (Bill) Monteith (9)	19,500	*
Arthur Stril (10)	7,313	*
Jon Voss	0	*
Alain Godard (11)	228,391	*
Pierre Bastid (12)	3,561,686	8.39%
Laurent Arthaud	0	*
Annick Schwebig, M.D. (13)	188,782	*
Hervé Hoppenot (14)	26,667	*
Rainer Boehm (15)	26,667	*
All directors and executive officers as a group (15 persons)	9,509,566	22.39%

* Represents beneficial ownership of less than one per cent.

- (1) Amounts beneficially owned by Capital International Investors were reported pursuant to a Schedule 13G filed with the SEC on February 14, 2019 by Capital International Investors. Capital International Investors' address is 11100 Santa Monica Boulevard, 16th Floor, Los Angeles, California 90025. Capital International Investors is a division of Capital Research and Management Company.
- (2) Amounts beneficially owned by FMR LLC were reported pursuant to a Schedule 13G amendment filed with the SEC on February 7, 2019 by FMR LLC and Abigail P. Johnson. FMR LLC's address is 245 Summer Street, Boston, Massachusetts 02210. FMR LLC is the parent company of Fidelity Management & Research Company ("FMR Co."), which carries out the voting of shares owned by various Fidelity funds under written guidelines established by the Fidelity funds' boards of trustees.
- (3) The address of Pfizer, Inc. is 235 East 42nd Street, New York, New York 10017. Shares beneficially owned by Pfizer, Inc. were acquired by Pfizer OTC B.V. on July 31, 2014 in the context of a share capital increase in connection with the entry into a research and collaboration agreement between Pfizer Inc. and Collectis S.A.
- (4) Includes 219,173 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 200,000 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan, 160,701 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 198,167 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 84,375 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 35,000 ordinary shares that Mr. Choulিকা has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (5) Includes 175,343 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 175,000 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan and 140,614 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 173,397 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 50,000 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 17,500 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan. Includes 703,041 shares held by Viveoo SARL.
- (6) Includes 131,508 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 150,000 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan and 120,526 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 148,625 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 18,750 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 17,500 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.

Table of Contents

- (7) Includes 15,000 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan, 120,526 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 173,397 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 50,000 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 17,500 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (8) Includes 87,671 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 90,000 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan, 140,614 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 173,397 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 50,000 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 17,500 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (9) Includes 39,452 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 40,000 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan, 58,856 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 59,158 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan, 25,000 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in October 2017 under the 2017 Stock Option Plan and 17,500 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (10) Includes 12,500 ordinary shares that Mr. Monteith has the right to acquire pursuant to stock options granted in December 2018 under the 2018 Stock Option Plan and 7,000 ordinary shares that Mr. Monteith has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (11) Includes 1,563 ordinary shares that Mr. Stril has the right to acquire pursuant to stock options granted in October 2018 under the 2018 Stock Option Plan and 5,750 ordinary shares that Mr. Stril has the right to acquire pursuant to stock options granted in April 2019 under the 2018 Stock Option Plan.
- (12) The ordinary shares include 50,000 non-employee warrants which are exercisable since March 27, 2016, 50,000 non-employee warrants, which are exercisable since September 8, 2016, 40,175 non-employee warrants, which are exercisable since March 14, 2017, 40,000 non-employee warrants, which are exercisable since October 28, 2017 and 26,667 non-employee warrants, which are exercisable since October 10, 2018.
- (13) The ordinary shares include 50,000 non-employee warrants which are exercisable since March 27, 2016, 50,000 non-employee warrants, which are exercisable since September 8, 2016, 40,175 non-employee warrants, which are exercisable since March 14, 2017, 40,000 non-employee warrants, which are exercisable since October 28, 2017, 26,667 non-employee warrants, which are exercisable since October 10, 2018 and includes 3,298,944 shares held by Lohas SARL.
- (14) The ordinary shares include 30,000 non-employee warrants which are exercisable since March 27, 2016, 50,000 non-employee warrants, which are exercisable since September 8, 2016, 40,175 non-employee warrants, which are exercisable since March 14, 2017, 40,000 non-employee warrants, which are exercisable since October 28, 2017 and 26,667 non-employee warrants, which are exercisable since October 10, 2018.
- (15) The ordinary shares include 26,667 non-employee warrants which are exercisable since October 10, 2018.
- (16) The ordinary shares include 26,667 non-employee warrants which are exercisable since October 10, 2018.

None of our principal shareholders has voting rights different than our other shareholders.

As of December 31, 2019, assuming that all of our ordinary shares represented by ADSs are held by residents of the United States, we estimate that approximately 53.36% of our outstanding ordinary shares were held in the United States by 94 holders of record.

B. Related Party Transactions

Since January 1, 2017, we have engaged in the following transactions with our directors, executive officers and holders of more than 5% of our outstanding voting securities and their affiliates, which we refer to as our related-parties.

Transactions with Our Principal Shareholders, Directors and Executive Officers

Alliance agreement

Pfizer purchased 10% of our then-outstanding ordinary shares on July 31, 2014. The revenues booked for Pfizer in the years ended December 31, 2017 and 2018 amount to \$19.7 million and \$7.4 million respectively. There is no revenue booked for Pfizer in the year ended December 31, 2019. As of December 31, 2019, there no outstanding receivables and Pfizer had a 6.57% ownership in Collectis.

Conditional advances and subsidies

Bpifrance, which is a shareholder of Collectis, has granted us conditional advances and subsidies. There was no outstanding conditional advances and subsidies since December 31, 2016.

Agreements with Our Directors and Executive Officers

Director and Executive Officer Compensation

See “Item 6.B—Compensation of Directors and Executive Officers” for information regarding compensation of directors and executive officers

Equity Awards

Since January 1, 2019, we have granted equity awards to certain of our directors and executive officers:

- On April 24, 2019, we granted 541,000 stock options to certain of our Executive Officers;
- On November 6, 2019, we granted 55,000 stock options to certain of our Executive Officers and
- On November 6, 2019, we granted 6,000 free shares to certain of our Executive Officers.

See “Item. 7A—Major Shareholders” for information regarding equity awards to certain of our executive officers.

Indemnification Agreements

See “Item. 6B—Limitations on Liability and Indemnification Matters.”

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us pursuant to the foregoing provisions, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Transactions with subsidiaries: Calyxt IPO and Key Arrangements

On July 25, 2017, Calyxt completed an initial public offering on the Nasdaq Global Market, selling an aggregate of 8,050,000 shares of common stock at a price of \$8.00 per share (including the full exercise by the underwriters of their over-allotment option). The Company received net proceeds of approximately \$58.0 million, after deducting underwriting discounts and commissions and offering expenses. As part of the IPO, Collectis purchased 2,500,000 shares of common stock for a value of \$20.0 million, which is included in the net proceeds that Calyxt received. Calyxt used \$5.7 million of the proceeds from us to cover a portion of the outstanding obligations owed to Collectis. Following the initial public offering, Collectis owned approximately 79.6% of Calyxt’s common stock.

In May, 2018, Calyxt closed a follow-on offering of 4,057,500 ADS at a public offering price of \$15.00 per ADS resulting in gross proceeds of \$60.9 million. Collectis purchased 550,000 shares of common stock at the public offering price of \$15.00. In addition, in connection with the vesting on June 14, 2018, of restricted stock units for certain employees and nonemployees of Calyxt and Collectis, Collectis purchased approximately 63,175 shares of common stock of Calyxt at a price of \$19.49 per share (the closing price reported on the Nasdaq Global Market on June 14, 2018) directly from such employees and nonemployees in private transactions pursuant to share purchase agreements dated June 13, 2018.

In connection with Calyxt’s IPO, we and Calyxt entered into certain agreements that provide a framework for our ongoing relationship with Calyxt. The summaries of the most significant provisions of these agreements. These summaries are qualified in their entirety by reference to the full text of such agreements.

Management Services Agreement

We are party to a management services agreement dated January 1, 2016, amended on July 25, 2017 and on January 29, 2020 that we entered into with Calyxt, Collectis, Inc., a Delaware corporation and our wholly-owned subsidiary (“Collectis, Inc.”), and Collectis Biologics, Inc., a Delaware corporation and a wholly-owned subsidiary of Collectis, Inc. (“Collectis Biologics, Inc.”) pursuant to which each party to this agreement (the “providing party”) is entitled to provide certain services to the others (the “receiving party”), including certain general management, finance, investor relations, communication, legal, intellectual property, human resources and information technology services. In consideration for such services, the receiving party pays to the providing party certain fees, consisting of reimbursement of all costs and expenses reasonably incurred by us in connection with the provision of such services, payment of a mark-up corresponding to a percentage of certain of the costs and expenses, which range from zero to 10%, and reimbursement of costs and expenses of services that are subcontracted by the providing party on the receiving party’s behalf.

The management services agreement is automatically renewed for one-year periods starting on January 1st of each year. Either party has the right to terminate the agreement at the anniversary date of the agreement by giving three months prior notice. We also entered into an amendment to the agreement in connection with the Calyxt’s IPO to provide that the agreement may otherwise be terminated by us or by Calyxt in connection with certain material breaches by the other party upon prior written notice subject to limited cure periods, the sale of all or substantially all of the assets of either party, certain bankruptcy events or certain judgments.

During fiscal year 2019, Calyxt made payments to us for services provided under the management services agreement of \$1.4 million, which excludes direct re-invoicing and royalties paid to us.

Stockholders Agreement

On July 25, 2017 we entered into a stockholders agreement with Calyxt, which we subsequently amended on May 7, 2018. We refer to as these agreements, together, as the stockholders agreement. Pursuant to our stockholders agreement with Calyxt, we have certain contractual rights for so long as we beneficially own at least 50% of the then outstanding shares of Calyxt’s common stock, including:

- to approve any modification to Calyxt’s or any future Calyxt subsidiary’s share capital (e.g., share capital increase or decrease), the creation of any subsidiary by Calyxt, any grant of stock-based compensation, any distributions or initial public offering, merger, spin-off, liquidation, winding up or carve-out transactions;
- to approve Calyxt’s annual business plan and annual budget and any modification thereto;
- to approve any external growth transactions of Calyxt exceeding \$500,000 and not included in the approved annual business plan and annual budget;
- to approve any investment and disposition decisions by Calyxt exceeding \$500,000 and not included in the approved annual business plan and annual budget (it being understood that this clause excludes the purchase and sale of inventory as a part of the normal course of business);
- to approve any related-party agreement and any agreement or transaction between the executives or shareholders of Calyxt, on the one hand, and Calyxt or any of its subsidiaries, on the other hand;
- to approve any decision by Calyxt pertaining to the recruitment, dismissal/removal, or increase of the compensation of executives and corporate officers;
- to approve any material decision by Calyxt relating to a material litigation;
- to approve any decision by Calyxt relating to the opening of a social or restructuring plan or pre-insolvency proceedings;
- to approve any buyback by Calyxt of its own shares;
- to approve any new borrowings or debts of Calyxt exceeding \$500,000 and early repayment of loans, if any (it being understood that we will approve the entering into of contracts for revolving loans and other short-term loans and the repayment of such for financing general operating activities, such as revolving loans for inventory or factoring of receivables);
- to approve grants by Calyxt of any pledges on securities;
- to develop new activities and businesses not described in the annual business plan and annual budget;
- to approve entry into any material agreement or partnership; and
- to approve any offshore and relocation activities of Calyxt.

In addition, we have the following rights for so long as we beneficially own at least 15% of the then outstanding shares of Calyxt’s common stock, including:

- to nominate the greater of three members of Calyxt’s Board of Directors or a majority of the directors;
- to designate the Chairman of Calyxt’s Board of Directors and one member to each of the audit committee of the Board of Directors, the compensation committee of the Board of Directors and the nominating and corporation governance committee of the Board of Directors;
- to approve any amendments to Calyxt’ amended and restated certificate of incorporation or its amended and restated by-laws that would change the name of Calyxt, its jurisdiction of incorporation, the location of its principal executive offices, the purpose or purposes for which Calyxt is incorporated or the Collectis approval items set forth in the stockholders agreement;

Table of Contents

- to approve the payment of any regular or special dividends;
- to approve the commencement of any proceeding for the voluntary dissolution, winding up or bankruptcy of Calyxt or a material subsidiary;
- to approve any public or private offering, merger, amalgamation or consolidation of Calyxt or the spinoff of a business of Calyxt or any sale, conveyance, transfer or other disposition of Calyxt's assets; and
- to approve any appointment to, or removal from, Calyxt's Board of Directors, to the extent permissible by the laws of the State of Delaware.

In addition, for so long as we beneficially own at least 15% of the then outstanding shares of Calyxt's common stock, (i) we will be entitled to certain information rights, including the right to consult with and advise senior management, to receive quarterly and annual financial statements and to review Calyxt's books and records and (ii) Calyxt will also be required to cooperate with us in connection with certain sales and pledges of Calyxt's shares or grants of security interests in respect thereof, including in connection with margin loans.

The stockholders agreement will also provide us with certain registration rights, including certain demand and piggyback registration rights. The registration rights will remain in effect with respect to any shares covered by the Stockholders Agreement until (i) all of our Calyxt shares have been sold pursuant to an effective registration statement under the Securities Act; (ii) all of our Calyxt shares have been sold to the public pursuant to Rule 144 under the Securities Act; or (iii) we own less than 10% of the then outstanding shares of Calyxt's common stock.

Separation Agreement

On July 25, 2017, we entered into a separation agreement with Calyxt, which sets forth certain agreements between us and Calyxt that will govern the relationship between us and Calyxt following this offering, including with respect to the following matters:

- guarantees;
- insurance policies;
- mutual releases and indemnification matters;
- accounting, financial reporting and internal control issues;
- confidentiality;
- ability of the parties to compete with each other; and
- settlement of intercompany accounts.

The separation agreement will terminate upon the earlier of (i) mutual written consent of us and Calyxt and (ii) the date on which we and our affiliates cease to hold at least 15% of the then outstanding shares of Calyxt's common stock.

License Agreement with Calyxt

We are party to a license agreement with Calyxt pursuant to which Calyxt has been granted an exclusive, worldwide license (subject to existing licenses granted by us to third parties) to use, commercialize and exploit certain intellectual property in the field of researching, developing and commercializing agricultural and food products, including traits, seeds, and feed and food ingredients (excluding any application in connection with animals and animal cells), except that such license will be non-exclusive in such field for any activities relating to researching, developing or commercializing certain modified or mutated I-CreI homing endonucleases. Calyxt has also been granted a non-exclusive license to use the TALEN trademark in connection with its exploitation of licensed products under the agreement. Any improvements Calyxt makes to the licensed intellectual property will be owned by Calyxt but licensed back to us on an exclusive basis for any use outside of Calyxt's exclusive agricultural field of use.

In consideration for the license from us, Calyxt is required to pay to us, on a product-by-product and country-by-country basis, a royalty of 3% of net sales less costs for grain and seed of any products that are covered by the patents licensed from us. In addition, Calyxt will be required to pay us 30% of revenue Calyxt receives for sublicensing its rights under the agreement to third parties. Calyxt's payment obligations to us will expire upon the expiration of the last-to-expire valid claim of the patents licensed to Calyxt by us.

[Table of Contents](#)

Under our license agreement with Calyxt, and as between the parties, we have the first right to control the prosecution, maintenance, defense and enforcement of the licensed intellectual property and Calyxt will have the right to step in and assume such control with respect to the patents owned by us and exclusively licensed to Calyxt under the agreement if we elect to not prosecute, maintain, defend or enforce such patents. In certain circumstances, if we elect to abandon any patents owned by us and exclusively licensed to Calyxt under the agreement, Calyxt will have the right to assume ownership of such patents. In addition, some of the intellectual property that will be licensed to Calyxt by us consists of an exclusive sublicense, subject to existing sublicenses granted by us to third parties, of intellectual property originally licensed to us by the University of Minnesota to exploit such intellectual property in Calyxt's exclusive agricultural field of use. Therefore, as to such sublicensed intellectual property, Calyxt's license from us will be subject to the terms and conditions of the license agreement between the University of Minnesota and us, and to the extent Calyxt's activities under such sublicense violate any terms and conditions of the license agreement between us and the University of Minnesota, Calyxt will be responsible for any damages that we may incur. In addition, Calyxt is required to reimburse us for any and all payments made by us to the University of Minnesota pursuant to the license agreement between the University of Minnesota and us to the extent that any such payments are required to be made as a result of Calyxt's applicable activities. Under the license agreement between us and the University of Minnesota, the University of Minnesota has the first right to control the prosecution and maintenance of the licensed intellectual property.

Calyxt's license agreement with us is perpetual. However it may be terminated upon the mutual written agreement of both parties, either party's uncured material breach of the agreement, or upon certain bankruptcy and insolvency related events.

Related-Party Transactions Policy

We have adopted a related-party transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related-party transactions. The policy became effective immediately upon the completion of our initial public offering. For purposes of our policy only, a related-party transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related parties are, were or will be participants, which are not (1) in the ordinary course of business, (2) at arms' length and (3) in which the amount involved exceeds \$120,000. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. For purposes of this policy, a related party is any executive officer, director (or nominee for director) or beneficial owner of more than five percent (5%) of any class of our voting securities, including any of their respective immediate family members and any entity owned or controlled by such persons.

Under the policy, related-party transactions must be reported to us by all related parties. If a transaction has been identified as a related-party transaction, our management must present information regarding the related-party transaction to our board of directors for review, consideration and approval. Certain transactions may be presented to the Audit and Finance Committee, which will determine whether the transaction is a related-party transaction, in which case the related-party transaction will be submitted to our board of directors. The presentation will include a description of, among other things, the material facts, the interests in the transaction, direct and indirect, of the related parties, the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third-party or to or from employees generally. In addition, under our Code of Business Conduct and Ethics, our employees and directors have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest. In considering related-party transactions, our board of directors, or to the extent permitted by applicable law an independent committee of our board of directors, will take into account the relevant available facts and circumstances including, but not limited to:

- the benefits and perceived benefits to us;
- the opportunity costs of alternative transactions;
- the materiality and character of the related party's interest;
- the actual or apparent conflict of interest of the related party; and
- the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

The policy requires that, in determining whether to approve, ratify or reject a related-party transaction, our board of directors, or if permitted by applicable law an independent committee of our board of directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our shareholders, as our board of directors, or if permitted by applicable law an independent committee of our board of directors, determines in the good faith exercise of its discretion.

C. Interests of Experts and Counsel

Not applicable.

ITEM 8. FINANCIAL INFORMATION

A. Consolidated Statements and Other Financial Information

Our consolidated financial statements are appended at the end of this Annual Report starting at page F-1, and form a part hereof.

Legal Proceedings

From time to time, we may be involved in various claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business or our cash flows. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Dividend Distribution

Approval of Dividends. Pursuant to French law, our board of directors may propose a dividend and/or reserve distribution for approval by the shareholders at the annual ordinary general meeting related to the statutory financial statements of Collectis S.A.

Upon recommendation of our board of directors, our shareholders may decide to allocate all or part of any distributable profits to special or general reserves, to carry them forward to the next fiscal year as retained earnings or to allocate them to the shareholders as dividends. However, dividends may not be distributed when as a result of such distribution, our net assets are or would become lower than the amount of the share capital plus the amount of the legal reserves which, under French law, may not be distributed to shareholders (the amount of our share capital plus the amount of our legal and other reserves which may not be distributed was equal to \$2.5 million on December 31, 2019). Moreover, the statutory accumulated deficit is \$184.9 million as of December 31, 2019.

Our board of directors may distribute interim dividends after the end of the fiscal year but before the approval of the financial statements for the relevant fiscal year when the interim balance sheet, established during such year and certified by an auditor, reflects that we have earned distributable profits since the close of the last financial year, after recognizing the necessary depreciation and provisions and after deducting prior losses, if any, and the sums to be allocated to reserves, as required by law or the By-laws, and including any retained earnings. The amount of such interim dividends may not exceed the amount of the profit so defined.

Distribution of Dividends. Dividends are distributed to shareholders proportionally to their shareholding interests. In the case of interim dividends, distributions are made to shareholders on the date set by our board of directors during the meeting in which the distribution of interim dividends is approved. The actual dividend payment date is decided by the shareholders at an ordinary general shareholders' meeting or by our board of directors in the absence of such a decision by the shareholders. Shareholders that own shares on the actual payment date are entitled to the dividend.

Dividends may be paid in cash or, if the shareholders' meeting so decides, in kind, provided that all the shareholders receive a whole number of assets of the same nature paid in lieu of cash. Our By-laws provide that, subject to a decision of the shareholders' meeting taken by ordinary resolution, each shareholder may be given the choice to receive such shareholder's dividend in cash or in shares.

B. Significant Changes

None.

ITEM 9. THE OFFER AND LISTING

A. Offer and Listing Details

Our ADS have been listed on Nasdaq Global Market under the symbol “CLLS” since March 24, 2015. Prior to that date, there was no public trading market. Our ordinary shares have been trading on Euronext Growth market of Euronext Paris under the symbol “ALCLS” since February 7, 2007. Prior to that date, there was no public trading market for ADSs or our ordinary shares.

B. Plan of Distribution

Not applicable.

C. Markets

The ADS have been listed on Nasdaq Global Market under the symbol “CLLS” since March 24, 2015 and our ordinary shares have been listed on the Euronext Growth market of Euronext in Paris under the symbol “ALCLS” since February 7, 2007.

D. Selling Shareholders

Not applicable.

E. Dilution

Not applicable.

F. Expenses of the Issue

Not applicable.

ITEM 10. ADDITIONAL INFORMATION

A. Share Capital

Not applicable.

B. Memorandum and Articles of Association

Key Provisions of Our By-laws and French Law

The description below reflects the terms of our By-laws, and summarizes the material rights of holders of our ordinary shares under French law. Please note that this is only a summary and is not intended to be exhaustive. For further information, please refer to the full version of our By-laws which is included as an exhibit to this Annual Report.

Corporate Purpose

Our corporate purpose, which is set forth in Article 3 of our Bylaws, in France and abroad includes:

- all activities related to genetics and more specifically to genome engineering, in particular, research, development and invention, filing and use of patents and trademarks, sale and marketing, advising and assisting, in all areas, in particular in the agro-food, pharmaceutical, textile and environmental sectors; and
- more generally, all industrial, commercial, financial and civil transactions and transactions involving real estate or movable property relating directly or indirectly to any of the aforementioned corporate purposes or any similar or related purpose.

Directors

Quorum and Voting. The board of directors may only deliberate if at least half of the directors attend the applicable meeting in the manner provided for in our By-laws. In particular, French law and the charter of the board of directors allow directors to attend meetings of the board of directors in person or, to the extent permitted by applicable law, by videoconference or other telecommunications arrangements. In addition, our By-Laws allow a director to grant another director a proxy to represent him or her at a meeting of the board of directors, but no director can hold more than one proxy at any meeting. Decisions of the board of directors are adopted by the majority of the voting rights held by the directors present or represented, it being specified that in case of a vote-split, the Chairman of the board of directors shall have a deciding vote.

Directors' Voting Powers on Proposal, Arrangement or Contract in which any Director is Materially Interested. Under French law, any agreement entered into (directly or through an intermediary) between us and any director that is not entered into (1) in the ordinary course of business and (2) under standard terms and conditions is subject to the prior authorization of the board of directors, excluding the vote of the interested director.

The foregoing requirements also apply to agreements between us and another company, provided that the company is not one of our wholly-owned subsidiaries, if one of our directors is the owner or a general partner, manager, director, general manager or member of the executive or supervisory board of the other company, as well as to agreements in which one of our directors has an indirect interest.

Directors' Compensation. The aggregate amount of compensation (formerly named attendance fees (*jetons de présence*)) of the board of directors is determined at the shareholders' annual ordinary general meeting. The board of directors then divides all or part (at the board's discretion) of this aggregate amount among some or all of its members by a simple majority vote. In addition, the board of directors may grant exceptional compensation (*rémunérations exceptionnelles*) to a director on a case-by-case basis for special and temporary assignments. The board of directors may also authorize the reimbursement of reasonable travel and accommodation expenses, as well as other expenses incurred by directors in the corporate interest.

Board of Directors' Borrowing Powers. There are currently no limits imposed by our By-laws on the amounts of loans or borrowings that the board of directors may approve.

Directors' Age Limits. The number of directors who are more than seventy (70) years old may not exceed one third of the directors in office.

Term of Director Office. Our By-laws provide that members of our board of directors are elected for a tenure of three years.

Employee Director Limits. The number of directors who are also party to employment contracts with the Company may not exceed one third of the directors in office.

Directors' Share Ownership Requirements. None.

Rights, Preferences and Restrictions Attaching to Ordinary Shares

Dividends. We may only distribute dividends out of our "distributable profits," plus any amounts held in our reserves that the shareholders decide to make available for distribution, other than those reserves that are specifically required to be maintained by law. "Distributable profits" consist of our unconsolidated net profit in each fiscal year, as increased or reduced by any profit or loss carried forward from prior years, less any contributions to the reserve accounts pursuant to French law (see below under "—Legal Reserve").

Legal Reserve. Pursuant to French law, we must allocate at least 5% of our unconsolidated net profit for each year to our legal reserve fund before dividends may be paid with respect to that year. Such allocation is compulsory until the amount in the legal reserve is equal to 10% of the aggregate par value of our issued and outstanding share capital. This restriction on the payment of dividends also applies to our French subsidiaries on an unconsolidated basis.

Approval of Dividends. Pursuant to French law, our board of directors may propose a dividend and/or reserve distribution for approval by the shareholders at the annual ordinary general meeting.

Upon recommendation of our board of directors, our shareholders may decide to allocate all or part of any distributable profits to special or general reserves, to carry them forward to the next fiscal year as retained earnings or to allocate them to the shareholders as dividends. However, dividends may not be distributed when as a result of such distribution our net assets are or would become lower than the amount of the share capital plus the amount of the legal reserves which, under French law, may not be distributed to shareholders.

[Table of Contents](#)

Our board of directors may distribute interim dividends after the end of the fiscal year but before the approval of the financial statements for the relevant fiscal year when the interim balance sheet, established during such year and examined by an auditor, reflects that we have earned distributable profits since the close of the last financial year, after recognizing the necessary depreciation and provisions and after deducting prior losses, if any, and the sums to be allocated to reserves, as required by law or the By-laws, and including any retained earnings. The amount of such interim dividends may not exceed the amount of the profit so defined.

Distribution of Dividends. Dividends are distributed to shareholders proportionally to their shareholding interests. In the case of interim dividends, distributions are made to shareholders on the date set by our board of directors during the meeting in which the distribution of interim dividends is approved. The actual dividend payment date is decided by the shareholders at an ordinary general shareholders' meeting or by our board of directors in the absence of such a decision by the shareholders. Shareholders that own shares on the actual payment date are entitled to the dividend.

Dividends may be paid in cash or, if the shareholders' meeting so decides, in kind, provided that all the shareholders receive a whole number of assets of the same nature paid in lieu of cash. Our By-laws provide that, subject to a decision of the shareholders' meeting taken by ordinary resolution, each shareholder may be given the choice to receive his dividend in cash or in shares.

Timing of Payment. Pursuant to French law, dividends must be paid within a maximum period of nine months following the end of the relevant fiscal year. An extension of such timeframe may be granted by court order. Dividends that are not claimed within a period of five years after the payment date will be deemed to expire and revert to the French state.

Voting Rights. Each of our ordinary shares entitles its holder to vote and be represented in the shareholders' meetings in accordance with the provisions of French law and of our By-laws. The ownership of a share implies the acceptance of our By-laws and any decision of our shareholders.

In general, each shareholder is entitled to one vote per share at any general shareholders' meeting. However, our By-Laws provide that all shares held in registered form (*actions nominatives*) for more than two years will be granted double voting rights.

Under French law, treasury shares or shares held by entities controlled by us are not entitled to voting rights and are not taken into account for purposes of quorum calculation.

Under French law, directors are elected at the ordinary general shareholders' meeting by a simple majority vote, and may be removed from office, with or without cause, at any shareholders' meeting without notice or justification, by a simple majority vote. Our By-laws provide that members of our board of directors are elected for a tenure of three years, with terms beginning upon the year of a director's initial appointment. Pursuant to French law, the sections of the By-laws relating to the number of directors and election and removal of a director from office may only be modified by a resolution adopted by a two-thirds majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

Rights to Share in Our Profit. Under French law, each ordinary share entitles its holder to a portion of the corporate profits and assets proportional to the amount of share capital represented thereby.

Rights to Share in the Surplus in the Event of Liquidation. If we are liquidated, any assets remaining after payment of our debts, liquidation expenses and all of our remaining obligations will first be used to repay in full the par value of our outstanding shares. Any surplus will then be distributed among shareholders proportionally to their shareholding in our company.

Repurchase and Redemption of Shares. Under French law, we may acquire our own shares. Such acquisition may be challenged on the ground of market abuse regulations. However, Regulation 596/2014 of April 16, 2014 and its related delegated regulations (MAR) provides for safe harbor exemptions when the acquisition is made (i) under a buy-back program to be authorized by the shareholders in accordance with the provisions of Article L. 225-209 of the French Commercial Code and with the General Regulations of the *Autorité des marchés financiers* or AMF and (ii) for one of the following purposes which shall be provided for in the buy-back program:

- to decrease our share capital;

Table of Contents

- to meet our obligations arising from debt financial instruments issued by us that are exchangeable into shares;
- to meet our obligations arising from share option programs, or other allocations of shares, to our employees or to our managers or the employees or managers of our affiliate.

In addition, we benefit from a simple exemption when the acquisition is made under a liquidity contract complying with the general regulations of, and market practices accepted by, the AMF.

All other purposes, and especially share buy-backs made for external growth operations in pursuance of Article L. 225-209 of the French Commercial Code, while not forbidden, must be pursued in strict compliance of market manipulation and insider dealing rules.

Under the Market Abuse Regulation 596/2014 of April 16, 2014 (MAR) and in accordance with the General Regulations of the AMF, a corporation shall report to the AMF, no later than by the end of the seventh daily market session following the date of the execution of the transaction, all the transactions relating to the buy-back program, in a detailed form and in an aggregated form. In addition, we shall provide to the AMF, on a monthly basis, and to the public, on a quarterly basis, a summary report of the transactions made under a liquidity contract.

The decision to repurchase shares in order to decrease our share capital shall not be driven by losses and a purchase offer shall be made to all shareholders on a pro rata basis, with the approval of the shareholders at the extraordinary general meeting deciding the capital reduction; in this case, the shares repurchased must be cancelled within one month from their repurchase date.

In any case, no such repurchase of shares may result in us holding, directly or through a person acting on our behalf, more than 10% of our issued share capital. Shares repurchased by us continue to be deemed “issued” under French law but are not entitled to dividends or voting rights so long as we hold them directly or indirectly, and we may not exercise the preemptive rights attached to them.

Sinking Fund Provisions. Our By-laws do not provide for any sinking fund provisions.

Liability to Further Capital Calls. Shareholders are liable for corporate liabilities only up to the par value of the shares they hold; they are not liable to further capital calls.

Requirements for Holdings Exceeding Certain Percentages. There are no such requirements, except as described under the section of this Annual Report titled “—Form, Holding and Transfer of Shares—Ownership of Shares and ADSs by Non-French Persons.”

Actions Necessary to Modify Shareholders’ Rights

Shareholders’ rights may be modified as allowed by French law. Only the extraordinary shareholders’ meeting is authorized to amend any and all provisions of our By-laws. It may not, however, increase any of the shareholders’ commitments without the prior approval of each shareholder.

Special Voting Rights of Warrant Holders

Under French law, the holders of warrants of the same class (i.e., warrants that were issued at the same time and with the same rights), including founders’ warrants, are entitled to vote as a separate class at a general meeting of that class of warrant holders under certain circumstances, principally in connection with any proposed modification of the terms and conditions of the class of warrants or any proposed issuance of preferred shares or any modification of the rights of any outstanding class or series of preferred shares.

Rules for Admission to and Calling Annual Shareholders’ Meetings and Extraordinary Shareholders’ Meetings

Access to, Participation in and Voting Rights at Shareholders’ Meetings. The right to participate in a shareholders’ meeting is granted to all the shareholders, regardless of the number of shares they hold, whose shares are fully paid up and for whom a right to attend shareholders’ meetings has been established by registration of their shares in the names or names of the authorized intermediary acting on their behalf on the second business day prior to the shareholders’ meeting at midnight (Paris time), either in the registered shares accounts held by the Company or in the bearer shares accounts held by the authorized intermediary.

Table of Contents

Each shareholder may attend the meetings and vote (1) in person, or (2) by granting a proxy to any person that they may choose, or (3) by sending a proxy to us without indication of the beneficiary (in which case such proxy shall be cast in favor of the resolutions supported by the board of directors), or (4) by correspondence, or (5) by videoconference or another means of telecommunication organized by the board of directors and allowing identification of the relevant shareholder in accordance with applicable laws.

Shareholders may, in accordance with legal and regulatory requirements, send their vote or proxy, either by hard copy or via telecommunications means. Such vote or proxy must be received (1) at least three days prior to the meeting, in the case of hard copies, (2) by 3:00 p.m. (Paris time) on the day before the meeting, in the case of, electronic votes by email, (3) by the date of the meeting, in the case of a proxy granted to a designated person, and (4) by 3:00 p.m. (Paris time) on the day before the meeting, in the case of proxies without a designated attorney and therefore granted to the chairman of the meeting.

Shareholders sending their vote within the applicable time limit, using the form provided to them by us for this purpose, are deemed present or represented at the shareholders' meeting for purposes of quorum and majority calculation.

The voting by correspondence form addressed by a shareholder is only valid for a single meeting or for successive meetings convened with the same agenda.

Notice of Annual Shareholders' Meetings. Shareholders' meetings are convened by our board of directors, or, failing that, by our statutory auditors, or by a court appointed agent or liquidator in certain circumstances, or by the majority shareholder in capital or voting rights following a public tender offer or exchange offer or the transfer of a controlling block on the date decided by the board of directors or the relevant person. Meetings are held at our registered offices or at any other location indicated in the convening notice. A meeting notice (*avis de réunion*) is published in the French Journal of Mandatory Statutory Notices (BALO) at least 35 days prior to the date of the shareholders' meeting.

Additionally, a convening notice (*avis de convocation*) is published at least fifteen days prior to the date of the meeting in a legal gazette of the department in which the registered office of the company is located and in the French Journal of Mandatory Statutory Notices (BALO). Further, shareholders having held registered shares (*actions nominatives*) for at least one month at the time of the convening notice must be convened individually, by regular letter (or by registered letter if requested by the relevant shareholder) sent to their last known address.

When the shareholders' meeting cannot deliberate due to the lack of the required quorum, the second meeting must be called at least ten days in advance in the same manner as used for the first notice.

All notices to the shareholders must further specify the conditions under which the shareholders may vote by correspondence.

Agenda and Conduct of Annual Shareholders' Meetings. The agenda of the shareholders' meeting shall appear in the notice to convene the meeting. The shareholders' meeting may only deliberate on the items on the agenda except for the removal of directors and the appointment of their successors, which may be put to vote by any shareholder during any shareholders' meeting. One or more shareholders representing the percentage of share capital required by French law (currently 5%), and acting in accordance with legal requirements and within applicable time limits, may request the inclusion of items or proposed resolutions on the agenda.

Shareholders' meetings shall be chaired by the Chairman of the board of directors or, in his or her absence, by a director appointed for this purpose by the board of directors; failing which, the meeting itself shall elect a Chairman. Vote counting shall be performed by the two members of the meeting who are present and accept such duties, who represent, either on their own behalf or as proxies, the greatest number of votes.

Ordinary Shareholders' Meeting. Ordinary shareholders' meetings are those meetings called to make any and all decisions that do not result in a modification of our By-laws. An ordinary shareholders' meeting shall be convened at least once a year within six months of the end of each fiscal year in order to approve the annual and consolidated accounts for the relevant fiscal year or, in case of postponement, within the period established by court order. Upon first notice, the meeting

may validly deliberate only if the shareholders present or represented by proxy or voting by mail represent at least one-fifth of the shares entitled to vote. Upon second notice, no quorum is required. Decisions are made by a majority of the votes cast of the shareholders present, represented by proxy, or voting by mail. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

Extraordinary Shareholders' Meeting. Only an extraordinary shareholders' meeting is authorized to amend our By-laws. It may not, however, increase shareholders' commitments without the approval of each shareholder. Subject to the legal provisions governing share capital increases from reserves, profits or share premiums, the resolutions of the extraordinary meeting will be valid only if the shareholders present, represented by proxy or voting by mail represent at least one-fourth of all shares entitled to vote upon first notice, or one-fifth upon second notice. If the latter quorum is not reached, the second meeting may be postponed to a date no later than two months after the date for which it was initially called. Decisions are made by a two-thirds majority of the votes cast of the shareholders present, represented by proxy, or voting by mail. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

In addition to the right to obtain certain information regarding us at any time, any shareholder may, from the date on which a shareholders' meeting is convened until the fourth business day preceding the date of the shareholders' meeting, submit written questions relating to the agenda for the meeting to our board of directors. Our board of directors is required to respond to these questions during the meeting, except if the answers of the board are posted on the website of the Company at the latest at the end of the shareholder's meeting. The board of directors may delegate one of its members, the chief executive officer or a deputy chief executive officer, as the case may be, to respond.

Provisions Having the Effect of Delaying, Deferring or Preventing a Change in Control of the Company

Provisions contained in our By-laws and the corporate laws of France, the country in which we are incorporated, could make it more difficult for a third-party to acquire us, even if doing so might be beneficial to our shareholders. In addition, provisions of French law and our By-laws impose various procedural and other requirements which could make it more difficult for shareholders to effect certain corporate actions. These provisions include the following:

- a merger (i.e., in a French law context, a stock-for-stock exchange after which our company would be dissolved without being liquidated into the acquiring entity and our shareholders would become shareholders of the acquiring entity) of our company into a company incorporated in the European Union would require the approval of our board of directors as well as a two thirds majority of the votes cast held by the shareholders present, represented by proxy or voting by mail at the relevant meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.;
- a merger of our company into a company incorporated outside of the European Union would require the unanimous approval of our shareholders;
- in a French law context, a cash merger is treated as a share purchase and would require the consent of each participating shareholder;
- our shareholders have granted and may grant in the future our board of directors broad authorizations to increase our share capital or to issue additional ordinary shares or other securities (for example, warrants) to our shareholders, the public or qualified investors, including as a possible defense following the launching of a tender offer for our shares;
- our shareholders have preferential subscription rights proportional to their shareholding in our company on the issuance by us of any additional shares or securities giving the right, immediately or in the future, to new shares for cash or a set-off of cash debts, which rights may only be waived by the extraordinary general meeting (by a two-thirds majority vote) of our shareholders or on an individual basis by each shareholder;
- our board of directors has the right to appoint directors to fill a vacancy created by the resignation or death of a director, subject to the ratification by the shareholders of such appointment at the next shareholders' meeting, which prevents shareholders from having the sole right to fill vacancies on our board of directors;
- our board of directors can only be convened by our chairman or, when no board meeting has been held for more than two consecutive months, by directors representing at least one third of the total number of directors;

- our board of directors' meetings can only be regularly held if at least half of the directors attend either physically or by way of videoconference or teleconference enabling the directors' identification and ensuring their effective participation in the board of directors' decisions;
- our shares take the form of bearer securities or registered securities, if applicable legislation so permits, according to the shareholder's choice. Issued shares are registered in individual accounts opened by us or any authorized intermediary (depending on the form of such shares), in the name of each shareholder and kept according to the terms and conditions laid down by the legal and regulatory provisions;
- under French law, a non-French resident as well as any French entity controlled by non-French residents may have to file a declaration for statistical purposes with the Bank of France (*Banque de France*) following the date of certain foreign investments in us. Additionally, certain investments in a French company relating to certain strategic industries by individual or entities not residents in a member State of the European Union are subject to the prior authorization of the French Ministry of Economy — see the section of this Annual Report titled "Ownership of Shares and ADSs by Non-French Persons";
- approval of at least a majority of the votes cast of our shareholders present, represented by a proxy, or voting by mail at the relevant ordinary shareholders' general meeting is required to remove directors with or without cause;
- advance notice is required for nominations to the board of directors or for proposing matters to be acted upon at a shareholders' meeting, except that a vote to remove and replace a director can be proposed at any shareholders' meeting without notice;
- in the event where certain ownership thresholds would be crossed, a number of disclosures should be made by the relevant shareholder in addition to certain obligations; see the section of this Annual Report titled "—Declaration of Crossing of Ownership Thresholds";
- transfers of shares must comply with applicable insider trading rules;
- pursuant to French law, the sections of the By-laws relating to the number of directors and election and removal of a director from office may only be modified by a resolution adopted by a two-thirds majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null..

Declaration of Crossing of Ownership Thresholds

Subject to requirements of French law, our By-laws do not require any specified disclosure by shareholders that cross ownership thresholds with respect to our share capital, except as described under the section of this Annual Report titled "—Form, Holding and Transfer of Shares —Ownership of Shares and ADSs by Non-French Persons."

The absence of specific requirement in our By-laws is without prejudice to the following disclosures which are applicable to us according to French legal and regulatory provisions, it being provided that the following is a summary which is therefore not intended to be a complete description of applicable rules under French law:

- Shareholders must make a declaration to us no later than the fourth trading day after such shareholder crosses the following thresholds: 5%, 10%, 15%, 20%, 25%, 30%, 33.33%, 50%, 66.66%, 90% and 95%.
- Shareholders must make a declaration to the AMF no later than the fourth trading day after such shareholder crosses the following thresholds: 50% and 95%.

The above obligations of declaration apply when crossing each of the above-mentioned thresholds in an upward or downward direction.

In case of failure to declare shares or voting rights exceeding the fraction that should have been declared, such shares shall be deprived of voting rights at shareholders' meetings for any meeting that would be held until the expiry of a period of two years from the date of regularization of the notification in accordance with Article L. 233-14 of the French Commercial Code. Additional sanctions may apply pursuant to Article L. 621-15 of the French Monetary and Financial Code.

- Subject to certain exemptions, any shareholder crossing, alone or acting in concert, the 50% threshold must file a mandatory public tender offer.

Changes in Share Capital

Increases in Share Capital. Pursuant to French law, our share capital may be increased only with shareholders' approval at an extraordinary general shareholders' meeting following the recommendation of our board of directors. The shareholders may delegate to our board of directors either the authority (*délégation de compétence*) or the power (*délégation de pouvoir*) to carry out any increase in share capital in accordance with applicable laws.

Increases in our share capital may be effected by:

- issuing additional shares;
- increasing the par value of existing shares;
- creating a new class of equity securities; and
- exercising the rights attached to securities giving access to the share capital.

Increases in share capital by issuing additional securities may be effected through one or a combination of the following:

- issuances in consideration for cash;
- issuances in consideration for assets contributed in kind;
- issuances through an exchange offer;
- issuances by conversion of previously issued debt instruments;
- issuances by capitalization of profits, reserves or share premium; and
- subject to certain conditions, issuances by way of offset against debt incurred by us.

Decisions to increase the share capital through the capitalization of reserves, profits and/or share premium require shareholders' approval at an extraordinary general shareholders' meeting, acting under the quorum and majority requirements applicable to ordinary shareholders' meetings. Increases in share capital effected by an increase in the par value of shares require unanimous approval of the shareholders, unless effected by capitalization of reserves, profits or share premium. All other capital increases require shareholders' approval at an extraordinary general shareholders' meeting acting under the regular quorum and majority requirements for such meetings.

Reduction in Share Capital. Pursuant to French law, any reduction in our share capital requires shareholders' approval at an extraordinary general shareholders' meeting following the recommendation of our board of directors. The share capital may be reduced either by decreasing the par value of the outstanding shares or by reducing the number of outstanding shares. The number of outstanding shares may be reduced by the repurchase and cancellation of shares. Holders of each class of shares must be treated equally unless each affected shareholder agrees otherwise.

Preferential Subscription Rights (Preemptive Rights). According to French law, if we issue additional shares or securities giving right, immediately or in the future, to new shares for cash, current shareholders will have preferential subscription rights to these securities on a *pro rata* basis. Preferential subscription rights entitle the individual or entity that holds them to subscribe proportionally to the number of shares held by them to the issuance of any securities increasing, or that may result in an increase of, our share capital by means of a cash payment or a set-off of cash debts. The preferential subscription rights may be transferred and/or sold during the subscription period relating to a particular offering. Pursuant to French law, the preferential subscription rights will be transferable during a period starting two working days prior to the opening of the subscription period and ending two working days prior to the closing of the subscription period.

The preferential subscription rights with respect to any particular offering may be waived at an extraordinary general meeting by a two thirds vote of our shareholders or individually by each shareholder. Our board of directors and our independent auditors are required by French law to present reports to the shareholders' meeting that specifically address any proposal to waive the preferential subscription rights.

Further, to the extent permitted under French law, we may seek, during an extraordinary general shareholders' meeting, the approval of the shareholders to waive their preferential subscription rights in order to authorize the board of directors to issue additional shares and/or other securities convertible or exchangeable into shares.

Form, Holding and Transfer of Shares

Form of Shares. Pursuant to our By-laws, shares may be held in registered or bearer form, at each shareholder's discretion.

Further, in accordance with applicable legal and regulatory provisions, we may request at any time from the authorized intermediary responsible for holding our shares the name or, in the case of a legal entity, the corporate name, nationality and address of holders of securities, giving immediate or future access to voting rights at our shareholders' meetings, the number of securities they own and, where applicable, the restrictions attaching to such securities.

Holding of Shares. In accordance with French law concerning the "dematerialization" of securities, the ownership rights of shareholders are represented by book entries instead of share certificates. Shares are registered in individual accounts opened by us or any authorized intermediary, in the name of each shareholder and kept according to applicable legal and regulatory provisions.

Ownership of Shares and ADSs by Non-French Persons. Neither the French Commercial Code nor our By-laws presently impose any restrictions on the right of non-French residents or non-French shareholders to own and vote shares.

However, non-French residents must file a declaration for statistical purposes with the Bank of France (*Banque de France*) within twenty working days following the date of certain direct foreign investments in us, including any purchase of our ADSs. In particular, such filings are required in connection with investments exceeding €15,000,000 that lead to the acquisition of at least 10% of our Company's share capital or voting rights or cross such 10% threshold. Violation of this filing requirement may be sanctioned by five years of imprisonment and a fine of up to twice the amount of the relevant investment. This amount may be increased fivefold if the violation is made by a legal entity.

Further, any investment (i) by an individual or entity located in a country that is not a member State of the European Union or of a member State of the European Economic Area having entered into a convention on administrative assistance against tax evasion and fraud with France, or by a French citizen not residing in France, and (ii) that will result in the relevant investor acquiring the control of, all or part of a business of, or more than 33.33% (25% as from April 1, 2020) of the share capital or voting rights of, a company registered in France and developing activities in certain strategic industries, such as, energy, public health, telecommunications, artificial intelligence, cybersecurity, robotics, data collection or dual-use goods and technology is subject to the prior authorization by the French Ministry of Economy. In the absence of such authorization, the relevant investment shall be deemed null and void.

Assignment and Transfer of Shares. Shares are freely negotiable, subject to applicable legal and regulatory provisions (including, in particular, the prohibition on insider trading).

Listing

Our ADSs have been listed on the Nasdaq Global Market under the symbol "CLLS" and our ordinary shares have been listed on the Euronext Growth market of Euronext in Paris under the symbol ALCLS".

Transfer Agent and Registrar

The transfer agent and registrar for our ADSs is Citibank, N.A. The transfer agent and registrar for our ordinary shares is Société Générale Securities Services.

C. Material Contracts

For additional information on our material contracts entered into during the two years immediately preceding the date of the filing of this Annual Report, please refer to Items 4 and 6 of this Annual Report.

D. Exchange Controls

Under current French foreign exchange control regulations there are no limitations on the amount of cash payments that we may remit to residents of foreign countries. Laws and regulations concerning foreign exchange controls do, however, require that all payments or transfers of funds made by a French resident to a non-resident such as dividend payments be handled by an accredited intermediary. All registered banks and substantially all credit institutions in France are accredited intermediaries.

E. Taxation

Material U.S. Federal Income Tax Considerations

The following is a discussion of the material U.S. federal income tax consequences of owning and disposing of ADSs. This summary does not address any aspect of U.S. federal non-income tax laws, such as U.S. federal estate and gift tax laws, or state, local or non-U.S. tax laws, and does not purport to be a comprehensive description of all of the U.S. tax considerations that may be relevant to particular holders.

The discussion applies to you only if you hold the ADSs as capital assets for U.S. federal income tax purposes (generally, for investment). This section does not apply to you if you are a member of a special class of holders subject to special tax rules, including:

- a broker;
- a dealer in securities, commodities or foreign currencies;
- a trader in securities that elects to use a mark-to-market method of accounting for your securities holdings;
- a bank or other financial institution;
- a tax-exempt organization;
- an insurance company;
- a real estate investment trust;
- a controlled foreign corporation;
- a passive foreign investment company;
- a regulated investment company;
- an investor who is a U.S. expatriate, former U.S. citizen or former long term resident of the United States;
- a mutual fund;
- an individual retirement or other tax-deferred account;
- a holder liable for alternative minimum tax;
- a holder that actually or constructively owns 10% or more, by voting power, of our voting stock;
- a partnership or other pass-through entity for U.S. federal income tax purposes;
- a holder that holds ADSs as part of a straddle, hedging, constructive sale, conversion or other integrated transaction for U.S. federal income tax purposes; or
- a U.S. holder whose functional currency is not the U.S. Dollar.

This section is based on the Internal Revenue Code of 1986, as amended, or (the Code), existing and proposed income tax regulations issued under the Code, legislative history, and judicial and administrative interpretations thereof, all as of the date of this Annual Report. All of the foregoing are subject to change at any time, and any change could be retroactive and could affect the accuracy of this discussion. In addition, the application and interpretation of certain aspects of the passive foreign investment company, or PFIC, rules, referred to below, require the issuance of regulations which in many instances have not been promulgated and which may have retroactive effect. There can be no assurance that any of these regulations will be enacted or promulgated, and if so, the form they will take or the effect that they may have on this discussion. This discussion is not binding on the U.S. Internal Revenue Service, or IRS, or the courts. No ruling has been or will be sought from the IRS with respect to the positions and issues discussed herein, and there can be no assurance that the IRS or a court will not take a different position concerning the U.S. federal income tax consequences of an investment in the ADSs or that any such position would not be sustained.

YOU SHOULD CONSULT YOUR OWN TAX ADVISORS CONCERNING THE U.S. FEDERAL, STATE, LOCAL AND NON-U.S. TAX CONSEQUENCES OF OWNING AND DISPOSING OF THE ADSs IN YOUR PARTICULAR SITUATIONS, INCLUDING ANY CONSEQUENCES UNDER THE RECENTLY ENACTED LEGISLATION KNOWN AS THE TAX CUTS AND JOBS ACT.

You are a "U.S. holder" if you are a beneficial owner of ADSs or are treated for U.S. federal income tax purpose as:

- a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate whose income is subject to U.S. federal income tax regardless of its source; or

[Table of Contents](#)

- a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons are authorized to control all substantial decisions of the trust or (2) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person for U.S. federal income tax purposes.

In addition, this discussion is limited to U.S. holders who are not resident in France for purposes of the Income Tax Treaty between the United States and France.

If a partnership (including for this purpose any entity treated as a partnership for U.S. federal income tax purposes) is a beneficial owner of the ADSs, the U.S. tax treatment of a partner in the partnership generally will depend on the status of the partner and the activities of the partnership. A holder of the ADSs that is a partnership and partners in such a partnership should consult their own tax advisors concerning the U.S. federal income tax consequences of owning and disposing of ADSs.

A "non-U.S. holder" is a beneficial owner of ADSs that is neither a U.S. holder nor a partnership for U.S. federal income tax purposes.

Generally, holders of ADSs should be treated for U.S. federal income tax purposes as holding the ordinary shares represented by the ADSs. Accordingly, no gain or loss will be recognized upon an exchange of ordinary shares for ADSs or an exchange of ADSs for ordinary shares. The U.S. Treasury has expressed concerns that intermediaries in the chain of ownership between the holder of an ADS and the issuer of the security underlying the ADS may be taking actions that are inconsistent with the claiming of foreign tax credits for U.S. holders of ADSs. Accordingly, the credibility of foreign taxes, if any, as described below, could be affected by actions taken by intermediaries in the chain of ownership between the holder of an ADS and the company.

PFIC Considerations

The Code provides special rules regarding certain distributions received by U.S. persons with respect to, and sales, exchanges and other dispositions, including pledges, of, shares of stock (including ordinary shares represented by ADSs) in a PFIC. A non-U.S. corporation will be treated as a PFIC for any taxable year in which either: (1) at least 75 percent of its gross income is "passive income" or (2) at least 50 percent of its gross assets during the taxable year (based on the average of the fair market values of the assets determined at the end of each quarterly period) are "passive assets," which generally means that they produce passive income or are held for the production of passive income. Passive income for this purpose generally includes, among other things, dividends, interest, rents, royalties, gains from commodities and securities transactions, and gains from assets that produce passive income. In determining whether a foreign corporation is a PFIC, a pro rata portion of the income and assets of each corporation in which it owns, directly or indirectly, at least a 25% interest (by value) is taken into account.

Although the matter is not free from doubt, we do not believe that we were a PFIC for U.S. federal income tax purposes for the 2019 taxable year. No assurances may be given at this time as to our PFIC status for 2020 or future taxable years. Our PFIC status must be determined annually and therefore is subject to change. Because this determination is made annually at the end of each taxable year and is dependent upon a number of factors, some of which are beyond our control, including the amount and nature of our income, as well as on the market valuation of our assets and our spending schedule for our cash balances, and because certain aspects of the PFIC rules are not entirely certain, there can be no assurance that we were not a PFIC, that we are not or will not become a PFIC or that the IRS will agree with our conclusion regarding our PFIC status. If we are not a PFIC during any taxable year in which you hold ADSs, then the remainder of the discussion under "Taxation—Material U.S. Federal Income Tax Considerations," outside of this "—PFIC Considerations" portion may be relevant to you. U.S. holders should consult their tax advisors as to the applicability of the PFIC rules.

A U.S. holder that holds ADSs during any taxable year in which we qualify as a PFIC is subject to special tax rules with respect to (a) any gain realized on the sale, exchange or other disposition of the ADSs and (b) any "excess distribution" by the corporation to the holder, unless the holder elects to treat the PFIC as a "qualified electing fund," or QEF, or makes a "mark-to-market" election, each as discussed below. An "excess distribution" is that portion of a distribution with respect to ADSs that exceeds 125% of the annual average of such distributions over the preceding three-year period or, if shorter, the U.S. holder's holding period for its ADSs. Excess distributions and gains on the sale, exchange or other disposition of ADSs of a corporation which was a PFIC at any time during the U.S. holder's holding period are allocated ratably to each day of the U.S. holder's holding period. Amounts allocated to the taxable year in which the disposition occurs and amounts allocated to any period in the shareholder's holding period before the first day of the first taxable year that the corporation was a PFIC will be taxed as ordinary income (rather than capital gain) earned in the taxable year of the disposition. Amounts allocated to each of the other taxable years in the U.S. holder's holding period are not included in gross income for the year of the disposition, but are subject to the highest ordinary income tax rates in effect for individuals or corporations, as applicable, for each such year and the interest charge generally applicable to income tax deficiencies will be imposed on the resulting tax attributable to each year. The tax liability for amounts allocated to years before the year of disposition or "excess distribution" cannot be offset by any net operating losses for such years, and gains (but not losses) realized on the sale of the ADSs cannot be treated as capital, even if a U.S. holder held such ADSs as capital assets.

If we are a PFIC for any taxable year during which a U.S. holder holds ADSs, then we generally will continue to be treated as a PFIC with respect to the holder for all succeeding years during which such holder holds ADSs, even if we no longer satisfy either the passive income or passive asset tests described above, unless the U.S. holder terminates this deemed PFIC status by making a “deemed sale” election. If such election is made, a U.S. holder will be deemed to have sold the ADSs at their fair market value on the last day of the last taxable year for which we were a PFIC, and any gain from such deemed sale would be subject to the excess distribution rules as described above. After the deemed sale election, the ADSs with respect to which the deemed sale election was made will not be treated as shares in a PFIC unless we subsequently become a PFIC.

If we are or become a PFIC, the excess distribution rules may be avoided if a U.S. holder makes a QEF election effective beginning with the first taxable year in the holder’s holding period in which we are treated as a PFIC with respect to such holder. A U.S. holder that makes a QEF election with respect to a PFIC is required to include in income its pro rata share of the PFIC’s ordinary earnings and net capital gain as ordinary income and capital gain, respectively, subject to a separate election to defer payment of taxes, which deferral is subject to an interest charge. If a foreign corporation ceases to be a PFIC, the U.S. holder’s QEF election would no longer require an annual income inclusion. However, cessation of a foreign corporation’s status as a PFIC will not terminate a QEF election and if the corporation becomes a PFIC again, an annual income inclusion may be required.

In general, a U.S. holder makes a QEF election by attaching a completed IRS Form 8621 to a timely filed (taking into account any extensions) U.S. federal income tax return for the year beginning with which the QEF election is to be effective. In certain circumstances, a U.S. holder may be able to make a retroactive QEF election. A QEF election can be revoked only with the consent of the IRS. In order for a U.S. holder to make a valid QEF election, the corporation must annually provide or make available to the holder certain information. For any taxable year in which we are a PFIC, we will determine whether we will provide to U.S. holders the information required to make a QEF election. There can be no assurance that we will make such information available for any taxable year in which we are or may be a PFIC.

As an alternative to making a QEF election, a U.S. holder may make a “mark-to-market” election with respect to its ADSs if the ADSs meet certain minimum trading requirements, as described below. If a U.S. holder makes a valid mark-to-market election for the first taxable year in which such holder holds (or is deemed to hold) ADSs in a corporation and for which such corporation is determined to be a PFIC, such holder generally will not be subject to the PFIC rules described above in respect of its ADSs. Instead, a U.S. holder that makes a mark-to-market election will be required to include in income each year an amount equal to the excess, if any, of the fair market value of the ADSs that the holder owns as of the close of the taxable year over the holder’s adjusted tax basis in the ADSs. The U.S. holder will be entitled to a deduction for the excess, if any, of the holder’s adjusted tax basis in the ADSs over the fair market value of the ADSs as of the close of the taxable year; provided, however, that the deduction will be limited to the extent of any net mark-to-market gains with respect to the ADSs included by the U.S. holder under the election for prior taxable years. The U.S. holder’s basis in the ADSs will be adjusted to reflect the amounts included or deducted pursuant to the election. Amounts included in income pursuant to a mark-to-market election, as well as gain on the sale, exchange or other disposition of the ADSs, will be treated as ordinary income. The deductible portion of any mark-to-market loss, as well as loss on a sale, exchange or other disposition of ADSs to the extent that the amount of such loss does not exceed net mark-to-market gains previously included in income, will be treated as ordinary loss. If a U.S. holder makes a valid mark-to-market election, any distributions made by us in a year in which we are a PFIC would generally be subject to the rules discussed below under “—Taxation of Dividends,” except the lower rate applicable to qualified dividend income would not apply. If we are not a PFIC when a U.S. holder has a mark-to-market election in effect, gain or loss realized by a U.S. holder on the sale of our ADSs will be a capital gain or loss and taxed in the manner described below under “—Taxation of Sale, Exchange or other Disposition of ADSs.”

The mark-to-market election applies to the taxable year for which the election is made and all subsequent taxable years, unless the ADSs cease to meet applicable trading requirements (described below) or the IRS consents to its revocation. The excess distribution rules generally do not apply to a U.S. holder for taxable years for which a mark-to-market election is in effect. If we are a PFIC for any year in which the U.S. holder owns ADSs but before a mark-to-market election is made, the interest charge rules described above will apply to any mark-to-market gain recognized in the year the election is made. Generally, if a foreign corporation ceases to be a PFIC, the U.S. holder’s mark-to-market election would no longer require the income inclusion described above. However, cessation of a foreign corporation’s status as a PFIC will not terminate a mark-to-market election and if the corporation becomes a PFIC again, mark-to-market income inclusions may be required.

A mark-to-market election is available only if the ADSs are considered “marketable” for these purposes. ADSs will be marketable if they are regularly traded on a national securities exchange that is registered with the SEC (such as the Nasdaq Global Market) or on a non-U.S. exchange or market that the IRS determines has rules sufficient to ensure that the market price represents a legitimate and sound fair market value. For these purposes, ADSs will be considered regularly traded during any calendar year during which more than a de minimis quantity of the ADSs is traded on at least 15 days during each calendar quarter. Any trades that have as their principal purpose meeting this requirement will be disregarded. Each U.S. holder should ask its own tax advisor whether a mark-to-market election is available or desirable.

If we are a PFIC for any year in which a U.S. holder holds ADSs, such U.S. holder must generally file an IRS Form 8621 annually. A U.S. holder must also provide such other information as may be required by the U.S. Treasury Department if the U.S. holder (1) receives certain direct or indirect distributions from a PFIC, (2) recognizes gain on a direct or indirect disposition of ADSs, or (3) makes certain elections (including a QEF election or a mark-to-market election) reportable on IRS Form 8621.

Under attribution rules, if we are a PFIC, U.S. holders of our ADSs will be deemed to own their proportionate shares of our subsidiaries that are PFICs, if any. Like the determination of whether we are a PFIC, the determination of whether any of our subsidiaries is a PFIC is made annually at the end of each taxable year. Assuming a U.S. holder does not receive from a PFIC subsidiary the information that the U.S. holder needs to make a QEF election with respect to such a subsidiary, a U.S. holder generally will be deemed to own a portion of the shares of such lower-tier PFIC and may incur liability for a deferred tax and interest charge if we receive a distribution from, or dispose of all or part of our interest in, or the U.S. holder otherwise is deemed to have disposed of an interest in, the lower-tier PFIC, even though the U.S. holder has not received the proceeds of those distributions or dispositions directly. We currently do not have any non-U.S. subsidiaries that could be PFIC subsidiaries.

U.S. holders are urged to consult their tax advisors as to our status as a PFIC, and, if we are treated as a PFIC, as to the effect on them of, and the reporting requirements with respect to, the PFIC rules and the desirability of making, and the availability of, either a QEF election or a mark-to-market election with respect to our ADSs.

Taxation of Dividends

U.S. Holders. Subject to the PFIC rules described above under “—PFIC Considerations,” if you are a U.S. holder, you must include in your gross income the gross amount of any distributions of cash or property (other than certain *pro rata* distributions of ADSs) with respect to ADSs, to the extent the distribution is paid out of our current or accumulated earnings and profits, as determined for U.S. federal income tax purposes. A U.S. holder must include the dividend as ordinary income at the time of actual or constructive receipt. The amount of any dividend income paid in Euro will be the U.S. dollar amount calculated by reference to the exchange rate in effect on the date of receipt, regardless of whether the payment is in fact converted into U.S. dollars. If the dividend is converted into U.S. dollars on the date of receipt, a U.S. holder should not be required to recognize foreign currency gain or loss in respect of the dividend income. A U.S. holder may have foreign currency gain or loss if the dividend is converted into U.S. dollars after the date of receipt. Distributions in excess of current and accumulated earnings and profits, as determined for U.S. federal income tax purposes, will be treated as a non-taxable return of capital to the extent of your basis in the ADSs and thereafter as capital gain from the sale or exchange of such ADSs. Notwithstanding the foregoing, we do not intend to maintain calculations of our earnings and profits as determined for U.S. federal income tax purposes. Consequently, distributions generally will be reported as dividend income for U.S. information reporting purposes. The dividend will not be eligible for the dividends-received deduction generally allowed to U.S. corporations in respect of dividends received from other U.S. corporations.

Subject to the PFIC rules described above under “—PFIC Considerations,” dividends paid by a non-U.S. corporation generally will be taxed at the preferential tax rates applicable to long-term capital gain of non-corporate taxpayers if (a) such non-U.S. corporation is eligible for the benefits of certain U.S. treaties or the dividend is paid by such non-U.S. corporation with respect to stock that is readily tradable on an established securities market in the United States, (b) the U.S. holder receiving such dividend is an individual, estate, or trust, (c) such dividend is paid on shares that have been held by such U.S. holder for at least 61 days during the 121-day period beginning 60 days before the “ex-dividend date,” and (d) we are not a PFIC in the year of the dividend or the immediately preceding year. If the requirements of the immediately preceding sentence are not satisfied, a dividend paid by a non-U.S. corporation to a U.S. holder, including a U.S. holder that is an individual, estate, or trust, generally will be taxed at ordinary income tax rates (and not at the preferential tax rates applicable to long-term capital gains). As discussed above under “PFIC Considerations,” although the matter is not free from doubt (and while we can give no assurances as to our PFIC status for 2019 or future taxable years), we do not believe that we were a PFIC for U.S. federal income tax purposes for the 2018 taxable year. The dividend rules are complex, and each U.S. holder should consult its own tax advisor regarding the dividend rules.

The amount of dividend will include any amounts withheld by the Company in respect of French taxes. Subject to applicable limitations, some of which vary depending upon the U.S. holder’s circumstances and subject to the discussion above regarding concerns expressed by the U.S. Treasury, French income taxes withheld from dividends on ADSs at a rate not exceeding the rate provided by the Treaty will be creditable against the U.S. holder’s U.S. federal income tax liability.

Dividends received generally will be income from non-U.S. sources, which may be relevant in calculating your U.S. foreign tax credit limitation. Such non-U.S. source income generally will be “passive category income,” or in certain cases “general category income”, which is treated separately from other types of income for purposes of computing the foreign tax credit allowable to you. The rules with respect to the foreign tax credit are complex and involve the application of rules that depend upon a U.S. holder’s particular circumstances. You should consult your own tax advisor to determine the foreign tax credit implications of owning the ADSs. Instead of claiming a credit, a U.S. holder may, subject to generally applicable limitations, elect to deduct such French taxes, if any, in computing taxable income. An election to deduct foreign taxes instead of claiming foreign tax credits applies to all foreign taxes paid or accrued in the taxable year.

[Table of Contents](#)

Non-U.S. Holders. If you are a non-U.S. holder, dividends paid to you generally will not be subject to U.S. income tax unless the dividends are “effectively connected” with your conduct of a trade or business within the United States, and the dividends are attributable to a permanent establishment (or in the case of an individual, a fixed place of business) that you maintain in the United States if that is required by an applicable income tax treaty as a condition for subjecting you to U.S. taxation on a net income basis. In such cases you generally will be taxed in the same manner as a U.S. holder (other than with respect to the Medicare Tax described below). If you are a corporate non-U.S. holder, “effectively connected” dividends may, under certain circumstances, be subject to an additional “branch profits tax” at a 30% rate or a lower rate if you are eligible for the benefits of an income tax treaty that provides for a lower rate.

Taxation of Sale, Exchange or other Disposition of ADSs

U.S. Holders. Subject to the PFIC rules described above under “—PFIC Considerations,” if you are a U.S. holder and you sell, exchange or otherwise dispose of your ADSs, you generally will recognize capital gain or loss for U.S. federal income tax purposes equal to the difference between the value of the amount realized and your tax basis in your ADSs. Gain or loss recognized on such a sale, exchange or other disposition of ADSs generally will be long-term capital gain if the U.S. holder has held the ADSs for more than one year. Long-term capital gains of U.S. holders who are individuals (as well as certain trusts and estates) are generally taxed at preferential rates. The gain or loss will generally be income or loss from sources within the United States for foreign tax credit limitation purposes, unless it is attributable to an office or other fixed place of business outside the United States and certain other conditions are met. Your ability to deduct capital losses is subject to limitations. As discussed above under “—PFIC Considerations,” although the matter is not free from doubt (and while we can give no assurances as to our PFIC status for 2019 or future taxable years), we do not believe that we were a PFIC for U.S. federal income tax purposes for the 2018 taxable year.

Non-U.S. Holders. If you are a non-U.S. holder, you will not be subject to U.S. federal income tax on gain recognized on the sale, exchange or other disposition of your ADSs unless:

- the gain is “effectively connected” with your conduct of a trade or business in the United States, and the gain is attributable to a permanent establishment (or in the case of an individual, a fixed place of business) that you maintain in the United States if that is required by an applicable income tax treaty as a condition for subjecting you to U.S. taxation on a net income basis; or
- you are an individual, you are present in the United States for 183 or more days in the taxable year of such sale, exchange or other disposition and certain other conditions are met.

In the first case, the non-U.S. holder will be taxed in the same manner as a U.S. holder (other than with respect to the Medicare Tax described below). In the second case, the non-U.S. holder will be subject to U.S. federal income tax at a rate of 30% on the amount by which such non-U.S. holder’s U.S. source capital gains exceed such non-U.S. source capital losses.

If you are a corporate non-U.S. holder, “effectively connected” gains that you recognize may also, under certain circumstances, be subject to an additional “branch profits tax” at a 30% rate or at a lower rate if you are eligible for the benefits of an income tax treaty that provides for a lower rate.

Medicare Tax

Certain U.S. holders who are individuals, estates or trusts are required to pay a 3.8% Medicare surtax on all or part of that holder’s “net investment income” (or, in the case of an estate or trust, undistributed “net investment income”), which includes, among other items, dividends on, and capital gains from the sale or other taxable disposition of, the ADSs, subject to certain limitations and exceptions. U.S. holders should consult their own tax advisors regarding the effect, if any, of this surtax on their ownership and disposition of the ADSs.

Information with Respect to Foreign Financial Assets

U.S. holders that are individuals (and, to the extent provided in regulations, certain entities) that own “specified foreign financial assets,” including possibly the ADSs, with an aggregate value in excess of \$50,000 are generally required to file IRS Form 8938 with information regarding such assets. Depending on the circumstances, higher threshold amounts may apply. Specified foreign financial assets include any financial accounts maintained by foreign financial institutions, as well as any of the following, but only if they are not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-U.S. persons, (ii) financial instruments and contracts held for investment that have non-U.S. issuers or counterparties and

(iii) interests in non-U.S. entities. If a U.S. holder is subject to this information reporting regime, the failure to timely file IRS Form 8938 may subject the U.S. holder to penalties. In addition to these requirements, U.S. holders may be required to annually file FinCEN Report 114, Report of Foreign Bank and Financial Accounts with the U.S. Department of Treasury. U.S. holders are thus encouraged to consult their U.S. tax advisors with respect to these and other reporting requirements that may apply to their acquisition of the ADSs.

Backup Withholding and Information Reporting

In general, information reporting requirements will apply to distributions made on our ADSs within the United States to a non-corporate U.S. holder and to the proceeds from the sale, exchange, redemption or other disposition of ADSs by a non-corporate U.S. holder to or through a U.S. office of a broker. Payments made (and sales or other dispositions effected at an office) outside the U.S. will be subject to information reporting in limited circumstances.

In addition, backup withholding of U.S. federal income tax may apply to such amounts if the U.S. holder fails to provide an accurate taxpayer identification number (or otherwise establishes, in the manner provided by law, an exemption from backup withholding) or to report dividends required to be shown on the U.S. holder's U.S. federal income tax returns.

Backup withholding is not an additional income tax, and the amount of any backup withholding from a payment to a U.S. holder will be allowed as credit against the U.S. holder's U.S. federal income tax liability provided that the appropriate returns are timely filed.

A non-U.S. holder generally may eliminate the requirement for information reporting and backup withholding by providing a properly completed and duly executed certification of its foreign status to the payor, under penalties of perjury, on IRS Form W-8BEN, W-8BEN-E or other appropriate W-8, as applicable. You should consult your own tax advisor as to the qualifications for exemption from backup withholding and the procedures for obtaining the exemption.

The foregoing does not purport to be a complete analysis of the potential tax considerations relating to the ownership and disposition of the ADSs. Prospective investors should consult their own tax advisors as to the particular tax considerations applicable to them relating to the ownership and disposition of the ADSs, including the applicability of the U.S. federal, state and local tax laws or non-tax laws, foreign tax laws, and any changes in applicable tax laws and any pending or proposed legislation or regulations.

Material French Income Tax Considerations

The following describes the material French income tax consequences to U.S. Holders (as defined below) of purchasing, owning and disposing of the ADSs and, unless otherwise noted, this discussion is the opinion of Jones Day, our French tax counsel, insofar as it relates to matters of French tax law and legal conclusions with respect to those matters.

This discussion does not purport to be a complete analysis or listing of all potential tax effects of the acquisition, ownership or disposition of our securities to any particular investor, and does not discuss tax considerations that arise from rules of general application or that are generally assumed to be known by investors. All of the following is subject to change. Such changes could apply retroactively and could affect the consequences described below.

In 2011, France introduced a comprehensive set of new tax rules applicable to French assets that are held by or in foreign trusts. These rules, among other things, provide for the inclusion of trust assets in the settlor's net assets for purpose of applying the French wealth tax, for the application of French gift and death duties to French assets held in trust, for a specific tax on capital on the French assets of foreign trusts not already subject to the French wealth tax and for a number of French tax reporting and disclosure obligations. The following discussion does not address the French tax consequences applicable to securities (including ADSs) held in trusts. If securities are held in trust, the grantor, trustee and beneficiary are urged to consult their own tax advisor regarding the specific tax consequences of acquiring, owning and disposing of securities.

[Table of Contents](#)

The description of the French income tax and wealth tax consequences set forth below is based on the Convention between the Government of the United States of America and the Government of the French Republic for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income and Capital of August 31, 1994 which came into force on December 30, 1995 (as amended by any subsequent protocols, including the protocol of January 13, 2009), and the tax guidelines issued by the French tax authorities in force as of the date of this Annual Report, or the Treaty.

For the purposes of this discussion, the term “U.S. Holder” means a beneficial owner of securities that is (1) an individual who is a U.S. citizen or resident for U.S. federal income tax purposes, (2) a U.S. domestic corporation or certain other entities created or organized in or under the laws of the United States or any state thereof, including the District of Columbia, or (3) otherwise subject to U.S. federal income taxation on a net income basis in respect of securities.

If a partnership holds securities, the tax treatment of a partner generally will depend upon the status of the partner and the activities of the partnership. If a U.S. Holder is a partner in a partnership that holds securities, such holder is urged to consult its own tax advisor regarding the specific tax consequences of acquiring, owning and disposing of securities.

This discussion applies only to investors that hold our securities as capital assets that have the U.S. dollar as their functional currency, that are entitled to Treaty benefits under the “Limitation on Benefits” provision contained in the Treaty, and whose ownership of the securities is not effectively connected to a permanent establishment or a fixed base in France. Certain U.S. Holders (including, but not limited to, U.S. expatriates, partnerships or other entities classified as partnerships for U.S. federal income tax purposes, banks, insurance companies, regulated investment companies, tax-exempt organizations, financial institutions, persons subject to the alternative minimum tax, persons who acquired the securities pursuant to the exercise of employee share options or otherwise as compensation, persons that own (directly, indirectly or by attribution) 5% or more of our voting stock or 5% or more of our outstanding share capital, dealers in securities or currencies, persons that elect to mark their securities to market for U.S. federal income tax purposes and persons holding securities as a position in a synthetic security, straddle or conversion transaction) may be subject to special rules not discussed below.

U.S. Holders are urged to consult their own tax advisors regarding the tax consequences of the purchase, ownership and disposition of securities in light of their particular circumstances, especially with regard to the “Limitations on Benefits” provision.

Estate and Gift Taxes and Transfer Taxes

In general, a transfer of securities by gift or by reason of death of a U.S. Holder that would otherwise be subject to French gift or inheritance tax, respectively, will not be subject to such French tax by reason of the Convention between the Government of the United States of America and the Government of the French Republic for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Estates, Inheritances and Gifts, dated November 24, 1978, unless the donor or the transferor is domiciled in France at the time of making the gift or at the time of his or her death, or the securities were used in, or held for use in, the conduct of a business through a permanent establishment or a fixed base in France.

Financial Transactions Tax

Pursuant to Article 235 ter ZD of the French Tax Code (*Code général des impôts*), or the FTC, purchases of certain securities issued by a French company, including ordinary shares and ADSs, which are listed on a regulated market of the EU or an exchange market formally acknowledged by the AMF (in each case within the meaning of the French Monetary and Financial Code, or the FMFC) are subject in France to a 0.3% tax on financial transactions, or the TFT, provided inter alia that the issuer’s market capitalization exceeds €1 billion as of December 1 of the year preceding the taxation year.

A list of relevant French companies whose market capitalization exceeds €1.0 billion as of December 1 of the year preceding the taxation year within the meaning of Article 235 ter ZD of the FTC is published by the French tax authorities, and could be amended at any time. Pursuant to Regulations BOI-ANNX-000467-20181217 issued on December 17, 2018, Collectis is currently not included in such list. Please note that such list may be updated from time to time, or may not be published anymore in the future.

As a result, neither the ADSs nor the ordinary shares are currently within the scope of the TFT.

Purchases of Collectis’s securities may however become subject to the TFT if Collectis’s market capitalization exceeds €1.0 billion.

Registration Duties

In the case where the TFT is not applicable, (1) transfers of shares issued by a French company which are listed on a regulated or organized market within the meaning of the FMFC are subject to uncapped registration duties at the rate of 0.1% if the transfer is evidenced by a written statement (*acte*) executed either in France or outside France, whereas (2) transfers of shares issued by a French company which are not listed on a regulated or organized market within the meaning of the FMFC are subject to uncapped registration duties at the rate of 0.1% notwithstanding the existence of a written statement (*acte*).

As ordinary shares of Collectis are listed on Euronext Growth market of Euronext in Paris, which is an organized market within the meaning of the FMFC, their transfer should be subject to uncapped registration duties at the rate of 0.1% subject to the existence of a written agreement (*acte*).

Although there is neither case law nor official guidelines published by the French tax authorities on this point, transfers of ADSs should remain outside of the scope of the aforementioned 0.1% registration duties.

Wealth Tax

The French wealth tax (*impôt de solidarité sur la fortune*) has been repealed by the finance bill for 2018 (*loi de finances pour 2018*) dated December 30, 2017. It used to apply only to individuals and did not generally apply to securities held by a U.S. Holder who is a resident pursuant to the provisions of the Treaty, provided that such U.S. Holder does not own directly or indirectly more than 25% of the issuer's financial rights.

As from January 1, 2018, it has been replaced by a new real estate wealth tax (*impôt sur la fortune immobilière*) which applies only to individuals owning French real estate assets or rights, directly or indirectly through one or more legal entities and whose net taxable assets amount to at least 1,300,000 euros.

French real estate wealth tax may only apply to a U.S. individual to the extent such individual holds, directly or indirectly, financial rights into a company the assets of which comprise French real estate assets that are not allocated to its operational activity. Such financial rights may be taxable for the fraction of their value representing the French real estate assets that are not allocated to an operational activity. In any case, pursuant to Article 965, 2° of the FTC, shares of an operating company holding French real estate assets in which the relevant individual holds, directly and indirectly, less than 10% of the share capital or voting rights are exempt from real estate wealth tax.

Taxation of Dividends

Dividends paid by a French corporation to non-residents of France are generally subject to French withholding tax at a rate of 28%. Such withholding tax may be reduced to 12.8% for dividends paid to non-resident individuals. Dividends paid by a French corporation in a non-cooperative State or territory, as defined in Article 238-0 A of the FTC, will generally be subject to French withholding tax at a rate of 75%. However, eligible U.S. Holders entitled to Treaty benefits under the "Limitation on Benefits" provision contained in the Treaty who are U.S. residents, as defined pursuant to the provisions of the Treaty, will not be subject to this 12.8%, 28% or 75% withholding tax rate, but may be subject to the withholding tax at a reduced rate (as described below).

Under the Treaty, the rate of French withholding tax on dividends paid to an eligible U.S. Holder who is a U.S. resident as defined pursuant to the provisions of the Treaty and whose ownership of ordinary shares or the ADSs is not effectively connected with a permanent establishment or fixed base that such U.S. Holder has in France, is generally reduced to 15%, or to 5% if such U.S. Holder is a corporation and owns directly or indirectly at least 10% of the share capital of the issuer; such U.S. Holder may claim a refund from the French tax authorities of the amount withheld in excess of the Treaty rates of 15% or 5%, if any.

For U.S. Holders that are not individuals but are U.S. residents, as defined pursuant to the provisions of the Treaty, the requirements for eligibility for Treaty benefits, including the reduced 5% or 15% withholding tax rates contained in the "Limitation on Benefits" provision of the Treaty, are complicated, and certain technical changes were made to these requirements by the protocol of January 13, 2009. U.S. Holders are advised to consult their own tax advisers regarding their eligibility for Treaty benefits in light of their own particular circumstances.

In the event that dividends are paid by Collectis, dividends paid to an eligible U.S. Holder may immediately be subject to the reduced rates of 5% or 15% provided that such holder establishes before the date of payment that it is a U.S. resident under the Treaty by completing and providing the depositary with a treaty form (Form 5000). Otherwise, dividends paid to a U.S. Holder that is a legal person or another legal entity and has not filed the Form 5000 before the dividend payment date will be subject to French withholding tax at the rate of 28%, or 75% for any U.S. Holder if paid in a non-cooperative State or territory (as defined in

[Table of Contents](#)

Article 238-0 A of the FTC) (unless the Company proves that neither the purpose nor the effect of paying the dividend in that State or territory are that of allowing, with the intent of tax evasion or avoidance, their location in such a State or territory), and then reduced at a later date to 5% or 15%, provided that such holder duly completes and provides the French tax authorities with the treaty forms Form 5000 and Form 5001 before December 31 of the second calendar year following the year during which the dividend is paid.

Certain qualifying pension funds and certain other tax-exempt entities are subject to the same general filing requirements as other U.S. Holders except that they may have to supply additional documentation evidencing their entitlement to these benefits.

Form 5000 and Form 5001, together with appropriate instructions, will be provided by the depository to all U.S. Holders registered with the depository. The depository will arrange for the filing with the French tax authorities of all such forms properly completed and executed by U.S. Holders of ordinary shares or ADSs and returned to the depository in sufficient time so that they may be filed with the French tax authorities before the distribution in order to obtain immediately a reduced withholding tax rate.

Tax on Sale or Other Disposition

As a matter of principle, under French tax law, a U.S. Holder should not be subject to any French tax on any capital gain from the sale, exchange, repurchase or redemption by us of ordinary shares or ADSs, provided that all of the following apply to such holder:

- it is not a French tax resident for French tax purposes; and,
- it has not held more than 25% of our dividend rights, known as “*droits aux bénéfices sociaux*” at any time during the preceding five years, either directly or indirectly, and, as relates to individuals, alone or with relatives; and,
- it has not transferred ordinary shares or ADSs as part of redemption by Collectis, in which case the proceeds may under certain circumstances be partially or fully characterized as dividends under French domestic law and, as result, be subject to French dividend withholding tax. As an exception, a U.S Holder, established, domiciled or incorporated in a non-cooperative State or territory as defined in Article 238-0 A of the FTC should be subject to a 75% withholding tax in France on any such capital gain, regardless of the fraction of the dividend rights it holds.

In case an applicable double tax treaty between France and the U.S. Holder country of residence contains more favorable provisions, a U.S. Holder may not be subject to any French income tax or capital gains tax in case of sale or disposal of any ordinary shares or ADSs of Collectis even if one or more of the above mentioned statements are not applicable.

Particularly, a U.S. Holder who is a U.S. tax resident for purposes of the Treaty and is entitled to Treaty benefit will not be subject to French tax on any such capital gain, unless the ordinary shares or the ADSs form part of the business property of a permanent establishment or fixed base that the U.S. Holder has in France.

U.S. Holders who own ordinary shares or ADSs through U.S. partnerships that are not residents for Treaty purposes are advised to consult their own tax advisors regarding their French tax treatment and their eligibility for Treaty benefits in light of their own particular circumstances.

A U.S. Holder that is not a U.S. resident for Treaty purposes or is not entitled to Treaty benefit (and in both cases is not resident, established or incorporated in a non-cooperative State or territory as defined in Article 238-0 A of the FTC) and has held more than 25% of our dividend rights, known as “*droits aux bénéfices sociaux*” at any time during the preceding five years, either directly or indirectly, and, as relates to individuals, alone or with relatives will be subject to a levy in France at the rate of 31% (anticipated to be progressively decreased to 25% in the coming years), if such U.S. Holder is a legal person, or 12.8%, if such U.S. Holder is an individual.

Special rules apply to U.S. Holders who are residents of more than one country.

F. Dividends and Paying Agents

Not applicable.

G. Statement by Experts

Not applicable.

H. Documents on Display

We are subject to the information reporting requirements of the Exchange Act applicable to foreign private issuers and under those requirements file reports with the SEC. Those reports may be inspected without charge at the locations described below. As a foreign private issuer, we are exempt from the rules under the Exchange Act related to the furnishing and content of proxy statements, and our officers, directors and principal shareholders are exempt from the reporting and short-swing profit recovery provisions contained in Section 16 of the Exchange Act. In addition, we are not required under the Exchange Act to file periodic reports and financial statements with the SEC as frequently or as promptly as United States companies whose securities are registered under the Exchange Act. Nevertheless, we file with the U.S. Securities and Exchange Commission an Annual Report containing financial statements that have been examined and reported on, with an opinion expressed by an independent registered public accounting firm, and we submit quarterly interim consolidated financial data to the SEC under cover of the SEC's Form 6-K.

We maintain a corporate website at www.collectis.com. We intend to post our Annual Report on our website promptly following it being filed with the SEC. Information contained on, or that can be accessed through, our website does not constitute a part of this Annual Report. We have included our website address in this Annual Report solely as an inactive textual reference.

You may also review a copy of this Annual Report, including exhibits and any schedule filed herewith, and obtain copies of such materials at prescribed rates, at the Securities and Exchange Commission's Public Reference Room in Room 1580, 100 F Street, NE, Washington, D.C. 20549-0102. You may obtain information on the operation of the Public Reference Room by calling the Securities and Exchange Commission at 1-800-SEC-0330. The Securities and Exchange Commission maintains a website (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding registrants, such as Collectis, that file electronically with the Securities and Exchange Commission.

With respect to references made in this Annual Report to any contract or other document of Collectis, such references are not necessarily complete and you should refer to the exhibits attached or incorporated by reference to this Annual Report for copies of the actual contract or document.

I. Subsidiary Information

Not applicable

ITEM 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Exchange Risk

We derive a significant portion of our revenues, including payments under our collaboration agreement with Allogene, in U.S. dollars. Since the beginning of fiscal year 2015, we have been significantly expanding our activities in the United States, but there continues to be a currency mismatch in our cash flows since most of our expenses remain denominated primarily in Euros. If the average value of the U.S. Dollar had been 10% higher relative to the euro during 2019, our collaboration revenues would have increased by €0.5 million. Our exposure to currencies other than the U.S. dollar is negligible.

Our financial condition and results of operations are measured and recorded in the relevant local base currency and then translated into Euros for inclusion in our Consolidated Financial Statements. We translate balance sheet amounts at the exchange rates in effect on the date of the balance sheet, while income and cash flow items are translated at the average rate of exchange in effect for the relevant period. Our exposure to currencies other than the U.S. dollar is negligible.

For the year ended December 31, 2019, our revenues denominated in U.S. dollars related to the Allogene collaboration agreement and revenues from our Plants segment. Our cash and cash equivalents and marketable securities denominated in U.S. dollars amounted to \$214.6 million as of December 31, 2019. Current financial assets denominated in U.S. dollars amounted to \$20.4 million as of December 31, 2019.

The net foreign exchange result for the fiscal year 2019 is a gain of \$3.8 million. We cannot rule out the possibility that a significant increase in our business, particularly in the United States, may result in greater exposure to exchange rate risk. We would then consider adopting an appropriate policy for hedging against these risks.

[Table of Contents](#)

Interest Rate Risk

We seek to engage in prudent management of our cash and cash equivalents, mainly cash on hand and common financial instruments (typically short- and mid-term deposits). Furthermore, the interest rate risk related to cash, cash equivalents and common financial instruments is not significant based on the quality of the financial institutions with which we work.

Inflation Risk

We do not believe that inflation has had a material effect on our business, financial condition or results of operations. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, financial condition and results of operations.

Commodity Price Risk

Calyxt's primary exposure to market risk is commodity price sensitivity. Changes in the prices of certain commodity products could result in higher overall cost along the agricultural supply chain, which may negatively affect Calyxt's ability to profitably commercialize its products. In the normal course of business, Calyxt manages its exposure to market risks by entering commodity hedges to mitigate risks. Based on Calyxt's positions as of December 31, 2019, a 10 percent increase in commodity futures market prices would have a \$880,000 decrease in Calyxt's financial condition, and a 10 percent decrease in commodity futures market prices would have a \$727,000 increase in Calyxt's financial condition.

ITEM 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

A. Debt Securities

Not applicable.

B. Warrants and Rights

Not applicable.

C. Other Securities

Not applicable.

D. American Depositary Shares

Citibank, N.A., as depositary for our ADSs, registers and delivers ADSs. Each ADS represents one ordinary share deposited with Citibank Europe PLC, located at 388 Greenwich Street, New York, NY 10013 or any successor, as custodian for the depositary. Each ADS will also represent any other securities, cash or other property which may be held by the depositary in respect of the depositary facility. The depositary's corporate trust office at which the ADSs will be administered is located at 388 Greenwich Street, New York, New York 10013.

A deposit agreement among us, the depositary and the ADS holders sets out the ADS holder rights as well as the rights and obligations of the depositary. New York law governs the deposit agreement and the ADSs. A copy of the Agreement is incorporated by reference as an exhibit to this Annual Report.

Fees and Charges

As an ADS holder, you will be required to pay the following fees under the terms of the depositary agreement:

<i>Service</i>	<i>Fees</i>
• Issuance of ADSs upon deposit of shares (excluding issuance as a result of distributions of shares)	Up to U.S. 5¢ per ADS issued
• Cancellation of ADSs	Up to U.S. 5¢ per ADS canceled
• Distribution of cash dividends or other cash distributions (i.e., sale of rights and other entitlements)	Up to U.S. 5¢ per ADS held
<i>Service</i>	<i>Fees</i>
• Distribution of ADSs pursuant to (1) stock dividends or other free stock distributions, or (2) exercise of rights to purchase additional ADSs	Up to U.S. 5¢ per ADS held
• Distribution of securities other than ADSs or rights to purchase additional ADSs (i.e., spin-off shares)	Up to U.S. 5¢ per ADS held
• ADS Services	Up to U.S. 5¢ per ADS held on the applicable record date(s) established by the depositary

As an ADS holder you will also be responsible to pay certain fees and expenses incurred by the depositary and certain taxes and governmental charges such as:

- taxes (including applicable interest and penalties) and other governmental charges;
- the registration fees as may from time to time be in effect for the registration of ordinary shares on the share register and applicable to transfers of ordinary shares to or from the name of the custodian, the depositary or any nominees upon the making of deposits and withdrawals, respectively;
- certain cable, telex and facsimile transmission and delivery expenses;
- the expenses and charges incurred by the depositary in the conversion of foreign currency;
- the fees and expenses incurred by the depositary in connection with the compliance with exchange control regulations and other regulatory requirements applicable to ordinary shares, ADSs and ADRs; and
- the fees and expenses incurred by the depositary, the custodian, or any nominee in connection with the servicing or delivery of deposited property.

ADS fees and charges payable upon (1) deposit of ordinary shares against issuance of ADSs and (2) surrender of ADSs for cancellation and withdrawal of ordinary shares are charged to the person to whom the ADSs are delivered (in the case of ADS issuances) and to the person who delivers the ADS, for cancellation (in the case of ADS cancellations). In the case of ADSs issued by the depositary into DTC or presented to the depositary via DTC, the ADS issuance and cancellation fees and charges may be deducted from distributions made through DTC, and may be charged to the DTC participant(s) receiving the ADSs or the DTC participant(s) surrendering the ADSs for cancellation, as the case may be, on behalf of the beneficial owner(s) and will be charged by the DTC participant(s) to the account(s) of the applicable beneficial owner(s) in accordance with the procedures and practices of the DTC participant(s) as in effect at the time. ADS fees and charges in respect of distributions and the ADS service fee are charged to the holders as of the applicable ADS record date. In the case of distributions of cash, the amount of the applicable ADS fees and charges is deducted from the funds being distributed. In the case of (1) distributions other than cash and (2) the ADS service fee, holders as of the ADS record date will be invoiced for the amount of the ADS fees and charges and such ADS fees and charges may be deducted from distributions made to holders of ADSs. For ADSs held through DTC, the ADS fees and charges for distributions other than cash and the ADS service fee may be deducted from distributions made through DTC, and may be charged to the DTC participants in accordance with the procedures and practices prescribed by DTC and the DTC participants in turn charge the amount of such ADS fees and charges to the beneficial owners for whom they hold ADSs.

In the event of refusal to pay the depositary fees, the depositary may, under the terms of the deposit agreement, refuse the requested service until payment is received or may set off the amount of the depositary fees from any distribution to be made to the ADS holder.

The fees and charges you may be required to pay may vary over time and may be changed by us and by the depositary. You will receive prior notice of such changes. The depositary may reimburse us for certain expenses incurred by us in respect of the ADR program, by making available a portion of the ADS fees charged in respect of the ADR program or otherwise, upon such terms and conditions as we and the depositary agree from time to time.

Depositary Payments for 2018

From time to time, the Depositary may make payments to us to reimburse and/or share revenue from the fees collected from ADS holders, or waive fees and expenses for services provided, generally relating to costs and expenses arising out of establishment and maintenance of the ADS program. In performing its duties under the deposit agreement, the Depositary may use brokers, dealers or other service providers that are affiliates of the Depositary and that may earn or share fees or commissions.

For the year ended December 31, 2018, Citibank, N.A., as Depositary, had made reimbursements to the Company of \$151 thousand.

PART II

ITEM 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES.

Not applicable.

ITEM 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS.

Initial Public Offering

In March 2015, we sold 5,500,000 ADSs, each representing one ordinary share, nominal value €0.05, in our initial public offering at a price of \$41.50 per ADS, for aggregate gross proceeds of approximately \$228.3 million. We incurred aggregate underwriting discounts of approximately \$16.0 million and expenses of approximately \$2.7 million, resulting in net proceeds to us of approximately \$209.6 million. No payments were made directly or indirectly to any director, officer, general partner of ours or to their associates, persons owning ten percent or more of any class of our equity securities, or to any of our affiliates. The offering commenced on March 24, 2015 and did not terminate before all of the securities registered in the registration statement were sold. The effective date of the registration statement, File No. 333-202205, for our initial public offering was March 24, 2015. Merrill Lynch, Pierce, Fenner & Smith Incorporated, Jefferies LLC, Piper Jaffray & Co., Oppenheimer & Co. Inc. and Trout Capital LLC acted as underwriters of the initial public offering.

A portion of the net proceeds from our initial public offering was used for general corporate purposes in connection with the development of our current proprietary immuno-oncology product candidates, for further research and development regarding cell attributes and to develop our manufacturing processes and cell engineering technologies, to pursue new human therapeutics outside of oncology and to advance our agricultural biotechnology business. The balance is held in cash and cash equivalents and current financial assets and is intended to also be used for general corporate purposes. None of the net proceeds of our initial public offering were paid directly or indirectly to any director, officer, general partner of ours or to their associates, persons owning ten percent or more of any class of our equity securities, or to any of our affiliates.

Follow-on Offering

On April 10, 2018, Collectis closed a follow-on offering of 5,646,000 ADS at a public offering price of \$31.00 per ADS resulting in gross proceeds of \$175 million. On May 11, 2018, in connection with the exercise by the underwriters of the follow-on offering of their option to purchase additional shares, Collectis closed the sale of an additional 500,000 ADS at the public offering price of \$31.00 per ADS resulting in additional gross proceeds of \$15.5 million.

ITEM 15. CONTROLS AND PROCEDURES.

(a) Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)) as of the end of the period covered by this Form 20-F, have concluded that our disclosure controls and procedures were effective as of December 31, 2019.

(b) Report of Management on Internal Control Over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Management, with the participation of the Chief Executive Officer and the Chief Financial Officer, has assessed the effectiveness of internal control over financial reporting as of December 31, 2019. Management's assessment was based on the framework in "Internal Control – Integrated Framework" (2013 framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on that assessment, management concluded that, as of December 31, 2019, the Company's internal control over financial reporting was effective to provide reasonable assurance regarding the reliability of its financial reporting and the preparation of its financial statements for external purposes, in accordance with generally accepted accounting principles.

Due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements, and can only provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The effectiveness of the Company's internal control over financial reporting has been audited by Ernst & Young et Autres, independent registered public accounting firm, as stated in their report on the Company's internal control over financial reporting as of December 31, 2019, which is included herein. See paragraph (c) of the present Item 15, below.

(c) See report of Ernst & Young et Autres, independent registered public accounting firm, included under "Item 18. Financial Statements" on page F-3.

(d) We have not made any significant change in internal controls over financial reporting during the year ended December 31, 2019.

ITEM 16. RESERVED

Not applicable.

ITEM 16A. AUDIT COMMITTEE FINANCIAL EXPERT

Our board of directors has determined that Mr. Pierre Bastid, Mr. Laurent Arthaud, and Mr. Hervé Hoppenot are audit and finance committee financial experts as defined by the Securities and Exchange Commission rules and have the requisite financial sophistication under the applicable rules and regulations of the Nasdaq Stock Market. Mr. Pierre Bastid, Mr. Laurent Arthaud, and Mr. Hervé Hoppenot are independent as such term is defined in Rule 10A-3 under the Exchange Act and under the listing standards of the Nasdaq Stock Market.

ITEM 16B. CODE OF ETHICS

We have adopted a Code of Business Conduct and Ethics, or the Code of Conduct that is applicable to all of our employees, executive officers and directors. Following the completion of our initial public offering, the Code of Conduct became available on our website at www.collectis.com. Our board of directors is responsible for overseeing the Code of Conduct and is required to approve any waivers of the Code of Conduct for employees, executive officers and directors. We expect that any amendments to the Code of Conduct, or any waivers of its requirements, will be disclosed on our website.

ITEM 16C. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Ernst & Young et Autres, or Ernst & Young, has served as our independent registered public accounting firm for 2018 and 2019. Our accountants billed the following fees to us for professional services in each of those fiscal years:

	Year Ended December 31,	
	2018	2019
	(\$, in thousands)	
Audit Fees	847*	775*
Audit-Related Fees	—	—
Tax Fees	—	—
Other Fees	—	—
Total	847	775

(*) \$513 and \$375 thousand for Collectis and \$334 and \$400 thousand for Calyxt, respectively for the years ended December 31, 2018 and 2019

“Audit Fees” are the aggregate fees billed for the audit of our annual financial statements. This category also includes services that generally the independent accountant provides, such as consents and assistance with and review of documents filed with the SEC.

“Audit-Related Fees” are the aggregate fees billed for assurance and related services that are reasonably related to the performance of the audit and are not reported under Audit Fees.

“Tax Fees” are the aggregate fees billed for professional services rendered by the principal accountant for tax compliance, tax advice and tax planning related services.

“Other Fees” relate to services provided with respect to our registration statement for our initial public offering.

There were no “Audit Related Fees,” “Tax Fees” either billed or paid during 2018 or 2019.

Audit and Non-Audit Services Pre-Approval Policy

The audit and finance committee has responsibility for appointing, setting compensation of and overseeing the work of the independent registered public accounting firm. In recognition of this responsibility, the audit and finance committee has adopted a policy governing the pre-approval of all audit and permitted non-audit services performed by our independent registered public accounting firm to ensure that the provision of such services does not impair the independent registered public accounting firm’s independence from us and our management. Unless a type of service to be provided by our independent registered public accounting firm has received general pre-approval from the audit and finance committee, it requires specific pre-approval by the audit and finance committee. The payment for any proposed services in excess of pre-approved cost levels requires specific pre-approval by the audit and finance committee. All audit and non-audit services rendered by our independent registered public accounting firm in 2019 were pre-approved by the audit and finance committee.

Pursuant to its pre-approval policy, the audit and finance committee may delegate its authority to pre-approve services to the chairperson of the audit and finance committee. The decisions of the chairperson to grant pre-approvals must be presented to the full audit and finance committee at its next scheduled meeting. The audit and finance committee may not delegate its responsibilities to pre-approve services to the management.

The audit and finance committee has considered the non-audit services provided by Ernst & Young as described above and believes that they are compatible with maintaining Ernst & Young’s independence as our independent registered public accounting firm.

ITEM 16D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

Not applicable.

ITEM 16E. PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Not applicable.

ITEM 16F. CHANGE IN REGISTRANT’S CERTIFYING ACCOUNTANT

Not applicable.

ITEM 16G. CORPORATE GOVERNANCE

As a French *société anonyme*, we are subject to various corporate governance requirements under French law. In addition, as a foreign private issuer listed on the Nasdaq Global Market, we will be subject to the Nasdaq corporate governance listing standards. However, the Nasdaq Global Market’s listing standards provide that foreign private issuers are permitted to follow home country corporate governance practices in lieu of the Nasdaq rules, with certain exceptions. Certain corporate governance practices in France may differ significantly from corporate governance listing standards. For example, neither the corporate laws of France nor our By-laws require that (i) a majority of our directors be independent, (ii) our compensation committee include only independent directors, or (iii) our independent directors hold regularly scheduled meetings at which only independent directors are present. Other than as set forth below, we currently intend to comply with the corporate governance listing standards of Nasdaq to the extent possible under French law. However, we may choose to change such practices to follow home country practice in the future.

Although we are a foreign private issuer, we are required to comply with Rule 10A-3 of the Exchange Act, relating to audit committee composition and responsibilities. Rule 10A-3 provides that the audit committee must have direct responsibility for the nomination, compensation and choice of our auditors, as well as control over the performance of their duties, management of complaints made, and selection of consultants. Under Rule 10A-3, if the laws of a foreign private issuer’s home country require that any such matter be approved by the board of directors or the shareholders of the Company, the audit committee’s responsibilities or powers with respect to such matter may instead be advisory. Under French law, the audit committee may only have an advisory role and appointment of our statutory auditors, in particular, must be decided by our shareholders at our annual meeting.

In addition, Nasdaq rules require that a listed company specify that the quorum for any meeting of the holders of share capital be at least 33 1/3% of the outstanding shares of the company’s common voting stock. We follow our French home country practice, rather than complying with this Nasdaq rule. Consistent with French Law, our By-laws provide that when first convened, general meetings of shareholders may validly convene only if the shareholders present or represented hold at least (1) 20% of the voting shares in the case of an ordinary general meeting or of an extraordinary general meeting where shareholders are voting on a capital increase by capitalization of reserves, profits or share premium, or (2) 25% of the voting shares in the case of any other extraordinary general meeting. If such quorum required by French law is not met, the meeting is adjourned. There is no quorum requirement under French law when an ordinary general meeting or an extraordinary general meeting where shareholders are voting on a capital increase by capitalization of reserves, profits or share premium is reconvened, but the reconvened meeting may consider only questions that were on the agenda of the adjourned meeting. When any other extraordinary general meeting is reconvened, the required quorum under French law is 20% of the shares entitled to vote. If a quorum is not met at a reconvened meeting requiring a quorum, then the meeting may be adjourned for a maximum of two months.

Further, Nasdaq rules require that listed companies have a nominations committee comprised solely of independent directors. We follow our French home country practice, as described under “—Board Composition,” rather than complying with this Nasdaq rule.

Finally, Nasdaq rules require shareholder approval when a plan or other equity compensation arrangement is established or materially amended. While the Company may, from time to time, obtain shareholder approval of an equity compensation arrangement in order to obtain advantageous tax treatment or otherwise, as a general matter, we intend to follow our French home country practice, which does not require shareholder approval of such plans or arrangements, rather than complying with this Nasdaq rule.

Board Committees

The board of directors has established an audit and finance committee and a compensation committee, each of which operates pursuant to a separate charter adopted by our board of directors. The board of directors has also established a scientific committee. The composition and functioning of all of our committees will comply with all applicable requirements of the French Commercial Code, the Exchange Act, the Nasdaq Global Market, and the rules and regulations of the SEC.

In accordance with French law, committees of our board of directors will only have an advisory role and can only make recommendations to our board of directors. As a result, decisions will be made by our board of directors taking into account non-binding recommendations of the relevant board committee.

Audit and Finance Committee. Our audit and finance committee reviews our internal accounting procedures, consults with and reviews the services provided by our independent registered public accountants and assists our board of directors in its oversight of our corporate accounting and financial reporting. Currently, our audit and finance committee is comprised of three members of the board of directors: Messrs. Bastid, Arthaud and Hoppenot..

The duties specifically assigned to the audit and finance committee by our board of directors include, but are not limited to:

- with regard to our financial statements:
 - review on a preliminary basis and express its opinion on the draft annual and quarterly financial statements prior to the board of directors officially receiving the financial statements;
 - examine the critical accounting policies and practices of the Company, including their relevance and consistency used for the preparation of the Company's consolidated financial statements and rectify any failure to comply with these policies and practices;
 - monitor the scope of consolidation and review, where necessary, any explanations in connection thereto;
 - interview, when necessary, the statutory auditors, the chairman of the board of directors, the chief executive officer, the chief financial officer, the employees in charge of our internal controls or any other management personnel; these discussions may take place, where required, without the presence of the chairman of our board of directors and the chief executive officer; and
 - examine—prior to their publication—the draft annual and interim financial statements, the draft annual report and any other draft financial statements (including projected financial statements) prepared for the needs of upcoming material transactions together with the related press releases;
- with regard to internal controls:
 - assess the efficiency and quality of internal control systems and procedures within the consolidated Company;
 - examine, with the persons in charge of the internal audit, and, if necessary, outside of the presence of the chairman of the board of directors and the chief executive officer, the contingency and action plans with respect to internal audit, the findings following the implementation of these actions and the recommendations and follow-up actions in connection therewith; and
 - entrust the internal audit department with any mission which the committee deems necessary;
- with regard to external controls:
 - examine any question relating to the appointment, renewal or dismissal of our statutory auditors and their fees regarding the performance of their control review functions;
 - oversee the rules relating to the use of the statutory auditors for assignments other than the audit of the financial statements and, more generally, ensure that we comply with the principles guaranteeing the statutory auditors' independence;
 - at least annually, review and discuss the information provided by management and the auditors relating to the independence of the audit firm;
 - pre-approve any services entrusted to the statutory auditors which is outside of the scope of the annual audit;
 - review every year with the statutory auditors all fees paid to by the Company and its subsidiaries to any networks to which the auditors belong, their work plan, their findings and recommendations, as well as actions taken by us following such recommendations;
 - review and discuss with the statutory auditors their comments on internal controls over financial reporting and any matters that have come to the attention of the statutory auditors that lead them to believe that modification to our disclosures about changes in internal control over financial reporting is necessary for management's certifications pursuant to Section 302 of the Sarbanes-Oxley Act;
 - discuss if necessary any points of disagreement between the statutory auditors and the officers of the Company that may arise within the scope of these operations; and
 - review and discuss with the statutory auditors the plans for, and the scope of, the annual audit and other examinations; and

[Table of Contents](#)

- with regard to risks:
 - review on a regular basis the financial situation, the cash position and the material risks and undertakings of the Company and its subsidiaries; and
 - review the risk management policy and the process implemented to evaluate and manage these risks.

Compensation Committee. Our compensation committee assists our board of directors in reviewing the compensation of our executive officers and directors and makes recommendations in respect thereof. Currently, our compensation committee is comprised of two members of the board of directors: Mr. Godard and Dr. Schwebig. The principal duties and responsibilities of our compensation committee include, but are not limited to:

- review the compensation of our employees and managers of the Company and its subsidiaries (fixed and variable compensations, bonus, etc.) and make any recommendation to our board of directors in connection therewith;
- review equity incentive plans (non-employee warrants, stock options, restricted (free) shares, etc.) and make recommendations to our board of directors in connection therewith;
- make recommendations to our board of directors regarding the compensation, pension and insurance plans, benefits in kind and other various pecuniary rights, of officers, as well as the allocation of equity incentive instruments granted to executive officers and directors of the Company;
- evaluate and make recommendations on the compensation policies and programs of executive officers and on the compensation of directors;
- recommend the approval, adoption and amendment of all cash- and equity-based incentive compensation plans in which any of our executive officers or directors participate and all other equity-based plans;
- review any proposed employment agreement with, and any proposed severance or retention plans or agreements applicable to, any of our executive officers;
- review, at least annually, corporate goals and objectives relevant to the compensation of our executive officers; and
- evaluate the performance of the executive officers in light of corporate goals and objectives and recommend compensation levels for these executive officers based on those evaluations and any other factors the compensation committee deems appropriate.

ITEM 16H. MINE SAFETY DISCLOSURE

Not applicable.

PART III

ITEM 17. FINANCIAL STATEMENTS

See pages F-1 through F-54 of this Annual Report.

ITEM 18. FINANCIAL STATEMENTS

Not applicable.

Exhibit Index

The following exhibits are filed as part of this Annual Report:

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/ Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
1.1	By-laws (status) of the registrant (English translation)				Filed herewith
2.1#	Form of Deposit Agreement	F-1	333-202205	4.1	March 10, 2015
2.2#	Form of American Depositary Receipt (included in Exhibit 2.1)	F-1	333-202205	Included in 4.1	March 10, 2015
2.3	Description of Securities registered under Section 12 of the Exchange Act				Filed herewith
4.1	[Reserved]				
4.2#	Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated October 19, 2000 (English translation)	20-F	001-36891	4.2	March 12, 2019
4.2.1#	Amendment No. 1 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated September 8, 2003 (English translation)	20-F	001-36891	4.2.1	March 12, 2019
4.2.2#	Amendment No. 2 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated June 24, 2004 (English translation)	20-F	001-36891	4.2.2	March 12, 2019
4.2.3#	Amendment No. 3 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated August 24, 2005 (English translation)	20-F	001-36891	4.2.3	March 12, 2019
4.2.4#	Amendment No. 4 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated December 27, 2007 (English translation)	20-F	001-36891	4.2.4	March 12, 2019

Table of Contents

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/ Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
4.3#	Patent License Agreement #C-00061905 between L'Institut Pasteur and Collectis S.A., dated June 19, 2000 (English translation)	20-F	001-36891	4.3	March 12, 2019
4.3.1#	Amendment No. 1 to Patent License Agreement #C-00061905 between L'Institut Pasteur and Collectis S.A., dated September 8, 2003 (English translation)	20-F	001-36891	4.3.1	March 12, 2019
4.4	[Reserved]				
4.5	[Reserved]				
4.6#*	Exclusive Patent License Agreement between Regents of the University of Minnesota and Collectis S.A., dated January 10, 2011	F-1	333-202205	10.6	March 12, 2015
4.6.1#*	First Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Collectis S.A., dated May 24, 2012	F-1	333-202205	10.6.1	March 12, 2015
4.6.2#*	Second Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Collectis S.A., dated April 1, 2014	F-1	333-202205	10.6.2	March 12, 2015
4.6.3#*	Third Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Collectis S.A., dated December 16, 2015	20-F	001-36891	4.6.3	March 13, 2018
4.7#	Patent & Technology License Agreement between Ohio State Innovation Foundation and Collectis S.A., dated October 23, 2014	20-F	001-36891	4.7	March 12, 2019
4.8	[Reserved]				
4.9	[Reserved]				
4.10†#	Change of Control Plan, effective as of September 4, 2014 (English translation)	F-1	333-202205	10.10	March 10, 2015
4.11†#	Summary of BSA Plan	F-1	333-202205	10.11	March 10, 2015
4.12†#	Summary of BSPCE Plan	F-1	333-202205	10.12	March 10, 2015
4.13†#	2012 Free Share Plan	F-1	333-202205	10.13	March 10, 2015
4.14†#	2013 Free Share Plan	F-1	333-202205	10.14	March 10, 2015
4.15†#	2014 Free Share Plan	F-1	333-202205	10.15	March 10, 2015
4.16†#	2015 Free Share Plan	20-F	001-36891	4.16	March 10, 2015
4.17†#	2016 Free Share Plan	20-F	001-36891	4.17	March 10, 2015
4.18†#	2016 Stock Option Plan	S-8	333-214884	99.1	December 2, 2016
4.19†#	2017 Stock Option Plan	S-8	333-222482	99.1	January 9, 2018
4.20†#	Summary of BSA Plan	S-8	333-222482	99.2	January 9, 2018
4.21†#	Free Share 2018 Plan	S-8 POS	333-222482	99.3	April 13, 2018
4.22†#	2018 Stock Option Plan	S-8	333-227717	99.1	October 5, 2018
4.23†#	Summary of BSA Plan	S-8	333-227717	99.2	October 5, 2018
4.24†#	Second Free Share 2018 Plan	S-8	333-227717	99.3	October 5, 2018
4.25#**	License Agreement between Allogene Therapeutics, Inc. and Collectis S.A. dated March 7, 2019	20-F/A	001-36891	4.25	April 25, 2019
4.26#**	License, Development and Commercialization Agreement between Les Laboratoires Servier and Collectis S.A. dated March 6, 2019	20-F/A	001-36891	4.26	April 25, 2019

Table of Contents

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/ Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
4.26.1**	Amendment No. 1 to License, Development and Commercialization Agreement between Les Laboratoires Servier and Collectis S.A. dated March 4, 2020				Filed herewith
4.27#	Management Services Agreement between Collectis S.A., Collectis, Inc. and Calyxt, Inc. dated as of January 1, 2016	20-F	001-36891	4.27	March 12, 2019
4.27.1#	Management Services Agreement Amendment dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.28	March 12, 2019
4.27.2	Second Amendment to the Management Services Agreement Amendment dated January 29, 2020 between Collectis S.A., Collectis Inc., Collectis Biologics, Inc. and Calyxt, Inc.				Filed herewith
4.28	[Reserved]				
4.29#	Separation Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.29	March 12, 2019
4.30#	Stockholders Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.30	March 12, 2019
4.30.1	Amendment No. 1 to Stockholders Agreement dated May 7, 2018 between Collectis S.A. and Calyxt Inc.				Filed herewith
4.31#	License Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.31	March 12, 2019
8.1	List of subsidiaries of the registrant				Filed herewith
12.1	Certificate of Principal Executive Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith
12.2	Certification by the Principal Financial Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith
13.1	Certification by the Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				Filed herewith
13.2	Certification by the Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				Filed herewith
15.1	Consent of Ernst & Young et Autres				Filed herewith

† Indicates a management contract or any compensatory plan, contract or arrangement.

Indicates a document previously filed with the Commission.

* Confidential treatment has been granted with respect to certain portions of this exhibit (indicated by asterisks).

** Portions of this exhibit (indicated by asterisks) have been omitted because they are not material and would likely cause competitive harm if disclosed.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Financial Statements for the Years Ended December 31, 2017, 2018 and 2019:

Reports of Independent Registered Public Accounting Firm	F-2
Statements of Consolidated Financial Position as of December 31, 2018 and 2019	F-5
Statements of Consolidated Operations for the Years Ended December 31, 2017, 2018 and 2019	F-6
Statements of Consolidated Comprehensive Income (Loss) for the Years Ended December 31, 2017, 2018 and 2019	F-7
Statements of Consolidated Cash Flows for the Years Ended December 31, 2017, 2018 and 2019	F-8
Statements of Consolidated Changes in Shareholders' Equity for the Years Ended December 31, 2017, 2018 and 2019	F-9
Notes to the Consolidated Financial Statements	F-11

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Collectis S.A.

Opinion on the Consolidated Financial Statements

We have audited the accompanying statements of consolidated financial position of Collectis S.A. (the Company) as of December 31, 2019 and 2018, and the related statements of consolidated operations, consolidated comprehensive loss, consolidated cash flows and changes in consolidated shareholders' equity for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Company at December 31, 2019 and 2018, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board and in accordance with International Financial Reporting Standards as endorsed by the European Union.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in the Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 4, 2020 expressed an unqualified opinion thereon.

Change in Accounting Principle

As discussed in note 2.2 to the consolidated financial statements, the Company changed its method for accounting for leases effective January 1, 2019, due to the adoption of IFRS 16, "Leases".

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue recognition from contracts with customers

Description of the Matter

As discussed in section “Collaboration agreements and licenses” of Note 3.1 “Revenues and other income” in the consolidated financial statements, the Company earns revenue under collaboration and license agreements with its customers, that consist of: the licensing of rights to technology, research and development programs, research and development cost reimbursements and royalties.

Under certain agreements, the Company received non-refundable upfront payments and may receive milestone payments.

The Company evaluates the agreements to determine: the separate performance obligations, including performance obligations to which non-refundable upfront payments relate, the transaction price (which may include variable consideration), the allocation of the transaction price to the performance obligations, and the timing of the satisfaction of the performance obligations.

Based on its analysis, the Company has determined that certain non-refundable upfront payments should be deferred and recognized as revenue when the performance obligation is satisfied. When a specific research and development program is put on hold, revenue recognition would continue to be deferred until research and development efforts resume or a decision is made to abandon the project. Since the related research and development projects were put on-hold, Collectis did not recognize any revenue for the year ended December 31, 2019 on these projects, and deferred revenues and contract liabilities amounted to \$19.7 million as of December 31, 2019.

Recognition of milestone payments is dependent upon the achievement of certain scientific, regulatory, or commercial milestones and whether it is highly probable that any revenue recognized will not be subsequently reversed. This requires consideration of whether the performance obligation is achieved and may be when the triggering event has occurred, there are no further contingencies or services to be provided with respect to that event, and the co-contracting party has no right to require refund of payment. During the year ended December 31, 2019, the Company recognized \$5.0 million of revenue based on one milestone achievement.

Auditing the Company’s determination of the separate performance obligations, of the transaction price (including variable consideration), and of the satisfaction of the performance obligations required a high degree of auditor judgment associated with the determination that the performance obligations have been satisfied or the milestones achieved.

How We Addressed the Matter in Our Audit

We obtained an understanding of and evaluated the design and tested the operating effectiveness of controls over the Company’s revenue recognition process related to collaboration agreements including the accounting for upfront, milestone payments; and licenses. For example, we tested controls over management’s assessment of its contractual arrangements including its determination of the separate performance obligations, its determination of the transaction price (including variable consideration), the allocation of the transaction price to the performance obligations and the determination of the satisfaction of the performance obligations.

To assess management’s conclusions regarding whether deferred revenue and milestone payments should be recognized as revenue during the year, our audit procedures included, among others, evaluating the appropriateness of the Company’s accounting policy for each type of arrangement by inspecting and analyzing collaboration and license agreements and the related amendments; reading and analyzing the minutes of the relevant research committees and inquiring of management regarding the status of the related research and development projects or, for milestones, inspecting and analyzing the notification from the customer of the occurrence of any trigger event, and assessing the disclosures in the related footnotes.

/s/ Ernst & Young et Autres

Ernst & Young et Autres has served as the Company’s auditor since 2012.

Paris-La Défense, March 4, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Collectis S.A.

Opinion on Internal Control over Financial Reporting

We have audited Collectis S.A.'s (the "Company") internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) (the COSO criteria). In our opinion, Collectis S.A. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the statements of consolidated financial position of the Company as of December 31, 2019 and 2018, and the related statements of consolidated operations, consolidated comprehensive loss, consolidated cash flows and changes in consolidated shareholders' equity for each of the three years in the period ended December 31, 2019 and the related notes, and our report dated March 4, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Report of Management on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures may deteriorate.

/s/ Ernst & Young et Autres

Paris-La Défense, March 4, 2020

Collectis S.A.
STATEMENTS OF CONSOLIDATED FINANCIAL POSITION
\$ in thousands

	Notes	As of	
		December 31, 2018	December 31, 2019*
ASSETS			
Non-current assets			
Intangible assets	5	1,268	1,108
Property, plant, and equipment	7	10,041	23,712
Right-of-use assets	6	—	45,612
Other non-current financial assets	8.2	1,891	5,517
Total non-current assets		13,199	75,949
Current assets			
Inventories	9	275	2,897
Trade receivables	10.1	2,971	2,959
Subsidies receivables	10.2	17,173	9,140
Other current assets	10.3	15,333	15,617
Current financial assets	11.1	388	20,385
Cash and cash equivalents	11.2	451,501	340,522
Total current assets		487,641	391,520
TOTAL ASSETS		500,840	467,469
LIABILITIES			
Shareholders' equity			
Share capital	15	2,765	2,767
Premiums related to the share capital	15	828,525	843,478
Currency translation adjustment		(16,668)	(22,641)
Retained deficit		(326,628)	(406,390)
Net income (loss)		(78,693)	(102,091)
Total shareholders' equity - Group Share		409,301	315,123
Non-controlling interests		40,970	40,347
Total shareholders' equity		450,272	355,470
Non-current liabilities			
Non-current lease debts	12	1,018	46,540
Non-current provisions	18	2,681	2,855
Total non-current liabilities		3,699	49,395
Current liabilities			
Current lease debts	12	333	1,067
Trade payables	12	15,883	29,264
Deferred revenues and contract liabilities	14	20,754	20,033
Current provisions	18	1,530	3,743
Other current liabilities	13	8,369	8,497
Total current liabilities		46,869	62,604
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		500,840	467,469

The accompanying notes form an integral part of these Consolidated Financial Statements

- (*) The 2019 Consolidated Financial Statements have been prepared according to the new IFRS 16 "Leases" standard with a new "right-of-use assets" category and a resulting significant increase of "lease debts" compared to the previous period (see note 2.2 for discussion of the application of IFRS 16 "Leases" from January 1, 2019 under the modified retrospective transition method). Prior periods have not been restated for the adoption.

Collectis S.A.
STATEMENTS OF CONSOLIDATED OPERATIONS
For the year ended December 31
\$ in thousands, except per share amounts

	Notes	For the year ended December 31,		
		2017	2018	2019*
Revenues and other income				
Revenues	3.1	25,188	12,731	15,190
Other income	3.1	8,528	8,701	7,800
Total revenues and other income		33,715	21,432	22,990
Operating expenses				
Cost of revenue	3.2	(2,620)	(2,739)	(11,392)
Research and development expenses	3.2	(79,227)	(76,567)	(92,042)
Selling, general and administrative expenses	3.2	(44,750)	(47,248)	(43,017)
Other operating income (expenses)		232	31	(91)
Total operating expenses		(126,366)	(126,523)	(146,542)
Operating income (loss)		(92,650)	(105,091)	(123,552)
Financial income	3.3	7,262	20,572	11,971
Financial expenses	3.3	(18,294)	(3,813)	(3,631)
Financial gain (loss)		(11,032)	16,758	8,340
Income tax		—	—	—
Net income (loss)		(103,683)	(88,333)	(115,212)
Attributable to shareholders of Collectis		(99,368)	(78,693)	(102,091)
Attributable to non-controlling interests		(4,315)	(9,640)	(13,121)
Basic / Diluted net income (loss) per share attributable to shareholders of Collectis	17			
Basic net income (loss) attributable to shareholders of Collectis per share (\$ /share)		(2.78)	(1.93)	(2.41)
Diluted net income (loss) attributable to shareholders of Collectis per share (\$ /share)		(2.78)	(1.93)	(2.41)

The accompanying notes form an integral part of these Consolidated Financial Statements

(*) **The 2019 Consolidated Financial Statements have been prepared according to the new IFRS 16 “Leases” standard with a new “right-of-use assets” category and a resulting significant increase of “lease debts” compared to the previous period (see note 2.2 for discussion of the application of IFRS 16 “Leases” from January 1, 2019 under the modified retrospective transition method). Prior periods have not been restated for the adoption.**

STATEMENTS OF CONSOLIDATED COMPREHENSIVE INCOME (LOSS)
For the year ended December 31
\$ in thousands

	For the year ended December 31,		
	2017	2018	2019
Net income (loss)	(103,683)	(88,333)	(115,212)
Actuarial gains and losses	(515)	70	(303)
Other comprehensive income (loss) that will not be reclassified subsequently to income or loss	(515)	70	(303)
Currency translation adjustment	23,512	(19,192)	(5,714)
Commodity derivative contracts			17
Other comprehensive income (loss) that will be reclassified subsequently to income or loss	23,512	(19,192)	(5,697)
Total Comprehensive income (loss)	(80,686)	(107,455)	(121,212)
Attributable to shareholders of Collectis	(75,963)	(97,125)	(108,356)
Attributable to non-controlling interests	(4,723)	(10,330)	(12,856)

The accompanying notes form an integral part of these Consolidated Financial Statements

Collectis S.A.
STATEMENTS OF CONSOLIDATED CASH FLOWS
For the year ended December 31
\$ in thousands

	Notes	For the year ended December 31,		
		2017	2018	2019*
Cash flows from operating activities				
Net loss for the period		(103,683)	(88,333)	(115,212)
Reconciliation of net loss and of the cash provided by (used in) operating activities				
Adjustments for				
Amortization and depreciation		3,371	2,377	6,875
Net loss (income) on disposals		40	20	15
Net financial loss (gain)		11,032	(16,759)	(8,340)
Expenses related to share-based payments		50,418	37,218	26,880
Provisions		2,908	(468)	2,093
Other non cash items		2	—	85
Interest (paid) / received		1,371	6,905	6,808
Operating cash flows before change in working capital		(34,540)	(59,040)	(80,796)
Decrease (increase) in inventories		(109)	(37)	(2,627)
Decrease (increase) in trade receivables and other current assets		(549)	(3,696)	(2,674)
Decrease (increase) in subsidies receivables		305	(8,257)	7,359
(Decrease) increase in trade payables and other current liabilities		(335)	9,374	9,635
(Decrease) increase in deferred income		(17,099)	(6,480)	(39)
Change in working capital		(17,787)	(9,096)	11,654
Net cash flows provided by (used in) operating activities		(52,327)	(68,137)	(69,142)
Cash flows from investing activities				
Proceeds from disposal of property, plant and equipment		7,164	1,262	414
Acquisition of intangible assets		(273)	(171)	(45)
Acquisition of property, plant and equipment		(2,383)	(4,715)	(12,913)
Net change in non-current financial assets		(125)	221	(3,636)
Sale (Acquisition) of current financial assets		(2,598)	39,025	(19,692)
Net cash flows provided by (used in) investing activities		1,784	35,623	(35,872)
Cash flows from financing activities				
Increase in share capital net of transaction costs		2,930	186,382	—
Shares of Calyxt issued to / (purchased from) third parties		38,257	49,942	(469)
Decrease in borrowings		(41)	(127)	—
Payments on lease debts		—	—	(3,393)
Treasury shares		120	297	—
Net cash flows provided by (used in) financing activities		41,266	236,494	(3,862)
(Decrease) increase in cash and cash equivalents		(9,277)	203,981	(108,876)
Cash and cash equivalents at the beginning of the year		254,568	256,380	451,501
Effect of exchange rate changes on cash		11,089	(8,860)	(2,103)
Cash and cash equivalents at the end of the period	10	256,380	451,501	340,522

We present our consolidated statements of cash flows using the indirect method.

The accompanying notes form an integral part of these Consolidated Financial Statements

(*) The 2019 Consolidated Financial Statements have been prepared according to the new IFRS 16 “Leases” standard with a new “right-of-use assets” category and a resulting significant increase of “lease debts” compared to the previous period (see note 2.2 for discussion of the application of IFRS 16 “Leases” from January 1, 2019 under the modified retrospective transition method). Prior periods have not been restated for the adoption.

Collectis S.A.
STATEMENTS OF CHANGES IN CONSOLIDATED SHAREHOLDERS' EQUITY
For the year ended December 31
\$ in thousands, except share data

	Notes	Share Capital Ordinary Shares		Premiums related to share capital	Treasury shares reserve	Currency translation adjustment	Retained earnings (deficit)	Income (Loss)	Equity		Total Shareholders' Equity
		Number of shares	Amount						attributable to shareholders of Collectis	Non controlling interests	
As of January 1, 2017, as restated (*)		35,335,060	2,332	568,185	(416)	(22,085)	(209,651)	(67,255)	271,109	1,876	272,984
Net Loss		—	—	—	—	—	—	(99,368)	(99,368)	(4,315)	(103,683)
Other comprehensive income (loss)		—	—	—	—	23,920	(515)	—	23,405	(408)	22,997
Total comprehensive income (loss)		—	—	—	—	23,920	(515)	(99,368)	(75,963)	(4,723)	(80,686)
Allocation of prior period loss		—	—	—	—	—	(67,255)	67,255	—	—	—
Capital Increase	14.1	466,950	26	—	—	—	(26)	—	—	—	—
Transaction with subsidiaries (1)		—	—	—	—	—	23,747	—	23,747	14,510	38,257
Treasury shares		—	—	—	120	—	—	—	120	—	120
Exercise of share warrants, employee warrants and stock options	14.1	158,052	9	2,921	—	—	—	—	2,930	—	2,930
Non-cash stock-based compensation expense	15	—	—	42,968	—	—	—	—	42,968	7,450	50,418
Other movements		—	—	(37)	—	—	(1)	—	(38)	—	(38)
As of December 31, 2017, as restated (*)		<u>35,960,062</u>	<u>2,367</u>	<u>614,037</u>	<u>(297)</u>	<u>1,835</u>	<u>(253,702)</u>	<u>(99,368)</u>	<u>264,873</u>	<u>19,113</u>	<u>283,986</u>

[Table of Contents](#)

As of January 1, 2018, as restated (*)		35,960,062	2,367	614,037	(297)	1,835	(253,702)	(99,368)	264,873	19,113	283,986
Net Loss		—	—	—	—	—	—	(78,693)	(78,693)	(9,640)	(88,333)
Other comprehensive income (loss)		—	—	—	—	(18,502)	70	—	(18,432)	(690)	(19,122)
Total comprehensive income (loss)		—	—	—	—	(18,502)	70	(78,693)	(97,125)	(10,330)	(107,455)
Allocation of prior period loss		—	—	—	—	—	(99,368)	99,368	—	—	—
Capital Increase	14.1	6,146,000	379	178,230	—	—	2	—	178,611	—	178,611
Transaction with subsidiaries (2)		—	—	—	—	—	26,454	—	26,454	23,488	49,942
Treasury shares		—	—	—	297	—	(58)	—	239	—	239
Exercise of share warrants, employee warrants and stock options	14.1	324,007	19	7,751	—	—	—	—	7,770	—	7,770
Non-cash stock-based compensation expense	15	—	—	28,507	—	—	—	—	28,507	8,711	37,218
Other movements		—	—	—	—	—	(28)	—	(28)	(12)	(40)
As of December 31, 2018		42,430,069	2,765	828,525	—	(16,668)	(326,628)	(78,693)	409,301	40,970	450,272
As of January 1, 2019		42,430,069	2,765	828,525	—	(16,668)	(326,628)	(78,693)	409,301	40,970	450,272
Net Loss		—	—	—	—	—	—	(102,091)	(102,091)	(13,121)	(115,212)
Other comprehensive income (loss)		—	—	—	—	(5,972)	(292)	—	(6,265)	265	(6,000)
Total comprehensive income (loss)		—	—	—	—	(5,972)	(292)	(102,091)	(108,356)	(12,856)	(121,212)
Allocation of prior period loss		—	—	—	—	—	(78,693)	78,693	—	—	—
Capital Increase	14.1	35,600	2	—	—	—	(2)	—	—	—	—
Transaction with subsidiaries (3)		—	—	—	—	—	(773)	—	(773)	304	(469)
Exercise of share warrants, employee warrants and stock options	14.1	—	—	—	—	—	—	—	—	—	—
Non-cash stock-based compensation expense	15	—	—	14,951	—	—	—	—	14,950	11,929	26,879
Other movements		—	—	2	—	—	(2)	—	—	—	—
As of December 31, 2019		42,465,669	2,767	843,478	—	(22,641)	(406,390)	(102,091)	315,123	40,347	355,470

The accompanying notes form an integral part of these Consolidated Financial Statements

- (1) Net proceeds to Calyxt from the Calyxt IPO of \$58.0 million after deduction of \$3.1 million of underwriting discounts and commissions and \$3.3 million of other offering expenses. Equity of Calyxt attributable to non-controlling interests of 20.3% was \$11.8 million and equity of Calyxt attributable to Collectis of 79.3% is \$26.4 million (after consideration of Collectis' investment in shares of Calyxt issued as part of the Calyxt IPO for a purchase price of \$20 million).
 - (2) On May 22, 2018, Calyxt Inc completed a follow-on offering of its common stock. Calyxt Inc sold an aggregate of 4,057,500 shares of common stock at a price of \$15.00 per share, including 457,500 shares of common stock pursuant to the exercise of the underwriters' option to purchase additional shares. In the aggregate, Calyxt Inc received net proceeds from the follow-on offering and exercise of the overallotment option of approximately \$57.0 million, after deducting underwriting discounts and commissions of \$3.2 million and offering expenses totaling approximately \$0.7 million. As part of the follow-on offering, Collectis SA purchased 550,000 shares of common stock for a value of \$8.3 million. Transaction with subsidiaries also includes the exercise of 592,342 Calyxt stock options during the period for \$2.4 million, partially offset by Collectis' purchase on June 14, 2018 of 63,175 shares of Calyxt common stock from employees and nonemployees of Calyxt and Collectis at a price of \$19.49 per share (the closing price reported on the Nasdaq Global Market on June 14, 2018) for \$1.2 million.
 - (3) Corresponds to the impact of Calyxt stock options exercises during the period.
- (*) **Reflects the application of IFRS15 with effect from January 1, 2018 using the full retrospective method.**

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 2019**

Note 1. The Company

Collectis S.A. (hereinafter “Collectis” or “we”) is a limited liability company (“société anonyme”) registered and domiciled in Paris, France. We are a clinical-stage biotechnological company, employing our core proprietary technologies to develop best-in-class products in the field of immuno-oncology. Our product candidates, based on gene-edited T-cells that express chimeric antigen receptors, or CARs, seek to harness the power of the immune system to target and eradicate cancer cells. Our gene-editing technologies allow us to create allogeneic CAR T-cells, meaning they are derived from healthy donors rather than the patients themselves. Our gene editing expertise also enables us to develop product candidates that feature additional safety and efficacy attributes, including control properties designed to prevent them from attacking healthy tissues, to enable them to tolerate standard oncology treatments, and to equip them to resist mechanisms that inhibit immune-system activity. In addition to our focus on immuno-oncology, we are exploring the use of our gene-editing technologies in other therapeutic applications, as well as through our subsidiary, Calyxt, to deliver plant-based solutions that are healthy and sustainable.

Collectis S.A., Collectis, Inc., Collectis Biologics Inc. (which was incorporated on January 18, 2019) and Calyxt, Inc. are sometimes referred to as a consolidated group of companies as the “Group.”

Note 2. Accounting principles

2.1 Basis for preparation

The Consolidated Financial Statements of Collectis as of and for the year ended December 31, 2019 were approved by our Board of Directors on March 4, 2020.

Our Consolidated Financial Statements are presented in U.S. dollars. See Note 2.4.

The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”) and in accordance with IFRS as endorsed by the European Union.

The Consolidated Financial Statements have been prepared using the historical cost measurement basis except for certain assets and liabilities that are measured at fair value in accordance with IFRS.

IFRS include International Financial Reporting Standards (“IFRS”), International Accounting Standards (“the IAS”), as well as the interpretations issued by the Standards Interpretation Committee (“the SIC”), and the International Financial Reporting Interpretations Committee (“IFRIC”). The significant accounting methods used to prepare the Consolidated Financial Statements are described below.

Application of new or amended standards or new amendments

The following pronouncements and related amendments have been adopted by us from January 1, 2019 but had no significant impact on the Consolidated Financial Statements:

- Amendment to IFRS 9 “Financial Instruments – Prepayment Features with Negative Compensation” (applicable for periods beginning after January 1, 2019)
- IFRIC 23 “Uncertainty over Income Tax Treatments” (applicable for periods beginning after January 1, 2019)
- Amendment to IAS 28 “Long-term Interests in Associates and Joint Ventures” (applicable for periods beginning after January 1, 2019)
- Amendment to IAS 19 “Plan Amendment, Curtailment or Settlement” (applicable for periods beginning after January 1, 2019)

[Table of Contents](#)

- Annual Improvements to IFRSs 2015–2017 Cycle (Amendments to IFRS 3, IFRS 11, IAS 12 and IAS 23, applicable for periods beginning after January 1, 2019)

Standards, interpretations and amendments issued but not yet effective

The following pronouncements and related amendments are applicable for first quarter accounting periods beginning after January 1, 2020. We do not anticipate that the adoption of these pronouncements and amendments will have a material impact on our results of operations, financial position or cash flows.

- Amendments to References to the Conceptual Framework in IFRS Standards (Effective for the accounting periods as of January 1, 2020)
- Amendment to IFRS 3 “Business Combinations” (Effective for the accounting periods as of January 1, 2020 and not yet adopted by the European Union)
- Amendments to IAS 1 “Presentation of financial statements” and IAS 8 “Accounting policies, changes in accounting estimates and errors” (Effective for the accounting periods as of January 1, 2020)
- Amendments to IFRS 9 “Financial instruments”, IAS 39 “Financial instruments: Recognition and Measurement” et IFRS 7 “Financial instruments: Disclosures” (Effective for the accounting periods as of January 1, 2020) - Interest Rate Benchmark Reform
- IFRS 17 “Insurance Contracts” (applicable for periods beginning after January 1, 2021 and not yet adopted by the European Union)

2.2 IFRS16 application

Since January 1, 2019, Collectis has applied the new standard IFRS 16 “Leases”.

Under this standard, a financial asset and a financial liability are recognized for Group leases that meet the standard’s criteria.

The financial statements for prior periods have not been restated in accordance with the transition options of IFRS 16 elected by the Group since Collectis has applied the modified retrospective approach.

The Group uses the two capitalization exemptions provided by the standard:

- lease contracts with a duration of less than 12 months; and
- lease contracts for which the underlying asset has a low value, which has been defined by the Group to be below \$5,000.

The Group has also applied the following practical expedients at the transition date:

- exclusion of initial direct costs from the measurement of the right-of-use asset at the date of initial application;
- accounting for leases for which the lease term ends within 12 months of the date of initial application as short-term leases i.e. accounting for leases expenses in Profit and loss account; and
- the carrying amount of the right-of-use asset and the lease liability at the date of initial application is the carrying amount of the lease asset and lease liability immediately before the date measured applying IAS 17.

[Table of Contents](#)

The following discount rates have been applied:

- building rental in Paris, France (discounting rate 2%), building rental in Roseville, Minnesota, USA and Raleigh, North Carolina, USA (discounting rate of 8%), building rental in New York, New York, USA (discounting rate of 4.4%), and equipment rental (discounting rate 1%).

The main changes introduced by IFRS 16 are the following:

Capitalization of the right-of-use assets for real-estate lease contracts:

Identified lease contracts mainly concern Collectis' Headquarters and R&D buildings in Paris, New York and Raleigh, North Carolina, USA and Calyxt's Headquarters and its production and storage areas in Roseville, Minnesota, USA.

For purposes of IFRS 16, the lease term reflects the Group's reasonable expectation of the period during which the underlying asset will be used.

The discount rate used to calculate the lease debt has been determined, for each portfolio of assets, according to the incremental borrowing rate at the transition date.

The sale and lease-back agreement entered into by Calyxt in the third quarter of 2017 has a defined lease term and was classified as an operating lease agreement under IAS 17. According to IFRS 16, this lease receives the standard accounting treatment for operating leases existing at the date of initial application and the value of the right-of-use asset is adjusted for the amount of the net deferred losses recognized in the statement of financial position immediately before the date of initial application, which was \$1.8 million.

Accounting for the other assets leases:

The main lease contracts identified correspond to office and laboratory equipment.

Table of Contents

The cumulative effect of initially applying IFRS 16 has been recognized as an adjustment to the opening balance sheet at the date of initial application, January 1, 2019, as presented in the table below:

	January 1, 2019 as presented	IFRS 16 restatement	January 1, 2019 as restated
ASSETS			
Non-current assets			
Intangible assets	1,268		1,268
Property, plant, and equipment	10,041	(1,309)	8,732
Right-of-use assets	—	37,569	37,569
Other non-current financial assets	1,891		1,891
Total non-current assets	13,199	36,260	49,460
Current assets			
Inventories	275		275
Trade receivables	2,971		2,971
Subsidies receivables	17,173		17,173
Other current assets	15,333	(2,139)	13,194
Current financial assets	388		388
Cash and cash equivalents	451,501		451,501
Total current assets	487,641	(2,139)	485,502
TOTAL ASSETS	500,840	34,121	534,961
LIABILITIES			
Shareholders' equity			
Share capital	2,765		2,765
Premiums related to the share capital	828,525		828,525
Treasury share reserve	—		—
Currency translation adjustment	(16,668)		(16,668)
Retained earnings (deficit)	(326,628)		(326,628)
Net income (loss)	(78,693)		(78,693)
Total shareholders' equity - Group Share	409,301		409,301
Non-controlling interests	40,970		40,970
Total shareholders' equity	450,272		450,272
Non-current liabilities			
Non-current lease debts	1,018	31,720	32,737
Non-current provisions	2,681	(639)	2,042
Total non-current liabilities	3,699	31,081	34,779
Current liabilities			
Current lease debts	333	3,743	4,076
Trade payables	15,883		15,883
Deferred revenues and contract liabilities	20,754	(299)	20,454
Current provisions	1,530	(403)	1,127
Other current liabilities	8,369		8,369
Total current liabilities	46,869	3,041	49,910
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	500,840	34,121	534,961

[Table of Contents](#)

The rental charges relating to these leases – i.e. \$4.0 million for the year ended December 31, 2019 – are replaced with the recognition of an amortization expense of \$4.6 million and a financial expense of \$2.6 million. The rental charges relating to short-term and low-value leases remain classified as leases expenses and are considered not significant.

In the statement of cash flows,

- rent paid on leases that meet the criteria of IFRS 16 are classified within financing activities as principal portion and interest payment on the lease debt, which was \$3.4 million for the year ended December 31, 2019; and
- short-term lease payments, payments for leases of low-value assets and variable lease payments not included in the measurement of the lease liability remain classified within operating activities.

The table below explains the differences between Operating lease commitments disclosed under IAS 17 as of December 31, 2018, discounted using the incremental borrowing rate at the date of initial application, and Lease liabilities recognized in the statement of financial position at the date of initial application.

Operating lease commitments disclosed under IAS 17 as of December 31, 2018 (in thousands):

Sale and lease-back agreement	\$ 31,668
Facility lease agreements	\$ 28,230
Total	\$ 59,898
-Discounting impact & assumption changes	\$(18,966)
-Facility lease termination	\$ (4,220)
-Other	\$ 101
Total lease debt	\$ 36,813

Use of judgment, estimates and assumptions:

The application of IFRS 16 “Leases” requires the Group to make assumptions and estimates in order to determine the value of the right-of-use assets and the lease debt, which mainly relates to the incremental borrowing rate for real estate and other lease contracts. The Group also exercises its judgement as to whether or not to qualify renewal options as reasonably certain.

2.3 Currency of the financial statements

The Consolidated Financial Statements are presented in U.S. dollars, which differs from the functional currency of Collectis, which is the euro.

All financial information (unless indicated otherwise) is presented in thousands of U.S. dollars.

The statements of financial position of consolidated entities having a functional currency different from the U.S. dollar are translated into U.S. dollars at the closing exchange rate (spot exchange rate at the statement of financial position date) and the statements of operations, statements of comprehensive income (loss) and statements of cash flows of such consolidated entities are translated at the average period to date exchange rate. The resulting translation adjustments are included in equity under the caption "Currency Translation Adjustments" in the Consolidated Statements of Changes in Shareholders' Equity.

2.4 Basis of consolidation

Accounting policy

We control all the legal entities included in the consolidation. An investor controls an investee when the investor is exposed to variable returns from its involvement with the investee, and has the ability to affect those returns through its power over the investee. Control requires power, exposure to variability of returns and a linkage between the two.

To have power, the investor needs to have existing rights that give it the current ability to direct the relevant activities that significantly affect the investee's returns.

In order to ascertain control, potential voting rights which are substantial are taken into consideration.

Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the subsidiary.

All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full consolidation.

Consolidated entities

For the year ended December 31, 2019, the consolidated group of companies (sometimes referred to as the "Group") includes Collectis S.A., Collectis, Inc., Collectis Biologics Inc., which was incorporated on January 18, 2019, and Calyxt, Inc.

As of December 31, 2019, Collectis S.A. owns 100% of Collectis, Inc., which owns 100% of Collectis Biologics, Inc., and approximately 68.9% of Calyxt's outstanding shares of common stock. As of December 31, 2018, Collectis S.A. owned 100% of Collectis, Inc. and approximately 69.5% of Calyxt's outstanding shares of common stock.

Until July 25, 2017, Collectis S.A. fully owned Calyxt, Inc. On July 25, 2017, Calyxt closed its IPO with \$64.4 million in gross proceeds to Calyxt from the sale of 8,050,000 shares at \$8 per share, including the full exercise of the underwriter's over-allotment option and Collectis' purchase of \$20.0 million of shares in the IPO. On May 22, 2018, Calyxt Inc completed a follow-on offering of its common stock. Calyxt Inc sold an aggregate of 4,057,500 shares of common stock at a price of \$15.00 per share, including 457,500 shares of common stock pursuant to the exercise of the underwriters' option to purchase additional shares. In the aggregate, Calyxt Inc received net proceeds from the follow-on offering and exercise of the over-allotment option of approximately \$57.0 million, after deducting underwriting discounts and commissions of \$3.2 million and offering expenses totaling approximately \$0.7 million. As part of the follow-on offering, Collectis SA purchased 550,000 shares of common stock for a value of \$8.3 million, the proceeds of which are included in the net proceeds of approximately \$57.0 million.

Non-controlling interests

Non-controlling shareholders hold a 31.1% interest in Calyxt Inc. as of December 31, 2019 and a 30.5% interest in Calyxt Inc as of December 31, 2018. These non-controlling interests were generated during the initial public offering of Calyxt Inc and a follow-on offering as described above, as well as through vesting and exercises of equity awards.

2.5 Foreign currency

Foreign currency transactions and balances

Significant transactions in foreign currencies are translated into the respective functional currencies at the exchange rates effective at the transaction dates, otherwise the average rate of the previous month is used for non-significant transactions. Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency using the exchange rate effective at the period end date.

The resulting exchange gains or losses are recorded in the consolidated statements of operations in financial gain (loss).

Foreign currency translation

The assets and liabilities of foreign operations having a functional currency different from the euro are translated into euros at the period end exchange rate. The income and expenses of foreign operations are translated into euros using the average exchange rate for the reporting period.

Gains and losses arising from currency translation are recognized in other comprehensive loss.

Consolidated financial statements are then converted into dollars using the method described in Note 2.4.

The difference in effect of exchange rate changes on cash and cash equivalents between the statements of consolidated operations and consolidated cash flows is mainly explained by the following elements:

- the differential between the average exchange rate and the period end rates applied to the cash flows of the period;
- the differential between the opening exchange rates and the period end exchanges rate applied on our opening cash and cash equivalents balance denominated in dollars; and
- the foreign exchange rate impact of the conversion of the financial statements of our US subsidiaries.

2.6 Use of judgment, estimates and assumptions

The preparation of these consolidated financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the accompanying disclosures, including the disclosure of contingent liabilities. Actual amounts may differ from those estimates.

The Group's exposure to risks and uncertainties is disclosed in Note 8.3: Financial instruments risk management and policies.

Estimates and assumptions

The key assumptions concerning the future and other key sources of estimation uncertainty at the period end date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year, are described below. The Group based its assumptions and estimates on parameters available when the consolidated financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising that are beyond the control of the Group. Such changes are reflected in the assumptions when they occur.

- Revenue recognition – Note 3.1
- Share-based payments – Note 16
- Provisions for risks and charges – Note 18
- Right-of-use assets – Note 6

Note 3. Information concerning the Group's Consolidated Operations

3.1 Revenues and other income

Accounting policies

Collaboration agreements and licenses

Under IFRS 15, "Revenue from contracts with customers", revenue is recognized when Collectis satisfies a performance obligation by transferring a distinct good or service (or a distinct bundle of goods and or/ services) to a customer, i.e. when the customer obtains control of these goods or services.

[Table of Contents](#)

We have entered into certain research and development collaboration agreements that consist of the licensing of rights to technology, research and development programs, research and development cost reimbursements and royalties. We have analyzed the agreements to identify the separate performance obligations.

These collaboration agreements may generate cash flows through non-refundable upfront payments related to the licensing of rights to technology and research and development programs, milestone payments research and development cost reimbursements and royalties. Licensing of rights to technology pursuant to non-cancelable, non-refundable fixed and upfront fee arrangements are recognized when such technology is delivered to the co-contracting party and our exclusive rights to access the technology have stopped.

Up-front payments for research and development programs are deferred as a contract liability and recognized when the performance obligation is satisfied, as the customer receives the benefits of the services. When a specific research and development program is put on hold, as agreed by our customer as part of a joint executive committee decision, the revenue recognition continues to be deferred until research and development efforts resume. If the joint decision is to abandon the project, deferred revenue is fully recognized.

Research and development costs reimbursements are recognized on a time and material basis over the length of the specific research and development project.

Milestone payments represent variable consideration, the receipt of which is dependent upon the achievement of certain scientific, regulatory, or commercial milestones. Such payments are considered variable consideration. We recognize milestone payments when it is highly probable that any revenue recognized will not be subsequently reversed. This includes consideration of whether the performance obligation is achieved and may be when the triggering event has occurred, depending on the nature of the triggering event, there are no further contingencies or services to be provided with respect to that event, and the co-contracting party has no right to require refund of payment. The triggering event may be scientific results achieved by us or another party to the arrangement, regulatory approvals, or the marketing of products developed under the arrangement.

Royalty revenues arise from our contractual entitlement to receive a percentage of product sales achieved by co-contracting parties under our license arrangements. As we have no products approved for sale, we have not received any royalty revenue to date. Royalty revenues, if earned, will be recognized at the later of when (1) the subsequent sale or usage occurs; and (2) the performance obligation to which the sales-based or usage-based royalties relates has been satisfied.

In addition, we license our technology to other third parties and revenues are recognized ratably over the period of the license agreements.

Sales of products and services

Revenues on sales of products are recognized once the control over the delivered products is transferred to the customer. Sales include shipping and handling charges if billed to the customer and are reported net of trade promotion and other costs, including estimated allowances for returns, unsalable product and prompt pay discounts. Sales, use, value-added and other excise taxes are not recognized in revenue. Trade promotions are recorded based on estimated participation and performance levels for offered programs at the time of sale. We generally do not allow a right of return.

We also offer research services, which revenue is recognized over time, as the customer receives the benefits of the services.

Research Tax Credit

The main Research Tax Credit from which we benefit is the *Crédit d'Impôt Recherche*, or "CIR", which is granted to entities by the French tax authorities in order to encourage them to conduct technical and scientific research. Entities that demonstrate that their research expenditures meet the required CIR criteria receive a tax credit that may be used for the payment of their income tax due for the fiscal year in which the expenditures were incurred, as well as in the next three years. If taxes due are not sufficient to cover the full amount of tax credit at the end of the three-year period, the difference is repaid in cash to the entity by the authorities. If a company meets certain criteria in terms of sales, headcount or assets to be considered a small/middle size company, immediate payment of the Research Tax Credit can be requested. Collectis S.A. meets such criteria.

We apply for CIR for research expenditures incurred in each fiscal year and recognize the amount claimed in the line item "Other income" in the same fiscal year. Research tax credit is subject to audit of tax authorities. When tax authorities' payment related to CIR is late, default interests are applied and are recognized in "other income".

[Table of Contents](#)

Details of revenues and other income

Revenues by country of origin and other income

	For the year ended December 31,		
	2017	2018	2019
	\$ in thousands		
From France	24,680	12,495	7,896
From USA	508	236	7,294
Revenues	25,188	12,731	15,190
Research tax credit	8,327	8,561	7,800
Subsidies and other	201	140	—
Other income	8,528	8,701	7,800
Total revenues and other income	33,715	21,432	22,990

For the years ended December 31, 2019, 2018 and 2017, the revenue from France was generated by Collectis S.A.

For the years ended December 31, 2019, 2018 and 2017, the revenue from USA was generated by Calyxt, Inc.

Revenues by nature

	For the year ended December 31,		
	2017	2018	2019
	\$ in thousands		
Recognition of previously deferred upfront payments	14,875	7,114	—
Other revenues	7,945	3,383	6,055
Collaboration agreements	22,821	10,497	6,055
Licenses	2,270	2,142	1,762
Products & services	97	92	7,373
Total revenues	25,188	12,731	15,190

Revenues are primarily generated by therapeutics activities, which are mainly attributable to our entering into two major collaboration agreements signed with Pfizer Inc. and Les Laboratoires Servier during 2014. Effective as of April 2018, Pfizer sold certain assets to which the Research Collaboration and License Agreement relates to Allogene Therapeutics, Inc. (“Allogene”) (the “Asset Contribution Agreement”). As part of this Asset Contribution Agreement, Pfizer assigned the Research Collaboration and License Agreement to Allogene, and on March 7, 2019, we and Allogene agreed to terminate the Research Collaboration and License Agreement and entered into a new license agreement (the “Allogene License Agreement”) to reflect the relationship between us and Allogene following the asset contribution. In 2017 and 2018, revenue previously deferred was recognized upon satisfaction of performance obligations.

In 2017 and 2018, other revenues primarily consisted of research and development cost reimbursement. In addition to the cost reimbursement, for the year ended December 31, 2019, other revenues also include the recognition of a \$5.0 million milestone which is associated with the initiation of the study of ALLO-715 in 2019.

For the years ended December 31, 2019, 2018 and 2017 revenues related to licenses includes royalties received under our various license agreements.

For the year ended December 31, 2019, products and services revenues mainly include the revenues of plants activities which in 2019 are primarily attributable to the commercialization of Calyxt’s high oleic soybean meal for \$5.6 million and high oleic soybean oil for \$1.7 million.

[Table of Contents](#)

Entity-wide disclosures:

In 2019, two clients represent more than 10% of the total revenue: Client A with 36% and Client B with 28%.

In 2018, two clients represent more than 10% of the total revenue: Client A with 55% and Client B with 21%.

In 2017, two clients represent more than 10% of the total revenue: Client A with 11% and Client B with 69%.

3.2 Operating expenses

Accounting policies

Prior to 2019, cost of goods sold represented immaterial costs associated with Calyxt's out-licensing activities. Costs Calyxt incurred associated with the purchasing, storing transporting and processing grain, net of proceeds of seed sales (Grain Costs), were expensed to R&D. Beginning in the first quarter of 2019, Calyxt began to capitalize all grain and seed costs into inventory. Grain and risk management costs, net of the benefit from Calyxt's seed activity, are capitalized to inventory and relieved to cost of goods sold as the high oleic soybean oil and soybean meal is sold. Any valuation adjustments to inventory are recognized as incurred. Cost of goods sold also includes crush and refining losses that are expensed as incurred since they do not add to the value of the finished products.

Royalty expenses correspond to costs from license agreements that we entered into to obtain access to technology that we use in our product development efforts. Depending on the contractual provisions, expenses are based either on a percentage of revenue generated by using the patents based on fixed annual royalties or conditioned by milestones.

Research and development expenses include employee-related costs, laboratory consumables, materials supplies and facility costs, as well as fees paid to non-employees and entities to conduct research and development activities on our behalf. They also include expenses associated with obtaining patents. The costs associated with manufacturing of product candidates are recorded depending on the use of the material. If products are not intended to be used in clinical studies, we recognize the expense when the product is delivered. If they are intended to be used for clinical studies, the expense is recognized when the certificate of compliance is obtained.

Selling, general and administrative expenses consist primarily of employee-related expenses for executive, business development, intellectual property, finance, legal and human resource functions. Administrative expenses also include facility-related costs and service fees, other professional services, recruiting fees and expenses associated with maintaining patents.

We classify a portion of personnel and other costs related to information technology, human resources, business development, legal, intellectual property and general management in research and development expenses based on the time that each employee or person spent contributing to research and development activities versus sales, general and administrative activities.

Details of operating expenses by nature

	<u>For the year ended December 31,</u>		
	<u>2017</u>	<u>2018</u>	<u>2019</u>
	\$ in thousands		
Cost of revenue			
Cost of good sold	—	—	(9,280)
Royalty expenses	(2,620)	(2,739)	(2,112)
Cost of revenue	(2,620)	(2,739)	(11,392)

	<u>For the year ended December 31,</u>		
	<u>2017</u>	<u>2018</u>	<u>2019</u>
	\$ in thousands		
Research and development expenses			
Wages and salaries	(12,986)	(16,452)	(21,294)
Social charges on free shares and stock option grants	(1,088)	(99)	(1,357)
Non-cash stock based compensation expense	(23,832)	(18,057)	(12,260)
Personnel expenses	(37,906)	(34,608)	(34,911)
Purchases and external expenses	(38,458)	(40,458)	(49,251)
Other	(2,863)	(1,501)	(7,880)
Total research and development expenses	<u>(79,227)</u>	<u>(76,567)</u>	<u>(92,042)</u>
	<u>For the year ended December 31,</u>		
	<u>2017</u>	<u>2018</u>	<u>2019</u>
	\$ in thousands		
Selling, general and administrative expenses			
Wages and salaries	(7,019)	(11,373)	(12,822)
Social charges on free shares and stock option grants	(881)	(29)	(491)
Non-cash stock based compensation expense	(26,586)	(19,161)	(14,621)
Personnel expenses	(34,486)	(30,563)	(27,934)
Purchases and external expenses	(9,138)	(14,251)	(11,431)
Other	(1,126)	(2,433)	(3,652)
Total selling, general and administrative expenses	<u>(44,750)</u>	<u>(47,248)</u>	<u>(43,017)</u>
	<u>For the year ended December 31,</u>		
	<u>2017</u>	<u>2018</u>	<u>2019</u>
	\$ in thousands		
Personnel expenses			
Wages and salaries	(20,005)	(27,825)	(34,116)
Social charges on free shares and stock option grants	(1,969)	(128)	(1,848)
Non-cash stock based compensation expense	(50,418)	(37,218)	(26,881)
Total personnel expenses	<u>(72,392)</u>	<u>(65,171)</u>	<u>(62,845)</u>

3.3 Financial income and expenses

Accounting policies

Financial income and financial expense include, in particular, the following:

- Interest income from savings accounts and fixed term bank deposits;
- Interest expense from leases;
- Foreign exchange gain (loss) from transactions in foreign currencies; and
- Other financial income and expenses, mainly derived from fair value adjustments related to our financial assets and derivative instruments.

Details of financial income and expenses

	For the year ended December 31,		
	2017	2018	2019
Interest income	1,974	6,787	6,985
Foreign exchange gain	1,185	13,597	4,481
Other financial revenues	4,102	188	505
Total financial revenues	7,262	20,572	11,971
Interest expenses	—	(39)	(3)
Interest expenses for leases	(4)	(7)	(2,603)
Foreign exchange loss	(17,734)	(3,090)	(671)
Other financial expenses	(556)	(677)	(354)
Total financial expenses	(18,294)	(3,813)	(3,631)
Total	(11,032)	16,758	8,340

The decrease in financial income and expenses between 2018 and 2019 of \$8.4 million was mainly attributable to the decrease in net foreign exchange gain (\$6.7 million), and the increase in interest expenses related to IFRS 16 application (\$2.6 million), partly offset by the increase of foreign exchange derivatives fair value adjustment (\$0.6 million), included in other financial revenues and expenses and the increase in net interest income (\$0.2 million) and other immaterial variances for \$0.1 million.

The increase in financial income and expenses between 2017 and 2018 of \$27.8 million was mainly attributable to the increase in net foreign exchange gain (\$27.0 million), the increase in interest income (\$4.8 million) partly offset by the decrease of foreign exchange derivatives fair value adjustment (\$4.0 million), included in other financial revenues and expenses.

3.4 Income tax

Accounting policies

Income tax (expense or income) comprises current tax expense (income) and deferred tax expense (income).

Deferred taxes are recognized for all the temporary differences arising from the difference between the tax basis and the accounting basis of assets and liabilities. Tax losses that can be carried forward or backward may also be recognized as deferred tax assets. Tax rates that have been enacted as of the closing date are utilized to determine deferred tax. Deferred tax assets are recognized only to the extent that it is likely that future profits will be sufficient to recover them. We have not recorded deferred tax assets or liabilities in the statements of financial position.

Tax proof

	For the year ended December 31,		
	2017	2018	2019
	\$ in thousands		
Income (loss) before taxes from continuing operations	(103,683)	(88,333)	(115,212)
Theoretical group tax rate	34.43%	23.66%	25.35%
Theoretical tax benefit (expense)	35,698	20,901	29,208

[Table of Contents](#)

Increase/decrease in tax benefit arising from:			
Permanent differences	293	832	(1,131)
Research tax credit	2,926	2,079	2,786
Share-based compensation & other IFRS adjustments	(8,297)	(8,065)	(7,828)
Non recognition of deferred tax assets related to tax losses and temporary differences	(30,713)	(15,652)	(23,079)
Other differences	92	(95)	43
Effective tax expense	—	—	—
Effective tax rate	0.00%	0.00%	0.00%

Deferred tax assets and liabilities

	As of December 31,		
	2017	2018	2019
	\$ in thousands		
Credits and net operating loss carryforwards	51,640	65,555	102,112
Pension commitments	548	569	714
Leases	(12)	(4)	47
Impairment of assets	10	10	1
Revenue recognition	—	200	197
Other	604	491	284
Total unrecognized deferred tax assets, net	(52,790)	(66,823)	(103,354)

We have cumulative tax loss carryforwards for the French entity of the Group totaling \$246 million as of December 31, 2019, \$186 million as of December 31, 2018 and \$144 million as of December 31, 2017. Such carryforwards can be offset against future taxable profit within a limit of \$1.0 million per year, plus 50% of the profit exceeding this limit. Remaining unused losses will continue to be carried forward indefinitely.

The cumulative tax loss carryforwards for the U.S. entities of the Group totaled \$162 million as of December 31, 2019, \$86 million as of December 31, 2018 and \$62 million as of December 31, 2017. Calyxt's carryforward periods are as follows: \$64.0 million do not expire; zero expire in 2019 and 2020; and \$41.9 million expire in 2032 and beyond.

3.5 Reportable segments

Accounting policies

Reportable segments are identified as components of the Group that have discrete financial information available for evaluation by the Chief Operating Decision Maker ("CODM"), for purposes of performance assessment and resource allocation.

Collectis' CODM is composed of:

- The Chairman and Chief Executive Officer;
- The Chief Operating Officer (through July 24, 2019);
- The Executive Vice President Technical Operation (beginning July 22, 2019);
- The Executive Vice President Strategic Initiatives;
- The Executive Vice President Global Quality (beginning July 22, 2019);
- The Chief Scientific Officer;
- The Chief Financial Officer;
- The General Counsel;
- The VP Corporate Development (beginning November, 2019); and
- The Chief Regulatory & Compliance Officer.

[Table of Contents](#)

We view our operations and manage our business in two operating and reportable segments that are engaged in the following activities:

- *Therapeutics*: This segment is focused on the development (i) of products in the field of immuno-oncology and (ii) of novel therapies outside immuno-oncology to treat other human diseases. This approach is based on our gene editing and Chimeric Antigen Receptors (“CARs”) technologies. All these activities are supported by Collectis S.A., Collectis, Inc. and Collectis Biologics Inc. The operations of Collectis S.A., the parent company, are presented entirely in the Therapeutics segment which also comprises research and development, management and support functions.
- *Plants*: This segment is focused on the development of products focused on delivering plant-based solutions that are healthy and sustainable. It corresponds to the activity of our U.S.-based majority-owned subsidiary, Calyxt, Inc., which is currently based in Roseville, Minnesota.

There are inter-segment transactions between the two reportable segments, including allocation of corporate general and administrative expenses by Collectis S.A. and allocation of research and development expenses to the reportable segments.

With respect to corporate general and administrative expenses, Collectis S.A. has provided Calyxt, Inc. with general sales and administrative functions, accounting and finance functions, investor relations, intellectual property, legal advice, human resources, communication and information technology under a Management Services Agreement. As of December 31, 2019, Calyxt has internalized nearly all of the services previously provided by Collectis under this agreement. Under the Management Services Agreement, Collectis S.A. charges Calyxt, Inc. in euros at cost plus a mark-up ranging between zero to 10%, depending on the nature of the service. Amounts due to Collectis S.A. pursuant to inter-segment transactions bear interest at a rate of the 12-month Euribor plus 5% per annum.

The intersegment revenues represent the transactions between segments. Intra-segment transactions are eliminated within a segment’s results and intersegment transactions are eliminated in consolidation as well as in key performance indicators by reportable segment.

Information related to each reportable segment is set out below. Segment revenues and other income, Research and development expenses, Selling, general and administrative expenses, and Cost of revenue and other operating income and expenses, and Adjusted net income (loss) attributable to shareholders of Collectis (which does not include non-cash stock-based compensation expense) are used by the CODM for purposes of making decisions about allocating resources to the segments and assessing their performance. The CODM does not review any asset or liability information by segment or by region.

Adjusted Net Income (Loss) attributable to shareholders of Collectis S.A. is not a measure calculated in accordance with IFRS. Because Adjusted Net Income (Loss) attributable to shareholders of Collectis excludes Non-cash stock based compensation expense—a non-cash expense, our management believes that this financial measure, when considered together with our IFRS financial statements, can enhance an overall understanding of Collectis’ financial performance. Moreover, our management views the Company’s operations, and manages its business, based, in part, on this financial measure.

The net income (loss) includes the impact of the operations between segments while the intra-segment operations are eliminated.

Table of Contents

Details of key performance indicators by reportable segment

\$ in thousands	For the year ended December 31, 2017			For the year ended December 31, 2018			For the year ended December 31, 2019		
	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments
External revenues	508	24,680	25,188	236	12,495	12,731	7,294	7,896	15,190
External other income	239	8,290	8,528	178	8,523	8,701	—	7,800	7,800
External revenues and other income	747	32,969	33,715	414	21,018	21,432	7,294	15,696	22,990
Cost of revenue	(390)	(2,230)	(2,620)	(595)	(2,144)	(2,739)	(9,275)	(2,117)	(11,392)
Research and development expenses	(6,057)	(73,170)	(79,227)	(8,638)	(67,929)	(76,567)	(12,390)	(79,652)	(92,042)
Selling, general and administrative expenses	(13,143)	(31,607)	(44,750)	(21,067)	(26,180)	(47,248)	(26,090)	(16,927)	(43,017)
Other operating income and expenses	6	225	232	(50)	81	31	25	(116)	(91)
Total operating expenses	(19,584)	(106,782)	(126,366)	(30,351)	(96,172)	(126,523)	(47,730)	(98,812)	(146,542)
Operating income (loss) before tax	(18,837)	(73,813)	(92,650)	(29,937)	(75,154)	(105,091)	(40,436)	(83,116)	(123,552)
Financial gain (loss)	—	(11,032)	(11,032)	1,420	15,339	16,758	294	8,045	8,340
Net income (loss)	(18,837)	(84,846)	(103,683)	(28,517)	(59,816)	(88,333)	(40,142)	(75,071)	(115,212)
Non controlling interests	4,315	—	4,315	9,640	—	9,640	13,121	—	13,121
Net income (loss) attributable to shareholders of Collectis	(14,522)	(84,846)	(99,368)	(18,877)	(59,816)	(78,693)	(27,021)	(75,071)	(102,091)
R&D non-cash stock-based expense attributable to shareholder of Collectis	967	22,623	23,590	838	16,852	17,689	1,619	10,010	11,629
SG&A non-cash stock-based expense attributable to shareholder of Collectis	4,990	20,345	25,335	5,218	11,655	16,873	6,673	4,940	11,613
Adjustment of share-based compensation attributable to shareholders of Collectis	5,957	42,968	48,925	6,056	28,507	34,563	8,292	14,950	23,242
Adjusted net income (loss) attributable to shareholders of Collectis	(8,565)	(41,877)	(50,442)	(12,821)	(31,309)	(44,130)	(18,729)	(60,121)	(78,849)
Depreciation and amortization	(551)	(2,820)	(3,371)	(637)	(1,740)	(2,377)	(1,233)	(5,642)	(6,875)
Additions to tangible and intangible assets	792	1,849	2,642	1,871	3,040	4,911	2,998	14,668	17,666
Impairment of tangible assets	—	(798)	(798)	—	—	—	—	—	—

Note 4. Impairment tests

Accounting policy

Amortizable intangible assets, depreciable tangible assets and right-of-use are tested for impairment when there is an indicator of impairment. Impairment tests involve comparing the carrying amount of cash-generating units with their recoverable amount. The recoverable amount of an asset is the higher of (i) its fair value less costs to sell and (ii) its value in use. If the recoverable amount of any asset is below its carrying amount, an impairment loss is recognized to reduce the carrying amount to the recoverable amount.

Our cash-generating units (“CGUs”) correspond to the operating/reportable segments: Therapeutics and Plants.

Results of impairment test

No indicator of impairment has been identified for any intangible or tangible assets in either of the CGUs for the years ended December 31, 2018 or 2019. In 2017, as we had the willingness to discontinue the lease of the facility in Montvale, New Jersey (USA), we recorded a \$0.8 million tangible assets impairment.

Note 5. Intangible assets

Accounting policy

Capitalization of development expenses

In accordance with IAS 38 *Intangible Assets*, development expenses are recorded as intangible assets only if all the following criteria are met:

- technical feasibility necessary for the completion of the development project;
- intention on our part to complete the project and to utilize it;
- capacity to utilize the intangible asset;
- proof of the probability of future economic benefits associated with the asset;
- availability of the technical, financial, and other resources for completing the project; and
- reliable evaluation of the development expenses.

Other intangible assets

The other intangible assets we acquired with definite useful lives are recognized at cost less accumulated amortization and impairment. Amortization expense is recorded on a straight-line basis over the estimated useful lives of the intangible assets, in the line Research and Development expenses or Selling, general and administrative expenses of the Statement of Consolidated Operations, depending on the use of the related asset.

The estimated useful lives are as follows:

- Software: from 1 year to 3 years;
- Patents: amortized from acquisition until legal protection expires, maximum of 20 years.

Details of intangible assets

\$ in thousands	Software and Patents	Assets under construction	Total
Net book value as of January 1, 2017	924	419	1,343
Change in scope	—	—	—
Additions to intangible assets	6	135	141
Depreciation expense	(231)	—	(231)
Translation adjustments	112	66	178
Net book value as of December 31, 2017	811	619	1,431
Gross value at end of period	2,571	517	3,190
Accumulated depreciation and impairment at end of period	(1,759)	—	(1,759)
Net book value as of January 1, 2018	811	619	1,431
Change in scope	—	—	—
Additions to intangible assets	14	103	117
Disposal of intangible assets	(7)	—	(7)
Reclassification	6	—	6
Depreciation expense	(217)	—	(217)
Translation adjustments	(30)	(31)	(61)
Net book value as of December 31, 2018	577	691	1,268
Gross value at end of period	2,454	691	3,146
Accumulated depreciation and impairment at end of period	(1,878)	—	(1,878)
Net book value as of January 1, 2019	577	691	1,268
Change in scope	—	—	—
Additions to intangible assets	84	(2)	82
Disposal of intangible assets	(50)	—	(50)
Reclassification	6	—	6
Depreciation expense	(174)	—	(174)
Translation adjustments	(12)	(12)	(24)
Net book value as of December 31, 2019	431	677	1,108
Gross value at end of period	2,448	677	3,125
Accumulated depreciation and impairment at end of period	(2,017)	—	(2,017)

Intangible assets mainly consist of electroporation technology patents acquired in 2011. The 2017, 2018 and 2019 additions in intangible assets under construction corresponds to the internal development of existing technology.

Note 6 Right-of-use assets

Accounting policy

Lease contracts recognition

Lease contracts, as defined by IFRS 16 “Leases”, are recorded in the statement of consolidated financial position, which leads to the recognition of:

- an asset representing a right of use of the asset leased during the lease term of the contract “right-of-use”; and
- a liability related to the payment obligation “lease debt”.

Measurement of the right-of-use asset

At the commencement date, the right-of-use asset is measured at cost and comprises:

- the amount of the initial measurement of the lease liability, to which is added, if applicable, any lease payments made at or before the commencement date, less any lease incentives received;
- where relevant, any initial direct costs incurred by the lessee for the conclusion of the contract. These are incremental costs which would not have been incurred if the contract had not been concluded; and
- estimated costs for restoration of the leased asset according to the terms of the contract.

Following the initial recognition, the right-of-use asset must be depreciated over the useful life of the underlying assets as lease term for the rental component.

Measurement of the lease liability

At the commencement date, the lease liability is recognized for an amount equal to the present value of the lease payments over the lease term.

Amounts involved in the measurement of the lease liability are:

- fixed payments (including in-substance fixed payments; meaning that even if they are variable in form, they are in-substance unavoidable);
- variable lease payments that depend on an index or a rate, initially measured using the index or the rate in force at the lease commencement date; amounts expected to be payable by the lessee under residual value guarantees; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising an option to terminate the lease.

The lease liability is subsequently measured based on a process similar to the amortized cost method using the discount rate:

- the liability is increased by the accrued interests resulting from the discounting of the lease liability, at the beginning of the lease period; and
- payments made are deducted.

The interest cost for the period as well as variable payments, not taken into account in the initial measurement of the lease liability and incurred over the relevant period are recognized as costs.

In addition, the lease liability may be remeasured in the following situations:

- the occurrence of a change in the lease term or a modification related to the assessment of the reasonably certain nature (or not) of the exercise of an option,
- a remeasurement linked to residual value guarantees,
- the occurrence of an adjustment to the rates and indices according to which the rents are calculated when rent adjustments occur.

[Table of Contents](#)

Main contracts applicable

Based on its analysis, the Group has identified lease contracts according to the standard concerning office buildings, laboratories, production facilities and storage facilities.

For purposes of IFRS 16, the lease term reflects the Group's reasonable expectation of the period during which the underlying asset will be used.

The discount rate used to calculate the lease debt is determined, for each portfolio of assets, according to the incremental borrowing rate at the contract date.

The incremental borrowing rate is the rate of interest that a lessee would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment.

The rental charges relating to short terms and low value lease remains classified as leases expenses in operating expenses.

Details of Right-of-use assets

IFRS 16 "Leases" is applicable for annual periods beginning on or after January 1, 2019. The consequence of the application of this standard is to recognize a right of use and lease liability on the balance sheet.

For the leaseback on Calyxt Headquarters, according to IFRS 16, the value of the right-of-use asset has been adjusted for the amount of the net deferred losses recognized in the statement of financial position immediately before the date of initial application, which was \$1.8 million.

The breakdown of right-of-use assets is as follows:

	<u>Building lease</u>	<u>Office and laboratory equipment</u>	<u>Total</u>
	\$ in thousands		
Net book value as of January 1, 2019 as restated	36,061	1,508	37,569
Additions	11,357	1,516	12,873
Depreciation expense	(4,058)	(520)	(4,578)
Translation adjustments	(248)	(4)	(252)
Net book value as of December 31, 2019	43,112	2,500	45,612
Gross value at end of period	47,175	3,153	50,328
Accumulated depreciation at end of period	(4,063)	(653)	(4,716)

Note 7. Property, plant and equipment

Accounting policy

Property, plant and equipment are recognized at acquisition cost less accumulated depreciation and any impairment losses. Acquisition costs include expenditures that are directly attributable to the acquisition of the asset and costs to ready it for use.

Depreciation is expensed on a straight-line basis over the estimated useful lives of the assets. If components of property, plant and equipment have different useful lives, they are accounted for separately.

[Table of Contents](#)

The estimated useful lives are as follows:

- | | |
|--|-------------|
| • Buildings and other outside improvements | 10-20 years |
| • Leasehold improvements | 5-10 years |
| • Office furniture | 10 years |
| • Laboratory equipment | 3-10 years |
| • Office equipment | 5 years |
| • IT equipment | 3 years |

Depreciation methods, useful lives and residual values are reviewed at each reporting date and adjusted, if appropriate.

Any gain or loss on disposal of an item of property, plants and equipment is determined by comparing the proceeds from disposal with the carrying amount of the item. The net amount is recognized in the statement of consolidated operations under the line item “Other operating income and expenses.”

Before IFRS 16 adoption as of January 1, 2019, payments made under operating leases were expensed on a straight-line basis over the term of the lease. Lease incentives received were recognized as an integral part of the total lease expense, over the term of the lease.

If, according to the terms of a lease, it appeared that substantially all the risks and rewards incidental to ownership were transferred from the lessor to the lessee, the associated leased assets were initially recognized as an asset at the lower of their fair value and the present value of the minimum lease payments and subsequently depreciated or impaired, as necessary. The associated financial obligations were reported in the line item “non-current financial debt” and “current financial debt.”

Details of property, plant and equipment

	Lands and Buildings	Technical equipment	Fixtures, fittings and other equipment	Assets under construction	Total
	\$ in thousands				
Net book value as of January 1, 2017	12,436	2,858	707	898	16,900
Additions to tangible assets	718	701	203	878	2,501
Disposal of tangible assets	(9,243)	(103)	2	(109)	(9,453)
Reclassification	14	47	18	(79)	—
Depreciation expense	(972)	(1,126)	(245)	(798)	(3,140)
Translation adjustments	206	127	68	18	418
Net book value as of December 31, 2017	3,159	2,505	753	809	7,226
Gross value at end of period	6,936	12,114	1,447	1,606	22,103
Accumulated depreciation and impairment at end of period	(3,777)	(9,609)	(693)	(798)	(14,877)
Net book value as of January 1, 2018	3,159	2,505	753	809	7,226
Additions to tangible assets	879	1,622	1,820	1,942	6,263
Disposal of tangible assets	—	(49)	(690)	(426)	(1,164)
Reclassification	39	216	793	(1,053)	(6)
Depreciation expense	(758)	(854)	(478)	—	(2,091)
Translation adjustments	(90)	(46)	(27)	(25)	(188)
Net book value as of December 31, 2018	3,229	3,393	2,172	1,247	10,041
Gross value at end of period	7,604	13,297	3,215	2,045	26,160
Accumulated depreciation and impairment at end of period	(4,375)	(9,903)	(1,043)	(798)	(16,119)
Net book value as of January 1, 2019 as restated*	3,229	2,084	2,172	1,247	8,732
Additions to tangible assets	318	374	329	16,563	17,584
Disposal of tangible assets	—	(10)	(1)	(419)	(430)
Reclassification	15	1,974	630	(2,624)	(5)
Depreciation expense	(192)	(1,247)	(684)	—	(2,123)
Translation adjustments	(40)	(15)	(11)	20	(46)
Net book value as of December 31, 2019	3,330	3,160	2,435	14,787	23,712
Gross value at end of period	7,833	13,962	4,149	15,585	41,529
Accumulated depreciation and impairment at end of period	(4,503)	(10,802)	(1,714)	(798)	(17,817)

* See note 2.2 on IFRS16 application

No assets have been pledged as security for financial liabilities. There is no restriction on title of property, plant and equipment.

In 2017, Calyxt entered into a transaction whereby it sold a certain land and building (with a total net book value of \$9.2 million), which was considered a sale under applicable accounting guidance and then entered into an operating lease for this property. The sale and lease-back agreement has a defined lease term and was classified as an operating lease agreement under IAS 17. According to IFRS 16, this lease receives the standard accounting treatment for operating leases existing at the date of initial application and the value of the right-of-use asset is adjusted for the amount of the net deferred losses recognized in the statement of financial position immediately before the date of initial application, which was \$1.8 million.

[Table of Contents](#)

For the year ended December 31, 2019, we continued our investments in research and development equipment in both the United States of America and France. The addition in tangible assets reflects improvements of Calyxt and Collectis sites for \$0.3 million and other equipment for \$0.7 million.

Assets under construction as of December 31, 2019 primarily relates to Collectis' new raw materials manufacturing facility in Paris (\$4.9 million), a new commercial manufacturing facility in Raleigh, North Carolina (\$8.8 million), and the balance relates to capital expenditure in the Plants Segment.

Note 8. Financial assets and liabilities

8.1 Accounting principles

The new standard IFRS 9 "Financial instruments" is of mandatory application since January 1, 2018. Collectis elected not to restate the 2016 and 2017 comparative periods, as authorized by the standard. Such adoption did not lead to any adjustment recorded in the Group opening equity at January 1, 2018.

IFRS 9 comprises three phases: classification and measurement of financial assets and liabilities, impairment of financial assets and hedge accounting. Collectis was not affected by the new classification required by the standard to determine the way financial assets are recognized and measured.

Financial assets

Under IFRS 9, Collectis holds either:

- financial assets measured at amortized cost or;
- financial assets measured at fair value through profit or loss.

Non-current financial assets are recorded at the amortized cost and correspond to security deposits mainly relating to our facilities rents.

Current financial assets correspond to investments and are recorded at fair value through profit and loss, which is the nominal value of the investment adjusted with the daily mark-to-market value and also restricted cash.

Trade and other receivables are recorded at fair value, which is the nominal value of invoices unless payment terms require a material adjustment for the time value discounting effect at market interest rates. Trade receivables are subsequently measured at amortized cost. A provision for expected credit losses for trade and other receivables is recognized if their recoverable amount is less than their carrying amount. The introduction of a new expected loss model for impairment of financial assets under IFRS 9 had no significant impact on the initial recognition of Collectis trade and other receivables.

Receivables are classified as current assets, except for those with a maturity exceeding 12 months after the reporting date.

Government grants to Collectis related to research and development expenses for research programs are recognized as subsidies receivables in the period in which the expenses subject to the subsidy have been incurred, provided there is a reasonable assurance that we will comply with conditions attached to the subsidy and that the subsidy will be received.

Financial liabilities

The application of IFRS 9 has no impact on the Collectis' accounting policy regarding financial liabilities.

Financial liabilities include trade and other payables, finance leases and conditional advances.

We initially recognize financial liabilities on the transaction date, which is the date that we become a party to the contractual provisions of the instrument.

We derecognize financial liabilities when our contractual obligations are discharged, canceled or expire.

Table of Contents

Financial liabilities are valued at amortized cost. The amount of interest recognized in financial expenses is calculated by applying the financial liability's effective interest rate to its carrying amount. Any difference between the expense calculated using the effective interest rate and the actual interest payment impacts the value at which the financial liability is recognized.

Liabilities for short term employee benefits are included in financial liabilities. They are recognized for the amount expected to be paid under short-term cash bonus or profit-sharing plans if we have a present legal or constructive obligation to pay the amount as a result of past service provided by the employee, and the obligation can be estimated reliably.

8.2 Detail of financial assets and liabilities

The following table shows the carrying amounts and fair values of financial assets and financial liabilities.

2018	Accounting category		Book value on the statement of financial position	Fair Value
	Fair value through profit and loss	Amortized cost		
\$ in thousands				
Financial assets				
Non-current financial assets	—	1,891	1,891	1,891
Trade receivables	—	2,971	2,971	2,971
Subsidies receivables	—	17,173	17,173	17,173
Current financial assets	7	381	388	388
Cash and cash equivalents	451,501	—	451,501	451,501
Total financial assets	451,508	22,416	473,924	473,924
Financial liabilities				
Non-current financial liabilities	—	1,018	1,018	1,018
Current financial liabilities	—	333	333	333
Trade payables	—	15,883	15,883	15,883
Other current liabilities	—	8,369	8,369	8,369
Total financial liabilities	—	25,603	25,603	25,603
2019	Accounting category		Book value on the statement of financial position	Fair Value
	Fair value through profit and loss	Amortized cost		
\$ in thousands				
Financial assets				
Non-current financial assets	—	5,517	5,517	5,517
Trade receivables	—	2,959	2,959	2,959
Subsidies receivables	—	9,140	9,140	9,140
Current financial assets	—	20,385	20,385	20,385
Cash and cash equivalents	340,522	—	340,522	340,522
Total financial assets	340,522	38,001	378,523	378,523
Financial liabilities				
Non-current financial liabilities	—	46,540	46,540	46,540
Current financial liabilities	—	1,067	1,067	1,067
Trade payables	—	29,264	29,264	29,264
Other current liabilities	—	8,497	8,497	8,497
Total financial liabilities	—	85,368	85,368	85,368

8.3. Financial risks management

We have exposure to the following risks arising from financial instruments:

Foreign exchange risk

A portion of our revenue is generated in currencies other than euro. Although our strategy is to favor the euro as our transaction currency when signing contracts, some agreements have been signed in US dollars (primarily our agreement with Allogene Therapeutics, Inc.).

As of December 31, 2018, 66% of our cash and cash equivalents were denominated in US dollars. As of December 31, 2019, 63% of our cash and cash equivalents were denominated in US dollars.

Collectis hedging policy is not affected by the application of IFRS 9.

As of December 31, 2018 and 2019, we did not hold derivative financial instruments to hedge foreign currency exchange risks.

Liquidity risk

Our financial debt consists of lease debts for \$47.6 million as of December 31, 2019.

We have incurred losses and cumulative negative cash flows from operations since our inception in 2000, and we anticipate that we will continue to incur losses for at least the next several years. As of December 31, 2019, we held \$340.5 million in cash and cash equivalents.

Interest rate risk

We seek to engage in prudent management of our cash and cash equivalents, mainly cash on hand and common financial instruments (typically short- and mid-term deposits). Furthermore, the interest rate risk related to cash, cash equivalents and common financial instruments is not significant based on the quality of the financial institutions with which we work.

Credit risk

Credit risk is the risk of our financial loss if a customer or counterparty to a financial instrument defaults on its contract commitments. We are exposed to credit risk due to our trade receivables, subsidies receivables and cash equivalents.

Our policy is to manage our risk by dealing with third parties with good credit standards.

Note 9. Inventories

Accounting policy

Inventories are measured at the lower of cost and net realizable value. Cost is determined using the first in first out cost method. They include all costs of seed production and grain Calyxt purchases as well as costs to store, transport and process the grain into finished products. Consideration Calyxt receives from growers when they purchase seed is recorded as a reduction of inventory. Calyxt evaluates inventory balances for obsolescence on a regular basis using projected selling prices for our products, market prices for the underlying agricultural markets, the age of products and other factors that take into consideration our limited operating history. Prior to the commercialization of Calyxt's high oleic soybean oil and soybean meal in the three months ended March 31, 2019, all Grain Costs were expensed as R&D.

[Table of Contents](#)

Description of inventories

As of December 31, 2019, inventories amounted to \$2.9 million, \$2.6 million of which related to Calyxt's grain and seed costs, and \$0.3 million to raw materials and laboratory consumables (representing pharmaceutical and chemical products).

As of December 31, 2018, inventories consisted of \$0.3 million of raw materials and laboratory consumables (representing pharmaceutical and chemical products).

No provision for impairment has been recorded as of December 31, 2019 and 2018.

Note 10. Trade receivables and other current assets

Accounting policies for trade receivables and other current assets are described in Note 8.1.

10.1 Trade receivables

	<u>As of December 31, 2018</u>	<u>As of December 31, 2019</u>
	\$ in thousands	
Trade receivables	3,353	3,513
Valuation allowance	(382)	(554)
Total net value of trade receivables	<u>2,971</u>	<u>2,959</u>

All trade receivables have payment terms of less than one year. The trade receivables are mainly due to collaboration contracts and to the commercialization of Calyxt's high oleic soybean products.

10.2 Subsidies receivables

	<u>As of December 31, 2018</u>	<u>As of December 31, 2019</u>
	\$ in thousands	
Research tax credit	16,842	9,140
Other subsidies	1,598	—
Valuation allowance for other subsidies	(1,266)	—
Total subsidies receivables	<u>17,173</u>	<u>9,140</u>

Research tax credit receivables as of December 31, 2019 mainly include the accrual for a French research tax credit related to 2019 for \$7.9 million. The remaining amount mainly relates to refundable tax credits in the United States. In December 2018, the French Tax Authority initiated an audit related to the 2014, 2015, 2016 and 2017 French research tax credits. Based on our current evaluation of the status of the audit, we do not believe that a provision should be recorded as of December 31, 2019. During the last quarter of 2019, we received payments of \$7.4 million and \$7.3 million related to 2017 and 2018 tax credit receivables. The valuation allowance for other subsidies was fully reversed in 2019 as a loss was incurred.

Research tax credit receivables as of December 31, 2018 include the accrual for a French research tax credit related to 2017 for \$8.0 million and to 2018 for \$7.8 million and the remaining amount mainly relates to refundable tax credits in the United States. The valuation allowance for other subsidies corresponds mainly to a grant, which was fully reserved in 2014.

10.3 Other current assets

	As of December 31, 2018	As of December 31, 2019
	\$ in thousands	
VAT receivables	1,679	3,044
Prepaid expenses and other prepayments	10,985	11,829
Tax and social receivables	244	150
Deferred expenses and other current assets	2,425	594
Total other current assets	15,333	15,617

Prepaid expenses and other prepayments primarily include advances to our sub-contractors on research and development activities. They mainly relate to advance payments to suppliers of biological raw materials and to third parties participating in product manufacturing.

During the years ended December 31, 2019, and December 31, 2018, we prepaid certain manufacturing costs related to our product candidates UCART123, UCARTCS1 and UCART22 of which the delivery of products or services is expected in the coming months.

As of December 31, 2018, deferred expenses and other current assets include (i) a deferred expense of \$2.1 million related to the sale and lease-back transaction entered into by Calyxt and (ii) other current assets for \$0.3 million. As of January 1, 2019, the \$2.1 million deferred expense mentioned above has been reclassified in “Right-of-use assets” following the IFRS16 application. As of December 31, 2019, deferred expenses and other current assets mainly relates to commission fees with respect to a letter of credit relating to our IMPACT facility, a Calyxt broker receivable and certain down payments to suppliers.

As of December 31, 2018, tax and social receivables include \$0.2 million of social charges on personnel expenses. As of December 31, 2019, tax and social receivables relate mainly to social charges on personnel expenses and tax reimbursement.

Note 11. Current financial assets and Cash and cash equivalents

As of December 31, 2018	Carrying amount	Unrealized Gains/(Losses)	Estimated fair value
	\$ in thousands		
Current financial assets	388	—	388
Cash and cash equivalents	451,501	—	451,501
Current financial assets and cash and cash equivalents	451,889	—	451,889

As of December 31, 2019	Carrying amount	Unrealized Gains/(Losses)	Estimated fair value
	\$ in thousands		
Current financial assets	20,385	—	20,385
Cash and cash equivalents	340,522	—	340,522
Current financial assets and cash and cash equivalents	360,907	—	360,907

11.1 Current financial assets

Accounting policies

Current financial assets include current restricted cash and other current financial assets.

As of December 31, 2019, restricted cash consists of:

- i. deposit to secure commitment to supplier regarding the manufacturing facility construction for \$20 million classified as short-term restricted cash,
- ii. deposits to secure a Calyxt furniture and equipment sale-leaseback for \$1.5 million of which \$0.4 million are classified as short-term restricted cash.

As of December 31, 2018, restricted cash consists of deposits to secure a Calyxt furniture and equipment sale-leaseback for \$1.5 million of which \$0.4 million are classified as short-term restricted cash.

Financial assets are measured at fair value through profit or loss in accordance with IAS 39 include the following:

- Financial assets including embedded derivatives for which Collectis elected to designate at fair value through profit or loss;
- Financial assets managed on a fair value basis; and
- Derivative instruments that are not documented in hedging relationships.

IFRS 13 (Fair Value Measurement) requires counterparty and own credit risk to be taken into account when measuring the fair value of financial instruments. This risk is estimated on the basis of observable, publicly-available statistical data.

11.2 Cash and cash equivalents

Accounting policy

Cash and cash equivalents are held for the purpose of meeting short-term cash commitments rather than for the purpose of investment or for other purposes. They are readily convertible into a known amount of cash and are subject to an insignificant risk of changes in value. Cash and cash equivalents include cash, bank accounts, money market funds and fixed bank deposits that meet the definition of a cash equivalent. Cash equivalents are fair valued at the end of each reporting period.

Details of cash and cash equivalents

	As of December 31, 2018	As of December 31, 2019
	\$ in thousands	
Cash and bank accounts	398,178	270,630
Money market funds	13,248	13,722
Fixed bank deposits	40,075	56,170
Total cash and cash equivalents	451,501	340,522

Money market funds earn interest and are refundable overnight. Fixed bank deposits have fixed terms that are less than three months or are readily convertible to a known amount of cash.

Note 12. Financial liabilities

12.1 Detail of financial liabilities

	As of December 31, 2018	As of December 31, 2019
	\$ in thousands	
Lease debts / Finance lease	1,018	46,540
Total non-current financial liabilities	1,018	46,540
Lease debts / Finance lease	333	1,067
Total current financial liabilities	333	1,067
Trade payables	15,883	29,264
Other current liabilities	8,369	8,497
Total Financial liabilities	25,603	85,368

Certain finance leases were recorded under IAS 17. IFRS 16 “Leases” is applicable for annual periods beginning on or after January 1, 2019. The consequence of the application of this standard is to recognize a right-of-use and lease liability on the balance sheet, which explains the increase in lease debts as of December 31, 2019.

12.2 Due dates of the financial liabilities

Balance as of December 31, 2019	Discounted amount	Less than One Year	One to Five Years	More than Five Years
	\$ in thousands			
Lease debts	47,607	1,067	46,540	—
Financial liabilities	47,607	1,067	46,540	—
Trade payables	29,264	29,264	—	—
Other current liabilities	8,497	8,497	—	—
Total financial liabilities	85,368	38,828	46,540	—

Note 13. Other current liabilities

	As of December 31, 2018	As of December 31, 2019
	\$ in thousands	
VAT Payables	291	130
Accruals for personnel related expenses	7,041	7,295
Other	1,037	1,072
Total	8,369	8,497

Accruals for personnel are related to annual bonuses, vacations accruals and social expenses on stock options. The increase in accruals for personnel related expenses between December 31, 2018 and December 31, 2019, is mainly driven by higher accrual for annual bonuses due to the increase of headcount recruited both in the United States and in France.

As of December 31, 2019 “Other” mainly include payables to fixed asset suppliers for \$0.6 million, Board of Directors attendance fees for \$0.3 million liabilities and other tax liabilities for \$0.2 million.

As of December 31, 2018 “Other” mainly include Board of Directors attendance fees for \$0.3 million liabilities and subsidies liabilities for \$0.3 million.

Note 14. Deferred revenues and contract liabilities*Details of deferred revenues and deferred income*

	<u>As of December 31, 2018</u>	<u>As of December 31, 2019</u>
	<u>\$ in thousands</u>	
Deferred revenues and contract liabilities	20,454	20,033
Others	299	—
Total Deferred revenue and contract liabilities	<u>20,754</u>	<u>20,033</u>

Deferred revenues

The deferred revenues and contract liabilities correspond mainly to upfront payments for the collaboration agreements with Les Laboratoires Servier and Institut de Recherche Servier (together “Servier”). At December 31, 2019, certain development programs were put on hold.

Note 15. Capital

15.1 Share capital issued

Accounting policy

In general, each shareholder is entitled to one vote per share at any general shareholders' meeting. However, our By-Laws provide that all shares held in registered form (actions nominatives) for more than two years will be granted double voting rights. Costs directly attributable to the issue of ordinary shares or share options are recognized as a reduction in equity. Repurchased own shares are classified as treasury shares and deducted from equity.

<u>Nature of the Transactions</u>	<u>Share Capital</u>	<u>Share premium</u> \$ in thousands	<u>Number of shares</u>	<u>Nominal value</u> in \$
Balance as of January 1, 2017	2,332	568,185	35,335,060	0.05
Capital Increase	26	—	466,950	—
Exercise of share warrants, employee warrants and stock options	9	2,921	158,052	—
Non-cash stock based compensation expense	—	42,968	—	—
Other movements	—	(37)	—	—
Balance as of December 31, 2017	2,367	614,037	35,960,062	0.05
Capital Increase	379	178,230	6,146,000	—
Exercise of share warrants, employee warrants and stock options	19	7,751	324,007	—
Non-cash stock based compensation expense	—	28,507	—	—
Balance as of December 31, 2018	2,765	828,525	42,430,069	0.05
Capital Increase	2	—	35,600	—
Exercise of share warrants, employee warrants and stock options	—	—	—	—
Non-cash stock based compensation expense	—	14,951	—	—
Other movements	—	2	—	—
Balance as of December 31, 2019	2,767	843,478	42,465,669	0.05

Capital evolution in 2019

- During the full year ended December 31, 2019, 35,600 free shares were converted to 35,600 ordinary shares.

Capital evolution in 2018

- During the full year ended December 31, 2018, 6,146,000 ordinary shares were issued upon the closing of a follow-on offering for net proceeds, after deducting underwriting discounts and commissions and offering expenses, of \$178,611,687; 1,939 ordinary shares were issued upon the exercise of 1,867 employee warrants ("bons de souscription de parts de créateurs") for total proceeds of \$14,112; 322,068 ordinary shares were issued upon the exercise of 322,068 stock options for total proceeds of \$7,525,542 and 160,000 non-employees warrants ("bons de souscription d'actions") were subscribed for total proceeds of \$230,629.

Capital evolution in 2017

- During the full year ended December 31, 2017, 126,179 ordinary shares were issued upon the exercise of 121,492 employee warrants ("bons de souscription de parts de créateurs") for a total amount of \$2,173,058; 466,950 free shares were converted to 466,950 ordinary shares; 31,873 ordinary shares were issued upon the exercise of 31,873 stock options for a total amount of \$734,234 and 228,000 non-employees warrants ("bons de souscription d'actions") were subscribed for a total amount of \$252,171.

BSA 2011:

On October 28, 2011, using the delegation of authority granted by the General Assembly held the same day, we issued 12,195,113 warrants (Bon de Souscription d' Actions or "BSA") to the existing shareholders with a ratio of one BSA for one share. October 28, 2014 was the closing date for the exercise of the "BSA 2011." Pursuant to the terms of the plan, we issued 1,470,836 ordinary shares for gross proceeds of \$16.4 million.

Voting rights:

After a shareholder continuously holds ordinary shares for two years, each ordinary share held by such shareholder is entitled to two votes.

- At December 31, 2019, we had 42,465,669 ordinary shares outstanding of which 4,389,581 had a double voting right.
- At December 31, 2018, we had 42,430,069 ordinary shares outstanding of which 5,016,911 had a double voting right.
- At December 31, 2017, we had 35,960,062 ordinary shares outstanding of which 5,155,335 had a double voting right

Otherwise, our ordinary shares are not entitled to any preferential voting right or restriction.

15.2 Share warrants and non-employee warrants

Share warrants and non-employee warrants consist of Bon de Souscription d'Action ("BSAs") which are granted to our board members and consultants.

Date	Type	Number of warrants/shares outstanding as of 01/01/2019	Number of warrants/shares granted	Number of warrants/shares vested/exercised	Number of warrants/shares voided	Number of warrants/shares outstanding as of 12/31/2019	Maximum of shares to be issued	Number of warrants/shares exercisable as of 12/31/2019	Strike price per share in euros
07/27/2010	BSPCE E	19,702	—	—	—	19,702	20,464	19,702	7.97
05/18/2015	Free shares	15,600	—	15,600	—	—	—	—	—
03/24/2015	Stock Options	1,730,646	—	—	117,652	1,612,994	1,612,994	1,612,994	38.45
03/27/2015	BSA	130,000	—	—	—	130,000	130,000	130,000	38.45
05/18/2015	BSA	50,000	—	—	—	50,000	50,000	50,000	29.58
09/08/2015	BSA	224,200	—	—	—	224,200	224,200	224,200	28.01
09/08/2015	Stock Options	1,770,000	—	—	146,800	1,623,200	1,623,200	1,623,200	27.55
03/14/2016	BSA	147,025	—	—	—	147,025	147,025	147,025	27.37
03/14/2016	Stock Options	1,785,271	—	—	132,676	1,652,595	1,652,595	1,549,308	22.44
10/28/2016	BSA	148,000	—	—	—	148,000	148,000	148,000	18.68
10/28/2016	Stock Options	2,369,689	—	—	190,796	2,178,893	2,178,893	1,634,170	17.90
10/11/2017	BSA	200,000	—	—	—	200,000	200,000	133,333	24.34
10/11/2017	Stock Options	1,182,500	—	—	222,500	960,000	960,000	480,000	22.57
10/08/2018	Free shares	43,000	—	20,000	20,000	3,000	3,000	—	—
10/08/2018	Stock Options	100,000	—	—	50,000	50,000	50,000	12,500	24.80
12/17/2018	Free shares	13,000	—	—	—	13,000	13,000	—	—
12/17/2018	Stock Options	40,000	—	—	—	40,000	40,000	10,000	18.37
07/03/2019	Free shares	—	3,500	—	1,000	2,500	2,500	—	—
07/03/2019	Stock Options	—	3,000	—	3,000	—	—	—	15.69
04/24/2019	Stock Options	—	1,562,800	—	93,100	1,469,700	1,469,700	—	18.25
04/24/2019	Free shares	—	6,500	—	—	6,500	6,500	—	—
07/16/2019	Free shares	—	9,000	—	5,000	4,000	4,000	—	—
11/06/2019	Stock Options	—	55,000	—	—	55,000	55,000	—	11.06
11/06/2019	Free shares	—	21,500	—	—	21,500	21,500	—	—
11/18/2019	Stock Options	—	30,000	—	—	30,000	30,000	—	12.33
11/18/2019	Free shares	—	16,500	—	—	16,500	16,500	—	—
	Total	9,968,633	1,707,800	35,600	982,524	10,658,309	10,659,071	7,774,432	

Holders of vested stock options and warrants are entitled to subscribe to a capital increase of Collectis at predetermined exercise price.

- In 2019, our subsidiary Calyxt Inc. granted stock options, restricted stock unit and performance stock unit in Calyxt Inc. representing as of December 31, 2019 a 6.1% interest of that subsidiary if fully exercised to a group of its employees, directors, executive officers and consultants. The compensation expense for 2019 amounted to \$4.4 million (see Note 16).
- In 2018, our subsidiary Calyxt Inc. granted stock options and restricted stock unit in Calyxt Inc. representing as of December 31, 2018 a 3.1% interest of that subsidiary if fully exercised to a group of its employees, directors, executive officers and consultants. The compensation expense for 2018 amounted to \$3.3 million (see Note 16).
- In June 2017, our subsidiary Calyxt Inc. granted stock options and restricted stock unit in Calyxt Inc. representing as of December 31, 2017 a 9.8% interest of that subsidiary if fully exercised to a group of its employees, directors and executive officers. The compensation expense for 2017 amounted to \$5.2 million (see Note 16);

15.3 Non-controlling interests

On July 25, 2017, Calyxt closed its IPO with \$64.4 million in gross proceeds to Calyxt from the sale of 8,050,000 shares at \$8 per share, including the full exercise of the underwriter’s over-allotment option and Collectis’ purchase of \$20.0 million of shares in the IPO. On May 22, 2018, Calyxt Inc completed a follow-on offering of its common stock. Calyxt Inc sold an aggregate of 4,057,500 shares of common stock at a price of \$15.00 per share. In the aggregate, Calyxt Inc received net proceeds of approximately \$57.0 million, after deducting underwriting discounts and commissions of \$3.2 million and offering expenses totaling approximately \$0.7 million. As part of the follow-on offering, Collectis SA purchased 550,000 shares of common stock for a value of \$8.3 million, the proceeds of which are included in the net proceeds of approximately \$57.0 million. As of December 31, 2019, non-controlling interests represent 31.1% of Calyxt shares.

The following table summarizes the information relating to each of our subsidiaries that reported non-controlling interest (“NCI”):

	CALYXT	
	2018	2019
	\$ in thousands	
Revenue	236	7,294
Net Profit (Loss)	(28,517)	(40,142)
Net Profit (Loss) attributable to NCI	(9,640)	(13,121)
Other comprehensive income	(5,373)	(1,237)
Total comprehensive income	(33,891)	(41,378)
Total comprehensive income attributable to NCI	(10,330)	(12,856)
Current assets	97,735	63,528
Non-current assets	4,539	22,518
Current liabilities	5,460	6,642
Non-current liabilities	826	15,121
Net assets	95,987	64,283
Net assets attributable to NCI	29,257	19,973

15.4 Treasury shares

In 2008, Collectis executed a liquidity contract with Natixis Securities (“Natixis”). This contract entitles Natixis to transact on Euronext, on our behalf, in order to enhance the liquidity of transactions and regularity of quotation of our ordinary shares, in an independent way, without hindering the functioning of the market or misleading investors.

[Table of Contents](#)

The initial advance payment made to Natixis for the purpose of making transactions under this contract was \$0.4 million. As of December 31, 2017, \$0.3 million are classified in treasury shares and the balance is presented in the line item “Other non-current financial assets” in the statements of consolidated financial position.

In 2018, we terminated our liquidity contract with Natixis.

Note 16. Share-based payments

16.1 Detail of Collectis equity awards

Holders of vested Collectis stock options and warrants are entitled to exercise such options and warrants to purchase Collectis Ordinary shares at a fixed exercise price established at the time of such options and warrants are granted during their useful life.

For stock options and warrants, we estimate the fair value of each option on the grant date or other measurement date if applicable using a Black-Scholes option-pricing model, which requires us to make predictive assumptions regarding future stock price volatility, employee exercise behavior, dividend yield, and the forfeiture rate. We estimate our future stock price volatility based on Collectis historical closing share prices over the expected term period. Our expected term represents the period of time that options granted are expected to be outstanding determined using the simplified method. The risk-free interest rate for periods during the expected term of the options is based on the French government securities with maturities similar to the expected term of the options in effect at the time of grant. We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we used an expected dividend yield of zero. Options may be priced at 100 percent or more of the fair market value on the date of grant, and generally vest over four years after the date of grant. Options generally expire within ten years after the date of grant.

Stock Options

The weighted-average fair values of stock options granted and the assumptions used for the Black-Scholes option pricing model were as follows:

	<u>2017</u>	<u>2018</u>	<u>2019</u>
Weighted-Average fair values of stock options granted	14.30€	8.84€	10.19€
Assumptions:			
Risk-free interest rate	0.03%	0.13% - 0.21%	-0.38% - 0.09%
Share entitlement per options	1	1	1
Exercise price	22.57€	18.37€ - 24.80€	11.06€ - 18.25€
Grant date share fair value	24.01€	16€ - 17.78€	11.32€ - 17.80€
Expected volatility	65.6%	63.3% - 63.4%	60.0% - 66.6%
Expected term (in years)	6.12	6.25	5.78 - 6.25
Vesting conditions	Service	Service	Service
Vesting period	Graded	Graded	Graded

[Table of Contents](#)

Information on stock option activity follows:

	Options Exercisable	Weighted- Average Exercise Price Per Share	Options Outstanding	Weighted- Average Exercise Price Per Share	Remaining Average Useful Life
Balance as of December 31, 2017	3,822,772	28.02 €	9,332,604	25.17 €	8.3y
Granted			140,000	22.96 €	
Exercised			(319,568)	19.72 €	
Forfeited or Expired			(174,930)	23.68 €	
Balance as of December 31, 2018	5,644,044	27.47 €	8,978,106	25.36 €	7.3y
Granted			1,650,800	17.90 €	
Exercised			—	—	
Forfeited or Expired			(956,524)	24.01 €	
Balance as of December 31, 2019	6,922,172	26.30 €	9,672,382	24.22 €	6.8y

Share-based compensation expense related to stock option awards was \$13.4 million in 2019, \$26.0 million in 2018, and \$36.8 million in 2017.

Warrants

The weighted-average fair values of warrants granted and the assumptions used for the Black-Scholes option pricing model were as follows:

	2016	2017
Weighted-Average fair values of warrants granted	9.33€	13.20€
Assumptions:		
Risk-free interest rate	0.00% - 0.04%	0.12%
Share entitlement per options	1	1
Exercise price	18.68€ - 27.37€	24.34€
Grant date share fair value	16.42€ - 22.48€	24.95€
Expected volatility	62.8% - 63.1%	64.7%
Expected term (in years)	6.00	6.00
Vesting conditions	Service	Service
Vesting period	Graded	Graded

[Table of Contents](#)

Information on warrants activity follows:

	<u>Warrants Exercisable</u>	<u>Weighted- Average Exercise Price Per Share</u>	<u>Warrants Outstanding</u>	<u>Weighted- Average Exercise Price Per Share</u>	<u>Remaining Average Useful Life</u>
Balance as of December 31, 2017	469,436	28.80 €	1,100,969	27.23 €	8.2y
Granted			0	0.00 €	
Exercised			(1,867)	6.16 €	
Forfeited or Expired			(180,175)	29.95 €	
Balance as of December 31, 2018	687,252	27.74 €	918,927	26.74 €	7.2y
Granted			0	0.00 €	
Exercised			0	0.00 €	
Forfeited or Expired			0	0.00 €	
Balance as of December 31, 2019	852,260	35.35 €	918,927	35.12 €	6.9y

Share-based compensation expense related to warrants awards was \$0.9 million in 2019, \$2.3 million in 2018, and \$3.5 million in 2017.

Free shares

The free shares granted prior to 2018 are subject to a two-year vesting period for French employees and four years for foreign citizens. The free shares granted in 2018 and after are subject to a one-year vesting period for French employees and two-years for foreign citizens.

Information on free shares activity follows:

	<u>Number of Free shares Outstanding</u>	<u>Weighted- Average Grant Date Fair Value</u>
Unvested balance at December 31, 2017	15,600	28.17 €
Granted	56,000	17.37 €
Vested	0	0.00 €
Cancelled	0	0.00 €
Unvested balance at December 31, 2018	71,600	27.37 €
Granted	57,000	13.04 €
Vested	(35,600)	25.74 €
Cancelled	(26,000)	21.65 €
Unvested balance at December 31, 2019	67,000	13.98 €

The fair value of free shares corresponds to the grant date share fair value.

We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we used an expected dividend yield of zero in determining fair value.

Share-based compensation expense related to free shares awards was \$0.7 million in 2019, \$0.2 million in 2018, and \$2.6 million in 2017.

16.2 Detail of Calyxt equity awards

Stock Options

The estimated fair values of stock options granted and the assumptions used for the Black-Scholes option pricing model were as follows:

	2017	2018	2019
Weighted-Average fair values of stock options granted	\$4.00	\$9.09	\$10.21
Assumptions:			
Risk-free interest rate	1.96%	2.45% - 2.89%	1.7% - 2.5%
Share entitlement per options	1	1	1
Exercise price	\$13.29	\$14.24 - \$23.39	\$4.05 - \$15.39
Grant date share fair value	\$13.29	\$14.24 - \$23.39	\$4.05 - \$15.39
Expected volatility	25%	40.86% - 57.22%	52.6% - 78.9%
Expected term (in years)	6.6	5.6 - 10.0	6.8 - 10.0
Vesting conditions	Service	Service	Service
Vesting period	Graded	Graded	Graded

Calyxt estimates the fair value of each option on the grant date or other measurement date if applicable using a Black-Scholes option-pricing model, which requires Calyxt to make predictive assumptions regarding future stock price volatility, employee exercise behavior, dividend yield, and the forfeiture rate. Calyxt estimates its future stock price volatility using the historical volatility of comparable public companies over the expected term of the option.

Our expected term represents the period of time that options granted are expected to be outstanding determined using the simplified method.

The risk-free interest rate for periods during the expected term of the options is based on the U.S. Treasury zero-coupon yield curve in effect at the time of grant.

Calyxt has not paid and does not expect to pay dividends for the foreseeable future.

Options may be priced at 100 percent or more of the fair market value on the date of grant, and generally vest over six years after the date of grant. Options generally expire within ten years after the date of grant. Certain awards granted before Calyxt's IPO contained accelerated vesting provisions if certain events occurred as defined in the option agreement.

[Table of Contents](#)

Information on stock option activity follows:

	<u>Options Exercisable</u>	<u>Weighted- Average Exercise Price Per Share</u>	<u>Options Outstanding</u>	<u>Weighted- Average Exercise Price Per Share</u>	<u>Remaining Average Useful Life</u>
Balance as of December 31, 2017	1,244,968	\$ 5.20	3,883,432	\$ 9.16	8.8y
Granted			554,243	\$ 16.69	
Exercised			(592,342)	\$ 4.43	
Forfeited or Expired			(643,446)	\$ 12.52	
Balance as of December 31, 2018	1,278,038	\$ 7.45	3,201,887	\$ 10.67	8.2y
Granted			1,590,000	\$ 13.80	
Exercised			(95,327)	\$ 3.61	
Forfeited or Expired			(227,696)	\$ 14.68	
Other activity			12,495	\$ 13.29	
Balance as of December 31, 2019	1,789,567	\$ 8.73	4,481,359	\$ 11.73	6.8y

Stock-based compensation expense related to stock option awards was \$6.8 million in 2019, \$3.2 million in 2018 and \$3.8 million in 2017. The options granted under the plans were originally only exercisable upon a triggering event or initial public offering as defined by the plans.

Restricted Stock Units

Units settled in stock subject to a restricted period may be granted to key employees under the 2017 Omnibus Plan. Restricted stock units generally vest and become unrestricted over five years after the date of grant.

Information on restricted stock unit activity follows:

	<u>Number of Restricted Stock Units Outstanding</u>	<u>Weighted-Average Grant Date Fair Value</u>
Unvested balance at December 31, 2017	1,373,933	\$ 13.29
Granted	315,825	\$ 16.68
Vested	(261,507)	\$ 14.07
Cancelled	(376,837)	\$ 13.30
Unvested balance at December 31, 2018	1,051,414	\$ 14.11
Granted	100,000	\$ 12.48
Vested	(324,043)	\$ 9.69
Cancelled	(13,845)	\$ 12.72
Unvested balance at December 31, 2019	813,526	\$ 9.41

The fair value of restricted stock units corresponds to the grant date share fair value.

Calyxt has not paid and does not expect to pay dividends for the foreseeable future.

Share-based compensation expense related to restricted stock units awards was \$4.9 million in 2019, \$5.5 million in 2018 and \$4.7 million in 2017.

Performance Stock Unit

In June 2019, Calyxt granted performance stock units, which carry a market condition based on Calyxt share price. These awards contain a continuous service period of three years, the performance period, from the date of grant, followed by a restricted period of two years if the shares are issued following the performance period during which the grantee is required to provide continuous service and the awarded shares must be held by the grantee until the end of the period. The number of shares of common stock delivered following the performance period depends upon the change in Calyxt share price during the performance period. Calyxt granted a targeted 311,667 performance stock units, the performance criteria allow for the actual payout to be between zero and 120 percent of target. The fair value of the performance stock units and the assumptions used for the Monte Carlo simulation were as follows:

<u>Date of grant</u>	<u>06/28/2019</u>
Estimated fair values of performance stock units granted	\$ 7.06
Assumptions:	
Risk-free interest rate	1.71%
Expected volatility	75.0%
Expected term (in years)	3.0 years

Information on performance stock unit activity follows:

	Number of Performance Stock Units Outstanding	Weighted- Average Grant Date Fair Value
Unvested balance at December 31, 2018	\$ —	\$ —
Granted	311,667	\$ 7.06
Vested	\$ —	\$ —
Cancelled	\$ —	\$ —
Unvested balance at December 31, 2019	311,667	\$ 7.06

Share-based compensation expense related to performance stock units awards was \$0.2 million in 2019.

Note 17. Earnings per share

Accounting policy

Basic earnings per share are calculated by dividing profit attributable to our ordinary shareholders by the weighted average number of ordinary shares outstanding during the period, adjusted to take into account the impact of treasury shares.

Diluted earnings per share is calculated by adjusting profit attributable to ordinary shareholders and the weighted average number of ordinary shares outstanding, for the effects of all potentially dilutive ordinary shares (stock-options, free shares, share warrants, employee warrants).

Detail of earnings per share

	For the year ended December 31,		
	2017	2018	2019
Net income (loss) attributable to shareholders of Collectis (\$ in thousands)	(99,368)	(78,693)	(102,091)
Adjusted weighted average number of outstanding shares, used to calculate both basic and diluted net result per share	35,690,636	40,774,197	42,442,136
Basic / Diluted net income (loss) per share (\$ / share)			
Basic net income (loss) per share (\$ /share)	(2.78)	(1.93)	(2.41)
Diluted net income (loss) per share (\$ /share)	(2.78)	(1.93)	(2.41)

Note 18. Provisions

Accounting policy

A provision is recognized if, as a result of a past event, we have a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation.

The amount recognized as a provision is the best estimate of the expenditure required to settle the present obligation at the reporting date.

Provisions for retirement and other benefits

Our defined benefit obligations, and their cost, are determined using the projected unit credit method.

The method consists in measuring the obligation based on a projected end-of-career salary and vested rights at the measurement date, according to the provisions of the collective bargaining agreement, corporate agreements and applicable law.

Actuarial assumptions used to determine the benefit obligations are specific to each country and each benefit plan. The discount rate used is the yield at the reporting date on AA credit-rated bonds with maturity dates that approximate the expected payments for our obligations.

Actuarial gains or losses are recognized in the statement of comprehensive loss for the year in which they occur.

Other long-term employee benefits

Our net obligation for long-term employee benefits other than retirement plans is equal to the value of employees' future benefits vested in exchange for services rendered in the current and prior periods. The benefits are discounted and the fair value of any plan assets is deducted.

The obligation is measured using the projected unit credit method. The discount rate is the same as the one used for the provisions for retirement and other benefits. Actuarial gains or losses are recognized in profit or loss for the year in which they occur.

Termination benefits

Termination benefits are recognized as a liability and expense at the earlier of the following dates:

- When the entity can no longer withdraw the offer of those benefits; and
- When the entity recognizes costs for a restructuring that is within the scope of IAS 37 Provisions and involves the payment of termination benefits.

Details of provisions

	01/01/2018	Additions	Amounts used during the period		OCI	12/31/2018
				Reversals		
\$ in thousands						
Pension	2,193	314	(54)	—	(175)	2,278
Loss on contract	1,876	—	(834)	—	1	1,043
Employee litigation and severance	1	43	—	(1)	(2)	41
Commercial litigation	782	646	—	(570)	(8)	850
Redundancy plan	7	—	—	(6)	(1)	—
Total	4,858	1,003	(888)	(577)	(186)	4,211
Non-current provisions	3,430	314	(888)	—	(175)	2,681
Current provisions	1,427	688	—	(577)	(11)	1,528

	01/01/2019 as restated	Reclassification	Additions	Amounts used during the period		OCI	12/31/2019
					Reversals		
Pension	2,278	—	314	—	—	263	2,855
Loss on contract*	—	1,043	690	(1,461)	—	—	272
Employee litigation and severance	41	—	715	(43)	(75)	1	639
Commercial litigation	850	—	2,604	(595)	(17)	(11)	2,832
Total	3,169	1,043	4,323	(2,099)	(92)	253	6,598
Non-current provisions	2,278	—	314	—	—	263	2,855
Current provisions	891	1,043	4,009	(2,099)	(92)	(10)	3,743

* As of January 1, 2019, Montvale, New Jersey facility lease agreement provision for loss on contract was scoped under IFRS 16 and classified as lease debts. During the period, the agreement has been discontinued which changed its treatment placing it outside the scope of IFRS 16 and resulting in the reclassification to “loss on contract” presented above.

During the year ended December 31, 2019, additions mainly relate to (i) the discontinuation of the lease for a non-operational facility in Montvale, New Jersey for \$0.7 million, (ii) employee litigation for \$0.7 million, (iii) operating charges relating to discussions with suppliers for \$2.6 million and (iv) pension service cost of the period for \$0.3 million. The amounts used during the period and the associated accrual reversals mainly relate to (i) payments in connection with the Montvale, New Jersey facility discontinuation, (ii) commercial litigation following the positive conclusion of discussions with a supplier, (iii) employee litigation following a settlement.

During the year ended December 31, 2018, additions mainly relates to (i) operating charges linked with discussions with suppliers for \$0.6 million and (ii) pension service cost of the period for \$0.3 million (see detail above). Amounts used during the year ended December 31, 2018 mainly consists of (i) the rents payments of the facility lease in Montvale, New Jersey (USA) for \$0.8 million and (ii) settlement of commercial litigations with suppliers for \$0.6 million.

Commitments for compensation payable to employees upon their retirement

France

In France, pension funds are generally financed by employer and employee contributions and are accounted for as defined contribution plans, with the employer contributions recognized as expense as incurred. There are no actuarial liabilities in connection with these plans. Expenses recorded in the years ended December 31, 2017, 2018 and 2019 amounted to \$0.8 million, \$1.5 million and \$1.1 million, respectively.

[Table of Contents](#)

French law also requires payment of a lump sum retirement indemnity to employees based on years of service and annual compensation at retirement. Benefits do not vest prior to retirement. We are paying this defined benefit plan. It is calculated as the present value of estimated future benefits to be paid, applying the projected unit credit method whereby each period of service is seen as giving rise to an additional unit of benefit entitlement, each unit being measured separately to build up the final.

The calculation of legal compensation for termination has changed in 2017 following the publication of a new French law.

The two important changes are:

- Seniority conditions: the employee must be entitled to an indemnity of 8 working months against one year before.
- Calculation of the allowance: 1/4 of a month of salary per year of seniority up to 10 years, against 1/5 before, and no change beyond the 11th year.

As part of the estimation of the retirement indemnity to employee, the following assumptions were used for all categories of employees:

	2017	2018	2019
% social security contributions	45.00%	45.00%	45.00%
Salary increases	3.50%	3.50%	3.50%
Discount rate	1.75%	1.75%	1.00%
Terms of retirement	voluntary retirement		
Retirement age	65 years old	65 years old	65 years old

The discount rates are based on the market yield at the end of the reporting period on high quality corporate bonds.

The following table shows reconciliation from the opening balances to the closing balances for net defined benefit liability and its components.

	\$ in thousands
As of January 1, 2017	(562)
Current service cost	(925)
Interest cost	(24)
Actuarial gains and losses	(515)
Reclassification/CTA	(168)
As of December 31, 2017	(2,194)
Current service cost	(276)
Interest cost	(38)
Benefit paid	54
Actuarial gains and losses	70
Reclassification/CTA	105
As of December 31, 2018	(2,278)
Current service cost	(275)
Interest cost	(39)
Benefit paid	—
Actuarial gains and losses	(303)
Reclassification/CTA	40
As of December 31, 2019	(2,855)

United States of America

There is no defined benefit plan for Collectis S.A.'s subsidiaries located in the United States.

Note 19. Commitments

Accounting policy

The commitment amounts are associated with contracts that are enforceable and legally binding and that specify all significant terms, including fixed or minimum services to be used, fixed, minimum or variable price provisions, and the approximate timing of the actions under the contracts. They do not include obligations under agreements that we can cancel without a significant penalty.

Details of commitments

As of December 31, 2019	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
	\$ in thousands				
Lease agreements	73,181	4,014	18,886	9,764	40,516
License agreements	18,607	1,389	2,778	2,778	11,662
Manufacturing agreements	6,218	6,218	—	—	—
Clinical & R&D agreements	2,086	1,424	662	—	—
Construction agreements	39,741	39,741	—	—	—
Other agreements	50,896	30,851	20,045	—	—
Total contractual obligations	190,728	83,637	42,371	12,542	52,179

Obligations under the terms of lease agreements

We have entered into various lease agreements including facility leases agreements for our sites in Paris, France, and in the United-States in New-York City (New-York), Raleigh (North Carolina) and Roseville (Minnesota) for a defined term, as well as finance leases and sales and leaseback for equipment.

Obligations under the terms of license agreements

We have entered into various license agreements with third parties that subject us to certain fixed license fees, as well as fees based on future events, such as research and sales milestones.

We also have collaboration agreements whereby we are obligated to pay royalties and milestones based on future events that are uncertain and therefore they are not included in the table above.

Obligations under the terms of manufacturing agreements

We have manufacturing agreements whereby we are obligated to pay for services rendered in the next year regarding our products UCART123, UCARTCS1 and UCART22.

Obligations under the terms of Clinical & Research agreements

We have entered into clinical and research agreements where we are obligated to pay for services to be provided in the next years regarding our research collaboration agreements, clinical trials and translational research projects.

Obligations under the terms of Construction agreements

We have entered into a construction agreement regarding our manufacturing facility based in Raleigh, North Carolina, where we committed to pay for construction work in the next year.

Obligations under the terms of other agreements

Calyxt entered into seed and grain production agreements (Forward Purchase Contracts) with seed producers and growers. The seed contracts often require Calyxt to pay prices for the seed produced at an exchange-traded price of grain plus a premium. The grower contracts are linked to a commodity futures market prices with the grower having the option to fix their

price with us throughout the term of the agreement. These contracts allow for delivery of grain to Calyxt at harvest if so specified when the agreement is executed, otherwise delivery occurs on a date that Calyxt elects through August 31 of the following year. In all periods presented, we considered Forward Purchase Contracts as normal purchases and not derivatives. Any mark-to-market gains or losses associated with those contracts were reflected in inventory upon our purchase of the underlying grain.

Note 20. Related parties

Key management personnel remuneration

Key management personnel include members of the Board of Directors and the CODM as of December 31, 2019, as described in Note 3.5.

Short-term employee benefits paid to key management personnel totaled to \$3.6 million in the fiscal year 2017, \$4.4 million in the fiscal year 2018 and \$5.2 million in the fiscal year 2019.

On September 4, 2014, the Board of Directors adopted a change of control plan which applies to the members of the CODM. This plan defines the conditions under which a severance package will be paid after a change of control of our company. Key management personnel employment agreements include a termination indemnity or additional post-employment compensation.

Key management personnel received an aggregate of 602,000 securities in share-based remuneration (free shares and stock options) over the year ended December 31, 2019. The associated non-cash stock-based compensation expense of \$2.5 million was recognized for 2019.

Other transactions with related parties

Mr. Godard, a member of the Board of Directors, entered into two service agreements with us and provided consultancy services in the area of (i) global development strategy and (ii) specific development of agricultural biotechnology activities. Compensation paid for those services in the years ended December 31, 2017, 2018 and 2019 amounted to \$38 thousand, \$70 thousand and \$71 thousand respectively. No balances were outstanding at the end of each fiscal year. As of December 31, 2019, Mr. Godard held 220,175 non-employee warrants that could be exercised to obtain 50,000 shares at a strike price of €38.45, 50,000 shares at a strike price of €28.01 for 50,000 warrants, 40,175 shares at a strike price of €27.37 for 40,175 warrants, 40,000 shares at a strike price of €18.68 for 40,000 warrants and 40,000 shares at a strike price of €24.34 for 40,000 warrants.

Note 21. Subsequent events

On February 18, 2020, Collectis and Servier announced execution of a binding term sheet to amend the agreement signed between the two companies in 2019.

On March 4, 2020, we and Servier entered into the definitive amendment contemplated by the term sheet, to grant to Servier an exclusive license limited to CD19 target, but extended to all gene-edited allogeneic CAR T-cell products targeting CD19 and gene edited exclusively by Collectis' TALEN.

Under the amendment, Collectis grants to Servier, an exclusive worldwide, royalty bearing license with sublicensing rights under certain conditions, under certain of our patents and know-how to develop, manufacture and commercialize gene-edited allogeneic CAR T-cell products targeting CD19 and gene edited exclusively by Collectis' TALEN. Servier, directly or through its sublicensees, will be solely responsible for the research, development and commercialization of these products.

In addition, Servier confirms it will not pursue the development of five other targets for products using Collectis technology and consequently Collectis regains control over them.

Promptly after the date of execution of the amendment, Servier shall make an upfront payment of 25 million Euros. In addition, the Servier License Agreement provides for aggregate additional payments of up to \$410 million (370 million Euros), comprising payments for certain specified development and commercial milestones. We are also eligible to receive flat low double-digit royalties based on annual net sales of commercialized products. We are also entitled to a low double-digit royalty on certain development milestone payments received by Servier under sublicenses.

[Table of Contents](#)**Exhibit Index**

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
1.1	By-laws (status) of the registrant (English translation)				Filed herewith
2.1#	Form of Deposit Agreement	F-1	333-202205	4.1	March 10, 2015
2.2#	Form of American Depositary Receipt (included in Exhibit 2.1)	F-1	333-202205	Included in 4.1	March 10, 2015
2.3	Description of Securities registered under Section 12 of the Exchange Act				Filed herewith
4.1	[Reserved]				
4.2#	Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated October 19, 2000 (English translation)	20-F	001-36891	4.2	March 12, 2019
4.2.1#	Amendment No. 1 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated September 8, 2003 (English translation)	20-F	001-36891	4.2.1	March 12, 2019
4.2.2#	Amendment No. 2 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated June 24, 2004 (English translation)	20-F	001-36891	4.2.2	March 12, 2019
4.2.3#	Amendment No. 3 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated August 24, 2005 (English translation)	20-F	001-36891	4.2.3	March 12, 2019
4.2.4#	Amendment No. 4 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Collectis S.A., dated December 27, 2007 (English translation)	20-F	001-36891	4.2.4	March 12, 2019
4.3#	Patent License Agreement #C-00061905 between L'Institut Pasteur and Collectis S.A., dated June 19, 2000 (English translation)	20-F	001-36891	4.3	March 12, 2019
4.3.1#	Amendment No. 1 to Patent License Agreement #C-00061905 between L'Institut Pasteur and Collectis S.A., dated September 8, 2003 (English translation)	20-F	001-36891	4.3.1	March 12, 2019
4.4	[Reserved]				
4.5	[Reserved]				

Table of Contents

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
4.6#*	Exclusive Patent License Agreement between Regents of the University of Minnesota and Cellectis S.A., dated January 10, 2011	F-1	333-202205	10.6	March 12, 2015
4.6.1#*	First Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Cellectis S.A., dated May 24, 2012	F-1	333-202205	10.6.1	March 12, 2015
4.6.2#*	Second Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Cellectis S.A., dated April 1, 2014	F-1	333-202205	10.6.2	March 12, 2015
4.6.3#*	Third Amendment to the Exclusive Patent License Agreement between Regents of the University of Minnesota and Cellectis S.A., dated December 16, 2015	20-F	001-36891	4.6.3	March 13, 2018
4.7#	Patent & Technology License Agreement between Ohio State Innovation Foundation and Cellectis S.A., dated October 23, 2014	20-F	001-36891	4.7	March 12, 2019
4.8	[Reserved]				
4.9	[Reserved]				
4.10†#	Change of Control Plan, effective as of September 4, 2014 (English translation)	F-1	333-202205	10.10	March 10, 2015
4.11†#	Summary of BSA Plan	F-1	333-202205	10.11	March 10, 2015
4.12†#	Summary of BSPCE Plan	F-1	333-202205	10.12	March 10, 2015
4.13†#	2012 Free Share Plan	F-1	333-202205	10.13	March 10, 2015
4.14†#	2013 Free Share Plan	F-1	333-202205	10.14	March 10, 2015
4.15†#	2014 Free Share Plan	F-1	333-202205	10.15	March 10, 2015
4.16†#	2015 Free Share Plan	20-F	001-36891	4.16	March 10, 2015
4.17†#	2016 Free Share Plan	20-F	001-36891	4.17	March 10, 2015
4.18†#	2016 Stock Option Plan	S-8	333-214884	99.1	December 2, 2016
4.19†#	2017 Stock Option Plan	S-8	333-222482	99.1	January 9, 2018
4.20†#	Summary of BSA Plan	S-8	333-222482	99.2	January 9, 2018
4.21†#	Free Share 2018 Plan	S-8 POS	333-222482	99.3	April 13, 2018
4.22†#	2018 Stock Option Plan	S-8	333-227717	99.1	October 5, 2018
4.23†#	Summary of BSA Plan	S-8	333-227717	99.2	October 5, 2018
4.24†#	Second Free Share 2018 Plan	S-8	333-227717	99.3	October 5, 2018
4.25#**	License Agreement between Allogene Therapeutics, Inc. and Cellectis S.A. dated March 7, 2019	20-F/A	001-36891	4.25	April 25, 2019
4.26#**	License, Development and Commercialization Agreement between Les Laboratoires Servier and Cellectis S.A. dated March 6, 2019	20-F/A	001-36891	4.26	April 25, 2019
4.26.1**	Amendment No. 1 to License, Development and Commercialization Agreement between Les Laboratoires Servier and Cellectis S.A. dated March 4, 2020				Filed herewith
4.27#	Management Services Agreement between Cellectis S.A., Cellectis, Inc. and Calyxt, Inc. dated as of January 1, 2016	20-F	001-36891	4.27	March 12, 2019

Table of Contents

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/ Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
4.27.1#	Management Services Agreement Amendment dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.28	March 12, 2019
4.27.2	Second Amendment to the Management Services Agreement Amendment dated January 29, 2020 between Collectis S.A., Collectis, Inc., Collectis Biologics, Inc. and Calyxt, Inc.				Filed herewith
4.28	[Reserved]				
4.29#	Separation Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.29	March 12, 2019
4.30#	Stockholders Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.30	March 12, 2019
4.30.1	Amendment No. 1 to Stockholders Agreement dated May 7, 2018 between Collectis S.A. and Calyxt, Inc.				Filed herewith
4.31#	License Agreement dated July 25, 2017 between Collectis S.A. and Calyxt, Inc.	20-F	001-36891	4.31	March 12, 2019
8.1	List of subsidiaries of the registrant				Filed herewith
12.1	Certificate of Principal Executive Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith
12.2	Certification by the Principal Financial Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith

Table of Contents

<u>Exhibit Number</u>	<u>Description of Exhibit</u>	<u>Schedule/ Form</u>	<u>File Number</u>	<u>Exhibit</u>	<u>File Date</u>
13.1	Certification by the Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				Filed herewith
13.2	Certification by the Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				Filed herewith
15.1	Consent of Ernst & Young et Autres				Filed herewith

† Indicates a management contract or any compensatory plan, contract or arrangement.

Indicates a document previously filed with the Commission.

* Confidential treatment has been granted with respect to certain portions of this exhibit (indicated by asterisks).

** Portions of this exhibit (indicated by asterisks) have been omitted because they are not material and would likely cause competitive harm if disclosed.

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

CELLECTIS S.A.

/s/ André Choulika

By: André Choulika

Title: Chairman and Chief Executive Officer

Date: March 4, 2020

Translation for information purposes only

CELECTIS

A French *société anonyme* (corporation) with share capital of € 2,123,283.45

Registered office : 8 rue de la Croix Jarry, 75013 Paris

Paris Trade and Companies Registry no. 428 859 052

BYLAWS

Updated as of December 18, 2019

Copy certified as true to the original by
the Chairman and Chief Executive Officer

André Choulika

ARTICLE 1 - FORM

The Company is a corporation (*société anonyme*), governed by Book II of the French commercial code (*code de commerce*) and by the present bylaws.

ARTICLE 2 - NAME

The name of the Company is:

CELLECTIS

In all deeds and documents emanating from the Company and addressed to third parties, this name must always be immediately preceded or followed by the words “*société anonyme*” or the initials “S.A.” and by the mention of the amount of the share capital.

ARTICLE 3 - PURPOSES

The Company’s purposes, both in France and abroad, are all activities relating to genetics and more particularly to genome engineering and, notably, research, development and invention, filing and use of patents and trademarks, valorization, sale and marketing, advice and assistance in any field, and more particularly in the fields of agrifood, pharmaceuticals, textile and environment; and generally, all industrial, commercial, financial, civil, and personal or real property operations that may be directly or indirectly related to the purposes above or any similar or connected purposes.

ARTICLE 4 - REGISTERED OFFICE

The registered office of the Company is located at 8 rue de la Croix Jarry, 75013 Paris.

It may be transferred anywhere else in French territory by a decision of the Board of Directors, subject to the ratification of such decision by the next ordinary general meeting, and elsewhere by virtue of a resolution of the extraordinary general meeting.

If a transfer is decided by the Board of Directors, the Board is authorized to amend the bylaws and perform the publication and filing formalities required as a result, provided it is stated that the transfer is subject to the aforementioned ratification.

ARTICLE 5 - DURATION

The term of the Company shall be ninety-nine (99) years starting from the date of its registration with the Trade and Companies Registry, except in the event it is dissolved before the expiration of its term or if said term is extended by an extraordinary general shareholders’ meeting.

ARTICLE 6 - SHARE CAPITAL

The Company has a share capital of € 2,123,283.45 It is divided into 42,465,669 shares with a par value of € 0.05 each, all fully paid-up.

It may be increased or reduced as provided by the French commercial code (*code de commerce*).

On October 28, 2011, the shareholders' general meeting approved the contribution to the Company of 11,111,089 shares of Cellartis, a Swedish Company with a share capital of SEK 2,222,217.80, which registered office is located at Arvid Wallgrens Backe 20, SE-41346 Göteborg (Sweden). This contribution, valued at €17,399,997, resulted in a share capital increase of a nominal amount of € 96,666.65 and the issuance of 1,933,333 shares at a price of € 9 each (share premium included), with a par value of €0.05 each, allocated to Cellartis shareholders in exchange for their respective contributions.

ARTICLE 7 - LEGAL FORM

Fully paid-up shares are either held in registered or bearer form at the option of each shareholder, subject to the applicable legal provisions regarding the form of shares held by certain natural or legal persons. Non fully paid-up shares must be held in registered form.

Shares are registered in an account under the conditions and in the manner prescribed by applicable laws and regulations.

Ownership of the shares delivered in registered form results from their registration in a registered account.

ARTICLE 8 - SHARE TRANSFERS - IDENTIFYING THE SHAREHOLDERS

8.1 Shares registered in accounts are freely transferable from one account to another through a wire, in accordance with applicable laws and regulations.

8.2 The Company may also, subject to applicable laws and regulations, at its own expense, request from an authorized agency at any time, the name, or, in the case of a legal entity, the corporate name, nationality, and address of holders of securities granting an immediate or future right to vote at its shareholders' meetings, and the number of securities held by each of them and, if applicable, any restrictions to which these securities may be subject.

ARTICLE 9 - RIGHTS AND OBLIGATIONS PERTAINING TO SHARES

The rights and obligations attached to a share follow the share to any transferee to whom it may be transferred and the transfer includes all unpaid dividends due and dividends to be paid, as well as, as the case may be, the pro-rata portion of the reserve funds and provisions.

The ownership of a share implies *ipso facto* the owner's approval of the present bylaws and the decisions adopted by general shareholders' meetings.

As well as the voting right attached to shares in accordance with applicable law, each share gives right to a pro-rata portion of corporate assets, profits, and of liquidation surplus, proportional to the portion of the share capital it represents.

Whenever it is necessary to hold several shares to exercise any right, shareholders or securities' holders shall take it upon themselves to pool the number of shares or securities required.

In accordance with the provisions of the French commercial code (*code de commerce*), all fully paid-up shares which have been held in registered form for at least two years by the same shareholder will be granted double voting rights in comparison to the voting right attached to other shares which shall be equal to amount of share capital it represents.

ARTICLE 10 - PAYING UP OF THE SHARES

Amounts to be paid as payment for shares subscribed pursuant to a share capital increase shall represent not less than one-fourth of their par value and the entire amount of the premium (as the case may be).

The Board of Directors shall make calls for payment of the balance, in one or more installments, within a period of five years from the date the capital increase is completed.

Each shareholder shall be notified of the amounts called and the date on which the corresponding sums are to be paid at least fifteen days before the due date.

Shareholders who do not pay amounts owed on the shares they hold by the due date shall automatically and without the need for a formal demand for payment owe the Company late payment interest calculated on a daily basis, on the basis of a 360 day year, starting as of the due date at the legal rate in commercial matters, plus three points, without prejudice to the Company's personal action against such defaulting shareholder and the enforcement measures authorized by law.

ARTICLE 11 - BOARD OF DIRECTORS

11.1. Composition

The Company is managed by a Board of Directors composed of individuals or legal entities, the number of which is determined by the ordinary general shareholders' meeting within the limits of law.

At the time they are appointed, legal entities shall designate an individual as their permanent representative to the Board of Directors. The term of office of the permanent representative shall be the same as the term of office of the legal entity it represents. If a legal entity removes its permanent representative from office, it shall immediately appoint a replacement. The same provision shall also apply in the event of the death or resignation of the permanent representative.

The term of directors' office shall be three years (3), with a year being defined as the period between two consecutive ordinary general shareholders' meetings. Directors' term of office shall occur at the end of the ordinary general shareholders' meeting which voted on the financial statements for the past fiscal year and held in the year during which said directors' term of office occurs.

Directors are always eligible for reappointment. They may be removed from office at any time by a decision of a general shareholders' meeting.

In the event of one or more vacancies on the Board of Directors due to death or resignation, the Board may make temporary appointments between two general shareholders' meetings.

Appointments made by the Board pursuant to the preceding paragraph shall be submitted for ratification by the next ordinary general shareholders' meeting.

If such appointments are not ratified, decisions adopted and acts performed by the Board shall nevertheless remain valid.

If the number of directors falls below the statutory minimum, the remaining directors shall immediately convene an ordinary general shareholders' meeting in order to supplement the Board.

A director appointed to replace another director if the term of the latter's office has not yet expired shall serve only for the remaining portion of his predecessor's term of office.

Company's employees may be appointed as directors. However, their employment contracts must correspond to actual employment. In such case, employees do not lose the benefit of their employment contracts.

The number of directors who have employment contracts with the Company shall not exceed one-third of the directors in office.

The number of directors over the age of 70 shall not exceed one-third of the directors in office. If this limit is exceeded during the directors' terms of office, the oldest director shall automatically be deemed to have resigned at the end of the next ordinary general shareholders' meeting.

11.2 Chairman

The Board of Directors shall elect a Chairman from among its members, who shall be an individual. The Board shall determine its term of office, which shall not exceed its term of office as director, and may remove him from office at any time. The Board shall set his compensation.

The Chairman shall organize and manage the work of the Board and report it to the general shareholders' meetings. The Chairman is responsible for the good functioning of the Company's corporate bodies and, notably, sees that the directors are able to carry out their functions.

The Chairman of the Board cannot be more than 70 years old. If the Chairman reaches this age limit during his term of office as Chairman, he shall automatically be deemed to have resigned at the end of the current office. Subject to this provision, the Chairman of the Board is always eligible for reappointment.

11.3 Observers

The ordinary shareholders' meeting may, upon suggestion from the Board of Directors, appoint one or several observers. The Board of Directors may also directly appoint the members, subject to ratification by the following general meeting.

The number of observers may not exceed five. They are freely chosen in light of their abilities.

They are appointed for a term of three (3) years.

The observers review questions that the Board of Directors or its Chairman submit for their opinion. The observers attend the Board of Directors meetings and participate in the discussions only with a consultative voice. Their absence shall have no effect on the validity of the vote.

They are convened to Board meetings under the same conditions as the Board members.

The Board of Directors may compensate the observers and take such compensation from the amount of attendance fees (*jetons de présence*) if any, authorized by the general shareholders' meeting for the purposes of compensating directors.

ARTICLE 12 MEETING OF THE BOARD

12.1. The Board of Directors shall meet as often as required for the interest of the Company.

12.2. Directors are convened to the Board meetings by the Chairman of the Board. The Chairman convenes meetings of the Board of Directors by any means, in oral or written form.

The Chief Executive Officer may also ask the Chairman to convene the Board on a specific agenda.

When a works council (*comité d'entreprise*) has been formed, the representatives of such committee, appointed in accordance with the provisions of the French labor code (*code du travail*), shall be convened to all the Board meetings.

The Board meetings are held either at the registered office or at any other place, in France or abroad as indicated at the time of the convening.

12.3. The Board can only validly take decisions if half of its members are present.

The Board's decisions are taken at the majority of votes of its members present or represented by proxy; in the case of deadlock; the Chairman shall have the casting vote.

12.4. Internal regulations may be adopted by the Board of Directors providing, among others, that for the calculation of the quorum and of the majority, the directors participating in the meeting of the board by means of visioconference consistent with applicable regulations, shall be considered as having attended the meeting in person. This provision is not applicable for the adoption of a resolution relating to L. 232-1 and L. 232-16 of French commercial code (*code de commerce*).

12.5. Each director receives the information necessary to perform its duties and office and may ask to be provided with any other documents it deems necessary.

12.6. Any director may give to another director, by letter, cable, email or telex, a proxy to be represented at a meeting of the board. However, each director can only represent one director during each meeting.

12.7. The copies or abstracts of the minutes are certified by the Chairman of the Board of Directors, the Chief Executive Officer and the director temporarily delegated in the duties of Chairman or by a representative duly authorized for that purpose.

ARTICLE 13 - POWERS OF THE BOARD OF DIRECTORS

The Board of Directors shall establish the Company's business policies and ensure that they are carried out. Subject to the powers expressly granted to shareholders' meetings, and within the limits of the corporate purpose, the Board of Directors may consider any issue relating to the proper operation of the Company and shall resolve on matters that relate to the Company.

With regards to third parties, the Company shall be bound by the acts of the Board of Directors that exceed the scope of the corporate purpose, unless the Company proves that the third party was aware, or that in light of the circumstances could not have been unaware, that the act was not within the corporate purpose; however, the mere publication of the bylaws is not sufficient to constitute such proof.

The Board of Directors can carry out all controls and verifications it deems necessary.

Furthermore, the Board of Directors shall exercise the special powers conferred by law.

ARTICLE 14 - GENERAL MANAGEMENT

14.1.1. The Company's executive management functions shall be performed, under its responsibility, by the Chairman of the Board of Directors or another individual appointed by the Board of Directors, who shall hold the title of Chief Executive Officer.

The Chief Executive Officer is vested with the most extensive powers to act under all circumstances on behalf of the Company. The Chief Executive Officer performs his powers within the limits of the purpose of the Company, except for those powers expressly granted by law to the meetings of shareholders and to the Board of Directors.

The Chief Executive Officer shall represent the Company in its relations with third parties. The Company shall be bound by acts of the Chief Executive Officer that exceed the scope of the corporate purpose, unless the Company is able to prove that the third party was aware, or that in light of the circumstances could not have been unaware, that the act was not within the corporate purpose; however, the mere publication of the bylaws is not sufficient to constitute such proof.

14.1.2. The Chief Executive Officer cannot be more than 70 years old. If the Chief Executive Officer reaches this age limit, he shall automatically be deemed to have resigned. However, the Chief Executive Officer's term of office shall be prolonged until the next Board of Directors meeting, at which a new Chief Executive Officer shall be appointed.

14.1.3. If the Chief Executive Officer is a director, the term of his office shall not exceed his term of office as director.

The Board of Directors may remove the Chief Executive Officer from office at any time. If the removal from office is decided without fair cause, the Chief Executive Officer removed from office may claim damages unless the Chief Executive Officer is also Chairman of the Board of Directors.

14.1.4. By a decision adopted by a majority vote of the directors present or represented by proxy, the Board of Directors shall choose between the two options of exercise of the general management described in Article 14.1.1, paragraph 1. The shareholders and third parties shall be informed of such choice in the manner prescribed by applicable laws and regulations.

The choice made by the Board of Directors shall remain in effect until a contrary decision of the Board or, at the Board's discretion, for the duration of the Chief Executive Officer's term of office.

If the Company's executive management functions are carried out by the Chairman of the Board of Directors, the provisions concerning the Chief Executive Officer shall apply to him.

In accordance with the provisions of Article L. 706-43 of the French code of criminal procedure (*code de procédure pénale*), the Chief Executive Officer may validly delegate to any individual of his choice the power to represent the Company in connection with criminal proceedings that may be filed against the Company.

14.2.1. Upon proposal of the Chief Executive Officer, the Board of Directors may authorize one or more individuals to assist the Chief Executive Officer in the capacity of Deputy General Managers.

In accordance with the Chief Executive Officer, the Board of Directors shall determine the scope and duration of the powers granted to the Deputy General Managers. The Board of Directors shall set their compensation. If a Deputy General Manager is also a director, the term of his office shall not exceed his term of office as director.

No more than five Deputy General Managers shall be appointed.

Pursuant to a proposal of the Chief Executive Officer, the Deputy General Manager(s) may be removed from office by the Board of Directors at any time. If the removal from office is decided without fair cause, a Deputy General Manager removed from office may claim damages.

Deputy General Managers cannot be more than 70 years old. If a Deputy General Manager in office reaches this age limit, he shall automatically be deemed to have resigned. The Deputy General Manager's term of office shall be prolonged until the next Board of Directors' meeting, at which a new Deputy General Manager may be appointed.

If the Chief Executive Officer ceases its office or is unable to perform its duties, unless otherwise decided by the Board of Directors, the Deputy General Manager(s) shall remain in office and retain their powers until the appointment of a new Chief Executive Officer.

Vis-à-vis third parties, the Deputy General Managers shall have the same powers as the Chief Executive Officer.

ARTICLE 15 - AGREEMENTS SUBJECT TO AUTHORIZATION

15.1. Any sureties, endorsements and guarantees granted by the Company shall be authorized by the Board of Directors in accordance with the requirements prescribed by law.

15.2. Any agreement to be entered into, whether directly or indirectly or through an intermediary, between the Company and its Chief Executive Officer, one of its Deputy General Manager(s), one of its directors, one of its shareholders holding more than 10 % of the voting rights or, in the case of a Company being a shareholder, the Company controlling it within the meaning of article L 233-3 of the commercial code, must be submitted for the prior authorization of the Board of Directors. .

The same applies for agreements in which one of the persons referred to in the above paragraph is indirectly interested.

Such prior authorization is also required for agreements between the Company and another Company, should the general manager, one of the deputy general manager or one of the directors of the Company be owner, partner with unlimited liability, manager, director, member of the supervisory board or, in general, manager of said Company.

The prior authorization of the Board of Directors shall be delivered in accordance with the requirements prescribed by law.

The above provisions do not apply to agreements relating to current transactions entered into under ordinary conditions or to agreements entered into between two companies, one of which holds, directly or indirectly, all of the capital of the other, minus, if applicable, the minimum number of shares required to satisfy the requirements of article 1832 of the French civil code or articles L. 225-1 and L. 226-1 of the French commercial code.

ARTICLE 16 - PROHIBITED AGREEMENTS

Directors, other than legal entities, are forbidden to contract loans from the Company in any form whatsoever, to secure an overdraft from it, as a current account or otherwise, and to have the Company guarantee or secure their commitments toward third parties.

The same prohibition applies to the Chief Executive Officer, the Deputy General Managers and to the permanent representatives of directors that are legal entities. The foregoing provision also applies to the spouses, ascendants and descendants of the persons referred to in this article, as well as to all intermediaries.

ARTICLE 17 - STATUTORY AUDITORS

Audits of the Company shall be carried out, as provided by law, by one or more statutory auditors legally entitled to be elected as such. When the conditions provided by law are met, the Company must appoint at least two supervisory auditors.

The statutory auditor(s) shall be appointed by the ordinary general meeting.

The ordinary general meeting shall appoint, in the cases provided for by law, one or more alternate statutory auditors, which shall be called upon to replace the primary statutory auditors in the event of refusal, impediment, resignation or death.

Should the general ordinary meeting of the shareholders fail to elect a statutory auditor, any shareholder can claim in court that one be appointed, provided that the President of the Board of Directors be duly informed. The term of office of the statutory auditor appointed in court will end upon the appointment of the statutory auditor(s) by the general ordinary meeting of the shareholders.

ARTICLE 18 - GENERAL SHAREHOLDERS' MEETING QUORUM – VOTE – NUMBER OF VOTES

General shareholders' meetings shall be convened and held as provided by law.

If the Company wishes to convene the meeting by electronic means in lieu and place of the postal mail, it has to obtain the prior approval of the interested shareholders which will indicate their electronic address.

Meetings shall be held at the registered office or at any other location specified in the convening notice.

The right to participate in general shareholders' meetings is determined by the applicable laws and regulations and is conditioned upon the registration of shares under the shareholder's name or under an intermediary's name acting on its behalf, on the second business day prior to the general shareholders' meeting at midnight (Paris time), either in the registered shares accounts held by the Company or in the bearer shares accounts held by the authorized intermediary.

If a shareholder does not attend the meeting in person, it can grant a proxy to another shareholder, to its spouse or partner of French *pacte civil de solidarité* (PACS) or any other individual or legal entity. It can also send vote by correspondence or send a proxy to the Company without indicating the beneficiary, in accordance with applicable laws.

In accordance with the requirements prescribed by the laws and regulations in force, the Board of Directors may arrange for shareholders to participate and vote by videoconference or means of telecommunication that allow them to be identified. If the Board of Directors decides to exercise this right for a particular shareholders' meeting, such decision shall be mentioned in the meeting notice (*avis de réunion*) and/or convening notice (*avis de convocation*) of the meeting. Shareholders who participate in shareholders' meetings by videoconference or any of the other means of telecommunication referred to above, as selected by the Board of Directors, shall be deemed present for the purposes of calculating the quorum and majority.

Shareholders' meetings shall be chaired by the Chairman of the Board of Directors or, in its absence, by the Chief Executive Officer or by a Deputy General Manager if he is a director, or by a director specifically appointed for such purposes by the Board. If no president has been appointed, the shareholders' meeting shall elect its own chairman.

The duties of scrutineers shall be performed by the two members of the shareholders' meeting who are present and hold the greatest number of votes, and who agree to perform such duties. The officers shall appoint a secretary, who may but need not be a shareholder.

An attendance sheet is drawn up, in accordance with the requirements prescribed by law.

Upon first notice, an ordinary general shareholders' meeting may validly deliberate only if the shareholders present or represented by proxy own at least one-fifth of the shares entitled to vote. Upon second notice, no quorum is required.

Decisions at ordinary general shareholders' meeting are made by a majority of the votes held by the shareholders present or represented by proxy.

Upon first notice, an extraordinary general shareholders' meeting may validly deliberate only if the shareholders present or represented by proxy own at least one-fourth of the shares entitled to vote. Upon second notice, an extraordinary general shareholders' meeting may validly deliberate only if the shareholders present or represented by proxy own at least one-fifth of the shares entitled to vote.

Decisions at extraordinary general shareholders' meeting are made by a two-thirds majority of the votes held by the shareholders present or represented by proxy.

Copies or extracts of shareholder meeting minutes may be validly certified by the Chairman of the Board of Directors, a director who holds the position of Chief Executive Officer or Deputy General Manager or by the secretary of the meeting.

Ordinary and extraordinary general shareholders' meetings shall exercise their respective powers in accordance with the requirements prescribed by law.

ARTICLE - 19 – FISCAL YEAR

Each fiscal year shall last one year, starting on January 1 and ending on December 31.

ARTICLE 20 - PROFITS – STATUTORY RESERVE FUND

Out of the profit of a fiscal year, reduced by prior losses if any, an amount equal to at least 5 % thereof is first deducted in order to form the legal reserve fund provided by law. This deduction is no longer required when the legal reserve fund amounts to one tenth of the capital of the Company.

Distributable profit is the profit of a fiscal year, reduced by prior losses and by the deduction provided for in the preceding paragraph and increased by the profits carried forward.

ARTICLE 21 - DIVIDENDS

If there results a distributable profit from the accounts of the fiscal year, as approved by the general meeting, the general meeting may decide to allocate it to one or several reserve funds, the appropriation or use of which it shall determine, or to carry it forward or to distribute it as dividends.

Furthermore, after having established the existence of reserves which it may dispose of, the general meeting may decide the distribution of amounts paid out of such reserves. In such case, the payments shall be made. However, the dividends shall be set off by priority on the distributable profit of the fiscal year.

The general meeting shall determine the terms of payment of dividends ; failing such determination, these terms shall be determined by the Board of Directors.

However, the dividends must be declared payable no more than nine months following the close of the fiscal year.

The general meeting deciding upon the accounts of a fiscal year will be entitled to grant to each shareholder, for all or part of the distributed dividends, an option between payment in cash or in shares.

Similarly, should the ordinary general meeting resolve the distribution of interim dividends pursuant to article L. 232-12 of the French commercial code (*code de commerce*) , it will be entitled to grant to each shareholder an interim dividend and, for whole or part of the said interim dividend, an option between payment in cash or in shares.

The offer of payment in shares, the price and the conditions as to the issuing of such shares, together with the request for payment in shares and the conditions of the completion of the capital increase will be governed by the law and regulations.

When a balance sheet, drawn up during, or at the end of the fiscal year, and certified by the statutory auditor, shows that the Company, since the close of the preceding fiscal year, after having made the necessary depreciations and provisions and after deduction of the prior losses, if any, as well as of the amounts which are to be allocated to the reserve fund provided by law or by the by-laws and taking into account the profits carrying forward, has made profits, the Board of Directors may resolve the distribution of interim dividends prior to the approval of the accounts of the fiscal year, and may determine the amount thereof and the date of such distribution. The amount of such interim dividends cannot exceed the amount of the profits as defined in this paragraph. In this case, the option described in the preceding paragraph shall not be available.

ARTICLE 22 - EARLY DISSOLUTION

An extraordinary general shareholders' meeting may, at any time, decide to dissolve the Company before the expiration of its term.

ARTICLE 23 - LOSS OF ONE HALF OF SHARE CAPITAL

If, as a consequence of losses showed by the Company's accounts, the net assets (*capitaux propres*) of the Company are reduced below one half of the capital of the Company, the Board of Directors must, within four months from the approval of the accounts showing this loss, convene an extraordinary general meeting of shareholders in order to decide whether the Company ought to be dissolved before its statutory term.

If the dissolution is not declared, the capital must, at the latest at the end of the second fiscal year following the fiscal year during which the losses were established and subject to the legal provisions concerning the minimum capital of *sociétés anonymes*, be reduced by an amount at least equal to the losses which could not be charged on reserves, if during that period the net assets have not been restored up to an amount at least equal to one half of the capital.

In the absence of a meeting of shareholders, or in the case where the Company has not been able to validly act, any interested party may institute legal proceedings to dissolve the Company.

ARTICLE 24 - EFFECT OF THE DISSOLUTION

The Company is in liquidation as soon as it is dissolved for any reason whatsoever. It continues to exist as a legal entity for the needs of this liquidation until the liquidation is completed.

During the period of the liquidation, the general meeting shall retain the same powers it exercised during the life of the Company.

The shares shall remain transferable until the completion of the liquidation proceedings.

The dissolution of the Company is only valid vis-à-vis third parties as from the date at which it is published at the Trade and Companies Registry.

ARTICLE 25 - APPOINTMENT OF LIQUIDATORS - POWERS

When the Company's term expires or if the Company is dissolved before the expiration of its term, a general shareholders' meeting shall decide the method of liquidation, appoint one or more liquidators and determine their powers. The liquidators will exercise their duties in accordance with the law. The appointment of liquidators shall cause the duties of the directors, Chairman, Chief Executive Officer and Deputy General Managers to end.

ARTICLE 26 - LIQUIDATION - CLOSING

After payment of the liabilities, the remaining assets shall be used first for the payment to the shareholders of the amount paid for their shares and not amortized.

The balance, if any, shall be divided among all the shareholders.

The shareholders shall be convened at the end of the liquidation in order to decide on the final accounts, to discharge the liquidator from liability for his acts of management and the performance of his office, and to take notice of the closing of the liquidation.

The closing of the liquidation is published as provided by law.

ARTICLE 27 - NOTIFICATIONS

All notifications provided for in the present bylaws shall be made either by registered mail with acknowledgment of receipt or by process server. Simultaneously a copy of the notification shall be sent to the recipient by ordinary mail.

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**DESCRIPTION OF SECURITIES
REGISTERED UNDER SECTION 12 OF THE EXCHANGE ACT**

As of December 31, 2019, Collectis S.A. (the “Company,” “we,” “us,” and “our”) had the following series of securities registered pursuant to Section 12(b) of the Exchange Act:

<u>Title of Each Class</u>	<u>Trading Symbol</u>	<u>Name of each exchange on which registered</u>
American Depositary Shares, each representing 1 share, nominal value €0.05 per share	CLLS	NASDAQ Global Market

Ordinary Shares, nominal value €0.05 per share*

* Not for trading, but only in connection with the registration of American Depositary Shares.

American Depositary Shares (“ADSs”), each representing one ordinary share, nominal value €0.05 per share of Collectis S.A. (the “shares”), have been available in the United States through an American Depositary Receipt (“ADR”) program. This program was established pursuant to the deposit agreement that we entered into with Citibank, N.A. (“Citibank”), as depository (“Deposit Agreement”) in 2015 in connection with our initial public offering. Each ADS represents one ordinary share deposited with Citibank Europe plc, located at 388 Greenwich Street, New York, New York 10013, or any successor, as custodian for the depository (the “Custodian”).

Our ADSs have been listed on the NASDAQ Global Market (“NASDAQ”) since March 2015 and are traded under the symbol CLLS. In connection with this NASDAQ listing (but not for trading), the shares are registered under Section 12(b) of the Exchange Act. Our ordinary shares have been trading on Euronext Growth market of Euronext Paris under the symbol “ALCLS” since February 7, 2007. Prior to that date, there was no public trading market for our ordinary shares. The transfer agent and registrar for our ordinary shares is Société Générale Securities Services.

This exhibit contains a description of the rights of (i) the holders of shares and (ii) ADR holders. Shares underlying the ADSs are held by Citibank, the depository, and holders of ADSs will not be treated as holders of the shares.

The following summaries are not intended to be exhaustive and, in the case of our ordinary shares, such summary is subject to, and qualified in its entirety by, Collectis’ By-Laws and by French law and in the case of our ADSs, such summary is subject to, and qualified in its entirety by, the terms of the Deposit Agreement. Such summaries do not address all of the provisions of the By-laws or French law or of the Deposit Agreement, and do not purport to be complete. Our By-laws and the Deposit Agreement are each attached as exhibits to our Annual Report.

Capitalized terms not otherwise defined in this exhibit have the meanings given to them in Collectis’ annual report on Form 20-F for which this exhibit is provided (the “Annual Report”).

ORDINARY SHARES

The description below reflects certain terms of our By-laws, and summarizes the material rights of holders of our ordinary shares under French law.

General

As of December 31, 2019, our outstanding share capital consisted of a total of 42,465,669 issued and outstanding ordinary shares, with nominal value €0.05 per share. We have no preferred shares outstanding.

Rights, Preferences and Restrictions Attaching to Ordinary Shares

Dividends. We may only distribute dividends out of our “distributable profits,” plus any amounts held in our reserves that the shareholders decide to make available for distribution, other than those reserves that are specifically required to be maintained by law. “Distributable profits” consist of our unconsolidated net profit in each fiscal year, as increased or reduced by any profit or loss carried forward from prior years, less any contributions to the reserve accounts pursuant to French law (see below under “—Legal Reserve”).

Legal Reserve. Pursuant to French law, we must allocate at least 5% of our unconsolidated net profit for each year to our legal reserve fund before dividends may be paid with respect to that year. Such allocation is compulsory until the amount in the legal reserve is equal to 10% of the aggregate par value of our issued and outstanding share capital. This restriction on the payment of dividends also applies to our French subsidiaries on an unconsolidated basis.

Approval of Dividends. Pursuant to French law, our board of directors may propose a dividend and/or reserve distribution for approval by the shareholders at the annual ordinary general meeting.

Upon recommendation of our board of directors, our shareholders may decide to allocate all or part of any distributable profits to special or general reserves, to carry them forward to the next fiscal year as retained earnings or to allocate them to the shareholders as dividends. However, dividends may not be distributed when as a result of such distribution our net assets are or would become lower than the amount of the share capital plus the amount of the legal reserves which, under French law, may not be distributed to shareholders.

Our board of directors may distribute interim dividends after the end of the fiscal year but before the approval of the financial statements for the relevant fiscal year when the interim balance sheet, established during such year and examined by an auditor, reflects that we have earned distributable profits since the close of the last financial year, after recognizing the necessary depreciation and provisions and after deducting prior losses, if any, and the sums to be allocated to reserves, as required by law or the By-laws, and including any retained earnings. The amount of such interim dividends may not exceed the amount of the profit so defined.

Distribution of Dividends. Dividends are distributed to shareholders proportionally to their shareholding interests. In the case of interim dividends, distributions are made to shareholders on the date set by our board of directors during the meeting in which the distribution of interim dividends is approved. The actual dividend payment date is decided by the shareholders at an ordinary general shareholders’ meeting or by our board of directors in the absence of such a decision by the shareholders. Shareholders that own shares on the actual payment date are entitled to the dividend.

Dividends may be paid in cash or, if the shareholders’ meeting so decides, in kind, provided that all the shareholders receive a whole number of assets of the same nature paid in lieu of cash. Our By-laws provide that, subject to a decision of the shareholders’ meeting taken by ordinary resolution, each shareholder may be given the choice to receive such shareholder’s dividend in cash or in shares.

Timing of Payment. Pursuant to French law, dividends must be paid within a maximum period of nine months following the end of the relevant fiscal year. An extension of such timeframe may be granted by court order. Dividends that are not claimed within a period of five years after the payment date will be deemed to expire and revert to the French state.

Voting Rights. Each of our ordinary shares entitles its holder to vote and be represented in the shareholders’ meetings in accordance with the provisions of French law and of our By-laws. The ownership of a share implies the acceptance of our By-laws and any decision of our shareholders.

In general, each shareholder is entitled to one vote per share at any general shareholders’ meeting. However, our By-Laws provide that all shares held in registered form (*actions nominatives*) for more than two years will be granted double voting rights.

Under French law, treasury shares or shares held by entities controlled by us are not entitled to voting rights and are not taken into account for purposes of quorum calculation.

Under French law, directors are elected at the ordinary general shareholders' meeting by a simple majority vote, and may be removed from office, with or without cause, at any shareholders' meeting without notice or justification, by a simple majority vote. Our By-laws provide that members of our board of directors are elected for a tenure of three years, with terms beginning upon the year of a director's initial appointment. Pursuant to French law, the sections of the By-laws relating to the number of directors and election and removal of a director from office may only be modified by a resolution adopted by a two-thirds majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

Rights to Share in Our Profit. Under French law, each ordinary share entitles its holder to a portion of the corporate profits and assets proportional to the amount of share capital represented thereby.

Rights to Share in the Surplus in the Event of Liquidation. If we are liquidated, any assets remaining after payment of our debts, liquidation expenses and all of our remaining obligations will first be used to repay in full the par value of our outstanding shares. Any surplus will then be distributed among shareholders proportionally to their shareholding in our company.

Repurchase and Redemption of Shares. Under French law, we may acquire our own shares. Such acquisition may be challenged on the ground of market abuse regulations. However, Regulation 596/2014 of April 16, 2014 and its related delegated regulations (MAR) provides for safe harbor exemptions when the acquisition is made (i) under a buy-back program to be authorized by the shareholders in accordance with the provisions of Article L. 225-209 of the French Commercial Code and with the General Regulations of the Autorité des marchés financiers or AMF and (ii) for one of the following purposes which shall be provided for in the buy-back program:

- to decrease our share capital;
- to meet our obligations arising from debt financial instruments issued by us that are exchangeable into shares;
- to meet our obligations arising from share option programs, or other allocations of shares, to our employees or to our managers or the employees or managers of our affiliate.

In addition, we benefit from a simple exemption when the acquisition is made under a liquidity contract complying with the general regulations of, and market practices accepted by, the AMF. All other purposes, and especially share buy-backs made for external growth operations in pursuance of Article L. 225-209 of the French Commercial Code, while not forbidden, must be pursued in strict compliance of market manipulation and insider dealing rules.

The decision to repurchase shares in order to decrease our share capital shall not be driven by losses and a purchase offer shall be made to all shareholders on a pro rata basis, with the approval of the shareholders at the extraordinary general meeting deciding the capital reduction; in this case, the shares repurchased must be cancelled within one month from their repurchase date.

In any case, no such repurchase of shares may result in us holding, directly or through a person acting on our behalf, more than 10% of our issued share capital. Shares repurchased by us continue to be deemed "issued" under French law but are not entitled to dividends or voting rights so long as we hold them directly or indirectly, and we may not exercise the preemptive rights attached to them.

Sinking Fund Provisions. Our By-laws do not provide for any sinking fund provisions.

Liability to Further Capital Calls. Shareholders are liable for corporate liabilities only up to the par value of the shares they hold; they are not liable to further capital calls.

Requirements for Holdings Exceeding Certain Percentages. There are no such requirements, except as described under “—Form, Holding and Transfer of Shares—Ownership of Shares and ADSs by Non-French Persons.”

Actions Necessary to Modify Shareholders’ Rights

Shareholders’ rights may be modified as allowed by French law. Only the extraordinary shareholders’ meeting is authorized to amend any and all provisions of our By-laws. It may not, however, increase any of the shareholders’ commitments without the prior approval of each shareholder.

Special Voting Rights of Warrant Holders

Under French law, the holders of warrants of the same class (*i.e.*, warrants that were issued at the same time and with the same rights), including founders’ warrants, are entitled to vote as a separate class at a general meeting of that class of warrant holders under certain circumstances, principally in connection with any proposed modification of the terms and conditions of the class of warrants or any proposed issuance of preferred shares or any modification of the rights of any outstanding class or series of preferred shares.

Rules for Admission to and Calling Annual Shareholders’ Meetings and Extraordinary Shareholders’ Meetings

Access to, Participation in and Voting Rights at Shareholders’ Meetings. The right to participate in a shareholders’ meeting is granted to all the shareholders, regardless of the number of shares they hold, whose shares are fully paid up and for whom a right to attend shareholders’ meetings has been established by registration of their shares in the names or names of the authorized intermediary acting on their behalf on the second business day prior to the shareholders’ meeting at midnight (Paris time), either in the registered shares accounts held by the Company or in the bearer shares accounts held by the authorized intermediary.

Each shareholder may attend the meetings and vote (1) in person, or (2) by granting a proxy to his or her spouse, his or her partner with whom he or she has entered into a civil union, or another shareholder, for physical persons, or any person that they may choose, for legal entities, or (3) by sending a proxy to us without indication of the beneficiary (in which case such proxy shall be cast in favor of the resolutions supported by the board of directors), or (4) by correspondence, or (5) by videoconference or another means of telecommunication organized by the board of directors and allowing identification of the relevant shareholder in accordance with applicable laws.

Shareholders may, in accordance with legal and regulatory requirements, send their vote or proxy, either by hard copy or via telecommunications means. Such vote or proxy must be received (1) at least three days prior to the meeting, in the case of hard copies, (2) by 3:00 p.m. (Paris time) on the day before the meeting, in the case of, electronic votes by email, (3) by the date of the meeting, in the case of a proxy granted to a designated person, and (4) by 3:00 p.m. (Paris time) on the day before the meeting, in the case of proxies without a designated attorney and therefore granted to the chairman of the meeting.

Shareholders sending their vote within the applicable time limit, using the form provided to them by us for this purpose, are deemed present or represented at the shareholders’ meeting for purposes of quorum and majority calculation.

The voting by correspondence form addressed by a shareholder is only valid for a single meeting or for successive meetings convened with the same agenda. To better understand the voting rights of the ADSs, see “Description of American Depositary Shares” below.

Notice of Annual Shareholders' Meetings. Shareholders' meetings are convened by our board of directors, or, failing that, by our statutory auditors, or by a court appointed agent or liquidator in certain circumstances, or by the majority shareholder in capital or voting rights following a public tender offer or exchange offer or the transfer of a controlling block on the date decided by the board of directors or the relevant person. Meetings are held at our registered offices or at any other location indicated in the convening notice. A meeting notice (*avis de réunion*) is published in the French Journal of Mandatory Statutory Notices (BALO) at least 35 days prior to the date of the shareholders' meeting.

Additionally, a convening notice (*avis de convocation*) is published at least fifteen days prior to the date of the meeting in a legal gazette of the department in which the registered office of the company is located and in the French Journal of Mandatory Statutory Notices (BALO). Further, shareholders having held registered shares (*actions nominatives*) for at least one month at the time of the convening notice must be convened individually, by regular letter (or by registered letter if requested by the relevant shareholder) sent to their last known address.

When the shareholders' meeting cannot deliberate due to the lack of the required quorum, the second meeting must be called at least ten days in advance in the same manner as used for the first notice.

All notices to the shareholders must further specify the conditions under which the shareholders may vote by correspondence.

Agenda and Conduct of Annual Shareholders' Meetings. The agenda of the shareholders' meeting shall appear in the notice to convene the meeting. The shareholders' meeting may only deliberate on the items on the agenda except for the removal of directors and the appointment of their successors, which may be put to vote by any shareholder during any shareholders' meeting. One or more shareholders representing the percentage of share capital required by French law (currently 5%), and acting in accordance with legal requirements and within applicable time limits, may request the inclusion of items or proposed resolutions on the agenda.

Shareholders' meetings shall be chaired by the Chairman of the board of directors or, in his or her absence, by a director appointed for this purpose by the board of directors; failing which, the meeting itself shall elect a Chairman. Vote counting shall be performed by the two members of the meeting who are present and accept such duties, who represent, either on their own behalf or as proxies, the greatest number of votes.

Ordinary Shareholders' Meeting. Ordinary shareholders' meetings are those meetings called to make any and all decisions that do not result in a modification of our By-laws. An ordinary shareholders' meeting shall be convened at least once a year within six months of the end of each fiscal year in order to approve the annual and consolidated accounts for the relevant fiscal year or, in case of postponement, within the period established by court order. Upon first notice, the meeting may validly deliberate only if the shareholders present or represented by proxy or voting by mail represent at least one-fifth of the shares entitled to vote. Upon second notice, no quorum is required. Decisions are made by a majority of the votes cast held by the shareholders present, represented by proxy, or voting by mail. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

Extraordinary Shareholders' Meeting. Only an extraordinary shareholders' meeting is authorized to amend our By-laws. It may not, however, increase shareholders' commitments without the approval of each shareholder. Subject to the legal provisions governing share capital increases from reserves, profits or share premiums, the resolutions of the extraordinary meeting will be valid only if the shareholders present, represented by proxy or voting by mail represent at least one-fourth of all shares entitled to vote upon first notice, or one-fifth upon second notice. If the latter quorum is not reached, the second meeting may be postponed to a date no later than two months after the date for which it was initially called. Decisions are made by a two-thirds majority of the votes cast of the shareholders present, represented by proxy, or voting by mail. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

In addition to the right to obtain certain information regarding us at any time, any shareholder may, from the date on which a shareholders' meeting is convened until the fourth business day preceding the date of the shareholders' meeting, submit written questions relating to the agenda for the meeting to our board of directors.

Our board of directors is required to respond to these questions during the meeting, except if the answers of the board are posted on the website of the Company at the latest at the end of the shareholder's meeting. The board of directors may delegate one of its members, the chief executive officer or a deputy chief executive officer, as the case may be, to respond.

Provisions Having the Effect of Delaying, Deferring or Preventing a Change in Control of the Company

Provisions contained in our By-laws and the corporate laws of France, the country in which we are incorporated, could make it more difficult for a third-party to acquire us, even if doing so might be beneficial to our shareholders. In addition, provisions of French law and our By-laws impose various procedural and other requirements which could make it more difficult for shareholders to effect certain corporate actions. These provisions include the following:

- a merger (*i.e.*, in a French law context, a stock-for-stock exchange after which our company would be dissolved without being liquidated into the acquiring entity and our shareholders would become shareholders of the acquiring entity) of our company into a company incorporated in the European Union would require the approval of our board of directors as well as a two thirds majority of the votes cast held by the shareholders present, represented by proxy or voting by mail at the relevant meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null;
- a merger of our company into a company incorporated outside of the European Union would require the unanimous approval of our shareholders;
- in a French law context, a cash merger is treated as a share purchase and would require the consent of each participating shareholder;
- our shareholders have granted and may grant in the future our board of directors broad authorizations to increase our share capital or to issue additional ordinary shares or other securities (for example, warrants) to our shareholders, the public or qualified investors, including as a possible defense following the launching of a tender offer for our shares;
- our shareholders have preferential subscription rights proportional to their shareholding in our company on the issuance by us of any additional shares or securities giving the right, immediately or in the future, to new shares for cash or a set-off of cash debts, which rights may only be waived by the extraordinary general meeting (by a two-thirds majority vote) of our shareholders or on an individual basis by each shareholder;
- our board of directors has the right to appoint directors to fill a vacancy created by the resignation or death of a director, subject to ratification by the shareholders of such appointment at the next shareholders' meeting, which prevents shareholders from having the sole right to fill vacancies on our board of directors;
- our board of directors can only be convened by our chairman, or, when no board meeting has been held for more than two consecutive months, by directors representing at least one third of the total number of directors;
- our board of directors' meetings can only be regularly held if at least half of the directors attend either physically or by way of videoconference or teleconference enabling the directors' identification and ensuring their effective participation in the board of directors' decisions;
- our shares take the form of bearer securities or registered securities, if applicable legislation so permits, according to the shareholder's choice. Issued shares are registered in individual accounts opened by us or any authorized intermediary (depending on the form of such shares), in the name of each shareholder and kept according to the terms and conditions laid down by the legal and regulatory provisions;

- under French law, a non-French resident as well as any French entity controlled by non-French residents may have to file a declaration for statistical purposes with the Bank of France (*Banque de France*) following the date of certain foreign investments in us. Additionally, certain investments in a French company relating to certain strategic industries by individual or entities not residents in a member State of the European Union are subject to the prior authorization of the French Ministry of Economy — see “Ownership of Shares and ADSs by Non-French Persons”;
- approval of at least a majority of the votes held by shareholders present, represented by a proxy, or voting by mail at the relevant ordinary shareholders’ general meeting is required to remove directors with or without cause;
- advance notice is required for nominations to the board of directors or for proposing matters to be acted upon at a shareholders’ meeting, except that a vote to remove and replace a director can be proposed at any shareholders’ meeting without notice;
- in the event where certain ownership thresholds would be crossed, a number of disclosures should be made by the relevant shareholder in addition to certain obligations; see “—Declaration of Crossing of Ownership Thresholds”;
- transfers of shares must comply with applicable insider trading rules;
- pursuant to French law, the sections of the By-laws relating to the number of directors and election and removal of a director from office may only be modified by a resolution adopted by a two-thirds majority of the votes cast of our shareholders present, represented by a proxy or voting by mail at the meeting. The votes cast do not include votes attached to shares held by shareholders who did not take part in the vote, abstained or voted blank or null.

Declaration of Crossing of Ownership Thresholds

Subject to requirements of French law, our By-laws do not require any specified disclosure by shareholders that cross ownership thresholds with respect to our share capital, except as described under “—Form, Holding and Transfer of Shares—Ownership of Shares and ADSs by Non-French Persons.”

The absence of specific requirement in our By-laws is without prejudice to the following disclosures which are applicable to us according to French legal and regulatory provisions, it being provided that the following is a summary which is therefore not intended to be a complete description of applicable rules under French law:

- Shareholders must make a declaration to us no later than the fourth trading day after such shareholder crosses the following thresholds: 5%, 10%, 15%, 20%, 25%, 30%, 33.33%, 50%, 66.66%, 90% and 95%.
- Shareholders must make a declaration to the AMF no later than the fourth trading day after such shareholder crosses the following thresholds: 50% and 95%.

The above obligations of declaration apply when crossing each of the above-mentioned thresholds in an upward or downward direction.

In case of failure to declare shares or voting rights exceeding the fraction that should have been declared, such shares shall be deprived of voting rights at shareholders’ meetings for any meeting that would be held until the expiry of a period of two years from the date of regularization of the notification in accordance with Article L. 233-14 of the French Commercial Code. Additional sanctions may apply pursuant to Article L. 621-15 of the French Monetary and Financial Code.

Subject to certain exemptions, any shareholder crossing, alone or acting in concert, the 50% threshold must file a mandatory public tender offer.

Changes in Share Capital

Increases in Share Capital. Pursuant to French law, our share capital may be increased only with shareholders' approval at an extraordinary general shareholders' meeting following the recommendation of our board of directors. The shareholders may delegate to our board of directors either the authority (*délégation de compétence*) or the power (*délégation de pouvoir*) to carry out any increase in share capital in accordance with applicable laws.

Increases in our share capital may be effected by:

- issuing additional shares;
- increasing the par value of existing shares;
- creating a new class of equity securities; and
- exercising the rights attached to securities giving access to the share capital.

Increases in share capital by issuing additional securities may be effected through one or a combination of the following:

- issuances in consideration for cash;
- issuances in consideration for assets contributed in kind;
- issuances through an exchange offer;
- issuances by conversion of previously issued debt instruments;
- issuances by capitalization of profits, reserves or share premium; and
- subject to certain conditions, issuances by way of offset against debt incurred by us.

Decisions to increase the share capital through the capitalization of reserves, profits and/or share premium require shareholders' approval at an extraordinary general shareholders' meeting, acting under the quorum and majority requirements applicable to ordinary shareholders' meetings. Increases in share capital effected by an increase in the par value of shares require unanimous approval of the shareholders, unless effected by capitalization of reserves, profits or share premium. All other capital increases require shareholders' approval at an extraordinary general shareholders' meeting acting under the regular quorum and majority requirements for such meetings.

Reduction in Share Capital. Pursuant to French law, any reduction in our share capital requires shareholders' approval at an extraordinary general shareholders' meeting following the recommendation of our board of directors. The share capital may be reduced either by decreasing the par value of the outstanding shares or by reducing the number of outstanding shares. The number of outstanding shares may be reduced by the repurchase and cancellation of shares. Holders of each class of shares must be treated equally unless each affected shareholder agrees otherwise.

Preferential Subscription Rights (Preemptive Rights). According to French law, if we issue additional shares or securities giving right, immediately or in the future, to new shares for cash, current shareholders will have preferential subscription rights to these securities on a pro rata basis. Preferential subscription rights entitle the individual or entity that holds them to subscribe proportionally to the number of shares held by them to the issuance of any securities increasing, or that may result in an increase of, our share capital by means of a cash payment or a set-off of cash debts. The preferential subscription rights may be transferred and/or sold during the subscription period relating to a particular offering. Pursuant to French law, the preferential subscription rights will be transferable during a period starting two working days prior to the opening of the subscription period and ending two working days prior to the closing of the subscription period.

The preferential subscription rights with respect to any particular offering may be waived at an extraordinary general meeting by a two thirds vote of our shareholders or individually by each shareholder. Our board of directors and our independent auditors are required by French law to present reports to the shareholders' meeting that specifically address any proposal to waive the preferential subscription rights.

Further, to the extent permitted under French law, we may seek, during an extraordinary general shareholders' meeting, the approval of the shareholders to waive their preferential subscription rights in order to authorize the board of directors to issue additional shares and/or other securities convertible or exchangeable into shares.

Form, Holding and Transfer of Shares

Form of Shares. Pursuant to our By-laws, shares may be held in registered or bearer form, at each shareholder's discretion.

Further, in accordance with applicable legal and regulatory provisions, we may request at any time from the authorized intermediary responsible for holding our shares the name or, in the case of a legal entity, the corporate name, nationality and address of holders of securities, giving immediate or future access to voting rights at our shareholders' meetings, the number of securities they own and, where applicable, the restrictions attaching to such securities.

Holding of Shares. In accordance with French law concerning the "dematerialization" of securities, the ownership rights of shareholders are represented by book entries instead of share certificates. Shares are registered in individual accounts opened by us or any authorized intermediary, in the name of each shareholder and kept according to applicable legal and regulatory provisions.

Ownership of Shares and ADSs by Non-French Persons. Neither the French Commercial Code nor our By-laws presently impose any restrictions on the right of non-French residents or non-French shareholders to own and vote shares.

However, non-French residents must file a declaration for statistical purposes with the Bank of France (*Banque de France*) within twenty working days following the date of certain direct foreign investments in us, including any purchase of our ADSs. In particular, such filings are required in connection with investments exceeding €15,000,000 that lead to the acquisition of at least 10% of our Company's share capital or voting rights or cross such 10% threshold. Violation of this filing requirement may be sanctioned by five years of imprisonment and a fine of up to twice the amount of the relevant investment. This amount may be increased fivefold if the violation is made by a legal entity.

Further, any investment (i) by an individual or entity located in a country that is not a member State of the European Union or of a member State of the European Economic Area having entered into a convention on administrative assistance against tax evasion and fraud with France, or by a French citizen not residing in France, and (ii) that will result in the relevant investor acquiring the control of, all or part of a business of, or more than 33.33% (25% as from April 1st, 2020) of the share capital or voting rights of, a company registered in France and developing activities in certain strategic industries, such as, energy, public health, telecommunications, artificial intelligence, cybersecurity, robotics, data collection or dual-use goods and technology is subject to the prior authorization by the French Ministry of Economy. In the absence of such authorization, the relevant investment shall be deemed null and void.

Assignment and Transfer of Shares. Shares are freely negotiable, subject to applicable legal and regulatory provisions (including, in particular, the prohibition on insider trading).

Differences in Corporate Law

The laws applicable to French *sociétés anonymes* differ from laws applicable to U.S. corporations and their shareholders. Set forth below is a summary of certain differences between the provisions of the French Commercial Code applicable to us and the Delaware General Corporation Law relating to shareholders' rights and protections. This summary is not intended to be a complete discussion of the respective rights and it is qualified in its entirety by reference to Delaware law and French law.

	<u>France</u>	<u>Delaware</u>
Number of Directors	Under French law, a <i>société anonyme</i> must have at least three and may have up to 18 directors. The number of directors is fixed by or in the manner provided in the by-laws.	Under Delaware law, a corporation must have at least one director and the number of directors shall be fixed by or in the manner provided in the by-laws (unless fixed by the certificate of incorporation).
Director Qualifications	Under French law, a corporation may prescribe qualifications for directors under its by-laws. In addition, under French law, members of a board of directors of a corporation may be legal entities, and such legal entities may designate an individual to represent them and to act on their behalf at meetings of the board of directors.	Under Delaware law, a corporation may prescribe qualifications for directors under its certificate of incorporation or by-laws. Under Delaware law, only individuals may be members of a corporation's board of directors.
Removal of Directors	Under French law, directors may be removed from office, with or without cause, at any shareholders' meeting without notice or justification, by a simple majority vote.	Under Delaware law, directors may be removed from office, with or without cause, by a majority stockholder vote, except (1) unless otherwise provided in the certificate of incorporation, in the case of a corporation whose board is classified, stockholders may effect such removal only for cause, or (2) in the case of a company that has cumulative voting, if less than the entire board is to be removed, no director may be removed without cause if the votes cast against such director's removal would be sufficient to elect such director if then cumulatively voted at an election of the entire board of directors, or, if there are classes of directors, at an election of the class of directors of which such director is a part.

Vacancies on the Board of Directors

Under French law, vacancies on the board of directors resulting from death or a resignation, provided that at least three directors remain in office, may be filled by a majority of the remaining directors pending ratification by the next shareholders' meeting.

Under Delaware law, unless provided otherwise by the certificate of incorporation or bylaws, vacancies on a corporation's board of directors, including those caused by an increase in the number of directors, may be filled by a majority of the directors then in office, provided that the court may order an annual meeting upon the application of a director or stockholder if a corporation has not held a meeting within 13 months after the latest of the company's organization, the last annual meeting or the last action by written consent to elect directors.

Annual General Meeting

Under French law, the annual general meeting of shareholders shall be held at such place, on such date and at such time as decided each year by the board of directors and notified to the shareholders in the convening notice of the annual meeting, within six months after the close of the relevant fiscal year unless such period is extended by court order.

Under Delaware law, the annual meeting of stockholders shall be held at such place as may be designated from time to time by the board of directors or as provided in the certificate of incorporation or by the by-laws and on such date and at such time as provided in the by-laws.

General Meeting

Under French law, general meetings of the shareholders may be called by the board of directors or, failing that, by the statutory auditors, or by a court appointed agent or liquidator in certain circumstances, or by the majority shareholder in capital or voting rights following a public tender offer or exchange offer or the transfer of a controlling block on the date decided by the board of directors or the relevant person.

Under Delaware law, special meetings of the stockholders may be called by the board of directors or by such person or persons as may be authorized by the certificate of incorporation or by the by-laws.

Notice of General Meetings

A meeting notice (*avis de réunion*) is published in the French Journal of Mandatory Statutory Notices (BALO) at least 35 days prior to the date of the shareholders' meeting. Additionally, a convening notice (*avis de convocation*) is published at least fifteen days prior to the date of the meeting in a legal gazette of the department in which the registered office of the company is located and in the French Journal of Mandatory Statutory Notices (BALO). Further,

Under Delaware law, written notice of any meeting of the stockholders must be given to each stockholder entitled to vote at the meeting not less than 10 nor more than 60 days before the date of the meeting and shall specify the place, date, hour, and purpose or purposes of the meeting.

shareholders having held registered shares (*actions nominatives*) for at least one month at the time of the convening notice must be convened individually, by regular letter (or by registered letter if requested by the relevant shareholder) sent to their last known address.

The meeting notice must indicate the conditions under which the shareholders may vote by correspondence and the places and conditions in which they can obtain voting forms by mail.

Proxy

Each shareholder may attend the meetings and vote (1) in person, or (2) by granting proxy to his or her spouse, his or her partner with whom he or she has entered into a civil union, or another shareholder, for physical persons, or to any person that they may choose, for legal entities, or (3) by sending a proxy to us without indication of the beneficiary (in which case such proxy shall be cast in favor of the resolutions supported by the board of directors), or (4) by correspondence, or (5) by videoconference or another means of telecommunication allowing identification of the relevant shareholder in accordance with applicable laws. The proxy is only valid for a single meeting or successive meetings convened with the same agenda. It can also be granted for two meetings, one ordinary, the other extraordinary, held within a period of fifteen days.

Under Delaware law, at any meeting of stockholders, a stockholder may designate another person to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period.

Shareholder action by written consent

Under French law, shareholders' action by written consent is not permitted in a *société anonyme*.

Under Delaware law, unless otherwise provided in a corporation's certificate of incorporation, stockholders may act by written consent signed by stockholders having the minimum number of votes that would be necessary to take such action at a meeting.

Preemptive Rights

Under French law, in case of issuance of additional shares or other securities for cash or set-off against cash debts, the existing shareholders have preferential subscription rights to these securities on a *pro rata* basis unless such rights are waived by a two-thirds majority of the vote cast held by the shareholders present, represented by proxy or voting by mail at the extraordinary meeting deciding or authorizing the capital increase. In case such rights are not waived by the extraordinary general meeting, each shareholder may individually either exercise, assign or not exercise its preferential rights.

Under Delaware law, unless otherwise provided in a corporation's certificate of incorporation, a stockholder does not, by operation of law, possess preemptive rights to subscribe to additional issuances of the corporation's stock.

Sources of Dividends

Under French law, dividends may only be paid by a French *société anonyme* out of "*distributable profits*," plus any distributable reserves and "*distributable premium*" that the shareholders decide to make available for distribution, other than those reserves that are specifically required by law.

"*Distributable profits*" consist of the unconsolidated net profits of the relevant corporation for each fiscal year, as increased or reduced by any profit or loss carried forward from prior years.

"*Distributable premium*" refers to the contribution paid by the shareholders in addition to the par value of their shares for their subscription that the shareholders decide to make available for distribution.

Except in the case of a share capital reduction, no distribution can be made to the shareholders when the net equity is, or would become, lower than the amount of the share capital plus the reserves which cannot be distributed in accordance with the law or the by-laws.

Under Delaware law, subject to any restrictions under a corporation's certificate of incorporation, dividends may be declared by the board of directors and paid by a Delaware corporation either out of (1) surplus or (2) in case there is no surplus, out of its net profits for the fiscal year in which the dividend is declared and/or the preceding fiscal year, except when the capital is diminished by depreciation in the value of its property, or by losses, or otherwise, to an amount less than the aggregate amount of capital represented by issued and outstanding stock having a preference on the distribution of assets.

Repurchase of Shares

Under French law, a corporation may acquire its own shares for the following purposes only:

- to decrease its share capital, provided that such decision is not driven by losses and that a purchase offer is made to all shareholders on a *pro rata* basis, with the approval of the shareholders at the extraordinary general meeting deciding the capital reduction;
- if the corporation is not listed, with a view to distributing within one year of their repurchase the relevant shares to employees or managers under a profit-sharing, free share or share option plan; or
- under a buy-back program to be authorized by the shareholders in accordance with the provisions of Article L. 225-209 of the French Commercial Code and with the general regulations of the AMF.

No such repurchase of shares may result in the company holding, directly or through a person acting on its behalf, more than 10% of its issued share capital.

Liability of Directors and Officers

Under French law, the By-laws may not include any provisions limiting the liability of directors.

Under Delaware law, a corporation may generally redeem or repurchase shares of its stock except under certain circumstances, including where the capital of the corporation is impaired or such redemption or repurchase would impair the capital of the corporation (other than certain preference shares or certain shares to be retired).

Under Delaware law, a corporation's certificate of incorporation may generally include a provision eliminating or limiting the personal liability of a director to the corporation and its stockholders for monetary damages arising from a breach of fiduciary duty as a director. However, no provision can limit the liability of a director for:

- any breach of the director's duty of loyalty to the corporation or its stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- intentional or negligent payment of unlawful dividends or stock purchases or redemptions;
- claims with respect to unlawful payment of dividends and unlawful stock purchases and redemptions; or
- any transaction from which the director derives an improper personal benefit

Voting Rights

French law provides that, unless otherwise provided in the by-laws, each shareholder is entitled to one vote for each share of capital stock held by such shareholder.

Delaware law provides that, unless otherwise provided in the certificate of incorporation, each stockholder is entitled to one vote for each share of capital stock held by such stockholder.

Shareholder Vote on Certain Transactions

Generally, under French law, completion of a merger, dissolution, sale, lease or exchange of all or substantially all of a corporation's assets requires: approval by a two-thirds majority of the votes cast held by the shareholders present, represented by proxy or voting by mail at the relevant meeting, or in the case of a merger with a non-EU company, approval of all the shareholders of the corporation.

Generally, under Delaware law, unless the certificate of incorporation provides for the vote of a larger portion of the stock or under other certain circumstances, completion of a merger, consolidation, sale, lease or exchange of all or substantially all of a corporation's assets or dissolution requires:

- the approval of the board of directors; and
- approval by the vote of the holders of a majority of the outstanding stock or, if the certificate of incorporation provides for more or less than one vote per share, a majority of the votes of the outstanding stock of a corporation entitled to vote on the matter.

Dissent or Dissenters' Appraisal Rights

French law does not provide for any such right but provides that a merger is subject to shareholders' approval by a two-thirds majority vote cast as stated above.

Under Delaware law, a holder of shares of any class or series has the right, in specified circumstances, to dissent from a merger or consolidation by demanding payment in cash for the stockholder's shares equal to the fair value of those shares, as determined by the Delaware Chancery Court in an action timely brought by the dissenting stockholder. Delaware law grants these appraisal rights only in the case of mergers or consolidations and not in the case of a sale or transfer of assets or a purchase of assets for stock. Further, no appraisal rights are available for shares of any class or series that is listed on a national securities exchange or held of record by more than 2,000 stockholders, unless the agreement of merger or consolidation requires the holders to accept for their shares anything other than:

- shares of stock of the surviving corporation;
- shares of stock of another corporation that are either listed on a national securities exchange or held of record by more than 2,000 stockholders;
- cash in lieu of fractional shares of the stock described in the two preceding bullet points; or
- any combination of the above.

In addition, appraisal rights are not available to holders of shares of the surviving corporation in specified mergers that do not require the vote of the stockholders of the surviving corporation.

Standard of Conduct for Directors

French law does not contain specific provisions setting forth the standard of conduct of a director. However, directors have a duty to act without self-interest, on a well-informed basis and they cannot make any decision against a corporation's corporate interest (*intérêt social*).

Delaware law does not contain specific provisions setting forth the standard of conduct of a director. The scope of the fiduciary duties of directors is generally determined by the courts of the State of Delaware. In general, directors have a duty to act without self-interest, on a well-informed basis and in a manner they reasonably believe to be in the best interest of the stockholders.

Shareholder Suits

French law provides that a shareholder, or a group of shareholders, may initiate a legal action to seek indemnification from the directors of a corporation in the corporation's interest if it fails to bring such legal action itself. If so, any damages awarded by the court are paid to the corporation and any legal fees relating to such action are borne by the relevant shareholder or the group of shareholders. The plaintiff must remain a shareholder throughout the duration of the legal action. There is no other case where shareholders may initiate a derivative action to enforce a right of a corporation. A shareholder may alternatively or cumulatively bring an individual legal action against the directors, provided he has suffered distinct damages from those suffered by the corporation. In this case, any damages awarded by the court are paid to the relevant shareholder.

Under Delaware law, a stockholder may initiate a derivative action to enforce a right of a corporation if the corporation fails to enforce the right itself. The complaint must: state that the plaintiff was a stockholder at the time of the transaction of which the plaintiff complains or that the plaintiff's shares thereafter devolved on the plaintiff by operation of law; and allege with particularity the efforts made by the plaintiff to obtain the action the plaintiff desires from the directors and the reasons for the plaintiff's failure to obtain the action; or state the reasons for not making the effort. Additionally, the plaintiff must remain a stockholder through the duration of the derivative suit. The action will not be dismissed or compromised without the approval of the Delaware Court of Chancery.

Amendment of Certificate of Incorporation

Unlike companies incorporated under Delaware law, the organizational documents of which comprise both a certificate of incorporation and by-laws, companies incorporated under French law only have by-laws (*statuts*) as organizational documents. As indicated in the paragraph below, only the extraordinary shareholders' meeting is authorized to adopt or amend the by-laws under French law.

Under Delaware law, generally a corporation may amend its certificate of incorporation if: its board of directors has adopted a resolution setting forth the amendment proposed and declared its advisability, and the amendment is adopted by the affirmative votes of a majority (or greater percentage as may be specified by the certificate of incorporation) of the outstanding shares entitled to vote on the amendment and a majority (or greater percentage as may be specified by the certificate of incorporation) of the outstanding shares of each class or series of stock, if any, entitled to vote on the amendment as a class or series.

Amendment of By-laws

Under French law, only the extraordinary shareholders' meeting is authorized to adopt or amend the by-laws.

Under Delaware law, the stockholders entitled to vote have the power to adopt, amend or repeal by-laws. A corporation may also confer, in its certificate of incorporation, that power upon the board of directors.

AMERICAN DEPOSITARY SHARES

The description below reflects certain terms of the Deposit Agreement, and summarizes the material rights of holders of our ADSs.

General

Each ADS represents the right to receive, and to exercise the beneficial interests in one ordinary share that are on deposit with the depositary and/or Custodian. An ADS also represents the right to receive, and to exercise the beneficial interests in, any other property received by the depositary bank or the Custodian on behalf of the owner of the ADS but that has not been distributed to the owners of ADSs because of legal restrictions or practical considerations. The Custodian, the depositary and their respective nominees will hold all deposited property for the benefit of the holders and beneficial owners of ADSs. The deposited property does not constitute the proprietary assets of the depositary, the Custodian or their nominees.

Beneficial ownership in the deposited property will under the terms of the deposit agreement be vested in the beneficial owners of the ADSs. The depositary, the Custodian and their respective nominees will be the record holders of the deposited property represented by the ADSs for the benefit of the holders and beneficial owners of the corresponding ADSs. A beneficial owner of ADSs may or may not be the holder of such ADSs. Beneficial owners of ADSs will be able to receive, and to exercise beneficial ownership interests, in the deposited property only through the registered holders of the ADSs, the registered holders of the ADSs (on behalf of the applicable ADS owners) only through the depositary, and the depositary (on behalf of the owners of the corresponding ADSs) directly, or indirectly, through the Custodian or their respective nominees, in each case upon the terms of the deposit agreement.

An owner of ADSs will not be treated as one of our shareholders and will not have direct shareholder rights. The depositary will hold on such owner's behalf the shareholder rights attached to the ordinary shares underlying such owner's ADSs. Accordingly, an owner of ADSs will be able to exercise the shareholder's rights for the ordinary shares represented by such owner's ADSs through the depositary only to the extent contemplated in the deposit agreement. To exercise any shareholder rights not contemplated in the deposit agreement, an ADS owner will need to arrange for the cancellation of such owner's ADSs and become a direct shareholder.

This summary description assumes ADSs are owned directly by means of an ADS registered in the owner's name and, as such, such owner is referred to as the "holder." ADSs may also be held by means of an ADR registered in an owner's name, through a brokerage or safekeeping account, or through an account established by the depositary in such owner's name reflecting the registration of uncertificated ADSs directly on the books of the depositary, commonly referred to as the direct registration system, or DRS.

Dividends and Distributions

A holder of ADSs generally has the right to receive the distributions we make on the securities deposited with the Custodian. A holder's receipt of these distributions may be limited, however, by practical considerations and legal limitations. Holders of ADSs will receive such distributions under the terms of the deposit agreement in proportion to the number of ADSs held as of a specified record date, after deduction of the applicable fees, taxes and expenses.

Distributions of Cash

Whenever we make a cash distribution for the securities on deposit with the Custodian, we will deposit the funds with the Custodian. Upon receipt of confirmation of the deposit of the requisite funds, the depositary will arrange for the funds to be converted into U.S. dollars and for the distribution of the U.S. dollars to the holders, subject to French laws and regulations.

The conversion into U.S. dollars will take place only if practicable and if the U.S. dollars are transferable to the United States. The depositary will apply the same method for distributing the proceeds of the sale of any property (such as undistributed rights) held by the Custodian in respect of securities on deposit.

The distribution of cash will be made net of the fees, expenses, taxes and governmental charges payable by holders under the terms of the deposit agreement. The depositary will hold any cash amounts it is unable to distribute in a non-interest bearing account for the benefit of the applicable holders and beneficial owners of ADSs until the distribution can be effected or the funds that the depositary holds must be escheated as unclaimed property in accordance with the laws of the relevant states of the United States.

Distributions of Shares

Whenever we make a free distribution of ordinary shares for the securities on deposit with the Custodian, we will deposit the applicable number of ordinary shares with the Custodian. Upon receipt of confirmation of such deposit, the depositary will either distribute to holders new ADSs representing the ordinary shares deposited or modify the ADS-to-ordinary share ratio, in which case each ADS a holder holds will represent rights and interests in the additional ordinary shares so deposited. Only whole new ADSs will be distributed; fractional entitlements will be sold and the proceeds of such sale will be distributed as in the case of a cash distribution.

The distribution of new ADSs or the modification of the ADS-to-ordinary share ratio upon a distribution of ordinary shares will be made net of the fees, expenses, taxes and governmental charges payable by holders under the terms of the deposit agreement. In order to pay such taxes or governmental charges, the depositary may sell all or a portion of the new ordinary shares so distributed.

No such distribution of new ADSs will be made if it would violate a law (e.g., the U.S. securities laws) or if it is not operationally practicable. If the depositary does not distribute new ADSs as described above, it may sell the ordinary shares received upon the terms described in the deposit agreement and will distribute the proceeds of the sale as in the case of a distribution of cash.

Distributions of Rights

Whenever we intend to distribute rights to purchase additional ordinary shares, we will give prior notice to the depositary and we will assist the depositary in determining whether it is lawful and practicable to distribute rights to purchase additional ADSs to holders.

The depositary will establish procedures to distribute rights to purchase additional ADSs to holders and to enable such holders to exercise such rights if it is lawful and practicable to make the rights available to holders of ADSs, and if we provide all of the documentation contemplated in the deposit agreement (such as opinions to address the lawfulness of the transaction). A holder may have to pay fees, expenses, taxes and other governmental charges to subscribe for the new ADSs upon the exercise of such holder's rights. The depositary is not obligated to establish procedures to facilitate the distribution and exercise by holders of rights to purchase new ordinary shares other than in the form of ADSs.

The depositary will not distribute the rights to a holder if:

- we do not timely request that the rights be distributed to holders or we request that the rights not be distributed to holders; or
- we fail to deliver satisfactory documents to the depositary; or
- it is not practicable to distribute the rights.

The depositary will sell the rights that are not exercised or not distributed if such sale is lawful and practicable. The proceeds of such sale will be distributed to holders as in the case of a cash distribution. If the depositary is unable to sell the rights, it will allow the rights to lapse.

Elective Distributions

Whenever we intend to distribute a dividend payable at the election of shareholders either in cash or in additional shares, we will give prior notice thereof to the depositary and will indicate whether we wish the elective distribution to be made available to holders. In such case, we will assist the depositary in determining whether such distribution is lawful and practicable.

The depositary will make the election available to holders only if it is practicable and if we have provided all of the documentation contemplated in the deposit agreement. In such case, the depositary will establish procedures to enable holders to elect to receive either cash or additional ADSs, in each case as described in the deposit agreement.

If the election is not made available to holders, such holders will receive either cash or additional ADSs, depending on what a shareholder in France would receive upon failing to make an election, as more fully described in the deposit agreement.

Other Distributions

Whenever we intend to distribute property other than cash, ordinary shares or rights to purchase additional ordinary shares, we will notify the depositary in advance and will indicate whether we wish such distribution to be made to holders. If so, we will assist the depositary in determining whether such distribution to holders is lawful and practicable.

If it is practicable to distribute such property to holders and if we provide all of the documentation contemplated in the deposit agreement, the depositary will distribute the property to the holders in a manner it deems practicable.

The distribution will be made net of fees, expenses, taxes and governmental charges payable by holders under the terms of the deposit agreement. In order to pay such taxes and governmental charges, the depositary bank may sell all or a portion of the property received.

The depositary will not distribute the property to holders and will sell the property if:

- we do not request that the property be distributed to holders or if we ask that the property not be distributed to holders; or
- we do not deliver satisfactory documents to the depositary bank; or
- the depositary determines that all or a portion of the distribution to holders is not practicable.

The proceeds of such a sale will be distributed to holders as in the case of a cash distribution.

Redemption

Whenever we decide to redeem any of the securities on deposit with the Custodian, we will notify the depositary in advance. If it is practicable and if we provide all of the documentation contemplated in the deposit agreement, the depositary will provide notice of the redemption to the holders.

The Custodian will be instructed to surrender the shares being redeemed against payment of the applicable redemption price. The depositary will convert the redemption funds received into U.S. dollars upon the terms of the deposit agreement and will establish procedures to enable holders to receive the net proceeds from the redemption upon surrender of their ADSs to the depositary. Holders may have to pay fees, expenses, taxes and other governmental charges upon the redemption of their ADSs. If less than all ADSs are being redeemed, the ADSs to be retired will be selected by lot or on a pro rata basis, as the depositary may determine.

Changes Affecting Ordinary Shares

The ordinary shares held on deposit for a holder's ADSs may change from time to time. For example, there may be a change in nominal or par value, a split-up, cancellation, consolidation or reclassification of such ordinary shares or a recapitalization, reorganization, merger, consolidation or sale of assets.

If any such change were to occur, such holder's ADSs would, to the extent permitted by law, represent the right to receive the property received or exchanged in respect of the ordinary shares held on deposit. The depositary may in such circumstances deliver new ADSs to such holder, amend the deposit agreement, the ADRs and the applicable registration statement(s) on Form F-6, call for the exchange of such holder's existing ADRs for new ADRs and take any other actions that are appropriate to reflect as to the ADSs the change affecting the ordinary shares held in deposit for such holder's ADSs. If the depositary bank may not lawfully distribute such property to such holder, the depositary may sell such property and distribute the net proceeds to such holder as in the case of a cash distribution.

Issuance of ADSs upon Deposit of Ordinary Shares

The depositary may create ADSs on a holder's behalf if such holder or such holder's broker deposits ordinary shares with the Custodian. The depositary will deliver these ADSs to the person such holder indicates only after such holder pays any applicable issuance fees and any charges and taxes payable for the transfer of the ordinary shares to the Custodian. A holder's ability to deposit ordinary shares and receive ADSs may be limited by U.S. and French legal considerations applicable at the time of deposit.

The issuance of ADSs may be delayed until the depositary or the Custodian receives confirmation that all required approvals have been given and that the ordinary shares have been duly transferred to the Custodian.

The depositary will only issue ADSs in whole numbers.

When a holder makes a deposit of ordinary shares, such holder will be responsible for transferring good and valid title to the depositary. Accordingly, such holder will be deemed to represent and warrant that:

- The ordinary shares are duly authorized, validly issued, fully paid, non-assessable and legally obtained.
- All preemptive (and similar) rights, if any, with respect to such ordinary shares have been validly waived or exercised.
- Such holder is duly authorized to deposit the ordinary shares.
- The ordinary shares presented for deposit are free and clear of any lien, encumbrance, security interest, charge, mortgage or adverse claim, and are not, and the ADSs issuable upon such deposit will not be, "restricted securities" (as defined in the deposit agreement).
- The ordinary shares presented for deposit have not been stripped of any rights or entitlements.

If any of the representations or warranties are incorrect in any way, we and the depositary may, at such holder's cost and expense, take any and all actions necessary to correct the consequences of the misrepresentations.

Transfer, Combination and Split Up of ADRs

An ADR holder will be entitled to transfer, combine or split up such holder's ADRs and the ADSs evidenced thereby. For transfers of ADRs, a holder will have to surrender the ADRs to be transferred to the depositary and also must:

- ensure that the surrendered ADR is properly endorsed or otherwise in proper form for transfer;
- provide such proof of identity and genuineness of signatures as the depositary deems appropriate;
- provide any transfer stamps required by the State of New York or the United States; and
- pay all applicable fees, charges, expenses, taxes and other government charges payable by ADR holders pursuant to the terms of the deposit agreement, upon the transfer of ADRs.

To have ADRs either combined or split up, a holder must surrender the ADRs in question to the depositary with such holder's request to have them combined or split up, and such holder must pay all applicable fees, charges and expenses payable by ADR holders, pursuant to the terms of the deposit agreement, upon a combination or split up of ADRs.

Withdrawal of Ordinary Shares Upon Cancellation of ADSs

A holder will be entitled to present such holder's ADSs to the depository for cancellation and then receive the corresponding number of underlying ordinary shares at the Custodian's offices. A holder's ability to withdraw the ordinary shares held in respect of the ADSs may be limited by U.S. and French legal considerations applicable at the time of withdrawal. In order to withdraw the ordinary shares represented by a holder's ADSs, such holder will be required to pay to the depository the fees for cancellation of ADSs and any charges and taxes payable upon the transfer of the ordinary shares being withdrawn. Holders assume the risk for delivery of all funds and securities upon withdrawal. Once canceled, the ADSs will not have any rights under the deposit agreement.

If a holder holds ADSs registered in such holder's name, the depository may ask such holder to provide proof of identity and genuineness of any signature and such other documents as the depository may deem appropriate before it will cancel such holder's ADSs. The withdrawal of the ordinary shares represented by a holder's ADSs may be delayed until the depository receives satisfactory evidence of compliance with all applicable laws and regulations. The depository will only accept ADSs for cancellation that represent a whole number of securities on deposit.

A holder will have the right to withdraw the securities represented by such holder's ADSs at any time except for:

- temporary delays that may arise because (1) the transfer books for the ordinary shares or ADSs are closed, or (2) ordinary shares are immobilized on account of a shareholders' meeting or a payment of dividends;
- obligations to pay fees, taxes and similar charges; or
- restrictions imposed because of laws or regulations applicable to ADSs or the withdrawal of securities on deposit.

The deposit agreement may not be modified to impair a holder's right to withdraw the securities represented by such holder's ADSs except to comply with mandatory provisions of law.

Voting Rights

A holder generally has the right under the deposit agreement to instruct the depository to exercise the voting rights for the ordinary shares represented by such holder's ADSs.

At our request, the depository will distribute to holders any notice of shareholders' meeting received from us together with information explaining how to instruct the depository to exercise the voting rights of the securities represented by ADSs.

If the depository timely receives voting instructions from a holder of ADSs, it will endeavor to vote the securities (in person or by proxy) represented by the holder's ADSs in accordance with such voting instructions.

The ability of the depository to carry out voting instructions may be limited by practical and legal limitations and the terms of the securities on deposit.

If the depository receives voting instructions from a holder of ADSs that fail to specify the manner in which the depository is to vote, the depository will deem such holder (unless otherwise specified in the notice distributed to holders) to have instructed the depository to vote in favor of all resolutions endorsed by our board of directors. With respect to securities represented by ADSs for which no timely voting instructions are received by the depository from the holder, the depository will (unless otherwise specified in the notice distributed to holders) deem such holder to have instructed the depository to give a discretionary proxy to a person designated by us to vote the securities. However, no such discretionary proxy will be given by the depository with respect to any matter to be voted upon as to which we inform the depository that we do not wish such proxy to be given, substantial opposition exists, or the rights of holders of securities may be materially adversely affected.

Fees and Charges

Holders will be required to pay certain fees under the terms of the depository agreement. Holders will be notified in advance of all applicable fees by us or the depository.

Holders will also be responsible to pay certain fees and expenses incurred by the depositary and certain taxes and governmental charges such as:

- taxes (including applicable interest and penalties) and other governmental charges;
- the registration fees as may from time to time be in effect for the registration of ordinary shares on the share register and applicable to transfers of ordinary shares to or from the name of the Custodian, the depositary or any nominees upon the making of deposits and withdrawals, respectively;
- certain cable, telex and facsimile transmission and delivery expenses;
- the expenses and charges incurred by the depositary in the conversion of foreign currency;
- the fees and expenses incurred by the depositary in connection with the compliance with exchange control regulations and other regulatory requirements applicable to ordinary shares, ADSs and ADRs; and
- the fees and expenses incurred by the depositary, the Custodian, or any nominee in connection with the servicing or delivery of deposited property.

ADS fees and charges payable upon (1) deposit of ordinary shares against issuance of ADSs and (2) surrender of ADSs for cancellation and withdrawal of ordinary shares are charged to the person to whom the ADSs are delivered (in the case of ADS issuances) and to the person who delivers the ADS, for cancellation (in the case of ADS cancellations). In the case of ADSs issued by the depositary into DTC or presented to the depositary via DTC, the ADS issuance and cancellation fees and charges may be deducted from distributions made through DTC, and may be charged to the DTC participant(s) receiving the ADSs or the DTC participant(s) surrendering the ADSs for cancellation, as the case may be, on behalf of the beneficial owner(s) and will be charged by the DTC participant(s) to the account(s) of the applicable beneficial owner(s) in accordance with the procedures and practices of the DTC participant(s) as in effect at the time. ADS fees and charges in respect of distributions and the ADS service fee are charged to the holders as of the applicable ADS record date. In the case of distributions of cash, the amount of the applicable ADS fees and charges is deducted from the funds being distributed. In the case of (1) distributions other than cash and (2) the ADS service fee, holders as of the ADS record date will be invoiced for the amount of the ADS fees and charges and such ADS fees and charges may be deducted from distributions made to holders of ADSs. For ADSs held through DTC, the ADS fees and charges for distributions other than cash and the ADS service fee may be deducted from distributions made through DTC, and may be charged to the DTC participants in accordance with the procedures and practices prescribed by DTC and the DTC participants in turn charge the amount of such ADS fees and charges to the beneficial owners for whom they hold ADSs.

In the event of refusal to pay the depositary fees, the depositary may, under the terms of the deposit agreement, refuse the requested service until payment is received or may set off the amount of the depositary fees from any distribution to be made to the holder.

The depositary may reimburse us for certain expenses incurred by us in respect of the ADR program, by making available a portion of the ADS fees charged in respect of the ADR program or otherwise, upon such terms and conditions as we and the depositary agree from time to time.

Amendments and Termination

We may agree with the depositary to modify the deposit agreement at any time without holders' consent. We undertake to give holders 30 days' prior notice of any modifications that would materially prejudice any of their substantial rights under the deposit agreement. We will not consider to be materially prejudicial to holders' substantial rights any modifications or supplements that are reasonably necessary for the ADSs to be registered under the Securities Act or to be eligible for book-entry settlement, in each case without imposing or increasing the fees and charges holders are required to pay. In addition, we may not be able to provide holders with prior notice of any modifications or supplements that are required to accommodate compliance with applicable provisions of law.

Holders will be bound by the modifications to the deposit agreement if they continue to hold ADSs after the modifications to the deposit agreement become effective. The deposit agreement cannot be amended to prevent holders from withdrawing the ordinary shares represented by their ADSs (except as permitted by law).

We have the right to direct the depositary to terminate the deposit agreement. Similarly, the depositary may in certain circumstances on its own initiative terminate the deposit agreement. In either case, the depositary must give notice to the holders at least 30 days before termination. Until termination, holders' rights under the deposit agreement will be unaffected.

After termination, the depositary will continue to collect distributions received (but will not distribute any such property until a holder requests the cancellation of such holder's ADSs) and may sell the securities held on deposit. After the sale, the depositary will hold the proceeds from such sale and any other funds then held for the holders of ADSs in a non-interest bearing account. At that point, the depositary will have no further obligations to holders other than to account for the funds then held for the holders of ADSs still outstanding (after deduction of applicable fees, taxes and expenses).

Books of Depositary

The depositary will maintain holder records at its depositary office. A holder may inspect such records at such office during regular business hours but solely for the purpose of communicating with other holders in the interest of business matters relating to the ADSs and the deposit agreement.

The depositary will maintain in New York facilities to record and process the issuance, cancellation, combination, split-up and transfer of ADSs. These facilities may be closed from time to time, to the extent not prohibited by law.

Limitations on Obligations and Liabilities

The deposit agreement limits our obligations and the depositary's obligations to holders. Note the following:

- We and the depositary are obligated only to take the actions specifically stated in the deposit agreement without negligence or bad faith.
- The depositary disclaims any liability for any failure to carry out voting instructions, for any manner in which a vote is cast or for the effect of any vote, provided it acts in good faith and in accordance with the terms of the deposit agreement.
- The depositary disclaims any liability for any failure to determine the lawfulness or practicality of any action, for the content of any document forwarded to holders on our behalf or for the accuracy of any translation of such a document, for the investment risks associated with investing in ordinary shares, for the validity or worth of the ordinary shares, for any tax consequences that result from the ownership of ADSs, for the credit-worthiness of any third party, for allowing any rights to lapse under the terms of the deposit agreement, for the timeliness of any of our notices or for our failure to give notice.
- We and the depositary will not be obligated to perform any act that is inconsistent with the terms of the deposit agreement.
- We and the depositary disclaim any liability if we or the depositary are prevented or forbidden from or subject to any civil or criminal penalty or restraint on account of, or delayed in, doing or performing any act or thing required by the terms of the deposit agreement, by reason of any provision, present or future of any law or regulation, or by reason of present or future provision of any provision of our By-laws, or any provision of or governing the securities on deposit, or by reason of any act of God or war or other circumstances beyond our control.
- We and the depositary disclaim any liability by reason of any exercise of, or failure to exercise, any discretion provided for in the deposit agreement or in our By-laws or in any provisions of or governing the securities on deposit.
- We and the depositary further disclaim any liability for any action or inaction in reliance on the advice or information received from legal counsel, accountants, any person presenting ordinary shares for deposit, any holder of ADSs or authorized representatives thereof, or any other person believed by either of us in good faith to be competent to give such advice or information.
- We and the depositary also disclaim liability for the inability by a holder to benefit from any distribution, offering, right or other benefit that is made available to holders of ordinary shares but is not, under the terms of the deposit agreement, made available to holders.
- We and the depositary may rely without any liability upon any written notice, request or other document believed to be genuine and to have been signed or presented by the proper parties.

- We and the depositary also disclaim liability for any consequential or punitive damages for any breach of the terms of the deposit agreement.
- No disclaimer of any Securities Act liability is intended by any provision of the deposit agreement.

Pre-Release Transactions

Subject to the terms and conditions of the deposit agreement, the depositary may issue to broker/dealers ADSs before receiving a deposit of ordinary shares or release ordinary shares to broker/dealers before receiving ADSs for cancellation. These transactions are commonly referred to as “pre-release transactions,” and are entered into between the depositary and the applicable broker/dealer. The deposit agreement limits the aggregate size of pre-release transactions (not to exceed 30% of the ordinary shares on deposit in the aggregate) and imposes a number of conditions on such transactions (e.g., the need to receive collateral, the type of collateral required and the representations required from brokers). The depositary may retain the compensation received from the pre-release transactions.

Taxes

A holder will be responsible for the taxes and other governmental charges payable on the ADSs and the securities represented by the ADSs. We, the depositary and the Custodian may deduct from any distribution the taxes and governmental charges payable by holders and may sell any and all property on deposit to pay the taxes and governmental charges payable by holders. A holder will be liable for any deficiency if the sale proceeds do not cover the taxes that are due.

The depositary may refuse to issue ADSs, to deliver, transfer, split and combine ADRs or to release securities on deposit until all taxes and charges are paid by the applicable holder. The depositary and the Custodian may take reasonable administrative actions to obtain tax refunds and reduced tax withholding for any distributions on holders’ behalf. However, a holder may be required to provide to the depositary and to the Custodian proof of taxpayer status and residence and such other information as the depositary and the Custodian may require to fulfill legal obligations. A holder is required to indemnify us, the depositary and the Custodian for any claims with respect to taxes based on any tax benefit obtained for such holder.

Foreign Currency Conversion

The depositary will arrange for the conversion of all foreign currency received into U.S. dollars if such conversion is practical, and it will distribute the U.S. dollars in accordance with the terms of the deposit agreement. A holder may have to pay fees and expenses incurred in converting foreign currency, such as fees and expenses incurred in complying with currency exchange controls and other governmental requirements.

If the conversion of foreign currency is not practical or lawful, or if any required approvals are denied or not obtainable at a reasonable cost or within a reasonable period, the depositary may take the following actions in its discretion:

- convert the foreign currency to the extent practical and lawful and distribute the U.S. dollars to the holders for whom the conversion and distribution is lawful and practical;
- distribute the foreign currency to holders for whom the distribution is lawful and practical; and
- hold the foreign currency (without liability for interest) for the applicable holders.

Governing Law/Waiver of Jury Trial

The deposit agreement and the ADRs will be interpreted in accordance with the laws of the State of New York. The rights of holders of ordinary shares (including ordinary shares represented by ADSs) are governed by the laws of France.

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

Amendment No. 1 to the License, Development and Commercialization Agreement

This First Amendment (the “**Amendment Agreement**”) to the License, Development and Commercialization Agreement effective as of March 6, 2019 (the “**Initial License Agreement**”), shall become effective as of March 4, 2020 (the “**Effective Date of the Amendment**”) by and between Les Laboratoires Servier, a corporation incorporated under the laws of France having a principal place of business at 50 rue Carnot, 92150 Suresnes, France (“**LLS**”) and Institut de Recherches Internationales Servier, a corporation incorporated under the laws of France having its principal place of business at 50 rue Carnot, 92150 Suresnes, France (“**IRIS**”) (LLS and IRIS being together referred to as “**Servier**”) and Cellectis SA, a company incorporated under the laws of France having a principal place of business at 8, rue de la Croix Jarry, 75013 Paris, France (“**Cellectis**”). Cellectis and Servier are individually referred to herein as a “**Party**” and collectively, as the “**Parties**.”

RECITALS

WHEREAS, the Parties have entered into the Initial License Agreement, dated as of March 6, 2019; and

WHEREAS, the Parties hereto desire to amend the Initial License Agreement to grant to Servier exclusive license to CD19 Target on the terms and subject to the conditions set forth herein.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree to amend the Initial License Agreement as follows:

1. **Definitions.**

- (a) Capitalized terms or derivatives thereof (verbs, nouns, singular, plural) when used in this Amendment Agreement and not defined herein, will have the meanings set forth in the Initial License Agreement.
- (b) Annex I of the Initial License Agreement is hereby amended to add the following definitions:
- (c) The definition of “**Development Plan**” in A.22. of Annex I to the Initial License Agreement is deleted in its entirety. All references to the Development Plan in the remaining provisions shall be deleted.

“**Indication**” means any separate and distinct human disease or medical condition defined in a way that is well recognized in clinical practice and which is covered by a Competent Authority Approval as a result of or in connection with a specific clinical trial conducted in that indication. For the avoidance of doubt, modifications to the summary of product characteristics, other than the disease or medical condition, with respect to the Competent Authority Approval of a first indication, due to new quality, safety, pre-clinical, clinical or pharmacovigilance findings, do not qualify as a separate indication. Treatment, modulation or prophylaxis of the same disease, regardless of the patient population, shall be treated as the same indication. For sake of clarity, [***] and [***] are each a separate Indication.

1/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

“UCART19 V3” or “ALLO501A” mean the UCART19 Product whereby the CD19 CAR is devoid of any suicide switch, and which includes a TRAC gene knock out and CD52 gene knock out.

- (d) Section 3.10 of the Initial License Agreement is hereby amended to delete the definition of “Primary Target” and substitute it with the following:

“**Primary Target**” means CD19 Target [***].

- (e) The definition of “UCART19 Product” or “UCART19 Candidate Product” in A.71 in Annex I to the Initial License Agreement is hereby amended and restated in its entirety with the following:

“UCART19 Product” means any human allogenic CAR T-cell product engineered to express a single-chain CAR directed against the CD19 Target using Collectis IP (including without limitation TAL Nuclease Collectis Patents), and gene edited exclusively using TAL nucleases, including without limitation the UCART19 V3 Product.

- (f) The definition of “Change of Control” in A.10 of Annex I to the Initial License Agreement is hereby amended such that the phrase “begins to control” is deleted and replaced with “acquires control of”.

- (g) The definition of “Option Date” in A.42 of Annex I to the Initial License Agreement is hereby amended by deleting it in its entirety.

- (h) In Annex I of the Initial License Agreement, the following definitions are hereby amended and restated in their entirety with the following: “means UCART19 Product”:

“Candidate Product” in A.5

“Pre-Candidate Product” in A.47

“Servier Product” in A.57

“Subsequent Product” in A.61

“Substitute Product” in A.62

The remaining Sections in ANNEX I “DEFINITIONS” shall be renumbered accordingly.

2. Amendments to Article 2: Management.

- (a) Article 2 of the Initial License Agreement is hereby amended to delete the entirety of Article 2, except for Sections 2.2, 2.4, 2.7, 2.8, 2.10, 2.11, 2.12 and 2.13. All references and provisions specifically related to the committees other than the Joint Executive Committee (such as the Joint Steering Committee and Joint Research and Development Committee) in the remaining provisions shall be deleted.

- (b) Section 2.2 of the Initial License Agreement is hereby amended as follows:

2/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

2.2. Alliance Managers. Each of Servier and Cellectis shall appoint one or two senior representatives who possess a general understanding of development, regulatory, manufacturing and commercialization matters to act as its respective alliance manager(s) for this relationship (each, an “Alliance Manager”). Each Party may replace its respective Alliance Manager(s) at any time upon written notice to the other in accordance with this Agreement. Any Alliance Manager may designate a substitute to temporarily perform the functions of that Alliance Manager. Each Alliance Manager shall be charged with creating and maintaining a collaborative work environment within and among the Joint Executive Committee. Consistent with Section 2.10, each Alliance Manager, on behalf of the applicable Party’s Co-Chairperson of the Joint Executive Committee, will also be responsible for:

- (a) serving as a primary point of contact with respect to exchange of data and information regarding the UCART19 Products;
- (b) ensuring that the governance procedures and rules set forth herein are complied with;
- (c) identifying and raising disputes to the JEC for discussion in a timely manner;
- (d) planning and coordinating internal and external communications in accordance with the terms of this Agreement; and
- (e) if necessary, organize meetings between the Parties in order to discuss operational matters relevant to the performance of the Agreement with respect to [***].

The Alliance Managers shall be entitled to attend all JEC meetings. Consistent with Section 2.10, each Alliance Manager may bring any matter to the attention of the JSC or JEC where such Alliance Manager reasonably believes that such matter requires attention of the JSC or JEC.

At the latest ten (10) days after the Effective Date, to the extent the Parties have not already done so in accordance with the Original Agreement, each Party shall appoint and notify the other Party of the identity of their representatives to act as alliance managers under this Agreement.

- (c) Section 2.4.2. of the Initial License Agreement is hereby amended as follows:

“2.4.2. **Function and Powers of the JEC.** The JEC shall (a) manage the overall collaboration between the Parties and major changes to the collaboration requiring amendments to this Agreement and (b) resolve disputed matters that may arise in the performance of the Agreement.”

- (d) Section 2.4.3 of the Initial License Agreement is hereby amended as follows:

“2.4.3. **Frequency of Meetings.** The Joint Executing Committee shall meet once yearly, and such meetings may be conducted by telephone, videoconference or in person as determined by the Co-Chairpersons. As appropriate, provided that not less than two (2)

Business Days' prior written notice has been given to the other Party, and subject to such other Party's approval (not to be unreasonably withheld, delayed or retained), other employees of the Parties may attend Joint Executive Committee meetings as observers. Either Party may also call a special meeting of a Joint Executive Committee (in person, by videoconference or teleconference) by at least ten (10) Business Days' prior written notice to the other Party in the event such Party reasonably believes that a significant matter must be addressed prior to the next regularly scheduled meeting, and such Party shall provide the Joint Executive Committee no later than ten (10) Business Days prior to the special meeting with materials reasonably adequate to enable an informed decision."

3. Amendments to Article 3: Development Activities.

- (a) Article 3 of the Initial License Agreement is hereby amended by deleting the following sections in their entirety: Sections 3.1, 3.2, 3.3, 3.4, 3.7, 3.8 and 3.9.
- (b) Section 3.5 of the Initial License Agreement is hereby amended by deleting "after having exercised its Option to License in relation to such Product" in the first sentence of Section 3.5.
- (c) Section 3.6 of the Initial License Agreement is hereby amended and restated in its entirety with the following:

3.6 Opt-Out

3.6.1 Servier hereby confirms it will not pursue the following Programs: [***].

3.6.2 Any products related to [***] are considered as terminated under this Agreement. Consequently, such products and Programs are considered as terminated and the rights granted by Collectis to Servier under the corresponding Program shall automatically terminate and Collectis shall have no further obligations towards Servier with respect to such products. For sake of clarity, dispositions of Section 11.3 shall apply regarding [***].

4. Amendments to Article 4: Grant of Rights to Servier.

- (a) Sections 4.1, 4.2(a) and 4.2(b) of the Initial License Agreement are hereby amended and restated in their entirety with the following:

4.2 License to Develop and Commercialize UCART19 Products.

(a) Upon the Effective Date of the Amendment Agreement, Collectis shall grant to Servier, until the end of the Term, an exclusive worldwide license, with the right to grant sublicenses on the terms set out in Section 4.1(b), under Collectis IP other than [***], to Develop, have Developed, Manufacture, have Manufactured, and Commercialize UCART19 Products, in the Field in the Territory.

(b) Servier shall promptly inform Collectis of any Sublicensee and all sublicenses will include all material rights and obligations due to Collectis under the Agreement.

The license under the [***] shall be governed by the license grants set forth in Sections 4.2(d) and (e).

- (b) Subsection 4.2(c) of the Initial License Agreement is hereby amended by deleting “Upon Servier’s exercise of the Option to License for a given Product” in the first sentence of Subsection 4.2(c).
- (c) Subsection 4.2(d) of the Initial License Agreement is hereby amended by deleting “Upon Servier’s exercise of its Option to License for a given Product, and” in the first sentence of Subsection 4.2(d).
- (d) Subsection 4.2(e) of the Initial License Agreement is hereby amended by deleting “Upon exercise of the Option to License on a Product-by-Product basis, and” in the first sentence of Subsection 4.2(e).
- (e) Article 4 of the Initial License Agreement is hereby amended by adding the following as Section 4.4:

4.4 Responsibilities Regarding UCART19 Products.

(a) New UCART19 Products.

Servier shall inform Collectis of its intention to develop any UCART19 Product other than [***] (a “New UCART19 Product”) in writing and promptly, but in no event later than thirty (30) days after Servier’s decision to develop such New UCART19 Product has been formalized.

Prior to initiation of any IND/IMPd Enabling Data Package relating to such New UCART19 Product, Servier shall provide a detailed description of [***]. Should Collectis reasonably demonstrate that [***] proposed by Servier would have a material adverse patient safety impact that would be reasonably likely to materially affect Collectis’ own CART products, then such Product construct will not be advanced, unless otherwise agreed upon between the Parties. Collectis shall provide its comments no later than [***] following provision by Servier of the description of the [***].

Collectis and Servier shall also negotiate in good faith to mutually agree on [***] with respect to such New UCART19 Product as applicable. Once mutually agreed, and upon Servier’s request, Collectis shall grant to Servier an exclusive (even as to Collectis), worldwide license under [***] related to such agreed upon additional [***], to Develop, have Developed, Manufacture, have Manufactured, and Commercialize New UCART19 Products in the Field and the Territory. For the avoidance of doubt, such an exclusive license shall not otherwise affect or limit Collectis’ rights in the [***]. At Servier’s written direction, Collectis shall also grant to Servier’s US Partner a parallel license under these [***] in accordance with Sections 4.2(d) and (e) of the Agreement.

Servier and its US Partner are responsible for the Development, Manufacture and Commercialization of UCART19 Products, and Collectis shall not be responsible for any Development activities.

(b) Servier Responsibilities Related to Information Sharing.

For each clinical trial involving a UCART19 Product, Servier shall promptly provide Collectis with [***]. Servier shall also promptly provide Collectis [***].

For each Phase 1 clinical trial involving a UCART19 Product, Servier shall regularly inform Collectis of the progress of [***] and shall provide Collectis on an ongoing basis with a copy of [***]. Such updates shall be provided at least [***], or in case of material event or data, promptly after occurrence of such material event or data.

For each clinical trial other than a Phase 1 clinical study involving a UCART19 Product, Servier shall regularly inform Collectis of [***] and would provide Collectis on an ongoing basis with a copy of [***]. Such updates shall be provided [***], or in case of material event or data, promptly after occurrence of such material event or data.

Servier shall regularly inform Collectis of the progress of the development of each [***], including providing a regular update of the [***], as well as [***] and respond to any reasonable request from Collectis in connection with [***]. Such updates shall be provided at least [***], or in case of material event or data, promptly after occurrence of such material event or data.

Servier shall consult with Collectis regarding [***].

Collectis shall have the right to use [***] provided to it by Servier in the course of [***] UCART19 Products for the development of its own products. For clarity, such information shall qualify as Servier Confidential Information but that designation shall not preclude the use by Collectis as contemplated by the preceding sentence; provided that Collectis complies with Article 8 of the Agreement.

Notwithstanding anything to the contrary, the information sharing obligations provided above shall be made in accordance, and subject to, applicable laws. [***].

Servier shall use Commercially Reasonable Efforts to Develop and Commercialize UCART19 Products [***], and to exploit the license granted herein, and will deliver annually to Collectis by [***] a written report detailing its efforts and plans to develop and commercialize such UCART19 Products for the prior calendar year.

5. Amendment to Article 5: Transfer and Supply.

Article 5 of the Initial License Agreement is hereby amended by deleting it in its entirety.

6. Amendment to Section 6.2 : Reimbursement of costs incurred by Collectis.

Section 6.2 of the Initial License Agreement is hereby amended by deleting it in its entirety.

7. Amendment to Section 6.4: Reports and Audits.

Subsection 6.4(a) of the Initial License Agreement is hereby amended by deleting “After each Option Date, and” in the first sentence.

8. Amendment to Section 7.1: Inventions and Intellectual Property Ownership.

Section 7.1 of the Initial License Agreement is hereby amended by adding the following subsection:

6/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

(e) **UCART19 Inventions.** [***] and any [***] UCART19 Product, all inventions made up and until the IND filing (the “**UCART19 Inventions**”) shall be considered as Collectis IP for the sole purpose of the royalties payment. For avoidance of doubt, for any other purpose than the royalties payment, UCART19 Inventions shall qualify as Servier IP and related Patent applications shall be filed in the name of Servier or Servier and its US Partner.

Should the Parties mutually agree on Collectis to conduct any pre-clinical research activities up to the IND Enabling Data Package, Servier shall grant an exclusive, worldwide, free, sublicensable license under the UCART19 Inventions and related know-how improving Collectis IP that are not specifically and solely related to the UCART19 Products to exploit such invention for any purpose, except for the Development, Manufacture and/or Commercialization of any Product within a [***].

Servier shall grant a non-exclusive, worldwide, free, sublicensable license under all UCART19 Inventions and related know-how improving Collectis IP that are not specifically and solely related to the UCART19 Products to exploit such invention for any purpose, except for the Development, Manufacture and/or Commercialization of any Product within a [***].

For clarity, the UCART19 Inventions and related know-how referred to above includes any relevant intellectual property rights controlled by Servier pursuant to the US Partner-Servier Agreement.

9. Amendments to Section 7.2: Patent Prosecution.

- (a) Subsection 7.2(a) of the Initial License Agreement is hereby amended by deleting the second and third paragraphs.
- (b) Subsection 7.2(a) of the Initial License Agreement is hereby amended and restated by deleting “After exercise of the Option to License, with respect to Product Patents,” in the first sentence of the fourth paragraph and replacing it with the following:
“[***] (“**Product Patents**”)”
- (c) Subsection 7.2(c) of the Initial License Agreement is hereby amended and restated by deleting it in its entirety.

10. Amendment to Section 7.4: Defense and Settlement of Third Party Claims.

Section 7.4 of the Initial License Agreement is hereby amended by deleting the first paragraph in its entirety and by deleting the following in the first sentence of the second paragraph:

“After Servier has exercised its Option to License for a given Product,”

11. Amendment to Section 7.5: Enforcement.

Section 7.5 of the Initial License Agreement is hereby amended by deleting the following in its entirety:

“*Prior to Servier’s exercise of its Option to License*”

Collectis shall have the sole right, but not the obligation, to enforce Collectis IP and Joint IP against any actual, alleged or threatened infringement or misappropriation by Third Parties in the Territory, at Collectis' sole cost.

From and after Servier's exercise of its Option to License"

12. Amendments to Section 9.2: Representations and Warranties of Collectis.

- (a) Section 9.2 of the Initial License Agreement is hereby amended by deleting Section 9.2.5 in its entirety.
- (b) Section 9.2 of the Initial License Agreement is hereby amended by deleting the following in its entirety:
“[***]”

13. Amendment to Section 11.3.2.

Section 11.3.2 of the Initial License Agreement is hereby amended by deleting “and [***] Candidate Products or Products”.

14. Amendment to Article 12: Change of Control.

Article 12 of the Initial License Agreement is hereby amended and restated in its entirety with the following:

12.1. **Change of Control.** Collectis shall give Servier written notice within ten (10) days after the public announcement or disclosure of any proposed Change of Control of Collectis if Collectis' contemplated successor conducts in a material respect directly or indirectly research, development, manufacturing or commercialization activities on Primary Target or on any other CAR-T products (except products developed by Collectis at the time Collectis provides Servier such written notice) within the Indications developed by Servier at the time of the proposed Change of Control (“**Servier's Competitor**”) or has direct or indirect control over a Servier's Competitor (the “**Change of Control Notice**”). For the avoidance of doubt, Collectis shall have the right to serve such notice in advance of public announcement or disclosure of said Change of Control, in which case Servier shall treat that information as strictly confidential. Upon such notice, Servier shall have the right to acquire for one lump-sum payment (the “**Buyout Payment**”), an exclusive fully paid up worldwide license, with the right to grant sublicense, under Collectis IP other than the [***] to Develop, have developed, manufacture, have manufactured and Commercialize in the Field any UCART19 Products in the Territory, pursuant to the section 12.2 below (the “**Buy-Out**”). With respect to [***], Collectis shall deliver to Servier a binding undertaking from Collectis' successor providing that such successor undertakes to comply with the provisions of the Agreement, without additional payment due by Servier or any other conditions more restrictive than the ones provided for in the Agreement. The completion of the Buy-Out shall be subject to actual completion of the Change of Control, it being specified that if the Buy-Out Payment has been paid prior to completion of the Change of Control, Collectis will be liable to reimburse Servier within ten (10) days of the decision not to complete the Change of Control.

8/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

12.2. **Buy-Out.** If Servier exercises its right to Buy-Out, Servier will provide written notice to Collectis (a “**Buyout Notice**”) within fifteen (15) days following the Change of Control Notice. Within ten (10) days following Servier’s provision of the Buyout Notice, the Parties will meet and negotiate the amount of the Buyout Payment.

12.2.1. If the Parties agree on the amount of the Buyout Payment within such ten (10) day period, then Servier will pay the applicable Buyout Payment to Collectis (or its successor) within thirty (30) day period. Further to the Buyout, and subject to actual payment of the Buy-Out Payment, the licenses on the Collectis IP within the scope of the Buy-Out will be deemed fully paid up.

12.2.2. If the Parties fail to agree on an amount of a Buyout Payment within ten (10) days following the provision of the Buyout Notice, then within two (2) days thereafter each Party will select and pay at its costs one (1) Third Party valuator (such valuator shall be from top-tier, internationally-recognized investment banks or accounting firms) with relevant expertise to determine the appropriate amount for the Buyout Payment. Each of the Parties will provide to such valuator such information as it deems pertinent and any information requested by such valuator. Such selected valuator will promptly (and in any event within twenty (20) days after the selection of such valuator) determine their respective valuation of the Buyout Payment amount and provide notice of such amount (and underlying assumptions and methodology) to each of the Parties. If the amount of the Buyout Payment estimated by one valuator is equal to or less than one hundred twenty percent (120%) of the amount of the Buyout Payment estimated by the other valuator, then the Buyout Payment shall be equal to the average of the amount proposed by the valuator. If the amount of the Buyout Payment estimated by one valuator is greater than one hundred twenty percent (120%) of the amount of the Buyout Payment estimated by the other valuator, then the Parties will mutually agree upon a third valuator. In such event, the Buyout Payment determined by the third valuator shall be the Buyout Payment (provided, that the Buyout Payment shall be capped at the amount of the higher of the Buyout Payments determined by the prior two valuator, and shall not be lower than the amount of the lower of the Buyout Payments determined by the prior two valuator).

12.2.3. After determination of the Buyout Payment pursuant to Section 12.2.1 or 12.2.2 above, as applicable, Servier will pay the applicable Buyout Payment to Collectis (or its successor) within thirty (30) day period. Further to the Buyout, and subject to actual payment of the Buy-Out Payment, the licenses on the Collectis IP within the scope of the Buy-Out will be deemed fully paid up.

15. Amendments to Article 13: Miscellaneous.

- (a) Article 13 of the Initial License Agreement is hereby amended by adding the following as Section 13.12:

13.12 Payments Under the 2014 Agreement and the Initial License Agreement

For the sake of clarity, all payments made by Collectis to Servier under the 2014 Agreement and the Initial License Agreement are non-refundable.

- (b) Article 13 of the Initial License Agreement is hereby amended by adding the following as Section 13.13:

9/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

13.13 Acknowledgement of Collectis.

Any public reference to a Product falling under the Initial License Agreement, including UCART19 Products, will include language acknowledging the license granted by Collectis to Servier and the use of Collectis' technologies.

- (c) Article 13 of the Initial License Agreement is hereby amended by adding the following as Section 13.14:

13.14 Standstill

Servier shall, and shall procure that its Affiliates shall, abstain from tendering for, or otherwise trading in, Collectis securities for a period of 12 months from the Effective Date, except with the prior consent of Collectis or as part of the consummation of a *bona fide* tender offer made pursuant to applicable laws and regulations following a tender offer initiated by a third party. Servier shall further, and shall procure that its affiliates shall, refrain during a 12-month period, other than with the prior consent of Collectis, from initiating contact with any person holding or controlling, directly or indirectly, 5% or more of Collectis' shares in connection with a possible acquisition or other form of transfer, immediate or deferred, of all or part of their shares of Collectis.

16. Amendments to Exhibit 1: Fees, Payments and Royalties.

- (a) A.1. of Exhibit 1 of the Initial License Agreement is hereby amended such that the following is added to the end of A.1.:
Servier will pay Collectis the non-refundable sum of twenty-five million euros (25,000,000€) on the Effective Date of the Amendment Agreement.
- (b) A.2. of Exhibit 1 of the Initial License Agreement is hereby amended by deleting it in its entirety.
- (c) A.3. (a)-(f) of Exhibit 1 of the Initial License Agreement is hereby amended and restated in its entirety by the following:
(a) Development Milestones. On an Indication-by-Indication basis, Servier shall pay to Collectis the following non-refundable milestone payments upon the occurrence of each event:

<u>Milestone event</u>	<u>Milestone payment (in €)</u>
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

10/14

Certain information has been excluded from this agreement (indicated by "[***]") because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

For the avoidance of doubt, each milestone payment is payable once per Indication, and no milestone would be due under this Amendment Agreement for events having occurred prior to the Effective Date of the Amendment Agreement. For further clarity, no milestone related to [***]. All payments that were due and payable under the Initial License Agreement have been paid by Servier, with the exception [***] which shall remain due and payable and shall be paid immediately.

(d) A.3.(g) of Exhibit 1 of the Initial License Agreement is hereby amended and restated in its entirety by the following:

(g) **Sublicense Revenues.** In the event that Servier grants rights relating to Collectis IP for the Development and Commercialization of a Product to a Third Party, Servier shall pay to Collectis an amount equal to [***] of any and all sums received by Servier from such Third Party as the result of [***] and all other payments made to Servier pursuant to an option, license or sublicense, shares of stock or other units of equity, payments made to Servier upon fulfillment of designated development objectives, regulatory requirements, or commercial milestones and payments made to Servier [***]. For avoidance of doubt, subject to Section A.5 of Exhibit 1 (Royalties to Collectis), [***].

(e) A.4. of Exhibit 1 of the Initial License Agreement is hereby amended and restated in its entirety with the following:

Servier shall pay the following sales milestones on the first time aggregated annual Net Sales of each UCART19 Product reach the following thresholds:

<u>First time aggregated annual Net Sales of each UCART19 Product reaches</u>	<u>Milestone payment (in €)</u>
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

(f) A.5. of Exhibit 1 of the Initial License Agreement is hereby amended and restated in its entirety with the following:

In addition to the Milestone payments, during the Royalty Term, Servier shall pay royalties of [***] to Collectis on annual Net Sales of the Products.

- (g) A.6. of Exhibit 1 of the Initial License Agreement is hereby amended and restated such that “exercise by Servier of the exclusive Option to License” is replaced with “Effective Date.”
 - (h) A.7. of Exhibit 1 of the Initial License Agreement is hereby amended by deleting it in its entirety.
17. Amendment to Exhibit 5: Servier Target.
- (a) Exhibit 5 of the Initial License Agreement is hereby amended to delete references to [***].
 - (b) The provisions of Section 11.3 of the Initial License Agreement will apply with respect to [***] as if Servier had exercised its Opt-Out Option with respect to such Targets. Notwithstanding the foregoing, Servier hereby waives its Right of First Refusal in such Targets.
18. The Press Release as set forth in Exhibit A will be released by the Parties within three (3) business days of signature of this Amendment Agreement.
19. Miscellaneous. Except as expressly provided in this Amendment Agreement, the Initial License Agreement remains unchanged, and the Initial License Agreement as modified hereby remains in full force and effect. The Amendment Agreement shall not result in a novation of the Initial License Agreement. To the extent of any inconsistency between the provisions of the Amendment Agreement and the provisions of the Initial License Agreement, the terms of the Amendment Agreement shall govern. The Amendment Agreement shall be governed by and construed in accordance with the laws of France. The Amendment Agreement may be executed and delivered by facsimile or in .pdf format by electronic mail, and in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which when taken together shall constitute one agreement.

IN WITNESS WHEREOF, Collectis and Servier have caused the Amendment to be executed by their duly authorized representatives as of the Effective Date.

For Celletis SA,

By: /s/ André Choulika
Name: André CHOULIKA
Title: Chief Executive Officer

For Les Laboratoires Servier,

By: /s/ Eric Falcand
Name: Eric FALCAND
Title: Proxy

By: /s/ Christian Bazantay
Name: Christian BAZANTAY
Title: Proxy

12/14

Certain information has been excluded from this agreement (indicated by “[***]”) because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

By: /s/ Claude Bertrand

Name: Claude Bertrand

Title: Executive Vice President of R&D

13/14

Certain information has been excluded from this agreement (indicated by “[***)” because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

Exhibit A

Press Release

[Omitted]

14/14

Certain information has been excluded from this agreement (indicated by “[***)” because such information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

SECOND AMENDMENT TO THE
MANAGEMENT SERVICES AGREEMENT

This SECOND AMENDMENT TO THE MANAGEMENT SERVICES AGREEMENT (the “**Second Amendment**”) is made and entered into effective as of January 29, 2020 by and among Collectis S.A. (“**CLS**”), Collectis, Inc. (“**CLI**”), Calyxt, Inc. (“**CLX**”), and Collectis Biologics, Inc. (“**CBL**”), each a Party and together the Parties.

WHEREAS, CLS, CLI and CLX entered into that certain Management Services Agreement dated January 1, 2016, as amended by that certain First Amendment to the Management Services Agreement dated July 25, 2017 (the “**Agreement**”);

WHEREAS, Collectis Biologics, Inc. (“**CBL**”), a company fully owned by CLI, was incorporated in the State of Delaware in January 18, 2019 and as such is a Party to this Agreement.

WHEREAS, the Parties have agreed to further amend the Agreement as set forth in this Second Amendment.

NOW, THEREFORE, in consideration of the agreements and obligations set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree that the Agreement is hereby amended as follows:

1. As from July 1, 2019 (i) CBL, CLS, CLI and CLX agree to consider CBL as a Party and Subsidiary to this Agreement and (ii) CBL hereby agrees to be bound by all terms and conditions of this Agreement. The Parties hereby agree that the Services to be provided by CLS, as Provider, to CBL, as Beneficiary, and the Services to be provided by CBL, as Provider, to CLS, as beneficiary, are the Services set forth on Exhibit A attached hereto and incorporated herein.
2. Exhibit 1 of the Agreement is amended to revise the “Basis of Allocation” for “IT- internal support” and “Human Resources” Services provided by CLS to CLX, to CLI and to CBL from “Number of CLX’s FTE” to “Time Spent”. Such amendment shall be effective as of July 1, 2019.
3. All other provisions of the Agreement not expressly amended herein shall remain in full force and effect.

* * * * *

IN WITNESS WHEREOF, the Parties have caused this Second Amendment to be duly executed by their respective authorized officers as of the date first written above.

CELLECTIS S.A.

By: /s/ David Sourdivé _____
Name: David Sourdivé
Title: Deputy Chief Executive Officer

CELLECTIS, INC.

By: /s/ André Choulika _____
Name: André Choulika
Title: Chief Executive Officer

CALYXT, INC.

By: /s/ James Blome _____
Name: James Blome
Title: Chief Executive Officer

CELLECTIS BIOLOGICS, INC.

By: /s/ André Choulika _____
Name: André Choulika
Title: Chief Executive Officer

EXHIBIT A

Services performed by Collectis SA (CLS) on behalf of Collectis Biologics, Inc. (CBL):

<u>Types of Services</u>	<u>Costs and Expenses</u>	<u>Basis of Allocation of the Costs and Expenses</u>	<u>Mark-up</u>
Finance	Salaries and social contribution costs	Time spent	4%
	Indirect costs		0%
IT – LIMS use	Salaries and social contribution costs	Number of users of the LIMS	4%
	Indirect costs		0%
IT – internal support	Salaries and social contribution costs	Time spent	4%
	Indirect costs		0%
Human Resources	Salaries and social contribution costs	Time spent	10%
	Indirect costs		0%
Legal	Salaries and social contribution costs	Time spent	10%
	Indirect costs		0%
R&D	Salaries and social contribution costs	Time spent	7%
	Indirect costs		0%

Services performed by Collectis Biologics, Inc. (CBL) on behalf of Collectis SA (CLS):

R&D	Salaries and social contribution costs	Time spent	7%
	Indirect costs		0%

**AMENDMENT NO. 1
TO
STOCKHOLDERS AGREEMENT**

This AMENDMENT NO. 1 TO STOCKHOLDERS AGREEMENT (this “**Amendment**”), is made and entered into as of May 7, 2018 by and among Calyxt, Inc., a Delaware corporation (the “**Company**”) and Collectis S.A., a French *société anonyme* (“**Collectis**”). Terms used, but not otherwise defined, in this Amendment have the meaning assigned to them in the Stockholders Agreement dated July 25, 2017 among the Company, Collectis and the persons listed on Schedule A thereto (the “**Stockholders Agreement**”).

RECITALS

WHEREAS, the parties to this Amendment are parties to the Stockholders’ Agreement; and

WHEREAS, in accordance with Section 6.07 of the Stockholders’ Agreement, the parties to this Amendment wish to amend the Stockholders Agreement as provided herein;

WHEREAS, in accordance with Section 6.8 of the Stockholders Agreement, the Company, with the approval of the independent directors of the Company, and Collectis have each approved this Amendment; and

WHEREAS, Collectis is the holder of a majority of the Registrable Securities.

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

1. Amendment to Stockholders’ Agreement. (a) Section 3.05(b)(v) is hereby amended and restated in its entirety to read as follows: “(v) any appointment to, or removal from, the Board of Directors, to the extent permissible by the laws of the State of Delaware.”

(b) To replace the address of Calyxt for notices set forth in Section 6.11 as follows:

Calyxt, Inc.
600 County Road D West
Suite 8
New Brighton, MN 55112
Attention: Federico Tripodi, Chief Executive Officer
E-mail: federico.tripodi@calyxt.com

2. Effect on Stockholders Agreement. Except as expressly amended and modified herein, the provisions of the Stockholders Agreement are and shall remain in full force and effect and are hereby confirmed.

3. Governing Law. This Amendment is governed by and will be construed in accordance with the laws of the State of Delaware, excluding any conflict-of-laws rule or principle (whether of Delaware or any other jurisdiction) that might refer the governance or the construction of this Agreement to the law of another jurisdiction.

4. Jurisdiction. Each of the parties to this Amendment (a) consents to submit itself to the personal jurisdiction of the Court of Chancery of the State of Delaware in the event any dispute arises out of this Amendment, (b) agrees that it will not attempt to deny or defeat such personal jurisdiction by motion or other request for leave from such court and (c) agrees that it will not bring any action relating to this Amendment in any court other than the Court of Chancery of the State of Delaware. Each party to this Amendment hereby agrees that, to the fullest extent permitted by law, service of any process, summons, notice or document by U.S. registered mail to the respective addresses set forth in Section 6.11 of the Stockholders Agreement (as amended by this Amendment) shall be effective service of process for any suit or proceeding in connection with this Amendment.

5. Waiver of Jury Trial. EACH OF THE PARTIES TO THIS AMENDMENT HEREBY IRREVOCABLY WAIVES ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) ARISING OUT OF OR RELATING TO THIS AMENDMENT OR THE ACTIONS OF THE PARTIES IN THE NEGOTIATION, ADMINISTRATION, PERFORMANCE AND ENFORCEMENT THEREOF.

6. Counterparts. This Amendment may be executed in any number of counterparts, each of which shall be an original, but all of which together shall comprise one and the same instrument.

IN WITNESS WHEREOF, the parties have duly executed this Amendment as of the day and year first written above.

CALYXT, INC.

/s/ Federico A. Tripodi

Name: Federico A. Tripodi

Title: Chief Executive Officer

CELLECTIS S.A.

/s/ André Choulika

Name: André Choulika

Title: Chief Executive Officer

Subsidiaries of Collectis S.A.

<u>Name of Subsidiary</u>	<u>State or Other Jurisdiction of Incorporation</u>
Collectis, Inc.	Delaware
Calyxt, Inc.	Delaware
Collectis Biologics, Inc.	Delaware

**Certification by the Principal Executive Officer pursuant to
Securities Exchange Act Rules 13a-14(a) and 15d-14(a)
as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, André Choulika, certify that:

1. I have reviewed this annual report on Form 20-F of Collectis S.A.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the Company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and
5. The Company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of the Company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal control over financial reporting.

Date: March 4, 2020

/s/ André Choulika

Name: André Choulika

Title: Chief Executive Officer (*Principal Executive Officer*)

**Certification by the Principal Financial Officer pursuant to
Securities Exchange Act Rules 13a-14(a) and 15d-14(a)
as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002**

I, Eric Dutang, certify that:

1. I have reviewed this annual report on Form 20-F of Collectis S.A.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the Company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and
5. The Company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of the Company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal control over financial reporting.

Date: March 4, 2020

/s/ Eric Dutang

Name: Eric Dutang

Title: Chief Financial Officer (*Principal Financial Officer*)

**Certification by the Principal Executive Officer pursuant to
18 U.S.C. Section 1350, as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Annual Report of Collectis S.A. (the "Company") on Form 20-F for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, André Chouluka, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 4, 2020

/s/ André Chouluka

Name: André Chouluka

Title: Chief Executive Officer (*Principal Executive Officer*)

A signed original of this written statement has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

**Certification by the Principal Financial Officer pursuant to
18 U.S.C. Section 1350, as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Annual Report of Collectis S.A. (the "Company") on Form 20-F for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Eric Dutang, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 4, 2020

/s/ Eric Dutang

Name: Eric Dutang

Title: Chief Financial Officer (*Principal Financial
Officer*)

A signed original of this written statement has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-8 No. 333-204205) pertaining to the 2015 Stock Option Plan and the 2015 Free Share Plan of Collectis S.A.;
- (2) Registration Statement (Form S-8 No 333-214884) pertaining to the 2016 Stock Option Plan of Collectis S.A.; and
- (3) Registration Statement (Form S-8 No 333-222482) pertaining to the 2017 Stock Option Plan of Collectis S.A., the Summary of BSA Plan and the Free Share 2018 Plan of Collectis S.A.;
- (4) Registration Statement (Form S-8 No 333-227717) pertaining to the 2018 Stock Option Plan of Collectis S.A., the Summary of BSA Plan and the Second Free Share 2018 Plan of Collectis S.A.; and
- (5) Registration Statement (Form F-3 No. 333-217086) of Collectis S.A.;

of our reports dated March 4, 2020, with respect to the consolidated financial statements of Collectis S.A. and the effectiveness of internal control over financial reporting of Collectis S.A., included in this annual report (Form 20-F) of Collectis S.A. for the year ended December 31, 2019.

/s/ ERNST & YOUNG et Autres

Paris La Défense, France

March 4, 2020