
**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, 2017

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)

Cellectis S.A.
8, rue de la Croix Jarry
75013 Paris, France
(Address of principal executive office)

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

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
American Depositary Shares, each representing one ordinary share, nominal value €0.05 per share	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: 35,959,462 as of December 31, 2017

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ 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

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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 euros.

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

Note Regarding Use of Non-GAAP Financial Measures

Collectis S.A. 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;
- our ability to advance 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 our plant products;
- regulatory developments in the United States and foreign countries;
- the commercialization of our product candidates, if approved;
- the commercialization of our plant products;
- 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 materials and manufacturers;
- the implementation of our business model, strategic plans for our 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 our plant products;
- estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- our ability to obtain additional funding for our 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 Pfizer;
- our ability to maintain and establish collaborations or obtain additional grant funding;
- the rate and degree of market acceptance of our product candidates;
- our status as a passive foreign investment company for U.S. federal income tax purposes;
- our financial performance;

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- our 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
 - 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.

This Annual Report contains market data and industry forecasts that were obtained from industry publications. These data and 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.

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 consolidated statements of operations data for the years ended December 31, 2015, 2016 and 2017 and the selected consolidated statement of financial position data as of December 31, 2016 and 2017 have been derived from our audited consolidated financial statements included elsewhere in this Annual Report. The selected consolidated statements of operations data for the years ended December 31, 2013 and 2014 and the selected consolidated statement of financial position data as of December 31, 2013, 2014 and 2015 have been derived from our audited consolidated financial statements not included in this Annual Report. 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, 2014, 2015, 2016 and 2017 are presented in U.S. dollars, which differs from the functional currency of Collectis S.A., which is the Euro. We decided to change the reporting currency from Euro to U.S. dollars in the third quarter of 2017, using the retrospective method. We believe that this change will enhance comparability with peers, which primarily present their financial statements in U.S. dollars.

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” and “Foreign Currency Exchange Rates” 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.

	2013 (4)	2014	2015	2016	2017
	(\$ in thousands, except share and per share data)				
Revenues and other income	16,900	35,151	62,565	56,444	33,715
Operating expenses					
Royalty expenses	(720)	(4,033)	(2,746)	(1,777)	(2,620)
Research and development expenses	(23,700)	(19,144)	(58,154)	(78,458)	(79,227)
Selling, general and administrative expenses	(25,281)	(17,426)	(30,223)	(43,413)	(44,750)
Other operating income and expenses	(2,433)	(1,517)	(2,425)	(99)	232
Operating income (loss)	(35,234)	(6,970)	(30,984)	(67,302)	(92,650)
Loss from discontinued operations	(39,288)	(3,750)	—	—	—
Financial gain (loss)	(414)	9,428	8,378	46	(11,032)
Net income (loss)	(74,936)	(1,292)	(22,606)	(67,255)	(103,683)

	2013 (4)	2014	2015	2016	2017
	(in thousands, except share and per share data)				
Attributable to shareholders of Collectis	(73,585)	27	(22,796)	(67,255)	(99,368)
Attributable to non-controlling interests	(1,351)	(1,318)	190	—	(4,315)
Earnings per share attributable to shareholders of Collectis (1)					
Basic and diluted (2)	(3.56)	0.00	(0.67)	(1.91)	(2.78)
Number of shares used for computing					
Basic (1)	20,653,912	26,071,709	34,149,908	35,289,932	35,690,636
Diluted (1)	20,653,912	26,192,652	34,149,908	35,289,932	35,690,636
Other operating data					
Adjusted Net Income (Loss) attributable to shareholders of Collectis (3)	(72,973)	755	10,606	(8,633)	(50,443)

- (1) See Note 16 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. 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 industry that use similar stock-based compensation, 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 IFRS financial results, including Net Income (Loss) attributable to shareholders of Collectis. 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.
- (4) As discussed above, effective in the third quarter of 2017, we changed our presentation currency, using the retrospective method. By convention, the financial information has been recalculated on a cumulative basis from January 1, 2014 instead of the date of adoption of IFRS; restating financial information prior to that date is not practicable. As such, for consistency purposes only, we have presented the unaudited 2013 financial information in the table above by converting our audited financial information in euros to dollars using the exchange rates as follows: €1.00 = \$1.3791 as of December 31, 2013 and €1.00 = \$1.3282 for the year ended December 31, 2013, the European Central Bank's (ECB) reference U.S. Dollar exchange rate for Euro, as published by Banque de France, on such dates.

Consolidated Statement of Financial Position

	2013 (1)	2014	As of December 31,		2017
			2015	2016	
	(\$ in thousands)				
Current financial assets and Cash and cash equivalents	10,425	136,400	342,111	291,159	296,982
Total assets	39,822	167,077	371,314	331,432	332,882
Total shareholders' equity	3,471	72,272	287,002	274,671	285,904
Total non current liabilities	5,257	3,912	547	590	3,443
Total current liabilities	31,093	90,894	83,765	56,171	43,534

- (1) As discussed above, effective in the third quarter of 2017, we changed our presentation currency, using the retrospective method. By convention, the financial information has been recalculated on a cumulative basis from January 1, 2014 instead of the date of adoption of IFRS; restating financial information prior to that date is not practicable. As such, for consistency purposes only, we have presented the unaudited 2013 financial information in the table above by converting our audited financial information in euros to dollars using the exchange rates as follows: €1.00 = \$1.3791 as of December 31, 2013 and €1.00 = \$1.3282 for the year ended December 31, 2013, the ECB's reference U.S. Dollar exchange rate for Euro, as published by Banque de France, on such dates.

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

	2013 (1)	2014	2015	2016	2017
	(\$ in thousands)				
Net Income (Loss) attributable to shareholders of Collectis	(73,585)	27	(22,796)	(67,255)	(99,368)
Adjustment of non-cash stock-based compensation expense:					
Research and development expenses	251	299	20,563	33,207	23,832
Selling, general and administrative expenses	361	430	12,839	25,415	26,586
Total non-cash stock-based compensation expense:	612	728	33,402	58,622	50,418
Non-cash stock-based compensation expense attributable to non controlling interests	—	—	—	—	(1,493)
Adjusted Net Income (Loss) attributable to shareholders of Collectis	(72,973)	755	10,606	(8,633)	(50,443)

- (1) As discussed above, effective in the third quarter of 2017, we changed our presentation currency, using the retrospective method. By convention, the financial information has been recalculated on a cumulative basis from January 1, 2014 instead of the date of adoption of IFRS; restating financial information prior to that date is not practicable. As such, for consistency purposes only, we have presented the unaudited 2013 financial information in the table above by converting our audited financial information in euros to dollars using the exchange rates as follows: €1.00 = \$1.3791 as of December 31, 2013 and €1.00 = \$1.3282 for the year ended December 31, 2013, the ECB's reference U.S. Dollar exchange rate for Euro, as published by Banque de France, on such dates.

Exchange Rate Information

The following table sets forth, for each period indicated, the low and high exchange rates for euros expressed in U.S. dollars, the exchange rate at the end of such period and the average of such exchange rates on the last day of each month during such period, based on the ECB's reference U.S. Dollar exchange rate for Euro, as published by Banque de France. The exchange rates set forth below are provided for reference only and to

demonstrate trends in exchange rates. They should not be relied upon, and the actual exchange rates used throughout this Annual Report may vary.

	Year Ended December 31,				
	2013	2014	2015	2016	2017
High	1.381	1.395	1.204	1.156	1.206
Low	1.276	1.214	1.055	1.036	1.038
Rate at end of period	1.379	1.214	1.088	1.054	1.199
Average rate per period	1.338	1.328	1.109	1.106	1.129

The following table sets forth, for each of the periods indicated, the low and high exchange rates for euros expressed in U.S. dollars and the exchange rate at the end of the periods indicated based on the ECB's reference U.S. Dollar exchange rate for Euro, as published by Banque de France.

	September 2017	October 2017	November 2017	December 2017	January 2018	February 2018
High	1.206	1.185	1.195	1.199	1.249	1.249
Low	1.174	1.160	1.156	1.073	1.193	1.221
Rate at end of period	1.180	1.163	1.184	1.199	1.245	1.221

On March 12, 2018, the ECB's reference U.S. Dollar exchange rate for the Euro, as published by the Banque de France, was €1.00 = \$1.2302.

Information presented on a constant currency basis in this Annual Report is calculated by translating current year results at prior year average exchange rates. Management reviews and analyzes business results excluding the effect of foreign currency translation because they believe this better represents our underlying business trends.

In various places throughout this Annual Report we show financial amounts in both U.S. dollars and euros. Unless otherwise stated, these translations, which are provided solely for convenience, are made at the exchange rate of €1.00 = \$1.1993, the ECB's daily reference exchange rate on December 31, 2017, as published by Banque de France.

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 February 28, 2018, we own 79.3% of Calyxt, Inc., a U.S. agricultural biotechnology company, both with a limited operating history. Investment in biopharmaceutical and agricultural biotechnology product development is a highly speculative endeavor. Biopharmaceutical and agricultural biotechnology 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 regulatory approval 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. Most of the product candidates that we are developing or co-developing are in pre-clinical stages. We are sponsoring two clinical studies in the United States, for one of our product candidates, UCART123 – one targeting acute myeloid leukemia (AML) and the other targeting blastic plasmacytoid dendritic cell neoplasm (BPDCN). 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. We have not yet generated any revenue from product sales to date. In our agricultural biotechnology business, we are exploring the use of our gene-editing technologies to develop healthier food products for a growing population. Our plant products are in various stages of development, and we have not yet generated any revenues from sales of these plant products.

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 agricultural biotechnology 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 and agricultural biotechnology.

We have incurred significant losses since our inception, have no commercial products 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 through strategic alliances with pharmaceutical companies, including Servier and Pfizer Inc., or Pfizer, 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. In March 2015, Cellectis S.A. completed its U.S. Initial Public Offering of 5,500,000 American Depositary Shares on the Nasdaq Global Market for gross proceeds of \$228.3 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 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. Then, the net proceeds amounted to \$38 million at the Group level. In 2016 and 2017, we received respectively \$27.3 million and \$8.1 million in payments pursuant to the Pfizer and Servier collaborations. Our research and development expenses for the years ended December 31, 2016 and 2017 were \$78.5 million and \$79.2 million, respectively. Our net loss for the years ended December 31, 2016 and 2017 was \$67.3 million and \$103.7 million, respectively.

We currently have no commercial products. The UCART19 Clinical Studies (as defined in Item 4.B. Business Overview below) commenced in June 2016 and we obtained FDA approval of an IND for the two Phase I UCART123 Clinical Studies (as defined in Item 4.B. Business Overview below) in February 2017. Notwithstanding the commencement of the UCART19 Clinical Studies and the UCART123 Clinical Studies, it will be several years, if ever, before we obtain regulatory approval for, and are ready for commercialization of, a 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.

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 the UCART123 Clinical Studies, file additional IND and/or foreign equivalent filings for other of our product candidates and conduct research and development for product candidates. In addition, we anticipate that such expenses will increase further and such increases may be substantial if and as we:

- 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;
- 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;
- secure manufacturing arrangements for commercial production;
- 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.

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. 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 two UCART123 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 we are advancing our product candidates to and through pre-clinical testing. The process of developing 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, particularly as we conduct the UCART123 Clinical Studies, file additional IND and/or foreign

equivalent filings for our product candidates, and conduct research and development for our other product candidates. In addition, subject to obtaining regulatory approval of any product candidates, we expect to incur significant commercialization expenses.

As of December 31, 2017, we had cash and cash equivalents and current financial assets of approximately \$297 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 our operations through 2020. However, in order to complete the development process, obtain regulatory approval and commercialize, if approved, any of our product candidates, we may require additional funding. 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, through public or private equity or debt financings, government or other third-party funding, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements, or a combination of these approaches. To commercialize our products, if approved, we will require significant working capital to operate our business and maintain our operations.

In addition, our ability to raise additional capital in equity offerings will be significantly limited, as described under “—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.” 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.

Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. 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 the discovery, pre-clinical proof-of-concept or clinical phase and may be unsuccessful.

Among our product candidates, the product candidates we develop which have been approved for clinical studies are only UCART19, which has been exclusively licensed to Servier, and UCART123, which we control for use in clinical studies. UCART19 is being tested in clinical studies in the United Kingdom, the United States, Belgium and France and UCART123 is being tested in clinical studies in the United States. Our other product candidates are still in discovery or pre-clinical proof of concept and have only undergone limited testing in animals. In February 2017, we received FDA approval under an IND to commence the UCART123 Clinical Studies and commenced those clinical studies in 2017. Following a clinical hold initiated by the FDA in September 2017, the FDA permitted the UCART123 Clinical Studies to restart in November 2017, according to revised protocols. Early clinical results on UCART123, which have been disclosed by Cellectis, preliminary results on UCART19, which were announced by Servier during the American Society for Hematology Conference in December 2017, and the results from animal studies are not necessarily predictive of results in current or future clinical studies. 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. For example, while our animal studies of product candidates may result in evidence of tumor cell elimination, there can be no assurance that the success we achieve in such animal studies for these product candidates will result in success in any clinical studies.

Because our current product candidates are still in the early stages of development, with the majority of our product candidates in the discovery or pre-clinical proof-of-concept phase, there can be no assurance that our research and development activities will result in product candidates we can advance through clinical development. Although Servier commenced the UCART19 Clinical Studies in June 2016 and we commenced our UCART123 Clinical Studies in February 2017, the results of such 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. Our other product candidates are in various stages of discovery or pre-clinical development and we have limited data evaluating many of these product candidates. 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 and the European Union, with respect to our product candidates. Satisfaction of these requirements will entail substantial time, effort and financial resources. We may never satisfy these requirements. Any time, effort and financial resources we expend on our other 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 UCART123 Clinical Studies or other clinical studies, if any, that we conduct 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.

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 data for UCART19, including data from UCART19 Clinical Studies and 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 base. 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 2017, 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. Results from the pediatric and adult UCART19 Clinical Studies, which showed 83% complete remission rate across the two studies: five out of seven patients achieving MRD negativity in the adult study (CALM study) at Day 28 and all five children achieving MRD negativity in the pediatric study (PALL study) at Day 28.

We cannot assure you that the administration of UCART19 to other patients will have results that are similar to those reported by Pfizer and 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.

Following FDA and IRB approval in February 2017, we commenced the UCART123 Clinical Studies in two sites in the United States. 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, and to medical institution and clinical investigators to conduct the UCART123 Clinical Studies. Our reliance on third parties for clinical development activities reduces 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 of most of our product candidates is still ongoing. Pre-clinical testing and clinical trials, such as our UCART123 Clinical Studies, are long, expensive and unpredictable processes that can be subject to extensive delays.

In September 2017, a clinical hold was placed on our UCART123 Clinical Studies in acute myeloid leukemia (AML) and in blastic plasmacytoid dendritic cell neoplasm (BPDCN). The FDA permitted the UCART123 Clinical Studies to restart in November 2017 according to revised protocols.

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, and 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 connection with clinical testing and trials on product candidates we develop for ourselves or on behalf of our collaborators, we may face a number of risks, including:

- pre-clinical results may not be indicative of clinical results in humans;
- a product candidate may be ineffective, inferior to existing approved drugs or therapies or unacceptably toxic, or may have unacceptable side effects;
- patients may die or suffer other adverse effects for reasons that may or may not be related to the product candidate being tested;
- the results may not confirm the favorable results of earlier testing or trials; and
- the results may not meet the level of statistical significance required by the FDA and/or other applicable regulatory agencies to establish the safety and efficacy of our product candidates

In addition, a number of events, including any of the following, could delay the completion of our future clinical trials (including the UCART123 Clinical Studies) or those of our collaborators (including the UCART19 Clinical Studies) 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;
- 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, 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. In addition, we cannot assure you that, in the course of clinical trials, some drawbacks would not appear that reveal that it is not possible or practical to continue development efforts for the subject product candidates.

Clinical trials may also be delayed or terminated as a result of ambiguous or negative interim results. In addition, a clinical trial may be suspended or terminated by us or our collaborators, the FDA, the IRBs at the sites where the IRBs are overseeing a trial, or a data safety monitoring board, or DSMB, overseeing the clinical trial at issue, or other regulatory authorities due to a number of factors, including:

- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;

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

In addition, changes in regulatory requirements and guidance may occur and we or our collaborators may need to amend clinical trial protocols to reflect these changes. Amendments may require us or our collaborators to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the cost, timing or successful completion of a clinical trial.

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 relationship 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.

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. Currently, only a very limited number of gene therapy products have been approved in the United States or Europe.

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. In August 2017, Novartis AG obtained approval from the FDA to commercialize the first CAR T-cell therapy, for children and young adults with relapsed or refractory, or r/r, B-cell ALL, and has recently been granted FDA priority review for adults with r/r diffuse large B-cell lymphoma (DLBCL). In October 2017, Kite Pharma (acquired by Gilead) obtained approval from the FDA to commercialize the first CAR T-cell therapy for the treatment of adult patients with r/r large B-cell lymphoma. 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. For example, regulatory requirements governing gene therapy products and cell therapy products 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. Gene therapy clinical studies conducted at institutions that receive funding for recombinant DNA research from the U.S. National Institutes of Health, or the NIH, are also subject to review by the NIH Office of Biotechnology Activities' Recombinant DNA Advisory Committee, or the RAC. Although the FDA decides whether individual gene therapy protocols may proceed, review process 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 our product candidates, we and they will be required to consult with these regulatory and advisory groups and comply with all applicable guidelines, rules and regulations. Because the UCART19 Clinical Studies are being sponsored by Servier in collaboration with Pfizer, 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 would apply to our wholly-controlled UCART product candidates, including UCART123, and could lead to potential delays or additional requirements. For example, as a result of such interactions, regulators may require that we implement additional studies or testing with respect to our product candidates or modify our clinical studies, including the UCART123 Clinical Studies. If we fail to do so, we may be required to delay or discontinue development of our product candidates.

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.

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.

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 based on results from genome research or the ability to regulate gene expression. 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 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 depend almost entirely on the successful development of our product candidates. We cannot be certain that we or our collaborators will be able to obtain regulatory approval for, or successfully commercialize, these products.

Currently, UCART123 is our only fully-controlled product candidate which is subject to Phase I clinical studies in the United States. In addition, UCART19, which is exclusively licensed to Servier, is the subject of two Phase I clinical studies in the United Kingdom, Belgium and France, each sponsored by Servier, and one Phase I clinical study in the United States, conducted in collaboration with Pfizer. Notwithstanding the foregoing, we may never be able to develop products that will be approved or commercialized. Our business depends primarily on the successful clinical development, regulatory approval and commercialization of our CAR T-cell immunotherapy product candidates. We are also studying in pre-clinical studies, on our own or through our collaborators, other product candidates based on gene-edited CAR T-cells for cancer immunotherapy.

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:

- offer improvement over existing, comparable products;
- be proven safe and effective in clinical trials; or
- meet applicable regulatory standards.

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 or on behalf of our collaborators, which may require:

- obtaining and maintain commercial manufacturing arrangements with third-party manufacturers;

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- collaborating with pharmaceutical companies or contract sales organizations to market and sell any approved drug; or
 - acceptance of any approved drug in 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 develop on our own and those we develop on behalf of our collaborators 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.

Accordingly, even if we are able to obtain the requisite financing to continue to fund our development and clinical programs, we cannot assure you that our product candidates will be successfully developed or commercialized.

We face substantial competition from companies, including biotechnology and pharmaceutical companies, many of which have considerably more resources and experience than we have, which may result in others discovering, developing, receiving approval for, or commercializing products before or more successfully than us.

The biotechnology and pharmaceutical industries are characterized by intense competition and rapid innovation, and many companies put 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.

Our competitors include:

- Gene-editing space: CRISPR Therapeutics, Inc., Editas Medicine, Inc., Intellia Therapeutics, Inc., Caribou Biosciences, Precision BioSciences, Inc. and Sangamo BioSciences, Inc.
- CAR space: Bellicum Pharmaceuticals, Inc., Juno Therapeutics, Inc. (acquired by Celgene Corporation), bluebird bio, Inc., Ziopharm Oncology (in collaboration with Intrexon, Inc.), Kite Pharma, Inc. (in collaboration with Amgen and acquired by Gilead), Novartis AG and Johnson & Johnson (in collaboration with Transposagen), and Autolus Limited.
- Cell-therapy space: Adaptimmune Ltd, Lion Biotechnologies, Inc., Unum Therapeutics, Inc., NantKwest, Inc., Celyad S.A., 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 pharmaceutical 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 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.

Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. 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. A competitor could obtain orphan product exclusivity from the FDA with respect to such competitor's product. If such competitor product is determined to be the same product as one of the product candidates we develop, that may prevent us or our collaborators from obtaining approval from the FDA for such product candidate for the same indication for seven years, except 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 substantial 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 regulatory such approval.

The FDA or other regulatory authority, as applicable, may delay, limit or deny approval of our product candidates for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the number, design, size, conduct or implementation of our clinical trials or require that additional clinical trials be conducted;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for its proposed indication;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the CROs or other third-parties contractors that are retained to assist us in connection with the clinical trials of our product candidates may take or omit actions, breach applicable laws and requirements, that materially adversely impact the clinical trials;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from manufacturing, pre-clinical studies or clinical trials;
- the FDA or comparable foreign regulatory authorities may not accept data generated at the sites involved in the clinical trials for our product candidates;

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- the FDA or comparable foreign regulatory authorities may not approve the production process, formulation, labeling or specifications of our product candidates;
 - the data collected from clinical trials of our product candidates may not be sufficient to support the submission of a BLA or other submission or to obtain regulatory approval in the United States or elsewhere;
 - if the marketing application, if and when submitted, is reviewed by an advisory committee, the FDA or comparable foreign regulatory authorities may have difficulties scheduling an advisory committee meeting in a timely manner or the advisory committee may recommend against approval of our application or may recommend that the competent regulatory authorities require, as a condition of approval, additional pre-clinical studies or clinical trials, limitations on approved labeling or distribution and use restrictions;
 - the FDA or comparable foreign regulatory authorities may require development of a Risk Evaluation and Mitigation Strategy as a condition of approval or post-approval;
 - the FDA or comparable foreign regulatory authorities may restrict the use of our products to a narrow population;
 - the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; or
 - the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

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.

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

The product candidates we develop 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, or starting material, from healthy third-party donors, 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 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, 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.

We expect our manufacturing strategy for the product candidates we develop will continue to involve the use of one or more CMOs as well as potentially establishing our own capabilities and infrastructure, including a manufacturing facility. However, we have no experience as a company in developing a manufacturing facility complying 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 a manufacturing facility or capability. We may engage additional CMOs or establish multiple 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 facility, our manufacturing capabilities 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, and we will need to contract with manufacturers who can meet all applicable FDA and foreign regulatory authority requirements on an ongoing basis. 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, such as the FDA's cGMP standards compliance, 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. Even if we obtain regulatory approval for any of our product candidates, there is no assurance that either we or our CMOs will be able to manufacture the approved product according to specifications acceptable to the FDA or other regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential launch of the product, or to meet potential future demand or need. 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 public opinion 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 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 for which greater clinical data may be available. 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, in 2003, 20 subjects treated for X-linked severe combined immunodeficiency in two gene therapy studies using a murine gamma-retroviral vector, a viral delivery system, showed correction of the disease, but the studies were terminated after five subjects developed leukemia. Although none of our current product candidates utilize these gamma-retroviruses, our product candidates use a viral delivery system. Additionally, 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 of the product candidates we develop is critical to our success. The timing of these clinical studies will depend, 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 product candidates in a timely manner. If patients are unwilling to participate in such studies because of negative publicity from adverse events in the biotechnology or gene or cell therapy industries or for other reasons, 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 develop will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition may reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. 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;
- proximity and availability of clinical trial sites for prospective patients;
- availability of competing therapies and clinical trials;
- clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians; and
- our ability to monitor patients adequately during and after treatment.

Our competitors in the immuno-oncology space are developing products that similarly use CAR T-cells to seek out and destroy cancer cells. In addition to the factors identified above, patient enrollment in any clinical trials we may conduct may be adversely impacted by any negative outcomes our competitors may experience, including adverse side effects (including fatalities), clinical data showing inadequate efficacy or failures to obtain regulatory approval.

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.

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;
- regulatory authorities may require the addition of labeling statements, such as a “boxed” warning or a contraindication;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we 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 reaching the milestones triggering payment to Collectis or 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.

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

We expect 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 the products. Therefore, we plan to rely on strategic alliances to financially help us develop and commercialize 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. For example, since Servier has obtained exclusive rights on UCART19, it controls this product candidate and its future development (including the UCART19 Clinical Studies) and commercialization. We will receive royalties on sales of the product, but will have no control over such further development and commercialization.

If collaborators with whom we currently have alliances, such as Pfizer and Servier, or future collaborators with whom we may engage, are unable or unwilling to advance our 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 terms that may be unique to each collaborator. These business development efforts may not result in a strategic alliance or may result in unfavorable arrangements.

The loss of existing or future collaboration agreements would not only delay or potentially terminate the possible development or commercialization of products we may derive 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 target candidates or research programs would be delayed or could be terminated.

Under typical collaboration agreements, we would expect to receive revenue for the research and development of 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 partner as well as, in most cases and for a limited period of time, our own. If we, or any alliance partner, fail to meet specific milestones, then the strategic alliance may be terminated, which could reduce our revenues.

Under our collaboration agreement with Pfizer, at any time after the first anniversary of the effective date of the agreement, Pfizer 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 upon written notice, if the other party commits a material breach that fundamentally frustrates the objectives or transactions contemplated by the agreement or affects substantially all of the research program and such breach remains uncured for 90 days from the date such written notice is provided. Either party may terminate the agreement on a target-by-target basis upon written notice, if the other party commits a material breach that relates to such target and such breach remains uncured for 90 days from the date such written notice is provided. The agreement may also be terminated upon written notice by Pfizer at any time in the event that we become bankrupt or insolvent. Further, the agreement provides Pfizer with a right to terminate any specific research project or research program under the agreement if we undergo a change of control.

Under our collaboration agreement with Servier, either party may terminate the agreement in its entirety in the event of the other party's material breach, which continues or remains uncured for 90 days after written notice is provided to the breaching party, or 30 days after written notice is provided with respect to a payment obligation breach. The parties may also terminate the agreement by mutual written consent. Servier has the right,

at its sole discretion, to terminate the agreement in its entirety or with respect to specific products or product candidates, upon three months' prior written notice to us. Servier may also 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. Further, the agreement provides Servier with buy-out rights with respect to our interest in products and product candidates under the agreement if we undergo a change of control.

Even if we or our collaborators successfully complete clinical trials of our 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;
- 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 partners 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.

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 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 that we are in 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 government investigation of alleged violations of law 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 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 our 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 biosimilar and interchangeable biological products. 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. While it is uncertain when such processes intended to implement BPCIA may be fully adopted by the FDA, any such processes could have a material adverse effect on the future commercial prospects for our biological products.

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.

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 will 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 is likely to subject us or our collaborators to all of 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 orphan drug status, including market exclusivity, 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.

We may seek fast-track designation for some or all of our product candidates. There is no assurance that the FDA will grant such designation and, even if it does grant fast track designation to any of our product candidates, that designation may not actually lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval in the United States.

We may seek fast-track designation and review for some or all of our other 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. 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.

We may seek a regenerative advanced therapy (RAT) designation and/or a breakthrough therapy designation for our product candidates. Even if we achieve a RAT designation or a breakthrough designation from the FDA for the product candidates we develop, or, if applicable, by other national or international regulatory agencies, such designation may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We may seek a RAT designation or a breakthrough therapy designation for our product candidates in the future.

A drug is eligible for RAT 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.

For product candidates that have been designated as a RAT or a breakthrough therapy, interaction and communication between the FDA 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. Designation as a RAT or breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe that our product candidates meet the criteria for designation as a RAT or a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a RAT 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 FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as RAT or a breakthrough therapy, the FDA 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 products. 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. These lawsuits may divert our management from pursuing our business strategy and may be costly to defend. In addition, if we are held liable in any of these lawsuits, we may incur substantial liabilities and may be forced to limit or forgo further commercialization of the affected products.

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 one or more of the following:

- our ability or our collaborators' ability to set a price we believe is fair for our products, if approved;
- our ability or our collaborators' ability to obtain and maintain market acceptance by the medical community and patients;
- our ability to generate revenues and achieve profitability; and
- the availability of capital.

In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the health care system that could impact our or our collaborators' ability to sell our

products profitably. 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 has been expected to have a significant impact on the provision of, and payment for, health care in the United States. The ACA was intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Among the provisions of the ACA of importance to our potential product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- 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 a manufacturer's outpatient drugs to be covered under Medicare Part D;
- extension of a manufacturer's 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 certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's 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.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2024 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law which, among other things, further reduced Medicare payments to several providers 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.

This legislative uncertainty could harm our or 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 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 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
- longer accounts receivable collection times;
- longer lead times for shipping;
- 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;
- patients' ability to obtain reimbursement for products in various markets; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

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:

- 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 or all aspects of our product manufacturing, quality control, protocol development, material supply, research and pre-clinical development, clinical testing and distribution, 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 and clinical testing as well as distribution and 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 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 our studies in accordance with regulatory requirements or 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:

- the inability to negotiate supply, manufacturing, research and/or distribution agreements with third parties under commercially reasonable terms or at all, because the number of potential suppliers, manufacturers, research organizations and distributors is limited and each must be approved by the FDA or comparable foreign regulatory authorities and would need to develop approved or validated processes for production, testing or distribution of material we use or of our products;
- 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;
- reduced control over manufacturing and distribution activities and quality control processes and the possibility 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;

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- 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;
 - breach, termination or non-renewal of our agreements by third-party manufacturers, suppliers, research organizations or distributors in a manner or at a time that is costly or damaging to us; and
 - disruptions to the operations of our subcontractors, suppliers, research organizations or distributors caused by conditions unrelated to our business or operations, including the bankruptcy of any such third-party provider.

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.

We and our contract manufacturers are subject to significant regulation with respect to manufacturing our products. The manufacturing facilities on which we rely may not continue to meet regulatory requirements and 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 some or all 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, including starting and raw material, excipients, equipment and consumables, as well as the associated quality systems for compliance with the regulations applicable to the activities being conducted. If these facilities do not pass a pre-approval inspection, FDA approval of the products will not be granted.

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 any of our third-party manufacturers, directly or indirectly (due to failure of their own sub-contractors), fail to maintain regulatory compliance, the regulator can impose regulatory sanctions including, among other things, refusal to approve a pending application for a new product, revocation or non-renewal of a pre-existing approval, refusal to accept some non-clinical and/or clinical data generated with material for which that third-

party was responsible, or imposition of a hold on or refusal to commence, clinical investigations. 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 suppliers may involve substantial costs and is likely to result in a delay in our desired clinical and commercial timelines.

These factors could cause the delay of some non-clinical and clinical studies, regulatory submissions, required approvals or commercialization of our product candidates, cause us to incur higher costs and 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 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 biological materials—such as cells, cell culture media, cytokines, vectors, nucleic acids or antibodies—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, these 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 or our collaborators rely on third parties to conduct, supervise and monitor our or their clinical studies, and if these third parties perform in an unsatisfactory manner, it may harm our business.

We or 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 have agreements governing their activities, we will have limited influence over their actual performance and will control only certain aspects of such third parties' activities. Nevertheless, we will be responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol, legal, regulatory, ethical and scientific standards, and our reliance on the third party does not relieve us of our regulatory responsibilities.

We 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 our 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 CROs, our investigators or trial sites fail to comply with applicable GCP, GLP, GMP or other applicable

regulatory requirements, the clinical data generated in our future clinical trials may be deemed unreliable and the FDA, EMA or other regulatory authorities around the world may require us to perform additional clinical trials before issuing any marketing authorizations for our product candidates. Upon inspection, the FDA or EMA may determine that our 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 our products. In addition, our future clinical trials will require a sufficient number of study subjects to evaluate the safety and efficacy of our product candidates. Accordingly, if, for example, our CROs fail to comply with these regulations or if trial sites fail to recruit a sufficient number of patients, we may be required to repeat such clinical trials, or anyway incur delays in the performance of such trials, which would delay the regulatory approval process for the approval of our product candidates.

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.

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 on our own and for which we obtain regulatory approval, which may affect the sales of our own products and 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, by contracting with, or licensing, them to market any of our own products. Outsourcing sales, distribution and marketing in this manner 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;
- potential disputes with third parties concerning distribution, sales and marketing expenses, calculation of royalties, and sales and marketing strategies; and
- unforeseen costs and expenses associated with distribution, sales and marketing.

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, and manufacturing activities, we must, at times, share trade secrets with them. Our collaborations with Servier and Pfizer, 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, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors, employees and consultants prior to beginning research 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.

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 Our Plant Products Business

Our plant product development efforts use complex integrated technology platforms and require substantial time and resources; these efforts may not be successful, or the rate of product improvement may be slower than expected.

Development of successful agricultural products using complex technology platforms such as gene-editing technologies requires significant levels of investment in research and development, including laboratory, greenhouse and field testing, to demonstrate their effectiveness and can take several years or more. For the three years ended December 31, 2017, 2016 and 2015, we incurred \$6.1 million, \$4.1 million and \$2.9 million, respectively, on plant sciences research and development expenses. Our investment in plant sciences research and development may not result in significant product revenue over the next several years, if ever. Moreover, the successful application of gene-editing technologies can be unpredictable, and may prove to be unsuccessful when attempting to achieve desired traits in different crops and plants. For example, our gene-editing techniques may prove to be unsuccessful very early on during the discovery phase of new crop development based on technology limitations. Alternatively, even though we successfully implemented gene edits during the discovery phase, that trait may not ultimately appear in crops during field testing or crops may also exhibit other undesirable traits that adversely affect their commercial value.

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:

- our plant products will fail to perform as expected in the field;

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- our plant products will not receive necessary regulatory permits and governmental clearances in the markets in which we intend to sell them;
 - our plant products may have adverse effects on consumers;
 - consumer preferences, which are unpredictable and can vary greatly, may change quickly, making our plant products no longer desirable;
 - our competitors develop new plant products that taste better or have other more appealing characteristics than our plant products;
 - our plant products will be viewed as too expensive by food companies or farmers as compared to competitive products;
 - our plant products will be difficult to produce on a large scale or will not be economical to grow;
 - intellectual property and other proprietary rights of third parties will prevent us, our research and development partners, or our licensees from marketing and selling our plant products;
 - we may be unable to patent or otherwise obtain intellectual property protection for our discoveries in the necessary jurisdictions;
 - we or the food manufacturers that we sell our ingredients to may be unable to fully develop or commercialize products containing our plant products in a timely manner or at all; and
 - third parties may develop superior or equivalent products.

Lastly, the field of gene editing, particularly in the area of plants, is still in its infancy, and no products using this technology have reached the market. Negative developments in the field of gene editing, including with respect to adverse side effects, could harm the reputation of the industry and negatively impact our business.

Calyxt has never commercialized an agricultural product candidate and may lack the necessary expertise, personnel and resources to successfully commercialize any such product candidates.

Calyxt has never commercialized an agricultural product candidate. Our plant products are still in development, and there is no established market for them. Completion of product development could be protracted, and, although Calyxt expects to commercialize a first agricultural product candidate by the end of 2018, there can be no assurance that it will be able to successfully commercialize this product candidate. Any products may not be ready for commercial launch for several years, if ever. If we are not able to commercialize our existing or future agricultural product candidates on a significant scale, then we may not be successful in building a sustainable or profitable business at Calyxt. Moreover, we expect to price our plant products based on our assessment of the value that we believe they will provide to food manufacturers or farmers, rather than on the cost of production. If food manufacturers or farmers attribute a lower value to our products than we do, they may not be willing to pay the premium prices that we expect to charge. Pricing levels may also be negatively affected if our plant products are unsuccessful in producing the yields or traits we expect. Food manufacturers or farmers may also be cautious in their adoption of new plant products and technologies, with conservative initial purchases and proof of product required prior to widespread deployment. It may take several growing seasons for food manufacturers or farmers to adopt our plant products on a large scale.

To achieve commercial success of our agricultural product candidates, we will have to develop our own sales, marketing and supply capabilities by outsourcing these activities to third parties. Factors that may affect our ability to commercialize our agricultural product candidates on our own include recruiting and retaining adequate numbers of effective sales and marketing personnel, obtaining access to or persuading adequate numbers of food manufacturers or farmers to purchase and use our agricultural product candidates and other unforeseen costs associated with creating an independent sales and marketing organization. Developing and maintaining a sales and marketing organization requires significant investment, is time-consuming and could

delay the launch of our agricultural product candidates. We may not be able to build or maintain an effective sales and marketing organization for our plant products in North America or other key global markets. If we are unable to find suitable partners for the commercialization of our product candidates, we may have difficulties generating revenue from them.

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

Prior to commercializing any agricultural product candidate, it is necessary to conduct large scale field trials to validate the desired plant product trait. These field trials can take one to two years to complete. We currently conduct field trials, and plan to conduct further field trials, of our agricultural product candidates in various geographies. We currently rely on third parties 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 us to monitor the daily activity of the work being conducted by the third parties that we engage. Although we provide our third-party contractors with extensive protocols regarding the establishment, management, harvest, transportation and storage of our agricultural product candidates, we have limited control over the execution of field trials. Consequently, the success of these field trials depends upon the ability of these third parties to correctly follow our suggested protocols. However, there is no guarantee that third parties will devote adequate time and resources to our field trials or conduct the field trials in accordance with our protocols, including maintenance of all required field trial information. Any such failures may result in delays in the development of our agricultural product candidates or the incurrence of additional costs. Even if our third-party contractors adhere to our suggested protocols, field trials may fail to succeed for a variety of other reasons, including weather, disease or pests, improper timing of planting our seeds, or incorrect fertilizer use. Ultimately, we remain responsible for ensuring that each of our field trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our responsibilities.

Additionally, if we are unable to maintain or enter into agreements with third-party contractors on acceptable terms, or if any such engagement is terminated prematurely, we may be unable to conduct or complete our field trials in the manner we anticipate. If our relationship with any of these third-party contractors is terminated, we may be unable to enter into 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 our ability to meet our desired development timelines.

We will rely on contractual counterparties and they may fail to perform adequately.

The commercial strategy for our plant business depends on our ability to contract with counterparties that provide, and in the future may provide, a variety of seed production companies, farmers, crushers, refiners, millers, transportation and logistics companies and lab equipment service providers. We plan to rely on these third parties to provide services along our supply chain and in our research and development functions. The failure of these counterparties to fulfill the terms of our agreements could cause disruptions in our supply chains, research efforts, commercialization efforts, and otherwise inhibit our ability to bring our products to market at the times and in the quantities as planned. For example, if our crushers and refiners fail to process our crops at the times and at the quantities as agreed, we may be unable to meet the demands of food manufacturers who we have contracted with to purchase our products, leading to lower sales and potential reputational damage and contractual liabilities. While we may have certain indemnification rights in our contracts with such counterparties, there is no assurance that such indemnification rights will be sufficient to cover any damage to us that would result from a failure of such a counterparty in their contractual arrangements with us.

Our crops are new, and if farmers and food processors are unable to work effectively with our crops, our various relationships, the reputation of our Calyxt business and the results of operations of Calyxt will be harmed.

We plan to provide farmers with information and protocols regarding the establishment, management, harvest, transportation and storage of our crops. These crop management recommendations may include equipment selection, planting and harvest timing, application of crop protection chemicals or herbicides and storage systems and protocols. Our general or specific protocols may not apply in all circumstances, may be improperly implemented, may not be sufficient, or may be incorrect, leading to reduced yields, crop failures or other production problems or losses. If farmers that are producing crops for our food ingredients experience these failures, we may be unable to provide plant product ingredients to food manufacturers on a timely basis or at all. If we are unable to deliver plant products in a timely basis or at all, or if farmers that are purchasing our seed in an effort to meet their yields experience these failures, or if our food processors are unable to process our crops effectively and efficiently, we will experience damage to our relationships, the reputation of our Calyxt business and the ability to successfully market our plant products. Further, the use of our seeds may require a change in current planting, rotation or agronomic practices, which may be difficult to implement or may discourage the use of our plant products by agricultural producers.

There are various reasons why our crops, once available, may fail to succeed, including weather, disease or pests, improper timing of planting our seeds, or incorrect fertilizer use. In addition, cross contamination of our plant products can happen in any step of the supply chain. Statements by potential customers about negative experiences with our plant products could harm our reputation, and the decision by these parties not to proceed with large-scale seed purchases could harm our business, revenue and the ability to achieve profitability.

The successful commercialization of our plant products depends on our ability to produce high-quality plants and seeds cost-effectively on a large scale and to accurately forecast demand for our plant products and we 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 agricultural product candidate we successfully develop depends on our ability to scale our production processes to produce plants and seeds in sufficient 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. We cannot assure that our existing or future seed production techniques will enable us to meet our large-scale production goals cost-effectively for the plant products in our pipeline. Even if we are successful in developing ways to increase yields and enhance quality, we may not be able to do so cost-effectively or on a timely basis, which could adversely affect our ability to achieve profitability. If we are unable to maintain or enhance the quality of our plants and seeds as we increase our production capacity, including through the expected use of third parties, we may experience reductions in food manufacturer 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 plants and seeds, we will need to make seed production decisions well in advance of plant product sales. Our ability to accurately forecast demand can be adversely affected by a number of factors outside of our control, including changes in market conditions, environmental factors, such as pests and diseases, and adverse weather conditions. A shortfall in the supply of our products may reduce product sales revenue, damage our reputation in the market and adversely affect relationships. Any surplus in the amount of plant products we have on hand may negatively impact cash flows, reduce the quality of our inventory and ultimately result in write-offs of inventory. Additionally, we will take financial risk in our plant product inventory given that we will have to keep the inventory marked to market. Any failure on our part to produce sufficient inventory, or overproduction of a particular product, could harm our business, results of operations and financial condition. In addition, food manufacturers or farmers may cancel orders or request a decrease in quantity at any time prior to delivery of the plants or seeds, which may lead to a surplus of our plant products.

In addition, while we estimate that the potential size of our target markets for our plant products is significant, that estimate has not been independently verified and is based on certain assumptions that may not prove to be accurate. As a result, these estimates could differ materially from actual market sizes, which could result in decreased demand for our plant products and therefore adversely impact our future business prospects, results of operation and financial condition.

We face significant competition and many of our competitors have substantially greater financial, technical and other resources than we do.

The market for agricultural biotechnology products is highly competitive, and we face significant direct and indirect competition in several aspects of our business. Competition for improving plant genetics comes from conventional and advanced plant breeding techniques, as well as from the development of advanced biotechnology 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 crop protection chemicals are generally concentrated within a relatively small number of large companies, while non-genetic approaches are underway with broader set of 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 our competitors. Additionally, competition for providing more nutritious ingredients for food companies come from chemical-based ingredients, additives and substitutes, which are developed by various companies. The majority of these competitors have substantially greater financial, technical, marketing, sales, distribution and other resources than we do, such as larger research and development staff, more experienced marketing and manufacturing organizations and more well-established sales forces. As a result, we may be unable to compete successfully against our current or future competitors, which may result in price reductions, reduced margins and the inability to achieve market acceptance for our plant products. We expect to continue to face significant competition in the markets in which we intend to commercialize our plant products.

Many of our competitors engage in ongoing research and development, and technological developments by our competitors could render our plant products less competitive, resulting in reduced sales compared to our expectations. Our ability to compete effectively and to achieve commercial success depends, in part, on our ability to: control manufacturing and marketing costs; effectively price and market our plant products; successfully develop an effective marketing program and an efficient supply chain; develop new plant products with properties attractive to food manufacturers or farmers; and commercialize our plant products quickly without incurring major regulatory costs. We may not be successful in achieving these factors and any such failure may adversely affect our 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 our technology. We have, in the past, entered into such licensing arrangements and may continue to enter into such arrangements in the future. Some of these companies may have significantly greater financial resources and may even compete with Calyxt's business. In determining whether to license traits and/or trait development technologies to a potential competitor, we evaluate the potential financial benefits to Calyxt in addition to the focus of such companies' trait pipelines and the likelihood that their plant product candidate programs could compete with Calyxt's own plant product candidate pipeline. Although we do not believe that any of our existing licenses poses a competitive threat to Calyxt's business model or existing plant product candidate pipeline, in such circumstances, competitors could use our technologies to develop their own products that would compete with Calyxt's product candidates.

We also anticipate increased competition in the future as new companies enter the market and new technologies become available, particularly in the area of gene editing. Our technology may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors, which will prevent or limit our ability to generate revenue from the commercialization of our plant products. At the same time, the expiration of patents covering existing plant products reduces the barriers to entry for competitors.

The commercial success of our consumer-centric plant products is reliant on the needs of food manufacturers and the recognition of shifting consumer preferences.

The commercial success of our consumer-centric plant products will depend in part on the success of the food manufacturer's products that our plant products are included in. We will not control the marketing, distribution, labeling or any other aspects of the sale and commercialization of the food manufacturers' food products in which our plant products are an ingredient. Consumer preferences may be a significant driver in the success of our food manufacturer customers in their efforts to sell foods products including our plant products. While current trends indicate that consumer preferences may be moving towards "healthier" options, we cannot predict whether such trends will continue or which types of food products will be demanded by consumers in the future. Additionally, as health and nutritional science continues to progress, consumer perception of what foods, nutrients and ingredients are considered "healthy" may shift. We and our food manufacturer customers may not be dynamic enough in responding to consumer trends and creating products that will be demanded by consumers in the future. Failure by our food manufacturer customers to successfully recognize consumer trends and commercialize and sell their products which contain our ingredients could lower demand for our products and harm our business, results of operations and financial condition.

Farmers may not recognize the value in our farmer-centric products.

The commercial success of our farmer-centric plant products will rely on convincing farmers of the benefits to yield and natural resource usage. Farmers may not recognize the value of our farmer-centric plant products and may opt to use other seed products in the market with different varieties. The margins in the farmer-centric seed industry have historically been very narrow, so we may not be able to produce farmer-centric seed products at costs that would be competitive for our farmer customers, which may lead to a reduction in demand for our plant products.

Adverse weather conditions, natural disasters, crop disease, pests and other natural conditions can impose significant costs and losses on our plant sciences business.

The ability to grow our 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 we plan to source a significant percentage of our 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 our business, financial position and results of operations.

The ability to grow our 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 our business, financial position and results of operations.

We expect our plant sciences business will be highly seasonal and subject to weather conditions and other factors beyond our control, which may cause our 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. As we have not yet made any sales of our plant products, we have not yet experienced the full nature or extent to which this business may be seasonal. Furthermore, significant fluctuations in market prices for

agricultural inputs and crops could also have an adverse effect on the value of our 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 our farmers in harvesting could create us 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 our operating results.

The successful commercialization of our plant products may face challenges from public perceptions of genetically engineered products and ethical, legal, environmental, health and social concerns.

The successful commercialization of our agricultural product candidates depends, in part, on public acceptance of genetically engineered agricultural products. Any increase in negative perceptions of gene editing or more restrictive government regulations in response thereto, would have a negative effect on our business and may delay or impair the development and commercialization of our plant products.

The commercial success of our plant products may be adversely affected by claims that biotechnology plant products are unsafe for consumption or use, pose risks of damage to the environment, or create legal, social and ethical dilemmas.

If we are not able to overcome these concerns, our plant products may not achieve market acceptance. Any of the risks discussed below could result in expenses, delays or other impediments to our development programs or the market acceptance and commercialization of our plant products:

- public attitudes about the safety and environmental hazards of, and ethical concerns over, genetic research and biotechnology plant products, which could influence public acceptance of our technologies and products;
- public attitudes regarding, and potential changes to laws governing, ownership of genetic material, which could weaken our intellectual property rights with respect to our genetic material and discourage research and development partners from supporting, developing or commercializing our plant products and technologies; and
- failure to maintain or secure consumer confidence in, or to maintain or receive governmental approvals for, our plant products.

Any future labeling requirements could heighten these concerns and make consumers less likely to purchase food products containing gene-edited ingredients.

The regulatory environment in the United States for genetically engineered plant products is uncertain and evolving. Changes in the current application of these laws and regulations would have a significant adverse impact on our ability to develop and commercialize our plant products.

Changes in applicable regulatory requirements could result in a substantial increase in the time and costs associated with developing our plant products and negatively impact our operating results. In the United States, the United States Department of Agriculture, or USDA, regulates, among other things, the introduction (including the importation, interstate movement, or release into the environment such as field testing) of organisms and products altered or produced through genetic engineering that are plant pests or that there is reason to believe are plant pests. Such organisms and products are considered “regulated articles.” However, a petitioner may submit a request for a determination by the USDA of “nonregulated status” for a particular article. A petition for determination of nonregulated status must include detailed information, including relevant experimental data and publications, and a description of the genotypic differences between the regulated article and the nonmodified recipient organism, among other things. We previously submitted a request for a determination of “nonregulated status” to the USDA for our potato product candidates, our high oleic and low

linolenic soybean product candidates, our improved quality alfalfa product candidate and our powdery mildew-resistant wheat product candidate. The USDA confirmed in writing that each of these agricultural product candidates is not deemed to be a “regulated article” under the Plant Protection Act because it does not contain genetic material from plant pests. In the event any of our agricultural product candidates are found to contain inserted genetic material or otherwise differ from the descriptions we have provided to the USDA, the USDA could determine that such agricultural product candidates are regulated articles, which would require us to comply with the permit and notification requirements of the Plant Protection Act. While we believe that the USDA’s reasoning will continue to extend to our other agricultural product candidates, we have not obtained a determination from the USDA that any of our other agricultural product candidates are not “regulated articles” under these regulations. USDA’s regulations also require that companies obtain a permit or file a notification before engaging in the introduction (including the importation, interstate movement, or release into the environment such as field testing) of “regulated articles.” We cannot predict whether advocacy groups will challenge existing regulations and USDA determinations or whether the USDA 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 our plant products to more burdensome standards, thereby substantially increasing the time and costs associated with developing our agricultural product candidates. Moreover, we cannot assure you that the USDA will apply this same analysis to any of our other agricultural product candidates in development. Complying with USDA’s plant pest regulations, including permitting requirements, is a costly, time-consuming process and could substantially delay or prevent the commercialization of our plant products.

Our plant products may also be subject to extensive FDA food product regulations. Under sections 201(s) and 409 of the Federal Food, Drug, and Cosmetic Act, or FDCA, any substance that is reasonably expected to become a component of food added to food is a food additive, and is therefore subject to FDA premarket review and approval, unless the substance is generally recognized, among qualified experts, as having been adequately shown to be safe under the conditions of its intended use (generally recognized as safe, or GRAS), or unless the use of the substance is otherwise excluded from the definition of a food additive, and any food that contains an unsafe food additive is considered adulterated under section 402(a)(2) (C) of the FDCA. The FDA may classify some or all of our agricultural product candidates as containing a food additive that is not GRAS or otherwise determine that our plant products contain significant compositional differences from existing plant products that require further review. Such classification would cause these agricultural product candidates to require pre-market approval, which could delay the commercialization of these plant products. In addition, the FDA is currently evaluating its approach to the regulation of gene-edited plants. For example, on January 18, 2017, the FDA announced a Request for Comments, or RFC, seeking public input to help inform its regulatory approach to human and animal foods derived from plants produced using gene editing. Among other things, the RFC asks for data and information in response to questions about the safety of foods from gene-edited plants, such as whether categories of gene-edited plants present food safety risks different from other plants produced through traditional plant breeding. If the FDA enacts new regulations or policies with respect to gene-edited plants, such policies could result in additional compliance costs and/or delay the commercialization of our agricultural product candidates, which could negatively affect our profitability. Any delay in the regulatory consultation process, or a determination that our plant products do not meet regulatory requirements, by the FDA could cause a delay in the commercialization of our plant products, which may lead to reduced acceptance by food manufacturers, farmers or the public and an increase in competitor products that may directly compete with ours.

The regulatory environment outside the United States varies greatly from region to region and is less developed than in the United States.

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 our plant products. The two leading jurisdictions, the United States and the European Union, or the EU, do, and may continue to in the future, have distinctly different regulatory regimes

with different rules and requirements. We cannot predict how the global regulatory landscape regarding gene editing in plants for food ingredients will evolve and may incur increased regulatory costs as regulations in the jurisdictions in which we operate change.

In the EU, genetically modified foods can only be allowed on the market once they have been authorized subject to rigorous safety assessments. The procedures for evaluation and authorization of genetically modified foods are governed by Regulation (EC) 1829/2003 on genetically modified food and feed and Directive 2001/18/EC on the release of genetically modified organisms, or GMOs, into the environment. If the GMO is not to be used in food or feed, then an application must be made under Directive 2001/18/EC. If the GMO is to be used in food or feed (but it is not grown in the EU) then a single application for both food and feed purposes under Regulation 1829/2003 should be made. If the GMO is used in feed or food and it is also grown in the EU, an application for both cultivation and food/feed purposes needs to be carried out under Regulation (EC) 1829/2003. A different EU regulation, Regulation (EC) 1830/2003, regulates the labeling of products that contain GMOs that are placed on the EU market. There are currently legislative proposals in the EU that would allow EU Member States to restrict or prohibit growing GMOs in their territory, on a range of environmental grounds, even if such crops were previously authorized at EU level. Should these proposals become law, growing GMOs may become more difficult in individual EU Member States.

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

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

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

We may be held liable if any plant product we develop, or any product that uses or incorporates, any of our technologies, causes injury or is found otherwise unsuitable during marketing, sale or consumption. For example, the detection of unintended trait in a commercial seed variety or the crops and products produced may result in physical injury to consumers resulting in potential liability for us as the seed producer or technology provider. If this were to occur, we could be subject to claims by multiple parties based not only on the cost of our plant products but also on their lost profits and business opportunities, including but not limited to trade disruption. Courts could levy substantial damages against us in connection with claims for injuries allegedly caused by use of our plant products. We do not currently have insurance coverage for such claims. In addition, the detection of unintended traits in our 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 our 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 plant product.

Our plant sciences activities are currently conducted at a limited number of locations, which makes us susceptible to damage or business disruptions caused by natural disasters or acts of vandalism.

Calyxt's current headquarters and certain research and development operations are located in New Brighton, Minnesota and Calyxt's new headquarters and research facilities are located in Roseville, Minnesota. The greenhouse for the new headquarters is operational and the remainder of the new facility which includes an office, labs and demonstration kitchen are expected to be operational in the first half of 2018. Our seed

production takes place primarily in the United States and Argentina. Warehousing for seed storage, which is conducted by a third-party contractor, is located primarily in Minnesota and Wisconsin. We may use a limited number of processing partners which may be located in concentrated areas. We take precautions to safeguard our facilities, including insurance, health and safety protocols, and off-site storage of critical research results and computer data. However, a natural disaster, such as a hurricane, drought, fire, flood, tornado, earthquake, or acts of vandalism, could cause substantial delays in our operations, damage or destroy our equipment, inventory or development projects, and cause us to incur additional expenses.

Government policies and regulations, particularly those affecting the agricultural sector and related industries, could adversely affect our 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 our products or encourage the use of products more advantageous to our competitors, which would put us at a commercial disadvantage and could negatively impact our future revenues and results of operations.

The overall agricultural industry is susceptible to commodity price changes and we, along with our food manufacturing customers and farmer customers, are exposed to market risks from changes in commodity prices.

Changes in the prices of certain commodity products could result in higher overall cost along the agricultural supply chain, which may negatively affect our ability to commercialize our products. We will be susceptible to changes in costs in the agricultural industry as a result of factors beyond our control, such as general economic conditions, seasonal fluctuations, weather conditions, demand, food safety concerns, product recalls and government regulations. As a result, we may not be able to anticipate or react to changing costs by adjusting our practices, which could cause our operating results to deteriorate. We do not engage in hedging or speculative financial transactions nor do we hold or issue financial instruments for trading purposes.

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;
- 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 pending patent applications may not result in issued patents;

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- 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 2019 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 has developed new and untested 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 Pfizer, 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 or consultant 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.

From time to time, we may hire scientific personnel or consultants formerly employed by other companies involved in one or more areas similar to the activities conducted by us. Either we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of prior affiliations. 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. We may not be able to afford the costs of litigation. 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 and financial condition. As a result, we could be prevented from commercializing current or future product candidates.

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. We cannot assure you that our business

operations, products, product candidates and methods and the business operations, products, product candidates and methods of our collaborators do not or will not infringe, misappropriate or otherwise violate the patents or other intellectual property rights of third parties.

The biotechnology and biopharmaceutical industry is characterized by extensive litigation regarding patents and other intellectual property rights. Other parties may allege that our products, product candidates or the use of our technologies infringe, misappropriate or otherwise violate patent claims or other intellectual property rights held by them or that we 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, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, 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. Patent litigation is costly and time consuming. We may not have sufficient resources to bring 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 there. 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, e.g., opposition proceedings. 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 from third parties that may be required to develop and commercialize our product candidates.

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. Even if we are able to acquire or in-license such rights, we may be unable 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.

Under each of the material exclusive licenses granted to us, the licensor controls the prosecution of patents covered by the license. Under our collaboration agreement with Pfizer, we and Pfizer each generally control the prosecution of our respective owned patents, and Pfizer has the first right to elect to control the prosecution of certain jointly-developed intellectual property. Under our collaboration agreement with Servier, we and Servier each generally control the prosecution of our respective owned patents, and we generally control the prosecution of joint patents, unless Servier exercises its option under the agreement to obtain an exclusive license to further develop, manufacture and commercialize a product candidate, in which case Servier will control prosecution of the joint patents. In addition, Servier currently controls prosecution of those patent rights covering solely UCART19. 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, 2017, we had 131 full-time employees 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, Technical Operations; Eric Dutang, our Chief Financial Officer; and Dr. Philippe Duchateau, our Chief Scientific Officer. The loss of the services of these 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 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 over the last years 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.

Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us. The loss of the services of any of our key executive officers or

other officers or senior employees within a short timeframe, and our inability to find suitable replacements could potentially harm our business, prospects, financial condition or results of operations. We do maintain “key man” insurance policies on the lives of our co-founders. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level, and senior managers as well as junior, mid-level, and senior scientific and medical personnel.

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 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. 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 ceased 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 of 2002, or 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, for example, 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, for smaller companies such as ours). The CIR receivable of \$8.2 million as of December 31, 2017, 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. The French tax authorities may challenge our eligibility to, or our calculation of certain tax reductions and/or deductions in respect of our research and development activities and, 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, or reduce the scope or the rate of, the CIR benefit, either of 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, 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, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we do not believe that we have experienced any such 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 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.

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 plans to acquire companies or technologies facilitating or enabling us to access to new medicines, new technologies, new research projects, or new geographical areas, or enabling us to express synergies with our existing operations. However, if such acquisitions were to become necessary or attractive in the future, we may not be able to identify appropriate targets or make acquisitions under satisfactory conditions, in particular, satisfactory price conditions. In addition, we may be unable to obtain the financing for these acquisitions under favorable conditions, and could be led to finance these acquisitions using cash that could be allocated to other purposes in the context of existing operations. If we acquire businesses with promising markets or technologies, we may not be able to realize the benefit of acquiring such businesses if we are unable to successfully integrate them with our existing operations and company culture. We may encounter numerous difficulties in developing, manufacturing and marketing any new products resulting from a strategic alliance or acquisition that delay or prevent us from realizing their expected benefits or enhancing our business. We cannot assure you that, following any such acquisition, we will achieve the expected synergies to justify the transaction, which could have a material adverse effect on our business, financial conditions, earnings and prospects.

Recently enacted U.S. federal income tax reform may adversely affect the operations of our U.S. subsidiaries.

On December 22, 2017, U.S. tax reform legislation known as the Tax Cuts and Jobs Act (the “Act”) was signed into law. The Act makes substantial changes to U.S. tax law, including a reduction in the corporate tax rate, a limitation on the use of new operating losses to offset future taxable, the modification or repeal of certain business deductions and credits, 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). Furthermore, the subject to the possibility of future legislation, provisions of the Act relating to certain agricultural cooperatives disadvantage independent companies such as Calyxt, which originate grain from farmers. We expect the TCJA to have significant effects on our U.S. subsidiaries, some of which may be adverse. The extent of the impact remains uncertain at this time and is subject to other regulatory or administrative developments, including any regulations or other guidance promulgated by the U.S. Internal Revenue Service, or IRS.

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 2017 taxable year and do not anticipate becoming a PFIC for the current or future taxable years. However, we cannot assure you that we will not be classified as a PFIC for the current 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. While we may have been a PFIC for previous taxable years and 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 2017 taxable year and at this time do not anticipate becoming a PFIC 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 the current or future taxable years due to changes in the composition of our assets or income, as well as changes to our market capitalization. The market value of our assets may be determined in large part by reference to 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 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 \$16.09 and as high as \$50.00 through March 12, 2018. 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;
- 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 a direct or indirect controlling influence on us.

Our executive officers, directors, current 5% or greater shareholders and affiliated entities beneficially own approximately 47.21% of our ordinary shares outstanding (including those underlying our ADSs) as of February 28, 2018. As a result, these shareholders, acting together, 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 ADSs 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, or downgrades our ADSs, 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 French generally accepted accounting principles called “*Plan Comptable Général*” defined by the regulation 99-03 from the Committee of the French Accountancy Regulation. In addition, payment of dividends may subject us to additional taxes under French law. 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 and the taxes that may become payable by us if we elect to pay a dividend. Therefore, we may be more restricted in our ability to declare dividends than companies not based in France.

In addition, exchange rate fluctuations may affect the amount of euros that we are able to distribute, and the amount in U.S. dollars that our shareholders receive upon the payment of cash dividends or other distributions we declare and pay in euros, if any. These factors could harm the value of our equity securities, and, in turn, the U.S. dollar proceeds that holders receive from the sale of ADSs.

Future sales of ordinary shares or ADSs by existing shareholders could depress the market price of the ADSs.

We believe that additional capital may be needed in the future 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. As of February 28, 2018, approximately 7,664,904 of our outstanding ordinary shares (excluding those underlying ADSs) are held by directors, executive officers and other affiliates and continue to be subject to resale limitations under Rule 144 under the Securities Act. If our existing shareholders sell, or indicate an intent to sell, substantial amounts of ordinary shares or ADSs in the public market, the trading price of our ordinary shares and/or ADSs could decline significantly. In addition, the sale of these securities could impair our ability to raise capital through the sale of additional securities.

Risks Related 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 held 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 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 defence 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 approval 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 or our managing director, if any, 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 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;
- 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

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- 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 vote 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.

As an ADS holder, you are not treated as one of our shareholders and you do not have ordinary shareholder rights. French law governs shareholder rights. The depositary, Citibank, N.A., is the holder of the ordinary shares underlying your ADSs. As a holder of ADSs, you have ADS holder rights. The deposit agreement among us, the depositary and you, as an ADS holder, and all other persons directly and indirectly holding ADSs, sets out ADS holder rights, as well as the rights and obligations of the depositary.

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 depositary 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 depositary 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 depositary 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 depositary, 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 depositary to vote such ordinary shares or to withdraw such ordinary shares so as to vote them directly. If the depositary 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 giving right, immediately or in the future, to new shares, current shareholders will have preferential subscription rights for these securities proportionally to their shareholding in our company 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, under the deposit agreement 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. In addition, if the depositary is unable to sell rights that are not exercised or not distributed or if the sale is not lawful or reasonably practicable, it will allow the rights to lapse, in which case holders of our ADSs will 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, 2018.

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 more than 50% of our executive officers or members of our board of directors are residents or citizens of 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. If we lost our foreign private issuer status, we would be required to file periodic reports on Form 10-Q and current reports on Form 8-K, to file periodic reports and registration statements on U.S. domestic issuer forms with the SEC, which are more detailed and extensive in certain respects than the forms available to a foreign private issuer. We would be required under current SEC rules to prepare our financial statements in accordance with U.S. GAAP, rather than IFRS, in U.S. dollars rather than euros. Such conversion of our financial statements to U.S. GAAP would involve significant time and cost. In addition, we would lose our ability to rely upon exemptions from certain corporate governance requirements of the Nasdaq that are available to foreign private issuers, such as the ones described above, and we would be required to modify certain of our policies to comply with corporate governance practices associated with U.S. domestic issuers. Moreover, we would lose our ability to rely upon exemptions from procedural requirements related to the solicitation of proxies.

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 any third party begins to control us, directly or indirectly, by any means, or in the event that we engage in a change of control transaction, including, but not limited to, the sale of 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, then Servier has the right to buy-out our interest in the pre-candidate products, product candidates, and products as described under the collaboration agreement. We refer to this right to acquire such interest as the buy-out. In the event we fail to agree with Servier on the amount of payment for our interest in the pre-candidate products, product candidates or products within twenty days following Servier's provision of a buy-out notice, then the buy-out payment would be determined by third party valuers.

The buy-out 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 buy-out, it would gain exclusive development and marketing rights to the pre-candidate products, product candidates and products developed under the collaboration agreement. Were this to happen, our successor would not receive milestone payments or royalty payments on net sales of any of the products sold to Servier in connection with the buy-out. These provisions could have the effect of delaying or preventing a change in control transaction involving Collectis, or could reduce the number of companies interested in acquiring us.

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 and commercial name is Collectis S.A. 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 actual capital expenditures and additions to intangible assets for the years ended December 31, 2015, 2016 and 2017 together amounted to \$4.4million, \$14.6 million and \$2.6 million, respectively. These expenditures primarily consisted of the acquisitions of industrial and laboratory equipment and fittings required to conduct our research programs. 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 2018 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 January 21, 2015, we signed a lease for an administrative and research facility in New York, New York to enhance our presence in the United States. This facility, which includes large state-of-the-art research laboratories, opened on April 8, 2015, and supports the development of our CAR-T pipeline. In March 2016, we entered into a lease for a 26,928 square-foot space in Montvale, New Jersey, which we intend to discontinue before its scheduled expiration in September 2026.

In March 2016, Calyxt acquired 10-acres in 2 parcels in Roseville, Minnesota, and a headhouse and a greenhouse were built and they have been in operations since September 2016. In the third quarter of 2017, Calyxt entered into a sale and lease-back agreement related to these land and buildings. See Item 4D for further information.

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 healthier food products for a growing population.

Cancer is the second-leading cause of death in the United States and accounts for 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.

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 18 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 a particular class of proteins derived from transcription activator-like effectors 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.

We are developing products internally and through strategic alliances with Pfizer and Servier. We believe that our alliances with Pfizer 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.

In 2016, Servier commenced two Phase I clinical studies for UCART19, one in adult Acute Lymphoblastic Leukemia (ALL), the CALM study, and one in pediatric ALL, the PALL study. The CALM study is commenced in the United Kingdom, the United States, and France, and the PALL study is commenced in the United Kingdom, Belgium and France. We refer in this Annual Report to the CALM and the PALL studies, collectively, as the UCART19 Clinical Studies. In November 2015, when we exclusively licensed the rights to UCART19 to Servier, Servier also announced that it had granted Pfizer the exclusive rights for the development and the commercialization of UCART19 in the United States. Consequently, Servier's CALM study in the United States is conducted in collaboration with Pfizer. In addition to early data presented by Servier and Pfizer during a meeting at the National Institutes of Health's Recombinant DNA Advisory Committee (or "RAC") held on December 14, 2016, in December 2017, Servier presented intermediate results from the UCART19 Clinical Studies during the American Society for Hematology (ASH) annual conference. Such intermediate results show 83% complete remission rate across the two studies: five out of seven patients achieving minimal residual disease (MRD) negativity in the CALM study at 28th day after the infusion and all five children achieving MRD negativity in the PALL study at the 28th day after the infusion. Additional data will be presented on March 21, 2018 during the European Society for Blood and Marrow Transplantation Annual Meeting.

With respect to UCART123, we obtained the unanimous approval of the RAC on December 14, 2016 to start two proposed studies in the United States. In December 2016, we submitted an Investigational New Drug (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. The Phase I clinical study in AML is performed by Weill Cornell and MD Anderson Cancer Center, and the Phase I clinical study in BPDCN is performed by MD Anderson Cancer Center. We refer in this Annual Report to the AML and the BPDCN studies, collectively, as the UCART123 Clinical Studies.

Additionally, we are pursuing proprietary pre-clinical programs (for UCARTCS1, for UCART22, and for other UCART product candidates). Our objective is to file, directly or indirectly, one Investigational New Drug, or IND, application (or foreign equivalent), per year from our maturing product candidates portfolio.

Our vision in the biopharmaceutical industry is to continue to leverage the potential of gene editing to deliver revolutionary products that address unmet medical needs. Our initial focus is to apply our leadership in gene-editing technology to develop and commercialize best-in-class allogeneic CAR T-cell therapeutic products in the area of immuno-oncology.

Until July 2017, we fully owned Calyxt, Inc. On July 25, 2017, Calyxt closed its 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, we 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. As of December 31, 2017, Collectis owns approximately 79.7% of Calyxt's common stock. In connection with Calyxt's initial public offering, we and Calyxt entered into certain agreements that related to our relationship with Calyxt prior to the IPO or that provide a framework for our ongoing relationship with Calyxt. Calyxt is focused on using TALEN gene editing technology to provide healthier food products for a growing population across the world.

Our Immuno-oncology Pipeline

Our lead immuno-oncology product candidates, which we refer to as UCARTs, or universal CARTs, are all allogeneic CAR T-cells engineered to be used for treating any patient with a particular cancer type. Each UCART product candidate targets a selected antigen expressed on tumor cells and bears specific engineered attributes, such as compatibility with specific medical regimens that cancer patients may undergo. UCART is the first therapeutic product line that we are developing using our gene-editing platform to address unmet medical needs in oncology. We are focusing our initial internal pipeline in the hematologic malignancies space, targeting diseases with high unmet needs such as acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), multiple myeloma (MM) and different types of lymphomas. In 2017, we commenced UCART123 Clinical Studies. All of our other fully-controlled product candidates are currently in the pre-clinical proof-of-concept phase, and the following chart highlights some of these product candidates:

Program	Indication	Product development	Preclinical	Manufacturing	IND* filing	Phase I	Phase II	Phase III	Commercialization
UCART19 **	ALL (PALL)								
	ALL (CALM)								
UCART123	AML								
	BPDEN								
UCART22	B-ALL								
	B-NHL								
UCARTCS1	MULTIPLE MYELOMA								

* or foreign equivalent

** UCART19 is exclusively licensed to Servier and under a joint clinical development agreement between Servier and Pfizer

With respect to our two most advanced pre-clinical product candidates, we intend to file an IND for our UCART22 product candidate in the United States in the first half of 2018 and an IND for UCART CS1 in 2019. All the above products are engineered T-cell product candidates that bear CARs that seek to kill cells expressing targets (e.g., CD123, CS1, and CD22), which are found in other hematologic tumors, such as acute myeloid leukemia, or AML, and multiple myeloma, or MM, as well as acute lymphoblastic leukemia, or ALL.

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. We believe that our strategic alliances with Servier and Pfizer validated our technology platform, our strong expertise in the allogeneic CAR T-cells field, our approach to CAR T-cell development and the strength of our intellectual property portfolio. Our strategic alliances include upfront and potential milestone payments to us of up to \$3.9 billion and high single digit royalties on future sales.

Collaboration with Servier

In February 2014, we entered into a strategic collaboration agreement with Servier to develop and commercialize certain product candidates. Pursuant to the agreement, Servier made an upfront payment of \$8.2 million. In addition, the strategic alliance, as amended in November 2015, provides for aggregate additional payments of up to \$1,064 million, comprising payments upon the exercise of each option granted to Servier and payments upon the occurrence of certain specified development and commercial milestones. We are also eligible to receive tiered royalties ranging in the high single-digit percentages based on annual net sales of commercialized products. This agreement covers the development and the potential commercialization of the lead product candidate, UCART19, as well as other product candidates directed at four other targets. Under the terms of the agreement, we will be responsible for the research and development of certain product candidates through the end of their respective Phase I clinical trials. We granted Servier an exclusive option to obtain an exclusive, worldwide license on a product candidate-by-product candidate basis, with respect to each target selected by Servier and developed under the agreement, to further develop, manufacture and commercialize such product in the field of anti-tumor adoptive immunotherapy. Upon exercising each such option, Servier will assume responsibility for the further clinical development, manufacture and commercialization of the relevant product candidate. In November 2015, we entered into an amendment to our initial collaboration agreement with Servier, which allowed for an early exercise of Servier's option with respect to UCART19 and other product candidates. Pursuant to this amendment, Servier has exercised its option to acquire the exclusive worldwide rights to further develop and commercialize UCART19. In addition, Pfizer and Servier have entered into an exclusive global license and collaboration agreement, under which Pfizer has obtained exclusive rights to develop and commercialize UCART19 in the United States.

Collaboration with Pfizer

In June 2014, we entered into a global strategic collaboration agreement with Pfizer pursuant to which we will collaborate to conduct discovery and pre-clinical development activities to generate CAR T-cells directed at targets selected by Pfizer or us in the field of oncology. Pursuant to the agreement, Pfizer made an upfront, non-refundable \$80.0 million payment to us, concurrent with Pfizer's equity investment in our Company. In addition, the strategic alliance provides for up to \$2.8 billion in potential clinical and commercial milestone payments. We are also eligible to receive tiered royalties ranging in the high single-digit percentages based on annual net sales of commercialized products. We may also receive funding for research and development costs associated with the Pfizer-selected targets and for four Cellectis-selected targets within the alliance. Pfizer has exclusive rights to pursue development and commercialization of products for a total of fifteen targets of their choice, which have all been selected.

Our Strategy

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

The key elements of our strategy are to:

- **Accelerate our clinical operations in order to accumulate data on our product candidates and prove their value.** Clinical data will be the lever to confirm the efficacy and value of the allogeneic CAR T-cell approach and bring breakthrough innovation to patients.
- **Continue to leverage our cell-engineering platform to develop additional UCART product candidates** and to expand our clinical pipeline of CAR T-cell product candidates in the coming years.
- **Leverage our existing and potential future alliances to advance our research and to bring products to market.** Our strategic alliances for the development of CAR T-cell applications in oncology provide us with funding for research and development, and may provide milestone payments and royalties on sales. We may enter into additional strategic alliances to facilitate our development and commercialization of CAR T-cell immunotherapy products.

- **Expand our product pipeline to other therapeutic indications with unmet medical needs.** We intend to continue using our gene-editing technologies in therapeutic applications beyond immuno-oncology, including the treatment of chronic infectious diseases, autoimmune diseases and allergic diseases.
- **Utilize our gene-editing platform to develop plant products, through our 79.3% (as of February 28, 2018) ownership in Calyxt, for the multibillion dollar agricultural-biotechnology market.** Calyxt is applying our gene-editing technologies to create food products with consumer health benefits, adaptations for climate change or nutritional enhancements that address the needs of a growing population. By selecting and inactivating target genes in certain agricultural crops, we believe Calyxt can produce unique variants with consumer benefits. For example, Calyxt is developing a diversified portfolio spanning across five core crops and a multitude of product candidates, which include innovative consumer-centric product candidates as well as innovative, farmer-centric solutions.

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.

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.

An activated T-cell can multiply tens of thousands of times, so long as there remains a presence of the foreign antigen in the body. 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. GvHD has been a major limitation to the use of allogeneic T-cells when treating patients.

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 (CARs)

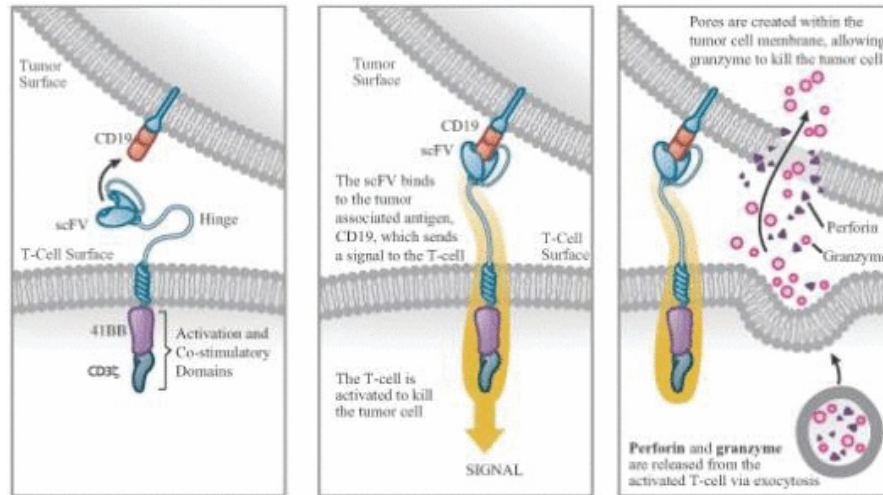
CARs are engineered molecules that, when present at the surface of T-cells, enable them to recognize specific proteins or antigens that are present on the surface of other cells. These receptors are typically used to graft the specificity of an antibody derived from a single cell, or a monoclonal antibody, 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;
- 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. For example:

- In August 2017, the FDA approved tisagenlecleucel (Kymriah®) 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. This approval was based on the results of an open-label, multicenter single-arm trial. Of the 63 evaluable patients, 52 responded, including 40 patients (63%) with a CR within 3 months after infusion, and 12 (19%) with a CR but with incomplete blood count recovery. Bone marrow from all patients demonstrated minimum residual disease-negative status.
- In October 2017, the FDA approved axicabtagene ciloleucel (Yescarta®) for the treatment of adults with diffuse large B-cell lymphoma (DLBCL) who have not responded to or who have relapsed after at least two other kinds of treatment. The approval was based on the results of an open label trial in refractory aggressive non-Hodgkin lymphoma (DLBCL, primary mediastinal B-cell lymphoma, or transformed follicular lymphoma), which enrolled 111 patients, 101 of whom received Yescarta. The objective response rate (ORR) was 82% and at a median follow up of 8.7 months, 44% of patients had responded, and 39% were in CR.

Based on these and other advancements, immuno-oncology has become a new frontier for treatment, and we believe it is one of the most promising areas of development within oncology.

Limitations of Current Autologous Treatments

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 allogeneic approach provides developmental benefits.

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 and CEO, Dr. André Chouluka, 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.

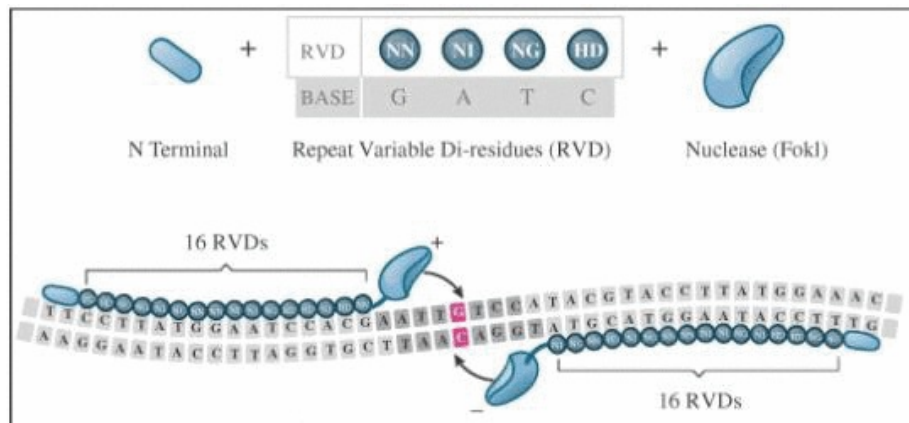
We are currently developing an allogeneic CAR T-cell therapy approach based on our technology platform that combines single or multi-chain CARs, TALEN and PulseAgile to address the opportunities for improvement discussed above. Our approach aims to deliver an off-the-shelf product with the following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

- *Market Access.* Enable products to be shipped globally, thereby reducing deployment obstacles and providing accessibility to a broad patient population;
- *Cost-effectiveness.* Streamlined manufacturing process has the potential to reduce costs;
- *Novel Features.* Develop products with specific safety and control properties;
- *Compatibility.* Develop products taking into consideration the current standards of cancer care; and
- *Consistency.* Qualify and develop cancer products that are designed for optimal dosage, while reducing batch-to-batch variability.

TALEN—Proprietary Gene-editing Technology

The flagship nuclease structure we use for gene editing is based on a class of proteins derived from transcription activator-like effectors, or TALE. TALEN products are designed by fusing the DNA-cutting domain of a nuclease to TALE domains, which can be tailored to specifically recognize a unique DNA sequence. These fusion proteins serve as readily targetable “DNA scissors” for genome engineering applications that enable us to perform targeted genome modifications such as sequence insertion, deletion, repair and replacement in living cells.

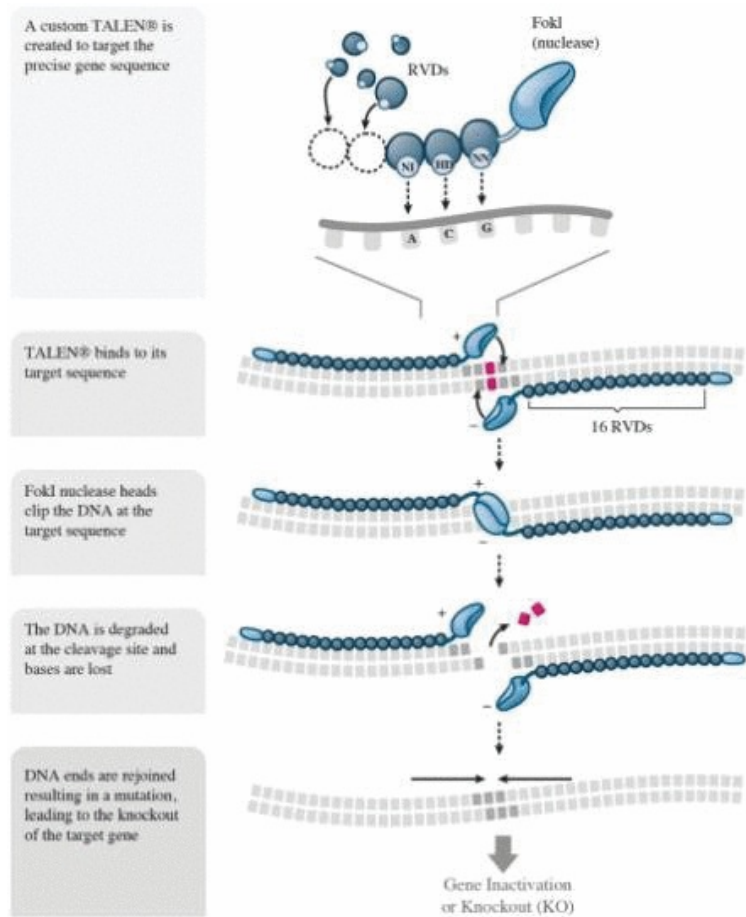
The following diagram shows the structure of a TALEN. The DNA binding domain of TALEN is composed of DNA binding units (repeat variable di-residues or RVDs) that each individually recognize a single base pair, and that are assembled to collectively recognize a DNA sequence. The specificity of this RVD single base pair recognition is mediated by two of the amino-acids in the RVD (NN, NI, NG, or HD), the RVDs that directly interact with the base of the DNA.



We believe the key benefits of TALEN technology are:

- *Precision.* It is possible to design a TALEN that will cleave at any selected region in any gene, giving us the ability to achieve the desired genetic outcome with any gene in any living species.
- *Specificity and Selectivity.* TALEN may be designed to limit its DNA cleavage to the desired sequence and to reduce the risk of cutting elsewhere in the genome. This parameter is essential, especially for therapeutic applications, because unwanted genomic modifications potentially could lead to harmful effects for the patient. In addition, gene editing requires only a transient presence of TALEN, thus preserving the integrity and functionality of the T-cell's genome.
- *Efficiency.* A large percentage of cells treated by the nuclease bear the desired genomic modification after treatment is completed. In our routine gene-editing processes, around 70% of the T-cells treated by TALEN to inactivate one gene copy bear the desired genomic modification. We believe TALEN's high efficiency will be important to the cost-effectiveness of a manufacturing process involving the generation of gene-edited T-cells.

The following diagram shows the mechanism by which TALEN inactivates, or knocks out, a gene:



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-TALEs 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 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.

Next-Generation Products Based on Multi-chain CAR

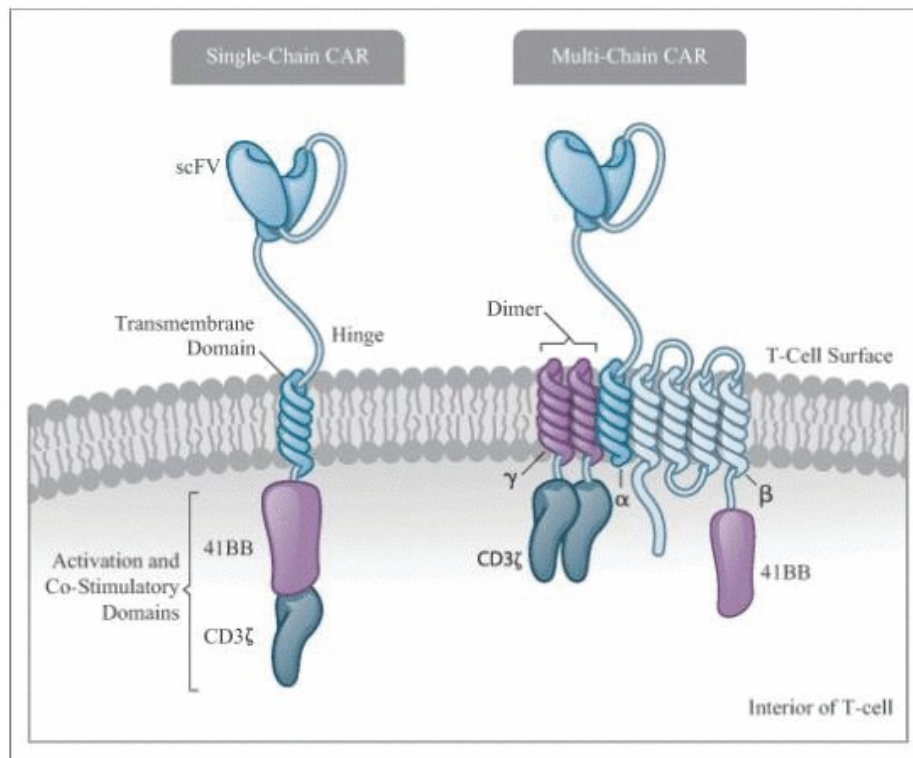
Historically, CAR components have been assembled into a linear CAR molecule, known as a “single-chain” CAR. We have developed another architecture, which we call “multi-chain” CAR that is currently based on the structure of the high-affinity IgE receptor, which is normally absent in T-cells. The multi-chain CAR is composed of several membrane-bound proteins that naturally assemble at the cell's surface and, as described below, have several benefits.

CAR architectures generally utilize a single polypeptide chain, which requires multiple appending of domains to enable a configuration that provides both the T-cell activation and co-stimulation needed for optimal T-cell responses. Typically, the target-binding domain of a CAR consists of a single-chain variable fragment of an antibody comprising variable domains of large polypeptide subunits, or heavy chains, and small polypeptide subunits, or light chains, joined by a short linker peptide. This structure allows the expression of the CAR as a single-chain protein. One limitation of single-chain CAR architecture is the small number of features that it is able to add to a cell. When such protein domains are not located close to the transmembrane structure, they may be less stable or active, which limits the number of domains that can be added.

We have developed a novel multi-subunit CAR architecture that overcomes these structural issues and expands the functional possibilities that can be brought to a T-cell. Our multi-chain CAR is currently based on the architecture of a specific high affinity IgE receptor, that is normally absent from T-cells. This architecture offers the potential for inclusion of multiple intra-cellular signaling domains, optimally located at their natural distance from the membrane. In other words, our multi-chain CAR offers additional positions close to the cell membrane so that domains can be more flexibly located relative to the cell's transmembrane structure. This also facilitates the potential implementation of multiple recognition domains, possibly allowing the recognition of not only a single antigen, but also of patterns of multiple antigen expression. This novel multi-subunit architecture would allow the construction of CARs with both improved activity and specificity and thus with an expanded range of applications.

CARs, whether single or multi-chain, are means to redirect T-cell activity toward cells bearing selected antigens. Our platform allows us to design CARs and to optimize their design depending on where and how their target is expressed on the surface of cancer cells.

The following diagram shows the distinction between single-chain CARs and multi-chain CARs:



Nuclease Technology and T-cells: The Design Process

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

Step 1: Gene Editing to add Genes, such as a CAR

In the first round, 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. In particular, we use allow targeted integration. 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 additional 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.

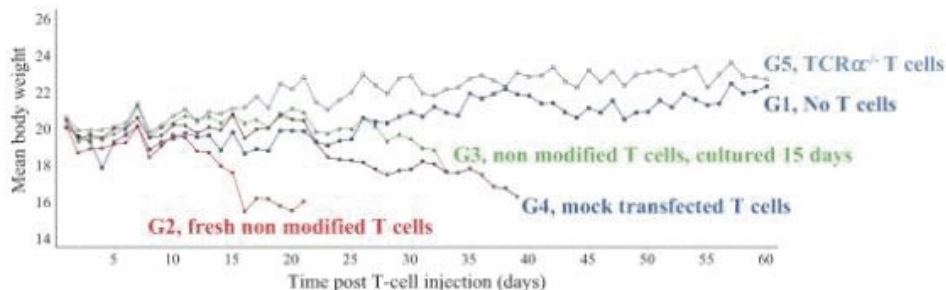
Step 2: Gene Editing to Inactivate Genes, such as the TCRα, PD-1, CD52

In the second round, 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 α , 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.

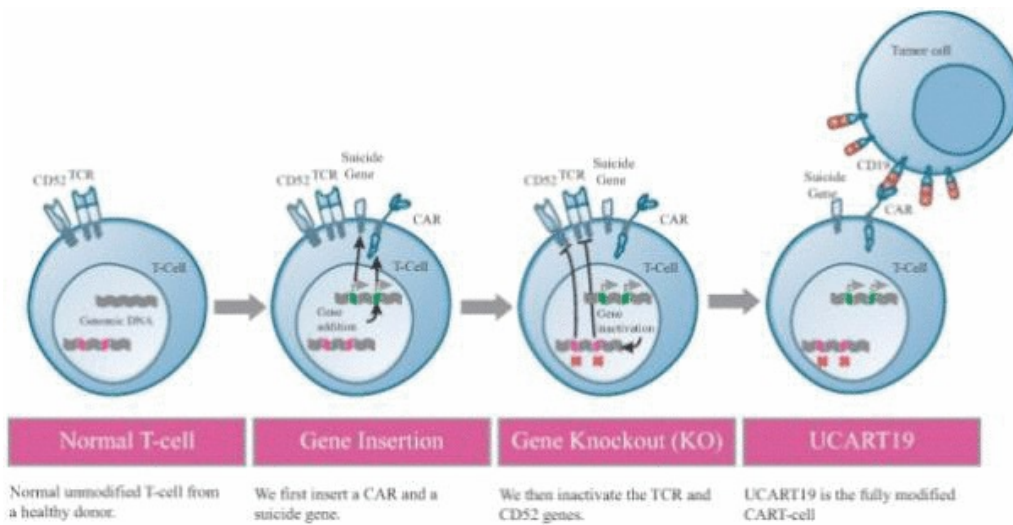
The figure below depicts the suppression of alloreactivity in T-cells engineered to lack functional TCRs. The figure summarizes experiments in which we injected mice with T-cells engineered for the inactivation of TCR α while injecting other mice with non-engineered T-cells with functional TCRs. We then 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.

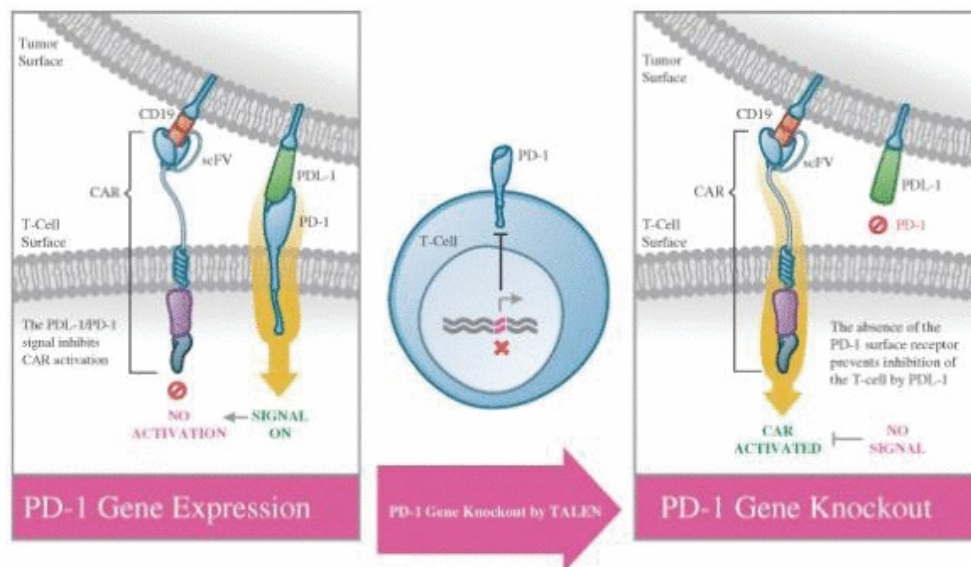
The lack of a TCR at the surface of our UCART product candidates is a key feature that allows them to be used as allogeneic off-the-shelf products. Other genes can also be inactivated in this round to confer additional specific attributes to the T-cells. They can be made resistant, and therefore compatible, 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 UCART19:



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 PD-1 gene in our engineered T-cells so that they would no longer be subject to checkpoint regulator inhibition by tumors expressing PDL-1, 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 flexibility to deliver smart T-cells designed for specific indications and purposes.

Key Benefits of our UCART Approach

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.

Our UCART product candidates are intended to enable universal market access driven by an allogeneic approach. Current autologous treatments require dedicated infrastructure, which could limit their availability to only a few select sites. Because our UCART product candidates are designed to be frozen and available off-the-shelf, they could be shipped globally at any time and administered immediately to patients when needed, including in local clinics.

- *Cost-effectiveness.* Streamlined manufacturing process has the potential to reduce costs.

Our manufacturing process is a benefit to our UCART product candidate line that could contribute to the design of a reasonably priced product. Our manufacturing process produces UCART product candidates from healthy, selected, screened and tested donor T-cells. Moreover, because our process is powered by our nucleases and our proprietary PulseAgile electroporation systems, we expect to be able to inactivate genes in a highly efficient manner that avoids harming T-cells during processing, which could allow us to manufacture quality UCART products at high yields. This could enable us to manufacture in bulk, and we expect that T-cells from one healthy donor, and one manufacturing run of UCART, could be used to create hundreds of doses of product. These efficiencies could allow us to reduce costs to patients and produce competitive gross profit margins.

- *Novel Features.* Develop products with specific safety and control properties.

We aim to engineer T-cells for specific clinical results that enhance safety and provide greater control over cellular activity. For example, our research includes disabling T-cells from attacking a patient's healthy tissues, designing T-cells to be compatible with standard oncology treatments, enabling our engineered T-cells to surpass key immune checkpoint regulators that can protect tumors from the immune system, and building into our products a suicide gene that directs the natural clearance of allogeneic T-cells with the addition of a drug.

- *Compatibility.* Develop products taking into consideration the current standards of cancer care.

Our research also aims at allowing T-cells to resist and be compatible with compounds that cancer patients are exposed to, including standard oncology treatments, such as specific monoclonal antibody therapies, corticoids, or other relevant chemotherapies. We are pursuing treatment options that would allow patients to be treated with our engineered T-cells after or during treatment with traditional approaches that would impair T-cell function or viability.

- *Consistency.* Qualify and develop cancer products that are designed for optimal dosage, while reducing batch-to-batch variability.

Our frozen, off-the-shelf UCART product candidates are intended to be produced pursuant to cGMP and are extensively controlled. Like other pharmaceutical products, we expect that their quality will be controlled to ensure consistency over time and from batch to batch. This is a significant difference from autologous approaches currently reported to be in clinical development. In these autologous settings, where the donor of T-cells is the very patient who will receive the CAR-bearing cells, a specific batch of T-cells must be made for each patient and in some cases, sufficient T cells may not be available from the patient to create the autologous product.

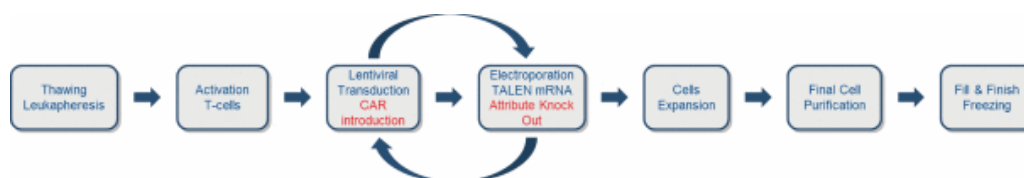
How can we turn a procedure into a large scale, widely available drug?

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.



On October 28, 2015, we announced that we completed a series of three production runs of UCART19 confirming the transfer of Cellectis' manufacturing process into clinical grade, GMP conditions. This important milestone showed that UCARTs can be manufactured in GMP conditions and demonstrated the industrial production of UCART19, as well as the capacity of Cellectis' pipeline of UCART product candidates to be manufactured for clinical investigations. Since then, UCART19 manufacturing of clinical supplies has been conducted by CELLforCURE to support the two clinical trials opened with UCART19 in the United Kingdom. On November 15, 2016, we announced that we completed a series of production runs of UCART123 at CELLforCURE, our CMO, to support the UCART123 Clinical Trials for which we filed an IND, the FDA approval of which was announced on February 6, 2017. This year, we also proceeded to the transfer of our manufacturing processes for UCARTCS1 and UCART22 to the same CMO.

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 targets 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 acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), blastic plasmacytoid dendritic cell neoplasm (BPDCN), multiple myeloma (MM) and different types of lymphomas. In December 2016, we filed an IND for our lead product candidate, UCART123 in AML and in BPDCN and in February 2017, we received FDA approval to initiate UCART123 Clinical Studies. All of our other product candidates are currently in the late pre-clinical / early manufacturing phase, and the following chart highlights some of these product candidates:

Program	Indication	Product development	Preclinical	Manufacturing	IND* filing	Phase I	Phase II	Phase III	Commercial ization
UCART19 **	ALL (PALL)								
	ALL (CALM)								
UCART123	AML								
	BPDCN								
UCART22	B-ALL								
	B-NHL								
UCARTCS1	MULTIPLE MYELOMA								

* or foreign equivalent

** UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Pfizer.

UCART19 for Acute Lymphoblastic Leukemia

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

Targeted Indications

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. The age-adjusted incidence rate of ALL in the United States is 1.7 per 100,000 individuals per year, with approximately 5970 new cases and 1440 deaths estimated in 2017. The median age at diagnosis for ALL is 15 years with 56.1% of patients diagnosed at younger than 20 years of age. In contrast, 28% of cases are diagnosed at 45 years or older and only 11.7 % 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. Data from the Surveillance, Epidemiology, and End Results (SEER) database have shown a 5-year overall survival (OS) of 86% to 89% for children. Adults have the poorest 5-year OS rate of 24.1% for patients between the ages of 40 and 59 years and an even lower rate of 17.7% for patients between the ages of 60 and 69 years. 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.

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 2017, preliminary results from the first twelve patients in the UCART19 Clinical Studies were presented at the 59th American Society of Hematology (ASH) Annual Meeting. These first-in-human data show 83% complete remission rate across the adult and pediatric patient population. Cytokine release syndrome (CRS) was mild and manageable except in one adult patient treated with UCART19 at the first dose level, who developed CRS Grade 4 and neutropenic sepsis leading to death at day 15. Only two cases of Grade 1 acute graft versus host disease (GvHD) occurred and no severe neurotoxicity was observed.

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

Development Status

In 2016, Servier commenced the UCART19 Clinical Studies—a Phase I clinical study in pediatric acute lymphoblastic leukemia (ALL), the PALL study, and a Phase I clinical study in adult patients with ALL, the CALM study, each of which was approved by the MHRA.

The PALL Study is commenced in United Kingdom at UCL Great Ormond Hospital (London), in Belgium at Het Kinderziekenhuis Prinses Elisabeth (Gent), and in France at Hôpital Robert-Debré (Paris).

The CALM Study is commenced in United Kingdom at King's College Hospital NHS Foundation Trust (London), in United States at the Hospital of the University of Pennsylvania (Philadelphia, Pennsylvania) and at University of Texas MD Anderson Cancer Center (Houston, Texas), and in France at Hôpital Saint-Antoine (Paris).

UCART123 for Acute Myeloid Leukemia (AML) and Blastic Plasmacytoid Dendritic Cell Neoplasm (BPDCN)

UCART123 is an allogeneic engineered T-cell product designed for the treatment of hematologic malignancies expressing the alpha chain of the interleukin-3 receptor, or CD123, and is currently being developed for the treatment of acute myeloid leukemia (AML) and blastic plasmacytoid dendritic cell neoplasm (BPDCN).

Targeted Indications

Acute Myeloid Leukemia (AML)

Acute myeloid leukemia (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 4.2 per 100,000 individuals per year, with approximately 21,380 new cases and 10,590 deaths estimated in 2017. 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 16.5% 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. CD 123 is highly expressed on acute myeloid leukemia (AML) leukemic stem cells and blast cells, as well as in other hematologic malignancies, and constitutes an attractive target for AML.

Blastic Plasmacytoid Dendritic Cell Neoplasm (BPDCN)

Blastic plasmacytoid dendritic cell neoplasm (BPDCN) is a rare and aggressive hematological neoplasm classified among AML in the 2008 World Health Organization (WHO) classification of hematologic malignancies, and reclassified under myeloid neoplasms, acute leukemia in the 2016 WHO classification. BPDCN is a rare myeloid disease characterized by the clonal proliferation of precursors of plasmacytoid dendritic cells. There are no formal studies on the incidence of BPDCN in the general population. The few available data reported indicate that its overall incidence is extremely low, accounting for 0.44% of all hematologic malignancies and 0.7% of cutaneous lymphomas. Moreover, the leukemic form of disease is a rare phenomenon, representing fewer than 1% of cases of acute leukemia. The disease may occur at any age, but most patients are elderly men who present with skin lesions and/or involved lymph nodes, spleen, and bone marrow. Given its rarity and only recent recognition as a distinct clinico-pathological entity, no standardized therapeutic approach has been established for BPDCN and the optimal therapy remains to be defined. Although transient responses are seen to combination chemotherapy regimens used to treat acute leukemia or lymphoma, most patients relapse with drug-resistant disease with a median overall survival rate of 9 to 13 months, irrespective of the initial presentation of the disease.

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.

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 and BPDCN were performed in collaboration with Weill Cornell and MD Anderson Cancer Center, respectively.

Development Status

On December 14, 2016, Cellectis received unanimous approval from the National Institute of Health's Recombinant DNA Advisory Committee ("RAC") for two proposed Phase I protocols for UCART123. In February 2017, the FDA granted Cellectis an Investigational New Drug (IND) approval to conduct a Phase I clinical study with UCART123 in AML and BPDCN. The initial patients were enrolled during 2017, at Weill Cornell Medical College for AML and at MD Anderson Cancer Center for BPDCN. Due to a death in the BPDCN study, both trials were put on hold in September 2017 but then cleared to resume by the FDA, in November 2017, based on revised protocols.

UCART22 for Acute Lymphoblastic Leukemia (ALL)

UCART22 is an allogeneic engineered T-cell product candidate designed for the treatment of Acute Lymphoblastic Leukemia (ALL).

See "Item 4.B.—Business Overview—UCART Pipeline—UCART19 for Acute Lymphoblastic Leukemia—Targeted Indications—Acute Lymphoblastic Leukemia" for more information on 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 are performed in collaboration with MD Anderson Cancer Center.

Development Status

UCART22 is at the late pre-clinical / early manufacturing stage of development. The manufacturing process has been transferred to CELLforCURE, our CMO. Manufacturing of clinical grade UCART22 at large scale in accordance with GMP was initiated at the end of 2017.

UCARTCS1 for Multiple Myeloma (MM)

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

Targeted Indication Multiple Myeloma

Multiple myeloma (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 6.6 per 100,000, resulting in over 30,000 new patients in the United States each year. The median age at onset is 69 years, and only 3.5 % of patients are younger than 45 years of age at diagnosis. Nine drugs have been approved over the past fifteen 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 multiple myeloma (MM) patients has markedly improved with a median survival of approximately 5 to 7 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 months.

Product Features

UCARTCS1 is an allogeneic T-cell drug candidate intended for the treatment of CS1 (also as 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 expressed on the cell surface of CD8 T-cells, CS1 will be inactivated in T-cells prior to transduction with a viral vector encoding an anti-CS1 CAR. The inactivation of CS1 may improve the production and activity of UCARTCS1 by preserving the CD8 T cell population. In addition, as with all UCART products, UCARTCS1 lacks the TCR and is intended to be used in an allogeneic context.

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.

Development Status

UCARTCS1 is at the late pre-clinical / early manufacturing stage of development.

Manufacturing process transfer has been completed to CELLforCURE, our third-party manufacturing contractor, for clinical supplies of UCARTCS1.

Our Strategic Alliances

We have signed collaboration agreements with Pfizer and Servier, which we believe validate our research and approach to CAR-T. Our strategic alliances include potential milestone payments to us of up to \$3.9 billion and royalties on future sales.

Research Collaboration and License Agreement with Pfizer

In June 2014, we entered into a Research Collaboration and License Agreement with Pfizer pursuant to which we 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.

Under the agreement, we are obligated to use commercially reasonable efforts to develop, for each Collectis-selected target, at least one product candidate. Pfizer granted us a non-exclusive, worldwide, royalty-free license, with sublicensing rights under certain conditions, under certain of its intellectual property to conduct research, and to make, use, sell, import and otherwise commercialize products directed at Collectis-selected targets.

Pursuant to the 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. In addition, the strategic alliance provides for payments of up to \$185.0 million per product that is directed against a Pfizer-selected target, with aggregate potential pre-clinical, clinical and commercial milestone payments totaling up to \$2.8 billion. We are also eligible to receive from Pfizer tiered royalties on annual net sales of any products that are commercialized by Pfizer that contain or incorporate certain of our intellectual property at rates in the high single-digit percentages.

Except as required of us by our collaboration agreement with Servier, until the earlier of (1) the completion or termination of a four-year term or (2) the filing by Collectis of an IND for certain targets to which we retain rights, we and our affiliates may not grant rights under certain of our intellectual property and intellectual property developed in the course of the collaboration to develop or commercialize CAR T-cells in the field of human oncology, other than certain specified non-commercial collaborations.

Unless earlier terminated in accordance with the agreement, our agreement with Pfizer 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, Pfizer 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 Pfizer at any time in the event that we become bankrupt or insolvent.

Research, Product Development, Option, License and Commercialization Agreement with Servier

In February 2014, we entered into a Research, Product Development, Option, License and Commercialization Agreement with Servier. Pursuant to this agreement, we are 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 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. Upon Servier's exercise of each option, we shall grant Servier an exclusive, worldwide, royalty-bearing, sublicensable license under certain of our patents and know-how covering the respective product candidate to develop, manufacture and commercialize such product in the field of anti-tumor adoptive immunotherapy, and Servier will assume responsibility for the further clinical development, manufacture and commercialization of such product. During the term of the agreement, we are prohibited from researching, developing, or commercializing any product directed against a target that is used for the same purpose as it is used with a product candidate developed under the agreement.

Pursuant to the agreement, Servier made an upfront payment of \$10.0 million and, upon its exercise of each license option provided for in the agreement, Servier will pay us a lump sum license fee.

In November 2015, we entered into an amendment to our initial collaboration agreement with Servier, which allowed for an early exercise of Servier's option with respect to UCART19 and other product candidates. Pursuant to this amendment, Servier has exercised its option to acquire the exclusive worldwide rights to further develop and commercialize UCART19. In connection with the entry into the amendment to the collaboration agreement, Servier made an upfront payment of \$38.5 million, excluding taxes.

As of December 31, 2017, we are eligible to receive from Servier aggregate additional payments of up to \$1,064 million, comprising payments upon the exercise of options granted to Servier under the agreement and payments upon the occurrence of certain specified development and commercial milestones. Pursuant to the agreement, we are also eligible to receive tiered royalties ranging in the high single-digit percentages based on annual net sales of commercialized products.

Unless earlier terminated, the agreement will expire upon the expiration of the last to expire of the patents covering a product licensed pursuant to the agreement. Either party may terminate the agreement for 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 parties may also terminate the agreement by mutual consent. 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 has the right, at its sole discretion, to terminate the agreement in its entirety or with respect to specific products, upon three months' prior written notice to us. Servier may also 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. In the event that Servier does not exercise its option to license a product candidate, we may independently pursue all activities related to such product candidate and/or license such product candidate and the associated intellectual property to a third party. For such purpose, Servier granted us a non-exclusive, sublicensable license under any such Servier-controlled intellectual property for which we will pay tiered royalties on annual net revenues at rates ranging in the low single-digit percentages.

Collaboration with Cornell University and MD Anderson Cancer Center

In 2015, we entered into alliances with Cornell University and the MD Anderson Cancer Center to accelerate the development of our lead candidate products.

Alliance with Cornell University

On June 2, 2015, Cornell University and Cellectis entered into a strategic research alliance to accelerate the development of a targeted immunotherapy for patients with acute myeloid leukemia (AML). Under our alliance

with Cornell University and Collectis will conduct research and develop clinical strategies with the objective of implementing and conducting one or more clinical trials at Weill Cornell on UCART123 and potentially other product candidates in AML. Collectis is responsible for funding the research programs, and Cornell University and Collectis will work together to develop and implement improvements to the research plan for the programs. The objectives of the collaboration are to demonstrate functionalities and specificity of UCART123 in vitro and in vivo, define the pre-clinical package required for a clinical trial application, prepare the clinical trial protocol and the regulatory and other study-specific documents, and discovery research for the identification of novel targets in AML patients potentially enabling the development of additional CARs for AML.

In connection with the alliance, Collectis was responsible for generating and manufacturing UCART123 and performing in vitro and in vivo pre-clinical activities on tumor cell lines and in animal models. Cornell University was responsible for evaluating UCART123 activity against primary AML samples and in animal models, as well as evaluating toxicity against HSCs in animal models. Cornell University is also working on the development and implementation of correlative studies. In addition, Cornell University and Collectis collaborate on the preparation of the different versions of the clinical trial protocols. Finally, Collectis and Cornell University are working on target discovery in the AML area, in order to identify new potential targets for AML and generate new potential candidate products for AML patients.

On April 2017, we enter into a clinical trial agreement with Cornell University acting for and on behalf of its Joan and Sanford I. Weill Medical College and The New York Presbyterian Hospital (collectively referred to as Weill Cornell) under which Weill Cornell performs the UCART123 clinical study for AML.

Alliance with The University of Texas M.D. Anderson Cancer Center

On September 1, 2015, Collectis 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 multiple myeloma (MM), acute lymphoblastic leukemia (ALL), T-cell acute lymphoblastic leukemia (T-ALL) and blastic plasmacytoid dendritic cell neoplasm (BPDCN). Under this strategic alliance, the MD Anderson Cancer Center and Collectis have agreed to collaboratively conduct several pre-clinical studies on candidate products: UCART123 in BPDCN, UCARTCS1 for multiple myeloma, UCART38 for T-ALL and UCART22 for ALL. Collectis has agreed to provide funding and other support for these studies. The objective of the studies is to build on complementary expertise from the MD Anderson Cancer Center and Collectis for the development of the product candidates. The MD Anderson Cancer Center and Collectis will work together to develop and implement improvements to the research plan for the programs under joint direction of the MD Anderson Cancer Center and Collectis' 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, Collectis 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 Collectis and the MD Anderson Cancer Center to collaborate on one or more early phase clinical studies on the same product candidates.

Pursuant to the Strategic Alliance Agreement, we entered, in March 2017, into a study order with MD Anderson Cancer Center, according to which MD Anderson Cancer Center performs the UCART123 clinical study for BPDCN.

On January 2018, we entered into a new study order with MD Anderson Cancer Center in order to expand the performance of the UCART123 clinical study in AML to MD Anderson Cancer Center.

Raw Materials

We are 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, cytokines, vectors, nucleic acids, antibodies—that are necessary to produce our product candidates. We source these raw and starting materials through master service agreements and/or on a purchase order basis 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.

Applications of Our Technology in Agriculture

Calyxt was incorporated in the State of Delaware in the United States in 2010. Calyxt is a consumer-centric, food- and agriculture-focused company that is combining its leading gene-editing technology and technical expertise with an innovative commercial strategy to pioneer a paradigm shift to deliver healthier food ingredients for consumers and agriculturally advantageous traits for farmers. Before its initial public offering, which closed on July 25, 2017, Calyxt was a wholly owned subsidiary of ours. As of December 31, 2017, we owned approximately 79.7% of Calyxt's outstanding common stock. Calyxt's common stock is listed on the Nasdaq market under the ticker symbol "CLXT".

Calyxt's commercial strategy is centered on two core elements: developing healthier specialty food ingredients to enable the food industry to address evolving consumer trends and developing agriculturally advantageous traits, such as herbicide tolerance, for farmers. Its first product candidate, which is expected to be commercialized by the end of 2018, is a high oleic soybean designed to produce a healthier oil that has increased heat stability with zero trans fats. Among Calyxt's other product candidates are high fiber wheat and herbicide tolerant wheat. We believe each of these three Calyxt product candidates addresses a multibillion dollar market opportunity. Moreover, while the traits that enable these characteristics may occur naturally and randomly through evolution—or under a controlled environment through traditional agricultural technologies—those processes are imprecise and take many years, if not decades. Calyxt's technology enables it to cost effectively edit a plant genome with precision and specificity in order to elicit the desired traits and characteristics, resulting in a final product that has no foreign DNA.

Gene Editing in Agricultural Biotechnology

While plant breeders have been crossbreeding varieties and selecting advantageous traits for thousands of years, the modern agriculture industry has relied primarily on two methods of crop improvement: genetic modification, which involves the use of genetic technologies to randomly insert foreign genetic material into a plant's genome for the development of seeds in which the inserted genes express specific traits, and chemical mutagenesis, in which mutagenesis is induced in plants using agents and chemicals. We believe these traditional approaches can no longer effectively meet societal demands for innovative solutions demanded by the consumer and the farmer. We believe that the proprietary technologies deployed by Calyxt will bridge this divide because it enables Calyxt to precisely and specifically edit a plant genome to elicit a desired trait and characteristic and to do so more quickly and cost effectively than traditional methods.

Market Dynamics

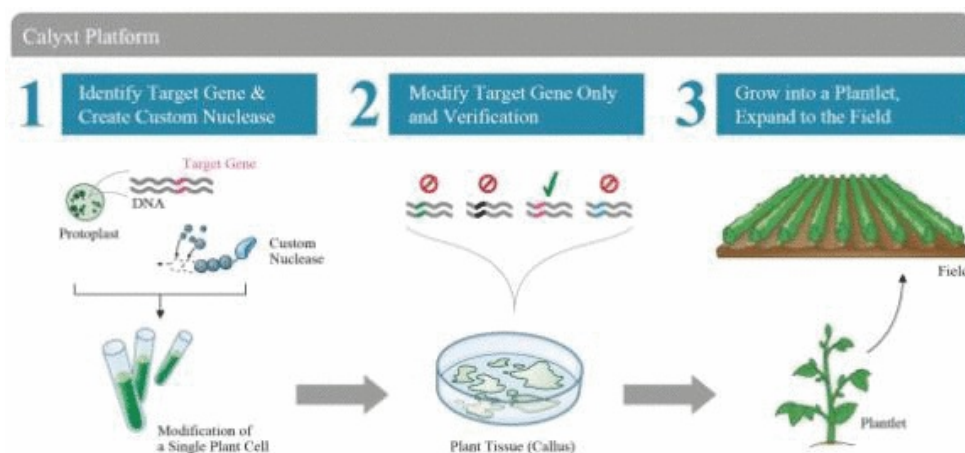
The agriculture industry has historically been burdened by high infrastructure costs in a market that has focused on price and market share resulting in commoditization. A highly segmented supply chain has also resulted in the legacy agriculture companies focusing on increasing margins and market share through increased yields and consolidation, and on passing along maximum value to the growers, thereby keeping pace with the

growing demand for food globally. Over the past few decades the agriculture industry has seen a consolidation of over 200 seed companies, leaving the industry with only a handful of large, dominant players such as Bayer AG, Monsanto Co., DowDuPont Inc., AgReliant and Syngenta AG. In addition, development at these legacy agriculture companies has been significantly limited by time and cost constraints. Genetic modification, a primary method of these companies to improve crops, involves a lengthy and expensive process to progress a new crop from the discovery stage through commercialization. Innovations have primarily achieved increases in yields and food production volumes through the creation of herbicide tolerance and insect resistance, using genetically modified traits that in many cases contain bacterial DNA. We believe these industry dynamics explain the inability for the agricultural industry to evolve to a consumer- and farmer-focused approach, and thereby effectively meet their demands as societal trends shift and provide new market opportunities.

TALEN Technology Platform in Agricultural Biotechnology

Using proprietary technologies and expertise, Calyxt edits the genome of food crops by using “molecular scissors” to precisely cut DNA in a single plant cell, use the plant’s natural repair machinery to make a desired edit and finally regenerate the single cell into a full plant. Calyxt is able to develop targeted traits—some of which would be nearly impossible to develop using traditional trait-development methods—quicker, more efficiently and more cost effectively than would be possible using traditional trait-development methods. Calyxt’s technology also puts it in a position to assess the probability of success early on in the research and development process, potentially eliminating excess cost associated with traditional trait-development methods and further reducing the risk of the product development process.

Calyxt’s proprietary technologies and intellectual property portfolio enable it to edit DNA in living plant cells by knocking out genes or creating precise gene edits. Calyxt’s scientists are capable of custom designing DNA-sequence specific cutting enzymes for any chosen gene that they need to edit and to introduce such custom-made nucleases into the living plant cells they want to edit. Calyxt takes advantage of deep knowledge about plant gene function to create novel genetic variation that results in traits of value.



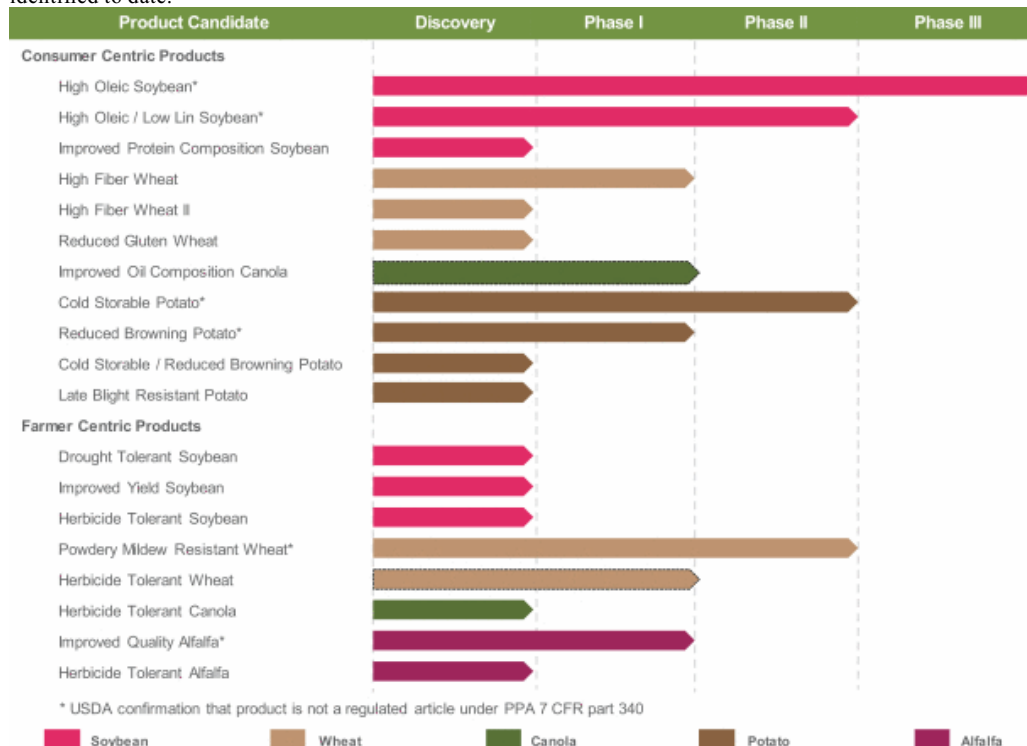
A feature that distinguishes Calyxt’s products from those created through genetic modification is that Calyxt’s crop varieties lack foreign DNA. As such, for each of the six product candidates Calyxt has submitted to date, the USDA has confirmed that the products are not regulated articles, which represents regulatory cost savings for the development of these products.

In addition, by utilizing proprietary TALEN gene-editing technologies and leveraging Calyxt’s expertise and innovative supply chain, we believe that Calyxt is able to identify a consumer or farmer need and develop a

product from “concept to fork” or “concept to field” in approximately three to six years, which would make it possible to effectively respond to evolving consumer preferences and farmer needs.

Calyxt Agricultural Biotechnology Products

Calyxt has an extensive product pipeline, as set forth in the table below, that is intended to address the potential market opportunities Calyxt has identified to date.



Calyxt categorizes the stages of pre-commercial development from Phase I to Phase III. Prior to entering Phase I, in Discovery, Calyxt identifies genes of interest. In Phase I, Calyxt edits the identified genes of interest, targets edits that it wishes to make, and produces an initial seed that contains the desired edit. Phase II is trait validation, where Calyxt performs small-scale and large-scale tests to confirm phenotype and ingredient functionality. In this phase Calyxt also performs replicated, multi-location field testing, after confirming that the product is not a regulated article by the USDA. In Phase III, Calyxt develops the first commercial-scale pilot production, begins to build out the supply chain and inventory and performs customer testing prior to commercialization.

Calyxt’s current main product candidates are:

High Oleic Soybean (Consumer Trait)

Soybean oil has historically been partially hydrogenated to enhance its oxidative stability in order to increase shelf life and improve frying characteristics. This process, however, 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), both of which contribute to cardiovascular disease. The discovery that dietary trans fats increase the risk of several health issues led the FDA to rule in 2003 that manufacturers be required to include trans fat content information on the “Nutrition Facts” label of foods. In 2015, the FDA took a further step and banned the use of partially hydrogenated oils, the primary dietary source of artificial trans fat in processed foods, by all food manufacturers beginning in 2018. After the FDA’s 2003 ruling, commodity soybean oil—which leads to high trans fats in foods—lost approximately 20% market share to other vegetable oils, such as palm oil and canola oil.

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 transfats. Oil created from Calyxt’s high oleic soybean product candidate 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 more than fivefold when compared to commodity oil. This eliminates the need for partial hydrogenation, and thus no trans fats are produced during oil production. Furthermore, Calyxt’s high oleic soybean oil offers additional potential benefits, including reduced saturated fats, a threefold increase in fry-life, and reduced polymerization upon frying at high temperatures. Soybean oil is also neutral in flavor, odorless and colorless, and is therefore highly desired as a food ingredient because it has limited impact on the sensory characteristics of the final food product.

Calyxt’s high oleic soybean product candidate was created using our TALEN gene-editing technology. We designed TALEN to specifically target two fatty acid desaturase genes (designated *FAD2-1A* and *FAD2-1B*). These genes convert oleic acid (a mono-unsaturated fatty acid) to linoleic acid (a polyunsaturated fat). By specifically inactivating both the *FAD2-1A* and *FAD2-1B* genes by removing DNA with TALEN, oleic acid accumulates in the seed—increasing from about 20% to 80%. By key measures, including yield, this high oleic soybean variety performs comparably to its unedited counterpart. Further, this improved soybean variety does not contain any foreign DNA. Because the TALEN technology is so precise and can target genes with well-known functions in the plant, Calyxt has not, to date, detected any other changes as a result of the gene-editing process or undesired effects in the product.

In mid-2015, Calyxt received a letter from the USDA indicating that its high oleic soybean variety is not a regulated article under the Plant Protection Act. This allowed Calyxt to test the performance of its soybean variety in the field. In November 2015, Calyxt announced the completion of the second year of multi-location field trials in Minnesota and South Dakota. The agronomic and yield performance of its high oleic soybeans is on par with the non-GMO variety used to create this product.

Calyxt’s soybean product candidate is in Phase III of the development process, and Calyxt is making preparations to create the capacity to crush on a commercial scale, which will enable product testing by potential food company customers. During the third quarter of 2017, Calyxt completed the harvest of its high oleic soybean and produced more high-quality seeds than needed to meet its commercialization target date. Calyxt is currently completing its commercialization plan and anticipates commercialization by the end of 2018.

In December 2017, Calyxt announced its partnership with Farmers Business Network (FBN) to expand the distribution and grower base of its identity-preserved high oleic soybeans. FBN will distribute its high oleic soybean seeds to growers in its network and register farmers for our Producer Premium Program. This partnership will help develop a dedicated, high-quality grower base and bolster supply chain operations in the upper Midwest.

In addition, Calyxt’s high oleic soybean product candidate can be stacked with other soybean traits.

High Fiber Wheat (Consumer Trait)

Research has shown that fiber—the indigestible portion of food—may play a large role in maintaining bowel health, lowering cholesterol, stabilizing blood glucose levels and controlling weight gain. In recent years, the awareness of the health benefits of high fiber diets has increased, which has translated to a strong growth in demand for high fiber food products.

Calyxt is developing high fiber wheat traits that could be used to produce white flour with up to three times more dietary fiber than standard white flour. Calyxt anticipates that by altering the proportion of certain slower digested carbohydrates in the wheat grain, it will increase dietary fiber. This would allow consumers to reach their daily value of fiber without changing their existing food preferences. These high fiber wheat product candidates will not contain any foreign DNA.

This product candidate is currently in Phase I of Calyxt’s development process and may launch as early as 2020 – 2021. The gene-edited wheat line has been identified and grown and the fiber levels are under examination in grain derived from greenhouse grown plants.

In addition to Calyxt’s high fiber wheat product candidate, Calyxt is also developing other consumer traits in its wheat pipeline, including a reduced gluten product candidate.

Herbicide Tolerant Wheat (Farmer Trait)

Weed control is one of the greatest challenges farmers face in producing crops. Herbicide tolerance is a plant’s ability to withstand a particular chemical herbicide. Herbicide tolerance traits in crops can provide additional crop protection chemistry alternatives to control weeds and increase crop yields.

Herbicide tolerant traits may offer farmers a vital tool in managing weeds effectively during crop production. The deployment of herbicide tolerant traits in wheat significantly lags other major crops and wheat production is constantly faced with yield-robbing weeds that can result in lower yield and higher dockage costs at the elevator. In the United States, no broad acre GMO herbicide tolerant trait has been developed for wheat, largely due to the complexity of the wheat genome.

Calyxt is pioneering the development of herbicide tolerant traits in wheat without the use of foreign DNA, built using the TALEN gene-editing technology. Calyxt aims to achieve herbicide tolerance by specifically making a subtle repair to prevent herbicides from being able to recognize and block functions of certain plant-encoded proteins, such that the edited plant survives the application of the herbicide. In September 2017, Calyxt successfully advanced its herbicide tolerant wheat program from the Discovery phase into Phase I development.

Powdery Mildew Resistant Wheat (Farmer Trait)

In addition to herbicide tolerance, Calyxt is developing traits that are advantageous to the farmer including a variety of wheat that confers resistance to a fungal pathogen, namely powdery mildew. Powdery mildew resistant wheat advanced to Phase II in 2017 after successfully conducting the first field trial to assess agronomic and trait performance of the powdery mildew resistance trait line. We believe powdery mildew resistance may increase yield and reduce the need for the use of costly fungicides.

Improved Oil Composition Canola (Consumer Trait)

Calyxt’s improved oil composition canola is its first canola product candidate. The development of this first canola product expands Calyxt’s improved oils franchise, in line with its mission to create healthier specialty ingredients and become a preferred partner of the food industry. In September 2017, Calyxt successfully advanced its improved oil composition canola program from Discovery stage into Phase I development.

Other Products in Our Development Pipeline

Calyxt's extensive product pipeline includes a variety of consumer- and farmer-centric traits for soybean, wheat, canola, alfalfa and potato. As of December 31, 2017, Calyxt had a total of nine product candidates in Phase I or higher across its five crops, which is reflective of its rapidly advancing product pipeline.

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 a new generation of customized rare-cutting endonucleases, in connection with which we have registered the trademark TALEN in certain jurisdictions outside of the United States. This patent portfolio comprises five patents in the United States and one European patent, which is under opposition before the European Patent Office. In addition, in 2014, we entered into a series of agreements with Life Technologies Corporation (now 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 TALEN 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 50 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 an international patent application 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.

The issued patents in our portfolio consist of approximately 27 Collectis-owned and 47 in-licensed U.S. patents, 16 Collectis-owned and 13 in-licensed European patents, and 47 Collectis-owned and 13 in-licensed patents in other jurisdictions, including Australia, Canada, China, Hong Kong, India, Israel, Japan, Korea, Mexico and Singapore.

The pending patent applications in our portfolio consist of approximately 115 Collectis-owned and 20 in-licensed U.S. patent applications, 80 Collectis-owned and 19 in-licensed European patent applications, and 436 Collectis-owned and 67 in-licensed patent applications pending in other jurisdictions, including Australia, Brazil, Canada, China, Hong Kong, India, Israel, Japan, Korea, Mexico and Singapore.

Our portfolio includes a total of 165 owned and in-licensed granted patents, and 737 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;

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- 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 2019 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 and UCART123, 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 30 issued patents or pending patent applications. 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.

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 will expire in 2019, other patents covering this technology remain in force or are expected to be granted under patent applications, 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. As a result of the breadth of our patent protection and the integration of patented technologies, compositions and methods of use within our gene-editing, T-cell and CAR technology platforms, we do not expect that the expiration of these patents in 2019, individually or in the aggregate, will have a material effect on our future operations or financial position.

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.

In addition to the patent portfolio relating to our platform and technologies, described above, our patent portfolio relating specifically to UCART123 includes pending patent applications from the patent family WO2015140268 (CD123 Specific Chimeric Antigen Receptors for Cancer Immunotherapy). We believe these pending patent applications, which, if issued, would expire in 2034, include claims to cover the composition of matter of UCART123, methods of manufacture of UCART123, and methods to use UCART123 in 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 three 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 the two license agreements that remain in effect 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. One of the licensed patents is under third party ex-parte reexamination.

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 April 3, 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.

Other Exclusive Licenses Granted to Cellectis

With respect to our plant sciences business, we have filed nine patent applications in connection with new soybean, tobacco and potato traits. These new traits have been obtained mainly by using TALEN, which is protected by the UMN and the Cellectis TALEN patent portfolios.

License Agreements from Regents of the University of Minnesota

In December 2014, Calyxt entered into an exclusive license with the Regents of the University of Minnesota, or UMN, pursuant to which Calyxt was granted an exclusive, worldwide, sublicensable license under a specified patent application owned by UMN relating to the use of the CRISPR-Cas9 technology to make use, and commercialize products covered by the licensed patents in any field of use. Pursuant to the terms of the agreement, Calyxt must use commercially reasonable efforts to commercialize the licensed technology and to manufacture, offer to sell, and sell licensed products as soon as practicable and to maximize sales. Calyxt must also achieve certain sales- and patent-related milestones.

Pursuant to the terms of the agreement, Calyxt paid UMN an upfront license fee payment in the amount of \$130,000 in connection with entering into the agreement. Calyxt is also required to pay UMN a tiered annual fee that increases from \$20,000 to \$225,000 based on the occurrence of certain specified events, including the grant of a sublicense to a third party, as well as patent-related expenses incurred under the agreement in prosecuting and maintaining the licensed patents. Calyxt is also required to pay UMN a percentage of all revenues received by it under sublicenses. If Calyxt undergoes a change of control and wishes to assign all of its rights and duties under the agreement, Calyxt will have to pay UMN a specified transfer fee.

Unless earlier terminated, the agreement will continue in effect until no licensed patent is active and until no licensed patent application is pending, which we expect will be on March 24, 2034. UMN may terminate the agreement for Calyxt's uncured breach of the agreement upon 90 days' prior written notice, or 60 days' prior written notice if the breach relates to Calyxt's payment obligations under the agreement. UMN may also terminate the agreement, upon 10 days' prior written notice, if Calyxt files for bankruptcy or becomes insolvent. UMN may also immediately terminate the agreement if Calyxt or its agents or representatives commences or maintains an action in any court or before any governmental agency asserting or alleging the invalidity or unenforceability of the licensed patent rights. Calyxt may terminate the agreement for UMN's uncured breach of the agreement upon 90 days' prior written notice. Calyxt may also terminate the agreement at any time upon 60 days' prior written notice.

Other Exclusive License Granted to Calyxt

In April 2015, we entered into an exclusive license agreement with Plant Bioscience Limited, or PBL, pursuant to which we were granted an exclusive, worldwide license to use and exploit certain gene-editing technologies related to wheat with endogenous resistance to powdery mildew, and to provide commercial development and technical services to third parties. The technology licensed to us was originally exclusively licensed to PBL by the Institute of Genetics and Developmental Biology, or IGDB, which holds certain rights to which our exclusive license from PBL is subject. Pursuant to the agreement, we are required to use commercially reasonable efforts to achieve certain milestones in a specified development and commercial program, and to exploit the license so as to maximize the sublicensing of the licensed technology and the development and commercial use of the licensed products.

The agreement will expire on the later of the tenth anniversary of the date that sales of the licensed products first occurred or the last expiration of a valid claim of a licensed patent. We may terminate the agreement at any time for any reason by giving PBL written notice. PBL may terminate the agreement upon our material breach of the agreement that has not been cured within a specified number of days after receiving notice of such breach. The agreement will also automatically terminate if we become insolvent or bankrupt.

In December 2017, we entered into an Evaluation License and Option Agreement with PBL to evaluate gene-editing technologies related to wheat with altered grain size and structure. The licensed technology was originally licensed to PBL by IGDB, which holds certain rights to which our evaluation license from PBL is subject. Pursuant to the agreement, we have the ability to evaluate the technology in-house with the option of acquiring a worldwide exclusive right. The agreement will endure for a period of three years from the effective date.

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.

Our competitors include:

- Gene-editing space: CRISPR Therapeutics, Inc., Editas Medicine, Inc., Intellia Therapeutics, Inc., Caribou Biosciences, Precision BioSciences, Inc. and Sangamo BioSciences, Inc.
- CAR space: Bellicum Pharmaceuticals, Inc., Juno Therapeutics, Inc. (acquired by Celgene Corporation), Bluebird bio, Inc., Ziopharm Oncology (in collaboration with Intrexon, Inc.), Kite

Pharma, Inc. (in collaboration with Amgen and acquired by Gilead Sciences, Inc.), Novartis AG and Johnson & Johnson (in collaboration with Transposagen), and Autolus Limited.

- Cell-therapy space: Adaptimmune Ltd, Lion Biotechnologies, Inc., Unum Therapeutics, Inc., NantKwest, Inc., Celyad S.A., Atara Biotherapeutics, Inc., and Immunocore Ltd.
- Agricultural biotechnology space:
 - Companies developing plants with enhanced properties: Arcadia Biosciences, Inc., Chromatin Inc., Cibus Global, Ltd., Evogene Ltd., Danzinger Innovation Ltd., Keygene N.V. and Precision PlantSciences, Inc.
 - Large Agricultural Biotechnology, Seed and Chemical Companies: BASF SE, Bayer AG, DowDuPont, Monsanto Co., Syngenta AG, and Takii & Company, LTD.
 - Specialty Food Ingredient Companies: International Flavors & Fragrances Inc., Givaudan, Keery Group plc, CSM N.V., FMC Corporation, CP Kelco, Novzymes, Ingredion Incorporated and Royal DSM N.V.

In August 2017, Novartis AG has obtained approval from the FDA to commercialize the first CAR-T cell therapy, Kymriah®, for children and young adults with B-cell ALL that is refractory or has relapsed at least twice, and has recently been granted US FDA priority review for adults with refractory/relapsed DLBCL, priced at \$475,000. In October 2017, Kite Pharma, Inc. (acquired by Gilead Sciences, Inc.) has obtained approval from the FDA to commercialize Yescarta®, the first CAR-T cell therapy for the treatment of adult patients with relapsed or refractory large B-cell lymphoma after two or more lines of systemic therapy, priced at \$373,000. 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. However, we believe that most of our competitors are currently focused on autologous therapies, and we believe that we are the most advanced company developing the allogeneic CAR-T cell approach. In addition, we differentiate ourselves by using our gene-editing capabilities to add specific features to our T-cell products, such as cancer drug resistance or resistance to checkpoint inhibition.

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.

Government Regulation and Product Approval

Government Regulation of Biological Products

We are subject to extensive regulation. We expect our cell product candidates to be regulated as biologics. 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 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.

Where a trial involving the deliberate transfer of (1) recombinant DNA or (2) DNA or RNA derived from recombinant DNA into one or more human research participants (including recombinant DNA molecules, and/or organisms and viruses containing recombinant DNA molecules) (a gene therapy trial) is conducted at, or sponsored by, institutions receiving NIH funding for recombinant DNA research, a protocol and related documentation is submitted to and the trial is registered with the NIH Office of Biotechnology Activities, or OBA, prior to the submission of an IND to the FDA. This is done pursuant to the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, or NIH Guidelines. Compliance with the NIH Guidelines is mandatory for investigators at institutions receiving NIH funds for research involving recombinant DNA, however many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. The NIH is responsible for convening the RAC, a federal advisory committee, which discusses protocols that raise novel or particularly important scientific, safety or ethical considerations at one of its quarterly public meetings. The OBA will notify the FDA of the RAC's decision regarding the necessity for full public review of a gene therapy protocol. RAC proceedings and reports are posted to the OBA web site and may be accessed by the public.

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. With gene therapy protocols, if the FDA allows the IND to proceed, and the RAC decides that full public review of the protocol is warranted but did not take place before the IND review is complete, the FDA will request at the completion of its IND review that sponsors delay initiation of the protocol until after completion of the RAC review process. 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, the NIH, 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 is 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 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.

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.

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 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.

The FDA also may require post-marketing studies, known as Phase 4 studies, and surveillance to monitor the effects of an approved product. 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.

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 October 2018. 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.

European Union Drug Review and Approval

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 Cellectis' 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 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.

In the United States, the FDA and the USDA Food Safety Inspection Service, or FSIS, are primarily responsible for overseeing food regulation and safety, although as many as fifteen federal agencies also play a role in U.S. food regulation, including several other agencies within USDA.

FSIS is responsible for ensuring the safety, wholesomeness, and correct packaging and labeling of the nation's commercial supply of meat, poultry, egg products, and catfish. The agency's main authorizing statutes are the Poultry Products Inspection Act, Federal Meat Inspection Act, Agricultural Marketing Act, and the Egg Products Inspection Act. To carry out its mission, FSIS deploys almost 8,000 inspection program personnel to the more than 6,000 establishments around the country to ensure food manufacturers are following the proper procedures to reduce the risks of food borne illnesses such as *Salmonella*, *Escherichia coli*, *Listeria monocytogenes*, and *Campylobacter*.

USDA has regulatory jurisdiction over transgenic crops through the Animal and Plant Health Inspection Service, or APHIS. Under the Plant Protection Act, USDA requires anyone who wishes to import, transport interstate, or plant a "regulated article" to apply for a permit or notify APHIS that the introduction will be made. Regulated articles are defined 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." The petition process can be a multi-year process that varies based on a number of factors, including APHIS' familiarity with similar products, the type and scope of the environmental review conducted, and the number and types of public comments received. APHIS conducts a comprehensive science-based review of the petition to assess, among other things, plant pest risk, environmental considerations pursuant to the National Environmental Policy Act of 1969, or NEPA, and any potential impact on endangered species. If, upon the completion of the review, APHIS grants the petition, the product is no longer deemed a "regulated article" and the petitioner may commercialize the product, subject to any conditions set forth in the decision. If APHIS does not determine the product to be non-regulated, the product may be subject to extensive regulation, including permitting requirements for import, handling, interstate movement, and release into the environment, and inspections.

Calyxt has submitted petition to APHIS for six of our product candidates to date: high oleic soybeans, high oleic/low linoleic soybeans, cold storable potatoes, reduced browning potatoes, powdery mildew resistant wheat, and improved quality alfalfa. Calyxt has received confirmation from APHIS for all six product candidates that APHIS does not consider such product candidate to be a "regulated article" under the Plant Protection Act. There can be no guarantee of the timing or success in obtaining nonregulated status from APHIS for other crops developed by Calyxt or that the governing regulations will not change. Government regulations, regulatory systems, and the policies that influence them vary widely among jurisdictions and change often.

As part of its National Organic Program, USDA also regulates GMOs, or genetically modified ("GM") foods, to the extent that food manufacturers can use the "USDA Organic" label on their products. The use of genetic engineering, or GMOs, is prohibited in USDA organic products. According to USDA, this means, for example, that an organic farmer cannot plant GMO seeds, an organic cow cannot eat GMO alfalfa or corn, and an organic soup producer cannot put any GM ingredients into its soup. To label products with the USDA organic seal, farmers and food processors must show they are not using GMOs and that they are protecting their products from contact with GMOs (along with other prohibited substances) from farm to table.

FDA has jurisdiction to regulate more than 80 percent of the U.S. food supply. It derives its regulatory power from the Federal Food, Drug, and Cosmetic Act ("FDCA"), which has been amended over time by several subsequent laws. FDA's oversight of food safety and security is primarily carried out by its Center for Food Safety and Applied Nutrition ("CFSAN"). To execute its responsibilities, FDA has a team of 900 investigators and 450 analysts in the foods program who conduct inspections and collect and analyze product samples. FDA typically does not perform pre-market inspection for foods. FDA also 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.

For its part, FDA regulates foods made with GMOs under its 1992 “Statement of Policy: Foods Derived from New Plant Varieties.” Under this policy, FDA regulates foods derived from GM plant varieties consistent with the framework for non-GM foods. In most cases, foods derived from GM plant varieties are not subject to premarket review and approval. In some cases, however, such foods will be considered to contain “food additives” that require premarket review and approval. FDA offers a voluntary consultation process to determine whether foods derived from GM plant varieties will be subject to these more stringent regulatory requirements.

FDA does not currently require manufacturers to label foods made with GMOs as such, but permits voluntary labeling pursuant to a guidance document finalized in November 2015. The topic of GMO use and labeling has been of significant public interest; as political forces continue to work, and there can be no guaranty that it will not change in the future. Additionally, three states have passed, and nearly half of U.S. states have considered, mandatory GMO labeling laws to date.

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

In 2015, Collectis S.A. had two French subsidiaries (Collectis Bioresearch and Ectycell) and three U.S. subsidiaries (Calyx, Inc., Collectis, Inc. and Collectis Bioresearch Inc.). Non-controlling shareholders held a 24.5% interest in Collectis Bioresearch, Collectis Bioresearch Inc. and Ectycell until May 18, 2015.

The following internal reorganization was completed in 2015:

- Ectycell was merged into, and absorbed by Collectis Bioresearch in August 2015 with retroactive effect as at January 1, 2015 for French tax purposes;
- Collectis Bioresearch was merged into, and absorbed by, Collectis S.A in December 2015 with retroactive effect as at January 1, 2015 for French tax purposes;
- Collectis Bioresearch Inc. was merged into Collectis Inc. in September 2015.

Following the reorganization and as of December 31, 2016, the two remaining subsidiaries, Collectis, Inc. and Calyxt, Inc., were wholly-owned by Collectis.

Until July 25, 2017, Calyxt, Inc. was a wholly-owned subsidiary of Collectis. On July 25, 2017, Calyxt closed its IPO including the full exercise of the underwriter's over-allotment option with \$64.4 million in gross proceeds. Collectis purchased \$20.0 million of shares in the course of the IPO, which is included in the net proceeds that Calyxt received.

As of December 31, 2017, Collectis S.A. owns 100% of Collectis, Inc. and approximately 79.7% of Calyxt's outstanding shares of common stock.

D. Property, Plants and Equipment

Collectis S.A. leases a 3,064 square-meter facility in Paris for administrative and research and development activities. The lease commenced on April 1, 2011 and has a 10-year initial term expiring on April 1, 2021.

Collectis Inc. leases a 12,052 square-foot facility in New York, New York for administrative and research and development activities, which commenced on March 30, 2015 and has a 66-month initial term expiring on September 30, 2020. 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, 2017, Montvale facility is not operational and we intend to discontinue this lease before its scheduled termination in September 2026.

Calyxt Inc. leases a 17,485 square-foot facility in New Brighton, Minnesota, which commenced operations on October 15, 2012. The lease for this facility expires on May 31, 2018.

In March 2016, Calyxt acquired 10-acres in 2 parcels in Roseville (MN). A headhouse and a greenhouse were built on the Roseville property and have been in operation since September 2016.

In September 2017, Calyxt consummated a sale-leaseback transaction, including a Lease Agreement dated September 6, 2017, with a third party with respect to Calyxt's lease of certain real property and improvements located in Roseville, Minnesota, for a term of twenty years, with options to extend the term for up to an additional twenty years. Pursuant to the purchase agreement, Calyxt received approximately \$7 million in connection with the sale of the property. The property will be the new corporate headquarters for Calyxt and the landlord is constructing a built-to-suit facility to be composed of a nearly 40,000 square-foot office and lab building, with greenhouses and outdoor research plots. The corporate headquarters are expected to be ready in the spring of 2018.

Under the Lease Agreement, Calyxt will initially pay annual base rent of \$490,000 until the earlier of (i) the next day after issuance of a temporary certificate of occupancy or other permit to occupy the property by the City of Roseville and (ii) the next day after the certification of substantial completion executed by landlord's architect or contractor confirming that the work to be done on the property has been substantially completed (such date, the "Initial Term Commencement Date"). On the Initial Term Commencement Date, Calyxt will pay an estimated annual base rent of 8% of the total project cost ("Annual Base Rent") with scheduled increases in rent of 7.5% on the sixth, eleventh and sixteenth anniversaries of the initial term commencement date as well as on the first day of each Renewal Term (as defined in the Lease Agreement). Based on the initial cost of the project Calyxt will pay an estimated annual base rent of approximately \$1,480 thousand.

The Lease Agreement is a net lease and the costs and expenses associated with the property are to be paid for by Calyxt. In consideration of, and as an inducement to, the landlord's agreement to enter into the Lease Agreement, Collectis entered into a Lease Guaranty, whereby Collectis guaranteed all of Calyxt'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's tangible net worth exceeds \$300 million, as determined in accordance with generally accepted accounting principles.

On November 10, 2017, Calyxt agreed to indemnify Collectis for any obligations incurred by Collectis under the Lease Guaranty. This indemnification agreement will become effective at such time as Collectis owns 50% or less of Calyxt's outstanding common stock.

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 emerging 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 healthier food products for a growing population.

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 create food products with consumer health benefits, adaptations for climate change or nutritional enhancements that address the needs of a growing population. We do not have any products approved for sale and have not generated any revenues from immunotherapy or agricultural biotechnology product sales.

In February 2014, we entered into an alliance with Servier for the development of UCART19 and other product candidates directed at four additional molecular targets. In November 2015, we entered into an

amendment to our initial collaboration agreement with Servier, which allowed for an early exercise of Servier's option with respect to UCART19 and other product candidates. Pursuant to this amendment, Servier has exercised its option to acquire the exclusive worldwide rights to further develop and commercialize UCART19. In addition, Pfizer and Servier have entered into an exclusive global license and collaboration agreement under which Pfizer has obtained from Servier exclusive rights to develop and commercialize UCART19 in the United States. We entered into amendments to our collaboration agreements with each of Servier and Pfizer to facilitate this agreement between Servier and Pfizer. In connection with the entry into the amendment to the collaboration agreement, Servier made an upfront payment of \$38.5 million, excluding taxes. As of December 31, 2017, Cellectis was eligible to receive up to \$1,064 million in potential option exercise fees, development, clinical and sales milestones, in addition to royalties on sales and research and development costs reimbursements.

Our alliance with Pfizer, which commenced in June 2014, addresses the development of other CAR T-cell immunotherapies in the field of oncology. This strategic alliance is potentially worth up to \$2.9 billion in payments by Pfizer to us, including an \$80 million upfront payment and \$2.8 billion in potential clinical and commercial milestone payments. In addition, we invoice research and development costs assigned to our projects in common with Pfizer. Pfizer also purchased 10% of our then-outstanding equity in connection with this collaboration for €25.8 million. We believe that both of these strategic transactions position us to compete in the promising field of immuno-oncology and add additional clinical and financial resources to our programs.

We have also entered into research and development alliances with each of Cornell University and the MD Anderson Cancer Center. Pursuant to these strategic alliances, we collaborate with these two centers to accelerate the development of our lead product candidates UCART123, UCARTCS1, UCART22 and UCART38 in AML, BPDCN, multiple myeloma, B-cell and T-ALL, respectively. Under these agreements, we fund the research activities performed at Cornell University and the MD Anderson Cancer Center.

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 and UCART22, UCARTCS1, the technology transfer of UCART22 and UCARTCS1 process to CELLforCURE, and the GMP manufacturing of UCART123 and UCART22 at CELLforCURE. 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, we initiated our 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 Organisation 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 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. In 2015, 2016 and 2017, we received respectively \$52.0 million, \$27.3 million and \$8.1 million in payments pursuant to the Pfizer and Servier collaborations.

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 product candidate 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;
- 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;
- secure manufacturing arrangements for commercial production;
- 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 2015, 2016 and 2017 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

Revenues

We currently derive all our revenues from payments pursuant to our collaboration agreements with Pfizer and Servier, patent licensing arrangements and royalties on licensed technologies. Our collaboration agreements provide for non-refundable upfront payments that we received upon execution of the relevant agreement, milestone payments that we are entitled to receive when the triggering event has occurred, research and development cost reimbursements that are recognized over the period of these services and royalty payments. The triggering event for a milestone payment may be the receipt of favorable scientific results, regulatory approval, or marketing of products developed pursuant to the agreement. Royalties are based on sales of licensed products or technologies. They are recognized in accordance with the terms of the licensing agreement when sales 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.

Other Income

Government Grants

Due to the innovative nature of our product candidate development programs, we have benefited from a certain number of sources of assistance from the French government or local public authorities, intended to finance our research and development efforts or the recruitment of specific personnel. Government grants that offset expenses that we incur for those research programs are recognized as other income in the period in which the expenses that are reimbursable pursuant to the grant have been incurred.

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 on 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.

Operating Expenses

Our operating expenses consist primarily of royalty expenses, research and development expenses and selling, general and administrative expenses.

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; 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) our UCART123 product candidate, which entered into clinical trials in the United States in February 2017, (ii) our UCART22 and UCARTCS1 product candidates, which are in the manufacturing phase, and (iii) our other undisclosed targets 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 product candidates or if, when, or to what extent we will generate revenues from the commercialization and sale of any of our product candidates, or those of our collaborators, that might obtain regulatory approval. 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. We may never succeed in achieving regulatory approval for any product candidates. 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;
- 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 Cellectis 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 consolidated statements of income 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,		
	2015	2016	2017
	(\$ in thousands)		
Revenues and other income			
Revenues	55,864	44,808	25,188
Other income	6,701	11,637	8,528
Total revenues and other income	62,565	56,444	33,715
Operating expenses			
Royalty expenses	(2,746)	(1,777)	(2,620)
Research and development expenses	(58,154)	(78,458)	(79,227)
Selling, general and administrative expenses	(30,223)	(43,413)	(44,750)
Other operating income (expenses)	(2,425)	(99)	232
Operating income (loss)	(30,984)	(67,302)	(92,650)
Financial income	10,253	7,147	7,262
Financial expenses	(1,876)	(7,101)	(18,294)
Financial gain (loss)	8,378	46	(11,032)
Income tax	—	—	—
Net income (loss)	(22,606)	(67,255)	(103,683)
Attributable to shareholders of Collectis	(22,796)	(67,255)	(99,368)
Attributable to non-controlling interests	190	—	(4,315)

Revenues.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Collaboration agreements	53,580	41,891	22,821	-21.8%	-45.5%
Other revenues	2,284	2,916	2,367	27.7%	-18.8%
Revenues	55,864	44,808	25,188	-19.8%	-43.8%

The decrease in revenues of \$19.6 million, or 43.8%, between the years ended December 31, 2016 and 2017 primarily reflects a decrease of \$19.1 million in revenues under our collaboration agreements, of which \$8.5 million represents one-time milestone revenue received during the second quarter of 2016 with the first patient dosed in the Phase 1 clinical trial for UCART19, \$6.0 million represents decreased recognition of upfront fees already paid to Cellectis, \$1.9 million represents decreased research and development cost reimbursements (research services and direct costs) and \$2.8 million represents decreased revenue due to 2016 one-time payments by Servier for the supply of raw materials and batches of UCART19 products, partially offset by the increase of \$0.1 million in other services and products provided to Pfizer, and a \$0.5 million decrease in licensing revenues.

The decrease in revenue of \$11.1 million, or 19.8%, between the years ended December 31, 2015 and 2016 is mainly due (i) to the decrease of \$11.7 million in collaboration revenues due to revenue of \$20.9 million recorded in 2015 in relation to the early exercise by Servier of its option to acquire the exclusive worldwide rights to further develop and commercialize UCART19 partially offset by revenue totaling \$13.2 million from an agreement to provide Servier with raw materials and additional batches of UCART19 products and the achievement of two milestones in 2016 and (ii) to the increase of \$0.6 million in licenses fees.

Other income.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Research tax credit	5,591	10,038	8,327	79.5%	-17.0%
Other income	1,110	1,599	201	44.1%	-87.4%
Other income	6,701	11,637	8,528	73.7%	-26.7%

The decrease in other income of \$3.1 million, or 26.7%, between the years ended December 31, 2016 and 2017 reflects a decrease of \$1.7 million in research tax credit, and a decrease of \$1.4 million in research subsidies, resulting from settlements received after termination of research programs during the last quarter of the year ended December 31, 2016.

The increase in other income of \$4.9 million, or 73.7%, between the years ended December 31, 2015 and 2016 reflects an increase of \$4.4 million in research tax credit, and an increase of \$0.5 million in research subsidies, resulting from settlements after termination of research programs.

Royalty expenses.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Royalty expenses	(2,746)	(1,777)	(2,620)	-35.3%	47.5%

The increase in royalty expenses of \$0.8 million, or 47.5%, between the years ended December 31, 2016 and 2017 primarily reflects higher payments to existing license providers.

The decrease in royalty expenses of \$1.0 million, or 35.3%, between the years ended December 31, 2015 and 2016 primarily reflects lower expense to existing license providers.

Research and development expenses.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Personnel expenses	(39,341)	(48,982)	(37,906)	24.5%	-22.6%
Purchases, external expenses and other	(18,814)	(29,476)	(41,321)	56.7%	40.2%
Research and development expenses	(58,154)	(78,458)	(79,227)	34.9%	1.0%

During the years ended December 31, 2016 and 2017, research and development expenses increased by \$0.8 million or 1.0%. Personnel expenses decreased by \$11.1 million from \$49.0 million in 2016 to \$37.9 million in 2017, notably due to a \$9.4 million decrease in non-cash stock based compensation, a \$2.8 million decrease in social charges on stock option grants, partly offset by a \$1.1 million increase in wages and salaries. Purchases and external expenses increased by \$10.7 million from \$27.7 million in 2016 to \$38.5 million in 2017, mainly due to increased expenses related to payments to third parties participating in product development, purchases of biological raw materials, expenses related to process development and expenses associated with the use of laboratories and other facilities. Research and development expenses in 2017 include manufacturing costs related to UCART123, UCART CS1 and UCART22 and expenses related to UCART123 clinical trials. Other expenses increased by \$1.1 million mainly due to the impairment of assets for \$0.8 million related to the vacant Montvale site recorded in 2017. Otherwise, other expenses include continuing leasing and other commitments.

During the years ended December 31, 2015 and 2016, research and development expenses increased by \$20.3 million or 34.9%. Personnel expenses increased by \$9.6 million from \$39.3 million in 2015 to \$49.0 million in 2016, notably due to a \$1.8 million increase in wages and salaries, and a \$12.6 million increase in non-cash stock based compensation expense, partly offset by a \$4.8 million decrease in social charges on stock option and free shares grants. Purchases and external expenses increased by \$10.8 million from \$16.9 million in 2015 to \$27.7 million in 2016, mainly due to increased expenses related to UCART123 and other product candidates' development, including payments to third parties, purchases of biological materials and expenses associated with the use of laboratories and other facilities. Expenses in 2016 also include costs related to preparation of UCART123 clinical trials. Other expenses relate to continuing leasing and other commitments and decreased by \$0.1 million.

Selling, general and administrative expenses.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Personnel expenses	(21,735)	(33,523)	(34,486)	54.2%	2.9%
Purchases, external expenses and other	(8,489)	(9,890)	(10,264)	16.5%	3.8%
Selling, general and administrative expenses	(30,223)	(43,413)	(44,750)	43.6%	3.1%

During the years ended December 31, 2016 and 2017, the increase in selling, general and administrative expenses of \$1.3 million, or 3.1%, primarily reflects (i) an increase of \$1.0 million in personnel expenses from \$33.5 million to \$34.5 million, attributable to a \$2.0 million increase in wages and salaries, and an increase of \$1.2 million of non-cash stock-based compensation expense, partly offset by a decrease of \$2.2 million of social charges on stock options grants, and (ii) an increase of \$0.3 million in purchases and external expenses. Other

expenses relate to taxes, various depreciation and amortization and other commitments and increased by \$0.1 million, due to higher business taxes and higher provisions.

During the years ended December 31, 2015 and 2016, the increase in selling, general and administrative expenses of \$13.2 million, or 43.6%, primarily reflects (i) an increase of \$11.8 million in personnel expenses from \$21.7 million to \$33.5 million, attributable to a \$1.0 million increase in wages and salaries, and an increase of \$12.6 million of non-cash stock-based compensation expense, partly offset by a decrease of \$1.8 million of social charges on stock options and free share grants, and (ii) an increase of \$2.1 million in purchases and external expenses. Other expenses relate to taxes, various depreciation and amortization and other commitments and decreased by \$0.7 million, due to lower business taxes and lower provisions.

Other operating income (expenses).

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Other operating income (expenses)	(2,425)	(99)	232	-95.9%	334.2%

The increase in other operating income and expenses between the years ended December 31, 2016 and 2017 amounted to \$0.3 million. For the year ended December 31, 2017, other operating income primarily reflects (i) a receivable related to the refund of social charges paid on Collectis free share grants that expired without being vested for \$0.2 million, (ii) reversals of personnel litigation for a total amount of \$0.1 million, and is partially offset by other operating expenses for \$0.1 million related to social charges paid on former employee compensation.

The decrease in net other operating expenses between the years ended December 31, 2015 and 2016 amounted to \$2.3 million, or 95.9%. Other operating expenses for the year ended December 31, 2016 included \$0.4 million provisions for personnel and commercial litigations that have been partially offset by other operating income, including (i) a one-off tax reimbursement, (ii) the reversal of lease incentive deferrals and (iii) reversals of reserves for personnel and commercial litigation. During the year ended December 31, 2015, other operating income and expenses included income from (i) the reversal of a subsidy provision, (ii) the reversal of lease incentives deferrals, and (iii) a gain from a settlement with a supplier, while other operating expenses reflected settlements signed in 2015.

Financial income.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Financial income	10,253	7,147	7,262	-30.3%	1.6%

The increase in financial income of \$0.1 million, or 1.6%, between the years ended December 31 2016 and 2017, was mainly attributable to an increase in fair value of financial derivative instruments and current financial assets of \$3.2 million and an increase in interest income of \$0.5 million partly offset by a decrease in foreign exchange realized and unrealized gain of \$3.6 million.

The decrease in financial income of \$3.1 million, or 30.3%, between the years ended December 31 2015 and 2016, was mainly attributable to the decrease of \$4.3 million of foreign exchange realized and unrealized gain partly offset by an increase in interest income of \$0.5 million.

Financial expenses.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Financial expenses	(1,876)	(7,101)	(18,294)	278.6%	157.6%

The increase in financial expenses of \$11.2 million, or 157.6%, between the years ended December 31 2016 and 2017, was mainly attributable to \$13.5 million increase in foreign exchange realized and unrealized loss, partly offset by a decrease in fair value of financial derivative instruments and other current assets of \$2.7 million.

The change in financial expenses of \$5.2 million, or 278.6%, between the years ended December 31 2015 and 2016, was mainly attributable to \$2.3 million increase in foreign exchange realized and unrealized loss and \$2.7 million increase in fair value of financial derivative instruments and current financial assets.

Net Income (loss).

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Net income (loss)	(22,606)	(67,255)	(103,683)	197.5%	54.2%

The increase in net loss of \$36.4 million, or 54.2%, between the year ended December 31, 2016 and 2017 was mainly due to (i) a \$22.7 million decrease in revenues and other income, (ii) an \$11.1 million decrease in financial gain (loss), (iii) an \$11.0 million increase in purchases and external expenses, (iv) a \$3.1 million increase in wages, (v) a \$1.1 million increase in other selling, general and administrative expenses and research and development expenses and (vi) a \$0.8 million increase in royalty expenses, partially offset by (a) a \$8.2 million decrease in non-cash stock-based compensation expense and (b) a \$5.5 million decrease in social charges on stock options and free share grants. The remaining difference is mainly due to the decrease in other operating expenses.

The increase in net loss from continuing operations of \$44.6 million, or 197.5%, between the year ended December 31, 2015 and 2016 was mainly due to (i) a \$25.2 million increase in non-cash stock-based compensation expense, (ii) a \$12.9 million increase in purchases and external expenses, (iii) a \$2.8 million increase in wages, (iv) a \$6.1 million decrease in revenues and other income and (v) an \$8.3 million decrease in financial gain (loss), partially offset by \$6.6 decrease in social charges on stock options and free share grants. The remaining difference is mainly due to the decrease in other operating expenses.

Gain (loss) attributable to non-controlling interests.

	For the year ended December 31,			% change	
	2015	2016	2017	2016 vs 2015	2017 vs 2016
Gain (loss) attributable to non-controlling interests	190	—	(4,315)	100.0%	0.0%

During the year ended December 31, 2017, we recorded \$4.3 million in loss attributable to non-controlling interests. The change in net loss attributable to non-controlling interests is a result of 20.3% of Calyxt common shares being owned by minority shareholders following its initial public offering.

During the year ended December 31, 2015, we recorded \$0.2 million in gain attributable to non-controlling interests. Non-controlling interests for 2015 include 25% of the income of Collectis Bioresearch and its

subsidiaries until our repurchase from “*Caisse des Dépôts et Consignations*” on May 18, 2015 of its shares, which represented the entirety of this non-controlling interest. As such, there is no income (loss) attributable to non-controlling interests in 2016.

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 and the allocation of research and development expenses among the reportable segments. With respect to corporate general and administrative expenses, Collectis provides Calyxt 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 charges Calyxt in euros at cost plus a mark-up ranging between zero to 10%, depending on the nature of the service. Amounts due to Collectis pursuant to inter-segment transactions bear interest at a rate of 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.

Years Ended December 31, 2015, 2016 and 2017

The following table summarizes segment revenues and segment operating profit (loss) for the years ended December 31, 2015, 2016 and 2017:

\$ in thousands	For the year ended December 31, 2015			For the year ended December 31, 2016			For the year ended December 31, 2017		
	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments
Segment revenues and other income (1)	49	65,159	65,208	716	59,458	60,173	914	35,584	36,498
Inter-segment revenues (1)	—	(2,643)	(2,643)	(130)	(3,599)	(3,729)	(167)	(2,615)	(2,782)
External revenues and other income	49	62,516	62,565	585	55,859	56,444	747	32,969	33,715
Research and development expenses	(2,874)	(55,280)	(58,154)	(4,112)	(74,345)	(78,458)	(6,057)	(73,170)	(79,227)
Selling, general and administrative expenses	(1,834)	(28,390)	(30,223)	(4,809)	(38,603)	(43,413)	(13,143)	(31,607)	(44,750)
Royalties and other operating income and expenses	(272)	(4,899)	(5,171)	(474)	(1,402)	(1,876)	(384)	(2,005)	(2,389)
Total operating expenses	(4,980)	(88,569)	(93,549)	(9,395)	(114,351)	(123,746)	(19,584)	(106,782)	(126,366)
Operating income (loss) before tax	(4,931)	(26,053)	(30,984)	(8,810)	(58,492)	(67,302)	(18,837)	(73,813)	(92,650)
Financial gain (loss)	259	8,119	8,378	87	(41)	46	—	(11,032)	(11,032)
Net income (loss)	(4,672)	(17,934)	(22,606)	(8,722)	(58,533)	(67,255)	(18,837)	(84,846)	(103,683)
Non controlling interests	—	(190)	(190)	—	—	—	4,315	—	4,315
Net income (loss) attributable to shareholders of Collectis	(4,672)	(18,124)	(22,796)	(8,722)	(58,533)	(67,255)	(14,522)	(84,846)	(99,368)
Adjustment of share-based compensation	789	32,613	33,402	1,098	57,524	58,622	5,957	42,968	48,925
Adjusted net income (loss) attributable to shareholders of Collectis	(3,883)	14,489	10,606	(7,625)	(1,009)	(8,633)	(8,565)	(41,877)	(50,442)
Depreciation and amortization	(99)	(1,838)	(1,937)	(345)	(1,866)	(2,211)	(551)	(2,820)	(3,371)
Additions to tangible and intangible assets	526	3,886	4,413	10,410	4,164	14,573	792	1,849	2,642
Impairment of tangible assets	—	—	—	—	—	—	—	(798)	(798)

- (1) Please note that for prior periods our intersegment revenues and other income of Therapeutics segment for 2015 was reported at €0.8 million, or \$0.9 million. In this Annual Report, Intersegment revenues and other income of Therapeutics segment for 2015 is reported as \$2.6 million and comprise both management fees and direct costs re-invoicing. The counterpart of this change is the line Segment revenues and other income. It has no impact on External revenues of Therapeutics segment.

Therapeutics segment—2016 vs. 2017

External revenues in our Therapeutics segment decreased by \$22.9 million, or 41.0%, from \$55.9 million for the year ended December 31, 2016 to \$33.0 million for the year ended December 31, 2017. The decrease was primarily due to a decrease of \$19.1 million in collaboration agreement revenues and lower subsidies revenue and research tax credit, as described in sections “Revenues” and “Other income” of the consolidated operating result analysis.

The decrease in operating expenses of \$7.6 million, or 6.6%, from the year ended December 31, 2016 to the year ended December 31, 2017 resulted primarily from lower personnel expenses, mainly attributable to the decrease in non-cash stock-based compensation expenses and social charges on stock options grants, and is partially offset by the increase in purchases and external expenses for product development.

Segment operating loss before tax for the Therapeutics segment increased by \$15.3 million, or 26.2%, from the year ended December 31, 2016 to the year ended December 31, 2017.

Therapeutics segment—2015 vs. 2016

External revenues in our Therapeutics segment decreased by \$6.7 million, or 10.6%, from \$62.5 million for the year ended December 31, 2015 to \$55.9 million for the year ended December 31, 2016. The decrease was primarily due to a decrease of \$11.7 million in collaboration agreement revenues and higher research tax credit, as described in sections “Revenues” and “Other income” of the consolidated operating result analysis.

The increase in operating expenses of \$25.8 million, or 29.1%, from the year ended December 31, 2015 to the year ended December 31, 2016 resulted primarily from higher personnel expenses, attributable, among other things, to the increase in non-cash stock-based compensation expenses, as well as the increase in external expenses for product development.

Segment operating loss before tax for the Therapeutics segment increased by \$32.4 million, or 124.5% from the year ended December 31, 2015 to the year ended December 31, 2016.

Plants segment—2016 vs. 2017

External revenues in our Plants segment increased by \$0.2 million, or 27.6%, from \$0.6 million for the year ended December 31, 2016 to \$0.7 million for the year ended December 31, 2017.

The increase in operating expenses of \$10.2 million, or 108.4%, from the year ended December 31, 2016 to the year ended December 31, 2017 resulted primarily from a significant increase in Calyxt’s activities, higher professional fees related to the cost of becoming a Nasdaq listed company, as well as an increase in non-cash stock-based compensation expenses.

Segment operating loss before tax for the Plants segment increased by \$10.0 million, or 113.8%, from \$8.8 million for the year ended December 31, 2016 to \$18.8 million for the year ended December 31, 2017.

Plants segment—2015 vs. 2016

External revenues in our Plants segment increased by \$0.5 million, from \$49 thousand for the year ended December 31, 2015 to \$0.6 million for the year ended December 31, 2016.

The increase in operating expenses of \$4.4 million, or 88.7%, from the year ended December 31, 2015 to the year ended December 31, 2016 resulted primarily from a significant increase in Calyxt’s activities, as well as an increase in non-cash stock-based compensation expenses.

Segment operating loss before tax for the Plants segment increased by \$3.9 million, or 78.7%, from \$4.9 million for the year ended December 31, 2015 to \$8.8 million for the year ended December 31, 2016.

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.

Key Financing Events

- **2014**—In March 2014, we completed a private placement of 4,000,000 ordinary shares to institutional investors for gross proceeds of €20.5 million. In July 2014, in connection with our collaboration agreement with Pfizer, we issued 2,786,924 ordinary shares, representing 10% of our then-outstanding ordinary shares, to Pfizer for gross proceeds of €25.8 million. In November 2014, we issued shares in connection with the exercise of non-employee warrants for gross proceeds of €13.4 million.
- **2015**—In March 2015, we completed our U.S. initial public offering of ADSs on the Nasdaq for gross of \$228 million of gross proceeds, of which we received net proceeds of \$209.6 million.
- **2017**—In July 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 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. Then, the net proceeds amounted to \$38 million on a consolidated basis.

Liquidity management

As of December 31, 2017, we had current financial assets and cash and cash equivalents of \$297.0 million comprising cash and cash equivalents of \$256.4 million and current financial assets of \$40.6 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 amounted to \$233.9 million as of December 31, 2017. Current financial assets denominated in U.S. Dollars amounted to \$39.7 million as of December 31, 2017.

Historical Changes in Cash Flows

The table below summarizes our sources and uses of cash for the years ended December 31, 2015, 2016 and 2017:

	For the year ended December 31,		
	2015	2016	2017
Net cash flows provided by (used in) operating activities	3,591	(32,710)	(52,327)
Net cash flows provided by (used in) investing activities	(7,728)	(53,137)	1,784
Net cash flows provided by (used in) financing activities	220,591	485	41,266
Total	216,454	(85,362)	(9,277)
Effect of exchange rate changes on cash	(10,743)	(2,181)	11,089

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.

Year Ended December 31, 2016

The net cash flows used in operating activities are mainly due to our cash expenditures related to research and development efforts, including the advancement of UCART123, for which an IND was filed in the United States in 2016, plus several advance payments made for manufacturing activities, partially offset by the payments received from Servier and Pfizer pursuant to our collaboration agreements. Cash outflows for 2016 also include \$7.0 million of social charges on stock options.

The net cash flows used in investing reflects our use of \$10.0 million for the acquisition of land by Calyxt and the building of its greenhouse, and the acquisition of \$37.5 million of current financial assets at Collectis.

The net cash flows provided by financing activities includes the exercise of non-employees warrants in January 2016 for \$0.3 million and the subscription of non-employees warrants in September 2016 for \$0.3 million partially offset by the decrease of financial lease debt for \$0.1 million.

Year Ended December 31, 2015

We had net cash flows provided by operating activities of continuing operations of \$3.6 million for the year ended December 31, 2015, primarily as a result of payments received from Servier and, to a lesser extent, Pfizer. In December 2015, we received an upfront payment of \$40.0 million in connection with the amendment to our

collaboration agreement with Servier. Our cash expenditures during 2015 related to our research and development efforts, including the advancement of UCART19, for which a CTA was filed in the United Kingdom in 2015. Cash outflows for 2015 also include \$13.5 million of social charges on free shares and stock options grants.

The net cash flows used in investing activities of continuing operations of \$7.8 million for the year ended December 31, 2015 primarily reflects our use of \$4.3 million for the acquisition of industrial and laboratory equipment at Collectis S.A. and Collectis Inc., and our repurchase for \$3.9 million of 25% of the minority shares of Collectis Bioresearch.

The net cash flows provided by financing activities of continuing operations of \$220.6 million for the year ended December 31, 2015 includes the net proceeds from our U.S. initial public offering on the Nasdaq Global Market in March 2015.

Operating capital requirements

To date, we have not generated any revenues from therapeutic or agricultural product sales. 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. 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 2020. 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 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, 2017, we had 97 employees engaged in research and development activities. In the years ended December 31, 2015, 2016 and 2017 we spent \$58.2 million, \$78.5 million and \$79.2 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 (i) financial derivative instruments agreements to minimize impacts from exchange rate fluctuations and (ii) 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, 2017. Future events could cause actual payments to differ from these estimates.

As of December 31, 2017	Total	Less than			
		1 year	1 - 3 years	3 - 5 years	More than 5 years
		\$ in thousands			
Sale and lease-back agreement	30,114	1,076	2,689	2,676	23,673
Facility lease agreements	13,416	3,110	5,939	1,670	2,697
License agreements	18,413	1,238	2,476	2,476	12,223
Manufacturing agreements	7,679	7,679	—	—	—
Other agreements	1,702	1,702	—	—	—
Total contractual obligations	71,324	14,805	11,104	6,821	38,593

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 facility in New York and Calyxt's facility in New Brighton.

For further detail regarding license and manufacturing agreement, please see Note 18 – 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 13, 2018. Unless otherwise stated, the address for our executive officers and directors is 8, rue de la Croix Jarry, 75013 Paris, France.

Name	Age	Position(s)
Executive Officers:		
André Choulika, Ph.D.	53	Chairman of the Board, Chief Executive Officer, and Co-Founder
Julia Berretta, Ph.D.	37	Vice President Business Development
Elsy Boglioli (1)	36	Chief Operating Officer
Stéphane Depil, M.D. Ph.D.	44	Senior Vice President Research and Development and Chief Medical Officer
Philippe Duchateau, Ph.D.	55	Chief Scientific Officer
Eric Dutang	44	Chief Financial Officer
Stephan Reynier	49	Chief Regulatory Officer
David Sourdivé, Ph.D.	51	Director, Executive Vice President, Technical Operations and Co-Founder
Marie-Bleuenn Terrier	36	General Counsel
Federico Tripodi	41	Chief Executive Officer, Calyxt, Inc.
Non-Employee Directors:		
Laurent Arthaud	55	Director
Pierre Bastid	63	Director
Rainer Boehm	57	Director
Alain Godard	72	Director
Hervé Hoppenot	58	Director
Jean-Marie Messier	61	Director
Annick Schwebig, M.D.	67	Director

(1) In connection with the retirement of Dr. Mathieu Simon, Ms. Boglioli was appointed Chief Operating Officer on March 13, 2018.

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 Calyxt, Inc. since August 2010. 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 +). 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.

Julia Berretta, Ph.D., joined Collectis in 2010 in the scientific alliance and business development department. She has served as VP Business Development and Strategic Planning since 2014. Prior to joining Collectis, she worked as a researcher at the CNRS in Gif-sur-Yvette. Julia Berretta received her Ph.D. in molecular biology from the Université Paris XI, and holds a specialized Master's Degree in innovation management from Neoma Business School.

Elsy Boglioli joined Collectis in December 2017. Commencing in 2018, she serves as Chief Operating Officer. Prior to assuming the COO role, she served as Executive Vice President, Strategy and Corporate

Development. Prior to joining Collectis, she worked at Boston Consulting Group (BCG) where she served as Partner and Managing Director, and leader of BCG's biotech-focused business in Europe. At BCG, she was also a member of the global biopharma leadership team and global strategy practice management team and served as regional head of the strategy practice for Europe. Ms. Boglioli graduated from Ecole Polytechnique in Paris, France and holds a master's degree in economy and management from Pompeu Fabra University in Barcelona, Spain.

Stéphane Depil, M.D., Ph.D., joined Collectis in December 2017. He serves as Senior Vice President, Research & Development and Chief Medical Officer. In addition to his role at Collectis, Stéphane Depil is an onco-hematologist at Léon Bérard Cancer Center and an adjunct Professor at University Claude Bernard Lyon 1, France. Prof. Depil is a Board-certified physician in hematology and has over 15 years of experience in oncology clinical development, both in hospital / university and pharmaceutical companies. He obtained a PhD in immunology at Institut de Biologie de Lille after working on a project concerning cancer vaccination. Prior to joining the Léon Bérard Cancer Center & Cancer Research Center of Lyon, France, as Medical Director of the Cancer Immunotherapy Program, he served as Chief Executive Officer at Netris Pharma, where he was responsible for the management of an oncology startup and preclinical development of a first-in-class monoclonal antibody in Phase I. Prior to Netris, Stéphane Depil worked at Servier for 8 years in a variety of roles, including Director of Oncology Research and Development, where he managed 20 programs: 5 in the clinic, 7 at late preclinical stages, and 8 at early preclinical stages. He also directly supervised the evaluation of over 100 licensing opportunities.

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).

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. From 2009 to 2012, he served as President of Ectycell SAS, and since 2012, he has served on its supervisory committee. 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 Eukarÿs SAS, and since 2017 Dr. Sourdivé serves on the Board of Omics SAS. 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.

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.

Federico Tripodi was appointed CEO of Calyxt in May 2016. He holds a Master of Business Administration degree from Washington University's Olin Business School, as well as an agronomic engineering degree from Buenos Aires University, and has gathered extensive experience in agricultural R&D and product development during his nearly two-decade career in the agricultural biotechnology and seeds industry. Prior to joining Calyxt, he worked as General Manager for Monsanto Company's Sugarcane Division in Brazil for three years. He held other roles for Monsanto in Saint Louis, Mo., spanning Corporate Strategy (2011-2013), Omega-3 Program Lead (2009-2011), Oilseeds Global Quality Management Lead (2008-2009) and multiple other roles that involved managing multidisciplinary research teams in the technology organization between 2001 and 2008. During his tenure at Monsanto, Mr. Tripodi led or participated with early discovery and late commercialization phase product launches across the Americas, which included biotechnology consumer traits (improved composition soybean oils) and farmer traits (high yield, drought tolerance, insect protection and herbicide tolerance). Mr. Tripodi started his career in Argentina in 1998 in field research of biotechnology traits and chemistry formulations until he moved to Saint Louis in 2001. Mr. Tripodi also has experience as a director of a startup and served on the board of directors for a not-for-profit.

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 Entreprises, a subsidiary of Caisse des Dépôts) since 2012. He currently serves on the boards of directors of Kurma Life Sciences Partners, TxCell, Adocia and Sparinvision. From 2006 to 2016, he served on the board of directors of Emertee Gestion. 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 Pharmext (a biotechnology company), Hougou Finance S.A. and Hougou Développement S.A. (his own investment company), ZAKA S.A. and GRID (his own Paris and New York-based real estate companies), Shango S.A. (his own private equity company), EVOK (his own hotel group), Nepteam S.A.S. (a shipbuilding company), Louise 342-344 S.A., Hebioso S.A., La Chartreuse B S.C., Batuque Hotelaria e Turismo S.A. and Casino Royal S.A.

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. 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. His broad interests include leadership development, coaching and mentoring, access to medicines and new business models including solutions to leverage digital medicines and real world evidence. 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. 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. We believe Mr. Hoppenot's business experience in the biotechnology industry qualifies him to serve as a member of our board of directors.

Jean-Marie Messier has served as a member of our board of directors since May 18, 2015. He is co-founder and head of Messier Maris & Associés, an international investment banking firm. Mr. Messier has served on the board of directors of Rentabiliweb Group since May 2011. After graduating from the French university, Ecole Polytechnique, Mr. Messier attended the Ecole Nationale d'Administration, which trains civil servants. He became Managing Partner at Lazard Frères in 1988, a position he held for six years. Prior to this, he was responsible for the French Government's Privatization plan. As such, he privatized companies among which Alcatel, Lagardère, Saint Gobain, Suez and Société Générale, now all part of the top twenty French corporations. Mr. Messier served as President of Vivendi Universal from 1994 to 2002. During these years, he founded the mobile firm Cegetel and turned Vivendi into a conglomerate focused on two core activities: utilities (water, power and transport) and communications (pay TV, telecoms and internet), selling off assets in other areas. Mr. Messier has been managing his own "boutique" since 2003, Messier Maris & Associés, an investment bank headquartered in Paris and New York representing more than 50 professionals.

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 biopharmaceuticals company specializing in innovative treatments to serve unmet medical needs. She is also a director of Inventiva Pharma, a biopharmaceutical company, and Inserm-Transfert SA, the private subsidiary of the French National Institute of Health and Medical Research. 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, 2017, was \$3.6 million. For the year ended December 31, 2017, 715,000 stock options with an exercise price of €22.57 per ordinary share were issued to directors and executive officers as compensation under the 2017 Stock Option Plan. The total amount set aside or accrued to provide pension, retirement or similar benefits was \$35,285 for the year ended December 31, 2017.

Service Agreements

Mr. Godard, a member of our board of directors, entered into a service agreement with us and provided consultancy services in the area of global development strategy. We paid €34 thousand (or \$38 thousand) in compensation for those services in fiscal year 2017.

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 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. Chouluka 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. Chouluka 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 no shareholder holds a greater proportion of the voting rights; 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, these agreements 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 and these agreements are necessary to attract qualified directors and executive officers.

These contractual indemnification agreements may discourage shareholders from bringing a lawsuit against our directors and executive officers for breach of their fiduciary duty. These provisions 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 these insurance agreements.

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.

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). 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, 2017, 21,569 employee warrants exercisable for an aggregate of 22,403 ordinary shares at a weighted average exercise price of €7.81 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 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.

As of December 31, 2017, 1,079,400 non-employee warrants exercisable for an aggregate of 1,079,400 ordinary shares at a weighted average exercise price of €27.62 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 and 2015 Free Share Plans, we have granted free shares to certain of our employees and officers. Our current plan, the 2015 Free Share Plan, was adopted by our board of directors on May 18, 2015.

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 and 2015 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.

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.

- 15,600 free shares granted in 2015 under the 2015 Free Share Plan will be acquired on May 18, 2019 for the Non-French residents, subject to the continued service of the beneficiaries.

Stock Options

On March 24, 2015, our board of directors adopted our 2015 Stock Option Plan, which will expire on April 16, 2018 and on October 28, 2016, our board of directors adopted our 2016 Stock Option Plan which will expire on July 18, 2019. The 2015 Stock Option Plan, the 2016 Stock Option Plan as amended and the 2017 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 allocate the options. The maximum number of ordinary shares, which may be subject to stock options issued is 7,354,930 ordinary shares under the 2015 Stock Option Plan, is 3,217,861 ordinary shares under the 2016 Stock Option Plan and is 3,541,547 ordinary shares under the 2017 Stock Option Plan. Incentive Stock Options and Non-qualified stock options may be granted under the Stock Option Plans.

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.

As of the date of this Annual Report:

- 82,123 free shares granted under the 2012 Free Share Plan vested on September 18, 2014 are now exercisable, of which 30,981 shares are held by our directors and officers;
- 60,000 free shares granted under the 2013 Free Share Plan vested on March 19, 2015 are now exercisable, of which 26,000 free shares are held by our directors and officers;
- 98,000 free shares granted under the 2014 Free Share Plan vested on April 10, 2016 and are under the holding period of two years, of which 8,000 free shares have been granted to our directors and officers;
- 50,000 free shares granted in 2015 to one employee under terms and conditions similar to the 2014 Free Share Plan vested on January 8, 2017, and are under the holding period of two years; and
- 414,950 free shares granted under the 2015 Free Share Plan vested on May 18, 2017 and are under the holding period of two years, of which 170,000 free shares have been granted to our directors and officers.

As of the date of this Annual Report, a maximum of 3,541,547 stock options may be optioned and issued under the 2017 Stock Option Plan. This figure includes 1,220,000 stock options granted under the 2017 Stock Option Plan on October 11, 2017 with an exercise price of €22.57 per ordinary share, of which 715,000 were granted to certain of our directors and executive officers.

Calyxt, Inc.

In December 2014, our subsidiary Calyxt granted options representing a 0.83% interest to a small group of its employees and two of our directors and executive officers, and it reserved an additional 0.1% for further grants. Calyxt made these grants to provide incentives for these employees that are directly linked to the performance of Calyxt, rather than Collectis as a whole.

In September 2015, our subsidiary Calyxt granted options representing a 0.4% interest to a group of its employees and two of our directors and executive officers.

In April 2016, our subsidiary Calyxt granted options representing a 6.1% interest to a group of its employees and ten of our directors, executive officers, employees and consultants.

In June 2017, our subsidiary Calyxt granted options and restricted stock unit representing a 12.9% interest to a group of its employees and twenty of our directors, executive officers, employees 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 vote 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 without cause by the affirmative vote of the holders of at least a majority of the votes of the 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 nine 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 (1)</u>	<u>Current Position</u>	<u>Year of Initial Appointment</u>	<u>Term Expiration Year</u>
André Choulïka, Ph.D.	Chairman	2000	2018
David Sourdiv, Ph.D.	Director	2000	2018
Alain Godard	Director	2007	2018
Pierre Bastid	Director	2011	2020
Laurent Arthaud	Director	2011	2020
Annick Schwebig, M.D.	Director	2011	2020
Jean-Marie Messier	Director	2015	2018
Hervé Hoppenot	Director	2017	2020
Rainer Boehm	Director	2017	2020

(1) Dr. Mathieu Simon retired from our board of directory in October 2017.

In addition, French law required companies having at least 50 employees for a period of 12 months over the last three years set up a *Comité d'Entreprise*, or Works' Council, and *Délégués du personnel*, or staff delegates, both being composed of representatives elected from among the employees. In conjunction with the French law then applicable to companies of 200 employees and less, we chose to have only one employee representative body, the *Délégation Unique du Personnel*. Our *Délégation Unique du Personnel* has been elected for a four year period, and our current *Délégation Unique du Personnel* was formed on June 19, 2015. Among these representatives, two are entitled to attend all meetings of the board of directors and shareholders, in an observer capacity.

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*. We currently intend to comply with this obligation before the end of 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. Choulïka and Sourdiv, 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 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 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 Messier.

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

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.

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.collectis.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, 2017, we had 135 employees, 131 of whom are full-time, 47 of whom hold Ph.D. or M.D. degrees, 96 of whom were engaged in research and development activities and 39 of whom were engaged in business development, legal, finance, information systems, facilities, human resources or administrative support. As of December 31, 2017, 84 of our employees were located in France and 51 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 28, 2018 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 28, 2018. The percentage ownership information shown in the table is based upon 35,960,062 ordinary shares outstanding as of December 31, 2017.

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.

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 28, 2018. 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.

Name of Beneficial Owner	Ordinary Shares Beneficially Owned	
	Number	Percentage
5% Shareholders:		
Bpifrance Participations	2,879,500	8.01%
Pfizer, Inc. (1)	2,817,455	7.84%
FMR LLC (2)	3,592,818	10.05%

Name of Beneficial Owner	Ordinary Shares Beneficially Owned	
	Number	Percentage
Directors and Executive Officers:		
André Choulika, Ph.D (3)	1,431,732	3.98%
David Sourdivé, Ph.D. (4)	1,368,535	3.81%
Philippe Duchateau, Ph.D. (5)	354,973	*
Eric Dutang (6)	143,950	*
Julia Berretta (7)	217,165	*
Marie-Bleuenn Terrier (8)	292,609	*
Stephan Reynier (9)	124,493	*
Elsy Boglioli	0	*
Stéphane Depil	0	*
Federico Tripodi	0	*
Alain Godard (10)	144,999	*
Pierre Bastid (11)	3,422,394	9.52%
Laurent Arthaud	0	*
Annick Schwebig, M.D. (12)	51,997	*
Jean-Marie Messier (13)	110,117	*
Hervé Hoppenot	0	*
Rainer Boehm	0	*
All directors and executive officers as a group (17 persons)	7,664,904	21.32%

* Represents beneficial ownership of less than one per cent.

- (1) 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 Research and Collaboration Agreement between Pfizer Inc. and Collectis S.A., dated June 17, 2014.
- (2) Amounts beneficially owned by FMR LLC were reported pursuant to a Schedule 13G amendment filed with the SEC on February 13, 2018 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) Includes 164,379 ordinary shares that Mr. Choulika has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 125,000 ordinary shares that Mr. Choulika has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option Plan, 80,350 ordinary shares that Mr. Choulika has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 84,929 ordinary shares that Mr. Choulika has the right to acquire pursuant to stock options granted in March 2016 under the 2016 Stock Option Plan.
- (4) Includes 131,507 ordinary shares that Mr. Sourdivé has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 109,375 ordinary shares that Mr. Sourdivé has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 Stock Option

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- Plan and 70,307 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan, 74,313 ordinary shares that Mr. Sourdive has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan. Includes 703,041 shares held by Viveoo SARL.
- (5) Includes 98,630 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 93,750 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 60,263 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 63,696 ordinary shares that Dr. Duchateau has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan.
 - (6) Includes 9,375 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, 60,263 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 74,313 ordinary shares that Mr. Dutang has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan.
 - (7) Includes 65,752 ordinary shares that Mrs. Berretta has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 56,250 ordinary shares that Mrs. Berretta has the right to acquire pursuant to stock options granted in September 2015 governed by the 2015 the Stock Option Plan, 40,263 ordinary shares that Mrs. Berretta has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 31,131 ordinary shares that Mrs. Berretta has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan.
 - (8) Includes 65,752 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 56,250 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, 70,306 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 74,313 ordinary shares that Mrs. Terrier has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan.
 - (9) Includes 29,589 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in March 2015 under the 2015 Stock Option Plan, 25,000 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, 29,428 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in March 2016 under the 2015 Stock Option Plan and 25,353 ordinary shares that Mr. Reynier has the right to acquire pursuant to stock options granted in October 2016 under the 2016 Stock Option Plan.
 - (10) The ordinary shares include 50,000 non-employee warrants which are exercisable since March 27, 2016, 33,633 non-employee warrants, which are exercisable since September 8, 2016, 26,783 non-employee warrants, which are exercisable since March 14, 2017 and 13,333 non-employee warrants, which are exercisable since October 28, 2017.
 - (11) The ordinary shares include 50,000 non-employee warrants which are exercisable since March 27, 2016, 33,333 non-employee warrants, which are exercisable since September 8, 2016, 26,783 non-employee warrants, which are exercisable since March 14, 2017, 13,333 non-employee warrants, which are exercisable since October 28, 2017 and includes 3,298,944 shares held by Zaka Rendement S.A.
 - (12) The ordinary shares include 30,000 non-employee warrants which are exercisable since March 27, 2016, 33,333 non-employee warrants, which are exercisable since September 8, 2016, 26,783 non-employee warrants, which are exercisable since March 14, 2017, and 13,333 non-employee warrants, which are exercisable since October 28, 2017.
 - (13) The ordinary shares include 50,000 non-employee warrants which are exercisable since March 27, 2016, and 33,333 non-employee warrants, which are exercisable since September 8, 2016, and 26,783 non-employee warrants, which are exercisable since March 14, 2017.

The significant changes in the percentage ownership held by our principal shareholders since January 1, 2014 are as a result of the transactions described in our prospectus dated March 26, 2015, filed with the SEC

pursuant to Rule 424(b), under the heading “Related Party Transactions—Transactions with Our Principal Shareholders, Directors and Executive Officers” and the dilution resulting from our public offering.

None of our principal shareholders has voting rights different than our other shareholders.

As of February 28, 2018, assuming that all of our ordinary shares represented by ADSs are held by residents of the United States, we estimate that approximately 40.2% of our outstanding ordinary shares were held in the United States by 64 holders of record.

B. Related Party Transactions

Since January 1, 2015, 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, 2015, 2016 and 2017 amount to \$10.2 million, \$25.3 million and \$19.7 million respectively. As of December 31, 2017, there no outstanding receivables and Pfizer had a 7.84% 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, 2017, we have granted equity awards to certain of our directors and executive officers:

- On October 11, 2017, we granted 715,000 stock options to certain of our Directors and Executive Officers; and
- On October 11, 2017, we granted 240,000 non-employee warrants (BSA) to our Directors.

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, as of February 28, 2018, Collectis owns approximately 79.3% of Calyxt's common stock.

In connection with Calyxt's IPO, we and Calyxt entered into certain agreements that relate to our relationship with Calyxt prior to the IPO or 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 and amended July 25, 2017 that we entered into with Calyxt and Collectis, Inc., a Delaware corporation and our wholly owned subsidiary ("Collectis, Inc."), pursuant to which we and Collectis, Inc. provide certain services to Calyxt, including certain general management, finance, investor relations, communication, legal, intellectual property, human resources and information technology services. In consideration for such services, Calyxt pays to us and Collectis, Inc. 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 us on Calyxt'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 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 2016, Calyxt made payments to us for services provided under the management services agreement of \$1.8 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 refer to 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's 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;
- 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 Calyxt's Board of Directors contrary to the stockholders agreement or Calyxt's certificate of incorporation or Calyxt's by-laws.

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 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.

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.

D. 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 \$2.3 million on December 31, 2017). Moreover, the statutory accumulated deficit is \$159.5 million as of December 31, 2017.

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 his 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 under the symbol “CLLS” since March 24, 2015. Prior to that date, there was no public trading market for ADSs. 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. Our initial public offering in March 2015 was priced at \$41.50 per ADS on March 24, 2015. The following tables set forth for the periods indicated the reported high and low sale prices per ADS on Nasdaq in U.S. dollars and per ordinary share on Euronext Growth in euros.

Nasdaq

<u>Period</u>	<u>High</u>	<u>Low</u>
Annual		
2015 (beginning March 24, 2015)	\$47.66	\$23.67
2016	\$33.64	\$16.40
2017	\$35.01	\$17.52
2018 (through March 12, 2018)	\$34.17	\$27.78
Quarterly		
First Quarter 2016	\$30.16	\$18.77
Second Quarter 2016	\$33.64	\$25.34
Third Quarter 2016	\$28.35	\$24.07
Fourth Quarter 2016	\$23.24	\$16.40
First Quarter 2017	\$24.37	\$17.52
Second Quarter 2017	\$25.92	\$21.96
Third Quarter 2017	\$32.18	\$21.65
Fourth Quarter 2017	\$35.01	\$23.33
First Quarter 2018 (through March 12, 2018)	\$34.17	\$27.78
Monthly		
September 2017	\$32.18	\$24.96
October 2017	\$35.01	\$27.51
November 2017	\$29.18	\$23.33
December 2017	\$29.15	\$23.70
January 2018	\$34.17	\$27.78
February 2018	\$32.65	\$28.53
March 2018 (through March 12, 2018)	\$34.07	\$31.57

Alternext

Period	High	Low
Annual		
2013	€ 7.70	€ 2.19
2014	€14.00	€ 2.40
2015	€40.90	€13.26
2016	€29.71	€14.99
2017	€29.61	€16.33
2018 (through March 12, 2018)	€27.42	€23.12
Quarterly		
First Quarter 2016	€27.74	€22.01
Second Quarter 2016	€29.71	€22.67
Third Quarter 2016	€25.18	€21.97
Fourth Quarter 2016	€20.81	€14.99
First Quarter 2017	€22.49	€16.33
Second Quarter 2017	€24.02	€19.96
Third Quarter 2017	€26.84	€18.23
Fourth Quarter 2017	€29.61	€19.55
First Quarter 2018 (through March 12, 2018)	€27.42	€23.12
Monthly		
September 2017	€26.84	€20.84
October 2017	€29.61	€22.88
November 2017	€26.90	€19.55
December 2017	€24.01	€20.09
January 2018	€27.14	€23.12
February 2018	€26.80	€23.34
March 2018 (through March 12, 2018)	€27.42	€25.30

B. Plan of Distribution

Not applicable.

C. Markets

The ADS have been listed on Nasdaq under the symbol “CLLS” since March 24, 2015 and our ordinary shares have been listed on the Euronext Growth 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 was filed on January 9, 2018. In the event that our Bylaws are modified in connection with the creation of a specific category of preferred shares, the rights of holders of such preferred shares under our By-laws and French law will be described in the applicable prospectus supplement.

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.

Decisions Subject to the Prior Approval of the Board of Directors. Our By-laws provide that none of the decisions listed below (whether they relate to us or to any of our subsidiaries) shall be made without the prior approval of our board acting, upon first notice, by a majority of its members in office and, upon second notice, by a majority of its members present or represented by proxy:

- approval and modification to the business plan and budget;
- any decision pertaining to the recruitment, dismissal/removal, or increase of the compensation of executives and corporate officers;

- any material decision relating to a material litigation in which we or any of our subsidiaries may have to pay an amount exceeding €2,000,000;
- any decision relating to the opening of a social or restructuring plan or pre-insolvency proceedings;
- dual listing of the company on a stock market located outside of France;
- any repurchase of our own shares;
- any new borrowings or debts exceeding €1,000,000 and early repayment of loans, if any;
- grants of any pledges on securities exceeding €1,000,000;
- offshore or relocate activities;
- development of new activities and businesses not described in the budget; and
- entry into any material agreement or partnership.

Directors' Compensation. The aggregate amount of 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 individual directors 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.

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.

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 (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.

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 August 16, 2014 (MAR) and in accordance with the General Regulations of the AMF, a corporation shall report to the competent authority of the trading value on which the shares have been admitted to trading or are traded, 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.

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.

When shares are repurchased in order to provide shares for distribution to employees or managers under a profit-sharing, free share or share option plan, the shares repurchased must be distributed within 12 months from their repurchase failing which they must be cancelled.

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.

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, you should carefully read the section of the accompanying prospectus "Description of American Depositary Shares".

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 held by the shareholders present, represented by proxy, or voting by mail. Abstentions will have the same effect as a "no" vote.

Extraordinary Shareholders' Meeting. Only an extraordinary shareholders' meeting is authorized to amend our Bylaws. 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 vote of the shareholders present, represented by proxy, or voting by mail. Abstentions will have the same effect as a "no" vote.

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.

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 held by the shareholders present, represented by proxy or voting by mail at the relevant meeting;

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- 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 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 defence 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 approval 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 our managing director, if any, 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 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 and can impose certain obligations; see the section of this Annual Report titled "—Declaration of Crossing of Ownership Thresholds";
 - transfers of shares shall comply with applicable insider trading rules; 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 vote of our shareholders present, represented by a proxy or voting by mail at the meeting.

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%.
- Subject to certain exemptions, any shareholder crossing, alone or acting in concert, the 50% threshold shall 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 Right. 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.

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.

Moreover, certain foreign investments in companies incorporated under French laws are subject to the prior authorization from the French Minister of the Economy, where all or part of the target's business and activity relate to a strategic sector, such as energy, transportation, public health, telecommunications, etc.

Assignment and Transfer of Shares. Shares are freely negotiable, subject to applicable legal and regulatory provisions (including, in particular, the prohibition on insider trading).

C. Material Contracts

We entered into an underwriting agreement among Merrill Lynch, Pierce, Fenner & Smith Incorporated and Jefferies LLC, as representatives of the underwriters, on March 24, 2015, with respect to the ADSs sold in our initial public offering. We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, and to contribute to payments the underwriters may be required to make in respect of such liabilities. For additional information on our material contracts, please see Item 4 and Item 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 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 or value, 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 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.

INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS CONCERNING THE U.S. FEDERAL STATE, LOCAL AND NON-U.S. TAX CONSEQUENCES OF OWNING AND DISPOSING OF ADSs IN THEIR 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 and you are:

- a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) 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
- 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.

While we may have been a PFIC for previous taxable years and 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 2017 taxable year and at this time do not anticipate becoming a PFIC for the current or future taxable years. However, 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 are or are not 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.

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. In such case, assuming a U.S. holder does not receive from such 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. However, as discussed under "Item 4.C—Organization Structure", as of December 31, 2017, we do not have any non-U.S. corporations as subsidiary. Accordingly, for the 2017 taxable year, none of our subsidiaries would have constituted lower-tier PFICs if we were a PFIC.

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. 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 paragraph 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,” while we may have been a PFIC for previous taxable years and 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 2017 taxable year and we do not anticipate becoming a PFIC for the current or future taxable years. The dividend rules are complex, and each U.S. holder should consult its own tax advisor regarding the dividend rules.

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.

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,” while we may have been a PFIC for previous taxable years and 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 2017 taxable year and do not anticipate becoming a PFIC for the current or future taxable years.

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”, 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 filed.

A non-U.S. holder generally may eliminate the requirement for information reporting and backup withholding by providing certification of its foreign status to the payor, under penalties of perjury, on IRS Form W-8BEN or W-8BEN-E, 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. 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, including the Tax Cuts and Jobs Act, 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.

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, brokers, mutual funds, individual retirement or other tax-deferred accounts, 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 €1.0 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 used to be published annually by the French Ministry of Economy. It is now published by the French tax authorities, and could be amended at any time. Pursuant to Regulations BOI-ANX-000467-20171221 issued on December 21, 2017, 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 securities may however become subject to the TFT if Collectis market capitalization exceeds €1.0 billion (\$1.2 billion at December 31, 2017 closing rate).

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 Ccollectis are listed on Euronext Growth, 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 are silent on this point, 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. resident, as defined pursuant to the provisions of the Treaty, provided that such U.S. Holder did not own directly or indirectly more than 25% of the issuer's financial rights and that the securities did not form part of the business property of a permanent establishment or fixed base in France. It has been replaced by a new real estate wealth tax (*impôt sur la fortune immobilière*) as from January 1, 2018. The scope of such new tax is narrowed to real estate assets (and certain assets deemed to be 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. Ccollectis' securities owned by a U.S. Holder should not fall within the scope of the new real estate wealth tax provided that such U.S. Holder does not own directly or indirectly a shareholding exceeding 10% of the financial rights and voting rights of Ccollectis.

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 30%. 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%, 30% 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 the ordinary shares or 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 advisors regarding their eligibility for Treaty benefits in light of their own particular circumstances.

In the event that dividends are paid by Ccollectis, 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 30%, or 75% for any U.S. holder if paid in a non-cooperative State or territory (as defined in 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 depositary to all U.S. Holders registered with the depositary. The depositary 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 depositary 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

In general, under the Treaty, a U.S. Holder who is a U.S. resident for purposes of the Treaty will not be subject to French tax on any capital gain from the redemption (other than redemption proceeds characterized as dividends under French domestic tax law or administrative guidelines), sale or exchange of ordinary shares or ADSs unless the ordinary shares or ADSs form part of the business property of a permanent establishment or fixed base that the U.S. Holder has in France.

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 Pfizer, 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 2017, our collaboration revenues would have increased by €2.0 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, 2017, our revenues denominated in U.S. dollars related to the Pfizer collaboration agreement and revenues from our Plants segment. Our cash and cash equivalents and marketable securities denominated in U.S. dollars amounted to \$194.2 million as of December 31, 2017. Current financial assets denominated in U.S. dollars amounted to \$39.7 million as of December 31, 2017.

During the year ended December 31, 2017, we subscribed to zero premium accumulators (\$5.0 million nominal value). The net foreign exchange result for the fiscal year 2016 is a gain of €0.6 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.

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.

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 (or a right to receive one-half of one ordinary share) deposited with Citibank International Limited, located at EGSP 186, 1 North Wall Quay, Dublin 1 Ireland 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. Certain ADS fees and charges (such as the ADS service fee) may become payable shortly after the closing of the ADS offering.

Note that 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 2017

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.

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.

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, 2017.

- (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, 2017. 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, 2017, 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, 2017, 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, 2017.

ITEM 15T. CONTROLS AND PROCEDURES.

Not applicable.

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. Jean-Marie Messier 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. Jean-Marie Messier 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.cellectis.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 2016 and 2017. Our accountants billed the following fees to us for professional services in each of those fiscal years:

	Year Ended December 31,	
	2016	2017
	(\$, in thousands)	
Audit Fees	779	1.751*
Audit-Related Fees	42	—
Tax Fees	—	—
Other Fees	—	—
Total	821	1.751

(*) \$539 thousand for Collectis and \$1.212 thousand for Calyxt (of which \$898 thousand related to the Nasdaq IPO)

“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 2016 or 2017.

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 2016 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 intend to 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. See the section of the prospectus filed with the Commission on March 26, 2015 titled "Description of Share Capital—Key Provisions of Our By-laws and French Law Affecting Our Ordinary Shares."

Further, Nasdaq rules require that listed companies have a nominations committee comprised solely of independent directors. We intend to follow our French home country practice, as described under “—Board Composition,” 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 Messier.

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
 - 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.

ITEM 19. EXHIBITS

The following exhibits are filed as part of this Annual Report:

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
1.1#	By-laws (<i>status</i>) of the registrant (English translation)	6-K	001-36891	99.1	January 9, 2018
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
4.1	Reserved				
4.2#*	Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated October 19, 2000 (English translation)	F-1	333-202205	10.2	March 12, 2015
4.2.1#*	Amendment No. 1 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated September 8, 2003 (English translation)	F-1	333-202205	10.2.1	March 12, 2015
4.2.2#*	Amendment No. 2 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated June 24, 2004 (English translation)	F-1	333-202205	10.2.2	March 12, 2015

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
4.2.3#*	Amendment No. 3 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated August 24, 2005 (English translation)	F-1	333-202205	10.2.3	March 12, 2015
4.2.4#*	Amendment No. 4 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated December 27, 2007 (English translation)	F-1	333-202205	10.2.4	March 12, 2015
4.3#*	Patent License Agreement #C-00061905 between L'Institut Pasteur and Cellectis S.A., dated June 19, 2000 (English translation)	F-1	333-202205	10.3	March 12, 2015
4.3.1#*	Amendment No. 1 to Patent License Agreement #C-00061905 between L'Institut Pasteur and Cellectis S.A., dated September 8, 2003 (English translation)	F-1	333-202205	10.3.1	March 12, 2015
4.4#*	Research and Collaboration Agreement between Pfizer Inc. and Cellectis S.A., dated June 17, 2014	F-1	333-202205	10.4	March 12, 2015
4.4.1*	Amendment to the Research Collaboration and License Agreement, by and between the Company and Pfizer Inc., dated as of December 1, 2016				Filed Herewith
4.5#*	Research, Product Development, Option, License and Commercialization Agreement, among Les Laboratoires Servier SAS, Institut de Recherches Internationales Servier SAS and Cellectis S.A., dated February 17, 2014	F-1	333-202205	10.5	March 12, 2015
4.5.1#*	Amendment to the Product Development, Option, License and Commercialization Agreement, among Les Laboratoires Servier SAS, Institut de Recherches Internationales Servier SAS and Cellectis S.A., dated November 18, 2015	20-F	001-36891	4.5.1	March 21, 2016
4.5.2*	Amendment No. 2 to the Product Development, Option, License and Commercialization Agreement, by and between the Company and Les Laboratoires Serviers, dated as of November 28, 2016				Filed Herewith
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

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
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				Filed Herewith
4.7#*	Patent & Technology License Agreement between Ohio State Innovation Foundation and Cellectis S.A., dated October 23, 2014	F-1	333-202205	10.7	March 12, 2015
4.8†#	Change of Control Plan, effective as of September 4, 2014 (English translation)	F-1	333-202205	10.10	March 10, 2015
4.9†#	Summary of BSA Plan	F-1	333-202205	10.11	March 10, 2015
4.10†#	Summary of BSPCE Plan	F-1	333-202205	10.12	March 10, 2015
4.11†#	2012 Free Share Plan	F-1	333-202205	10.13	March 10, 2015
4.12†#	2013 Free Share Plan	F-1	333-202205	10.14	March 10, 2015
4.13†#	2014 Free Share Plan	F-1	333-202205	10.15	March 10, 2015
4.14†#	2015 Free Share Plan	20-F	001-36891	4.16	March 21, 2016
4.15†#	2015 Stock Option Plan	20-F	001-36891	4.17	March 21, 2016
4.16†#	2016 Stock Option Plan	S-8	333-214884	99.1	December 2, 2016
4.17†#	2017 Stock Option Plan	S-8	333-222482	99.1	January 9, 2018
4.18†#	Summary of BSA Plan	S-8	333-222482	99.2	January 9, 2018
8.1	List of subsidiaries of the registrant				Filed Herewith

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
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.				
*	Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment				

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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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, 2017 and 2016, 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, 2017, 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, 2017 and 2016, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board and in conformity 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, 2017, 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 13, 2018 expressed an unqualified opinion thereon.

Change in Accounting Principle

As discussed in the note 2.2 of the consolidated financial statements, the Company has changed the presentation currency of the consolidated financial statements from the euro to the U.S. dollar.

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.

Ernst & Young et Autres

Ernst & Young et Autres has served as the Company's auditor since 2012.

Paris-La Défense, March 13, 2018

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS

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 internal control over financial reporting as of December 31, 2017, 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, 2017, 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, 2017 and 2016, 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, 2017 and the related notes, and our report dated March 13, 2018 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.

Ernst & Young et Autres

Paris-La Défense, March 13, 2018

Collectis S.A.
STATEMENTS OF CONSOLIDATED FINANCIAL POSITION
\$ in thousands

		As of	
	Notes	December 31, 2016	December 31, 2017
ASSETS			
Non-current assets			
Intangible assets	5	1,343	1,431
Property, plant, and equipment	6	16,900	7,226
Other non-current financial assets		691	1,004
Total non-current assets		18,935	9,661
Current assets			
Inventories	8	118	250
Trade receivables	9.1	3,627	2,753
Subsidies receivables	9.2	8,723	9,524
Other current assets	9.3	8,870	13,713
Current financial assets	10.1	36,592	40,602
Cash and cash equivalents	10.2	254,568	256,380
Total current assets		312,498	323,221
TOTAL ASSETS		331,432	332,882
LIABILITIES			
Shareholders' equity			
Share capital	14.1	2,332	2,367
Premiums related to the share capital	14.1	568,185	614,037
Treasury share reserve	14.4	(416)	(297)
Currency translation adjustment		(22,174)	1,978
Retained earnings (deficit)		(207,875)	(251,927)
Net income (loss)		(67,255)	(99,368)
Total shareholders' equity—Group Share		272,795	266,791
Non-controlling interests	14.3	1,876	19,113
Total shareholders' equity		274,671	285,904
Non-current liabilities			
Non-current financial liabilities	11	30	13
Non-current provisions	17	560	3,430
Total non-current liabilities		590	3,443
Current liabilities			
Current financial liabilities	11	1,730	21
Trade payables		9,722	9,460
Deferred revenues and deferred income	13	38,929	26,056
Current provisions	17	594	1,427
Other current liabilities	12	5,196	6,570
Total current liabilities		56,171	43,534
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		331,432	332,882

The accompanying notes form an integral part of these Consolidated Financial Statements

Collectis S.A.
STATEMENTS OF CONSOLIDATED OPERATIONS
For the year ended December 31
\$ in thousands, except per share amounts

		For the year ended December 31,		
	Notes	2015	2016	2017
Revenues and other income				
Revenues	3.1	55,864	44,808	25,188
Other income	3.1	6,701	11,637	8,528
Total revenues and other income		62,565	56,444	33,715
Operating expenses				
Royalty expenses	3.2	(2,746)	(1,777)	(2,620)
Research and development expenses	3.2	(58,154)	(78,458)	(79,227)
Selling, general and administrative expenses	3.2	(30,223)	(43,413)	(44,750)
Other operating income and expenses		(2,425)	(99)	232
Total operating expenses		(93,549)	(123,746)	(126,366)
Operating income (loss)		(30,984)	(67,302)	(92,650)
Financial income	3.4	10,253	7,147	7,262
Financial expenses	3.4	(1,876)	(7,101)	(18,294)
Financial gain (loss)		8,378	46	(11,032)
Income tax	3.5	—	—	—
Net income (loss)		(22,606)	(67,255)	(103,683)
Attributable to shareholders of Collectis		(22,796)	(67,255)	(99,368)
Attributable to non-controlling interests		190	—	(4,315)
Basic / Diluted net income (loss) per share attributable to shareholders of Collectis	16			
Basic net income (loss) per share (\$ /share)		(0.67)	(1.91)	(2.78)
Diluted net income (loss) per share (\$ /share)		(0.67)	(1.91)	(2.78)

The accompanying notes form an integral part of these Consolidated Financial Statements

STATEMENTS OF CONSOLIDATED COMPREHENSIVE INCOME (LOSS)

For the year ended December 31

\$ in thousands

	For the year ended December 31,		
	2015	2016	2017
Net income (loss)	(22,606)	(67,255)	(103,683)
Actuarial gains and losses	(15)	(30)	(515)
Other comprehensive income (loss) that will not be reclassified subsequently to income or loss	(15)	(30)	(515)
Currency translation adjustment	(6,769)	(4,333)	23,745
Other comprehensive income (loss) that will be reclassified subsequently to income or loss	(6,769)	(4,333)	23,745
Total Comprehensive income (loss)	(29,391)	(71,618)	(80,453)
Attributable to shareholders of Collectis	(29,640)	(71,607)	(75,731)
Attributable to non-controlling interests	249	(12)	(4,723)

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,		
		2015	2016	2017
Cash flows from operating activities				
Net loss for the period		(22,606)	(67,255)	(103,683)
Reconciliation of net loss and of the cash provided by (used in) operating activities				
Adjustments for				
Amortization and depreciation		1,937	2,211	3,371
Net loss (income) on disposals		(11)	65	40
Net financial loss (gain)		(8,378)	(46)	11,032
Expenses related to share-based payments		33,402	58,622	50,418
Provisions		(279)	(365)	2,908
Other non cash items		—	(1,432)	2
Interest (paid) / received		1,070	1,694	1,371
Operating cash flows before change in working capital		5,135	(6,507)	(34,540)
Decrease (increase) in inventories		(25)	50	(109)
Decrease (increase) in trade receivables and other current assets		1,268	(997)	(549)
Decrease (increase) in subsidies receivables		(679)	(1,122)	305
(Decrease) increase in trade payables and other current liabilities		2,961	(4,384)	(335)
(Decrease) increase in deferred income		(5,070)	(19,750)	(17,099)
Change in working capital		(1,544)	(26,203)	(17,787)
Net cash flows provided by (used in) operating activities		3,591	(32,710)	(52,327)
Cash flows from investment activities				
Proceeds from disposal of property, plant and equipment		111	24	7,164
Sale (Acquisition) of subsidiaries net of cash disposed of		(3,162)	—	—
Acquisition of intangible assets		(97)	(337)	(273)
Acquisition of property, plant and equipment		(4,316)	(13,696)	(2,383)
Net change in non-current financial assets		(264)	175	(125)
Sale (Acquisition) of current financial assets		—	(39,302)	(2,598)
Net cash flows provided by (used in) investing activities		(7,728)	(53,137)	1,784
Cash flows from financing activities				
Increase in share capital net of transaction costs		221,142	713	2,930
Shares of Calyxt issued to third parties		—	—	38,257
Decrease in borrowings		(625)	(91)	(41)
Treasury shares		75	(137)	120
Net cash flows provided by financing activities		220,591	485	41,266
(Decrease) increase in cash		216,454	(85,362)	(9,277)
Cash and cash equivalents at the beginning of the year		136,400	342,111	254,568
Effect of exchange rate changes on cash		(10,743)	(2,181)	11,089
Cash and cash equivalents at the end of the period	7	342,111	254,568	256,380

We present our consolidated statements of cash flows using the indirect method.

The accompanying notes form an integral part of these Consolidated Financial Statements

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		
		Number of shares	Amount						attributable to shareholders of Collectis	Non controlling interests	Total Shareholders' Equity
As of January 1, 2015		29,446,721	2,014	263,100	(354)	(11,024)	(179,962)	27	73,801	(1,529)	72,272
Net Loss		—	—	—	—	—	—	(22,796)	(22,796)	190	(22,606)
Other comprehensive income (loss)		—	—	—	—	(6,829)	(15)	—	(6,844)	59	(6,785)
Total comprehensive income (loss)		—	—	—	—	(6,829)	(15)	(22,796)	(29,640)	249	(29,391)
Allocation of prior period loss		—	—	—	—	—	27	(27)	—	—	—
Capital Increase	14.1	5,500,000	297	209,899	—	—	(6)	—	210,189	—	210,189
Purchase of non-controlling interests	14.3	—	—	—	—	—	(5,164)	—	(5,164)	1,280	(3,884)
Treasury shares	14.4	—	—	—	75	—	—	—	75	—	75
Exercise of share warrants and employee warrants	14.2	231,893	13	4,325	—	—	—	—	4,338	—	4,338
Non-cash stock-based compensation expense	15	—	—	32,614	—	—	—	—	32,614	789	33,403
As of December 31, 2015		35,178,614	2,323	509,938	(279)	(17,853)	(185,120)	(22,796)	286,212	789	287,002
As of January 1, 2016		35,178,614	2,323	509,938	(279)	(17,853)	(185,120)	(22,796)	286,212	789	287,002
Net Loss		—	—	—	—	—	—	(67,255)	(67,255)	—	(67,255)
Other comprehensive income (loss)		—	—	—	—	(4,321)	(30)	—	(4,352)	(12)	(4,363)
Total comprehensive income (loss)		—	—	—	—	(4,321)	(30)	(67,255)	(71,607)	(12)	(71,618)
Allocation of prior period loss		—	—	—	—	—	(22,796)	22,796	—	—	—
Treasury shares		—	—	—	(137)	—	—	—	(137)	—	(137)
Exercise of share warrants and employee warrants		156,446	9	723	—	—	(6)	—	726	—	726
Non-cash stock-based compensation expense	12	—	—	57,524	—	—	—	—	57,524	1,098	58,622
Other movements		—	—	—	—	—	77	—	77	—	77
As of December 31, 2016		35,335,060	2,332	568,185	(416)	(22,174)	(207,875)	(67,255)	272,795	1,876	274,671

	Notes	Share Capital Ordinary Shares		Premiums related to share capital	Treasury shares reserve	Currency translation adjustment	Retained earnings (deficit)	Income (Loss)	Equity		
		Number of shares	Amount						attributable to shareholders of Collectis	Non controlling interests	Total Shareholders' Equity
As of January 1, 2017		35,335,060	2,332	568,185	(416)	(22,174)	(207,875)	(67,255)	272,795	1,876	274,671
Net Loss		—	—	—	—	—	—	(99,368)	(99,368)	(4,315)	(103,683)
Other comprehensive income (loss)		—	—	—	—	24,152	(515)	—	23,637	(408)	23,230
Total comprehensive income (loss)		—	—	—	—	24,152	(515)	(99,368)	(75,731)	(4,723)	(80,453)
Allocation of prior period loss		—	—	—	—	—	(67,255)	67,255	—	—	—
Capital Increase		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 and employee warrants	11	158,052	9	2,921	—	—	—	—	2,930	—	2,930
Non-cash stock-based compensation expense	12	—	—	42,968	—	—	—	—	42,968	7,450	50,418
Other movements		—	—	(37)	—	—	(1)	—	(38)	—	(38)
As of December 31, 2017		35,960,062	2,367	614,037	(297)	1,978	(251,927)	(99,368)	266,791	19,113	285,904

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 79.73% 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).

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 2017**

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 biopharmaceutical company focused on developing a new generation of cancer immunotherapies. 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. Our gene-editing technologies allow us to create allogeneic CAR T-cells, meaning they are derived from healthy donors rather than the patients themselves. 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 Inc. to develop healthier food products for a growing population.

Note 2. Accounting principles

2.1 Basis for preparation

The Consolidated Financial Statements of Collectis as of and for the year ended December 31, 2017 were approved by our Board of Directors on March 12, 2018.

Our Consolidated Financial Statements are presented in U.S. dollars. See Note 2.2.

The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”).

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, 2017 but had no significant impact on the Consolidated Financial Statements:

- Amendments to IAS 7 “Statement of Cash Flows” (applicable for periods beginning after January 1, 2017)

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, 2018. 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.

- IFRS 9 Financial Instruments (applicable for periods beginning after January 1, 2018)
- Amendments to IFRS 2 “Classification and Measurement of Share-based Payment Transactions” (applicable for periods beginning after January 1, 2018)
- Amendments to IFRIC 22 “Foreign Currency Transactions and Advance Consideration” (applicable for periods beginning after January 1, 2018)

- 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)

IFRS 15 Revenue from Contracts with Customers establishes a comprehensive framework for determining whether, how much and when revenue is recognized. It replaces existing revenue recognition guidance, including IAS 18 Revenue. IFRS 15 is effective for annual reporting periods beginning on or after January 1, 2018, with early adoption permitted.

Collectis began its IFRS 15 implementation project with a diagnostic phase. The different categories of contracts with customers of Collectis, which have been reviewed, are:

- Collaboration agreements;
- Licensing agreements.

Collectis will apply IFRS 15 with effect from January 1, 2018 using the retrospective method. It will lead to a deferral of collaboration revenue (especially milestone payments) from fiscal years of 2014 and 2015 with a negative opening equity adjustment of \$1.8 million for fiscal year 2016. Except for this opening equity impact, IFRS 15 will not have any impact in the financial statements for fiscal years 2016 and 2017.

In January 2016, the IASB issued IFRS 16 (“Leases”), which is effective for annual periods beginning on or after January 1, 2019. This new standard aligns the accounting treatment of operating leases with that already applied to finance leases (i.e. recognition in the balance sheet of future lease payments and the associated rights of use). Collectis is assessing the potential impact on its consolidated financial statements resulting from the application of IFRS 16. The commitments related to the facility leases and sales and lease back are disclosed in note 18. A number of these contracts might be required to be recorded on the statement of financial position (“right-of-use” asset and the related financial obligation) under IFRS 16.

2.2 Change in the presentation currency of the financial statements

The Consolidated Financial Statements are presented in U.S. dollars, which differs from the functional currency of Collectis S.A., which is the Euro. We decided to change the reporting currency from Euro to U.S. dollars in the third quarter of 2017, using the retrospective method. We believe that this change will enhance comparability with peers, which primarily present their financial statements in U.S. dollars.

The effects of the change in presentation currency on the comparative consolidated financial statements are as follows:

- The various items of assets and liabilities in dollars correspond to the amounts published in euros converted at the European Central Bank’s (“ECB”) daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period. The same methodology is applied for total equity. As a result, the change in the presentation currency of the consolidated financial statements has no effect on the various items of assets and liabilities in dollars, or on total equity. Equity transactions that occurred in 2015 and 2016 are converted at the historical exchange rates instead of the exchange rates at the end of the period. Net loss for 2015 and 2016 is converted at the average exchange rate for the respective period. The offsetting impact of these are included in currency translation adjustment.
- The recalculation of translation adjustments has an effect on the allocation of total equity for the comparative periods presented between currency translation adjustments and other components of shareholders’ equity and the amount of other comprehensive income (loss), such as indicated in the following tables:

As of December 31, 2014	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments (b)	Consolidated financial statement (\$ in thousand)
Total non-current assets	5,613	6,815	—	6,815
Total current assets	132,001	160,262	—	160,262
TOTAL ASSETS	137,614	167,077	—	167,077
Shareholders' equity				
Share capital	1,472	1,788	226	2,014
Premiums, Retained earnings (deficit) and Net income (loss)	60,327	73,243	9,922	83,165
Treasury share reserve	(251)	(305)	(49)	(354)
Currency translation adjustment	(762)	(925)	(10,099)	(11,024)
Total shareholders' equity—Group Share	60,786	73,801	—	73,801
Non-controlling interests	(1,259)	(1,529)	—	(1,529)
Total shareholders' equity	59,527	72,272	—	72,272
Total non-current liabilities	3,222	3,911	—	3,911
Total current liabilities	74,865	90,894	—	90,894
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	137,614	167,077	—	167,077

- (a) Converted at the ECB's closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e. 0.82365 euro for 1 dollar.
- (b) Difference between the historical exchange rates and the closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e., 0.82365 euro for 1 dollar.

As of December 31, 2015	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments (b)	Consolidated financial statement (\$ in thousand)
Total non-current assets	6,844	7,451	—	7,451
Total current assets	334,218	363,863	—	363,863
TOTAL ASSETS	341,062	371,314	—	371,314
Shareholders' equity				
Capital	1,759	1,915	408	2,323
Premiums, Retained earnings (deficit) and Net income (loss)	262,950	286,274	15,748	302,021
Treasury share reserve	(184)	(200)	(80)	(279)
Currency translation adjustment	(1,632)	(1,776)	(16,077)	(17,853)
Total shareholders' equity—Group Share	262,894	286,213	—	286,213
Non-controlling interests	725	789	—	789
Total shareholders' equity	263,619	287,002	—	287,002
Total non-current liabilities	503	548	—	548
Total current liabilities	76,940	83,765	—	83,765
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	341,062	371,314	—	371,314

- (a) Converted at the ECB's closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e. 0.91852 euro for 1 dollar.
- (b) Difference between the historical exchange rates and the ECB's closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e., 0.91852 euro for 1 dollar.

As of December 31, 2016	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments (b)	Consolidated financial statement (\$ in thousand)
Total non-current assets	17,963	18,935	—	18,935
Total current assets	296,459	312,498	—	312,498
TOTAL ASSETS	314,422	331,432	—	331,432
Shareholders' equity				
Capital	1,767	1,862	470	2,332
Premiums, Retained earnings (deficit) and Net income (loss)	254,834	268,622	24,433	293,055
Treasury share reserve	(307)	(324)	(92)	(416)
Currency translation adjustment	2,501	2,636	(24,810)	(22,174)
Total shareholders' equity—Group Share	258,795	272,795	—	272,795
Non-controlling interests	1,779	1,876	—	1,876
Total shareholders' equity	260,574	274,671	—	274,671
Total non-current liabilities	560	590	—	590
Total current liabilities	53,288	56,171	—	56,171
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	314,422	331,432	—	331,432

- (a) Converted at the ECB's closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e., 0.94867 euro for 1 dollar.
- (b) Difference between the historical exchange rates and the ECB's closing daily reference exchange rate for dollar / euro exchanges (as published by Banque de France) at the end of the period, i.e. 0.94867 euro for 1 dollar.

For the full year ended December 31, 2014	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments	Consolidated financial statement (\$ in thousand)
Total revenues and other income	26,453	35,152	—	35,152
Total operating expenses	(31,698)	(42,122)	—	(42,122)
Operating income (loss)	(5,245)	(6,970)	—	(6,970)
Financial gain (loss)	7,095	9,428	—	9,428
Income tax	—	—	—	—
Income (loss) from continuing operations	1,850	2,458	—	2,458
Loss from discontinued operations	(2,822)	(3,750)	—	(3,750)
Net income (loss)	(972)	(1,292)	—	(1,292)

(a) Converted at the average for the applicable annual period of the ECB's daily reference exchange rate for dollar / euro exchanges (as published by Banque de France), i.e. 0.75254 euro for 1 dollar in 2014.

For the full year ended December 31, 2015	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments	Consolidated financial statement (\$ in thousand)
Total revenues and other income	56,385	62,565	—	62,565
Total operating expenses	(84,309)	(93,549)	—	(93,549)
Operating income (loss)	(27,924)	(30,984)	—	(30,984)
Financial gain (loss)	7,550	8,378	—	8,378
Income tax	—	—	—	—
Income (loss) from continuing operations	(20,373)	(22,606)	—	(22,606)
Loss from discontinued operations	—	—	—	—
Net income (loss)	(20,373)	(22,606)	—	(22,606)

(a) Converted at the average for the applicable annual period of the ECB's daily reference exchange rate for dollar / euro exchanges (as published by Banque de France), i.e. 0.90121 euro for 1 dollar in 2015.

For the full year ended December 31, 2016	Consolidated financial statement as reported (€ in thousand)	Consolidated financial statement as reported converted (a) (\$ in thousand)	Adjustments	Consolidated financial statement (\$ in thousand)
Total revenues and other income	51,007	56,444	—	56,444
Total operating expenses	(111,824)	(123,746)	—	(123,746)
Operating income (loss)	(60,818)	(67,302)	—	(67,302)
Financial gain (loss)	42	46	—	46
Income tax	—	—	—	—
Income (loss) from continuing operations	(60,776)	(67,255)	—	(67,255)
Loss from discontinued operations	—	—	—	—
Net income (loss)	(60,776)	(67,255)	—	(67,255)

(a) Converted at the average for the applicable annual period of the ECB's daily reference exchange rate for dollar / euro exchanges (as published by Banque de France), i.e. 0.90366 euro for 1 dollar in 2016.

By convention and for practicability purpose, the differences have been recalculated on a cumulative basis from January 1, 2014 instead of the date of adoption of IFRS.

The amounts shown in the income statements and in the cash flow statements in dollars correspond to the amounts reported in euros converted at the average for the applicable annual period of the ECB's daily reference exchange rate for dollar / euro exchanges (as published by Banque de France).

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 "Accumulated other comprehensive income (loss)" in the Consolidated Statements of Changes in Shareholders' Equity.

2.3 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, 2017, the consolidated group of companies (sometimes referred to as the "Group") includes Collectis S.A., Collectis, Inc. and Calyxt, Inc.

As of December 31, 2017, Collectis S.A. owns 100% of Collectis, Inc. and approximately 79.7% 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. Calyxt's shares of common stock are traded on NASDAQ under the symbol "CLXT".

Our 2016 Consolidated Financial Statements include the operations of Collectis S.A., Collectis, Inc. and Calyxt, Inc. The two subsidiaries were fully owned by Collectis S.A. during the year ended December 31, 2016.

Our 2015 Consolidated Financial Statements include the operations of Collectis S.A.; our two French subsidiaries, Collectis Bioresearch and Ectycell; our three U.S. subsidiaries, Calyxt, Inc., Collectis, Inc. and Collectis Bioresearch Inc. Non-controlling shareholders held a 24.5% interest in Collectis Bioresearch, Collectis Bioresearch Inc. and Ectycell until May 18, 2015.

The following internal reorganization was completed in 2015:

- Ectycell was merged into, and absorbed by Collectis Bioresearch in August 2015 with retroactive effect as at January 1, 2015 for French tax purposes;
- Collectis Bioresearch was merged into, and absorbed by, Collectis S.A in December 2015 with retroactive effect as at January 1, 2015 for French tax purposes;
- Collectis Bioresearch Inc. was merged into Collectis Inc. in September 2015.

Non-controlling interests

Non-controlling shareholders hold a 20.3% interest in Calyxt Inc. as of December 31, 2017. These non-controlling interests were generated during the initial public offering of Calyxt Inc., on July 25, 2017.

From May 18, 2015 to July 24, 2017, there was no non-controlling shareholder (see Note 14.3).

Non-controlling shareholders held a 24.5% interest in Collectis Bioresearch, Collectis Bioresearch Inc. and Ectycell until May 18, 2015.

2.4 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. When a foreign operation is partly or fully divested, the associated share of gains and losses recognized in the currency translation reserve is transferred to the consolidated statements of operations.

Consolidated financial statements are then converted into dollars using the method described in Note 2.2.

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.

2.5 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 7.3: 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 15
- Provisions for risks and charges – Note 17

Note 3. Information concerning the Group's Consolidated Operations

3.1 Revenues and other income

Accounting policies

Collaboration agreements and licenses

We enter into research and development collaboration agreements that may consist of non-refundable upfront payments, payments for the sale of rights to technology, milestone payments, royalties and research and development cost reimbursements. In addition, we license our technology to third parties, which may be part of the research and development collaboration agreements.

Non-refundable upfront payments are deferred and recognized as revenue over the period of the collaboration agreement. Sales of technology pursuant to non-cancelable, non-refundable fixed-fee arrangements are recognized when such technology is delivered to the co-contracting party and our exclusive rights to access the technology have stopped.

Milestone payments represent amounts received from our collaborators, the receipt of which is dependent upon the achievement of certain scientific, regulatory, or commercial milestones. We recognize milestone payments 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. 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. As we have no products approved for sale, we have not received any royalty revenue to date. Royalty revenues, if earned, will be recognized on an accrual basis in accordance with the terms of the collaboration agreement when sales can be determined reliably and there is reasonable assurance that the receivables from outstanding royalties will be collected.

Research and development costs reimbursements are recognized with respect to the policy described in section “Sales of products and services” below.

Revenues from technology licenses are recognized ratably over the period of the license agreements.

Sales of products and services

Revenues on sales of products and services are recognized when significant risks and rewards of ownership have been transferred to the customer. We also offer research services, which are recognized as revenues when the services are rendered, either on a time and materials basis, or ratably over the contract period for fixed payment arrangements.

Research Tax Credit

The main Research Tax Credit that 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. and its French subsidiaries, when they existed, meet 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”.

Details of revenues and other income

Revenues by country of origin and other income

	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
From France	55,816	44,409	24,680
From USA	49	399	508
Revenues	55,864	44,808	25,188
Research tax credit	5,591	10,038	8,327
Subsidies and other	1,110	1,599	201
Other income	6,701	11,637	8,528
Total revenues and other income	62,565	56,444	33,715

For the years ended December 31, 2017, 2016 and 2015, the revenue from France was generated by Collectis S.A.

For the years ended December 31, 2017, 2016 and 2015, the revenue from USA was generated by Calyxt Inc.

	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Recognition of previously deferred upfront payments	23,864	20,856	14,875
Other revenues	29,716	21,035	7,945
Collaboration agreements	53,580	41,891	22,821
Licenses	2,236	2,771	2,270
Products & services	48	145	97
Total revenues	55,864	44,808	25,188

Revenues are primarily generated by therapeutics activities, which is mainly attributable to our entering into two major collaboration agreements signed with Pfizer Inc. and Les Laboratoires Servier during 2014. The revenues of plants activities are generated by technology licenses and amounted to \$49 thousand, \$0.6 million and \$0.5 million for years ended December 31, 2015, 2016 and 2017, respectively.

Entity-wide disclosures:

In 2017, two clients represent more than 10% of the total revenue: Client A with 11% and Client B with 69%.

In 2016, two clients represent more than 10% of the total revenue: Client A with 37% and Client B with 57%.

In 2015, three clients represent more than 10% of the total revenue: Client A with 49% and Client B with 47%.

3.2 Operating expenses

Accounting policies

Royalty expenses corresponds 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 or on fixed annual royalties.

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.

	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Royalty expenses	(2,746)	(1,777)	(2,620)
	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Research and development expenses			
Wages and salaries	(10,151)	(11,924)	(12,986)
Social charges on free shares and stock option grants	(8,626)	(3,851)	(1,088)
Non-cash stock based compensation expense	(20,563)	(33,207)	(23,832)
Personnel expenses	(39,341)	(48,982)	(37,906)
Purchases and external expenses	(16,920)	(27,720)	(38,458)
Other	(1,893)	(1,756)	(2,863)
Total research and development expenses	(58,154)	(78,458)	(79,227)
	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Selling, general and administrative expenses			
Wages and salaries	(3,959)	(4,978)	(7,019)
Social charges on free shares and stock option grants	(4,937)	(3,130)	(881)
Non-cash stock based compensation expense	(12,839)	(25,415)	(26,586)
Personnel expenses	(21,735)	(33,523)	(34,486)
Purchases and external expenses	(6,765)	(8,854)	(9,138)
Other	(1,723)	(1,035)	(1,126)
Total selling, general and administrative expenses	(30,223)	(43,413)	(44,750)
	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Personnel expenses			
Wages and salaries	(14,110)	(16,902)	(20,005)
Social charges on free shares and stock option grants	(13,564)	(6,981)	(1,969)
Non-cash stock based compensation expense	(33,402)	(58,622)	(50,418)
Total personnel expenses	(61,076)	(82,505)	(72,392)

3.3 Financial income and expenses

Accounting policies

Financial income and financial expense include, in particular, the following:

- Interest income from savings account and fixed term bank deposits;
- Interest expense from financial leases;
- Foreign exchange gain (loss) from transactions in foreign currencies;
- Other financial income and expenses, mainly derived from fair value adjustments related to our financial assets and derivative instruments.

	For the year ended December 31,		
	2015	2016	2017
	\$ in thousands		
Interest income	1,094	1,630	1,974
Foreign exchange gain	9,094	4,832	1,185
Other financial income	65	689	4,102
Total financial income	10,253	7,147	7,262
Interest expenses	(1)	—	—
Interest expenses for finance lease	(23)	(7)	(4)
Foreign exchange loss	(1,846)	(4,201)	(17,734)
Other financial expenses	(6)	(2,895)	(556)
Total financial expenses	(1,876)	(7,101)	(18,294)
Total	8,378	46	(11,032)

The decrease in financial income and expenses between 2016 and 2017 of \$11.1 million was mainly attributable to the increase in net foreign exchange loss (\$17.2 million), partly offset by the increase of foreign exchange derivatives fair value adjustment (\$5.8 million), the increase in interest income (\$0.3 million) and other immaterial variances.

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,		
	2015	2016	2017
	\$ in thousands		
Income (loss) before taxes from continuing operations	(22,606)	(67,255)	(103,683)
Theoretical group tax rate	34.43%	34.43%	34.43%
Theoretical tax benefit (expense)	7,783	23,156	35,698
Increase/decrease in tax benefit arising from:			
Permanent differences	6,426	124	293
Research tax credit	1,926	3,082	2,926
Share-based compensation & other IFRS adjustments	(11,500)	(20,184)	(8,297)
Non recognition of deferred tax assets related to tax losses and temporary differences	(4,627)	(6,158)	(30,713)
Other differences	(9)	(20)	92
Effective tax expense	—	—	—
Effective tax rate	0.00%	0.00%	0.00%

On December 22, 2017 the President of the United States signed legislation commonly known as the Tax Cuts and Jobs Act (“the Act”) into law. We outline the impact the Act has on our US subsidiaries’ tax obligations and its deferred tax assets and liabilities. Since their inception, our US subsidiaries have had losses and they expect to continue to have losses in the future. As a result, our US subsidiaries to date have not had taxable income. The deferred income tax assets and liabilities are recognized for the differences between the financial statement and income tax reporting basis of assets and liabilities based on currently enacted rates and laws. Historically, our US subsidiaries used the applicable Federal statutory rate of 34% to estimate the benefit of the deferred tax asset. As of December 31, 2017, they use a lower rate of 21% passed in the Act.

We provide for a valuation allowance when it is more likely than not that our U.S. subsidiaries will not realize a portion of the deferred tax assets. Historically we have 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, we have not reflected any benefit of such deferred tax assets in the accompanying financial statements. Going forward, with the lower tax rate enacted in the Act, the ability to utilize the deferred tax asset becomes even less probable. We do not expect changes to the rules regarding net operating losses under the Act to have a material impact on our financial statements for the year ended December 31, 2017, as all net deferred tax assets are fully reserved.

Deferred tax assets and liabilities

	As of December 31,		
	2015	2016	2017
	\$ in thousands		
Credits and net operating loss carryforwards	37,719	41,985	51,640
Pension commitments	164	193	548
Leases	(126)	(54)	(12)
Impairment of assets	16	14	10
Other	284	894	604
Valuation allowance on deferred tax assets	(38,057)	(43,032)	(52,790)
Total	—	—	—

We have tax loss carryforwards for the French entity of the Group totaling \$36.1 million as of December 31, 2017. They amounted to \$30.1 million as of December 31, 2016 and \$29.7 million as of December 31, 2015. 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 tax loss carry forwards for the U.S. entities of the Group totaled \$15.5 million as of December 31, 2017, \$11.9 million as of December 31, 2016 and \$8.0 million as of December 31, 2015. As tax loss carry forwards and R&D tax credit were generated before January 1, 2018, they will expire 20 years after they are generated.

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;
- The Executive Vice President Technical Operations;
- The Chief Scientific Officer;
- The Chief Financial Officer;
- The Vice President Business Development;
- The General Counsel;
- The Senior Vice President Research and Development and Chief Medical Officer;
- The Chief Regulatory & Compliance Officer; and
- The Chief Executive Officer of Calyxt, Inc.

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. and Collectis, 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 creating healthier specialty food ingredients and agriculturally advantageous food crops through the use of gene editing technology for plants. It corresponds to the activity of our U.S.-based majority-owned subsidiary, Calyxt, Inc., which is currently based in New Brighton, 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. provides 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 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 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 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.

Details of key performance indicators by reportable segment

	For the year ended December 31, 2015			For the year ended December 31, 2016			For the year ended December 31, 2017		
	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments	Plants	Therapeutics	Total reportable segments
\$ in thousands									
Segment revenues and other income (1)	49	65,159	65,208	716	59,458	60,173	914	35,584	36,498
Inter-segment revenues (1)	—	(2,643)	(2,643)	(130)	(3,599)	(3,729)	(167)	(2,615)	(2,782)
External revenues and other income	49	62,516	62,565	585	55,859	56,444	747	32,969	33,715
Research and development expenses	(2,874)	(55,280)	(58,154)	(4,112)	(74,345)	(78,458)	(6,057)	(73,170)	(79,227)
Selling, general and administrative expenses	(1,834)	(28,390)	(30,223)	(4,809)	(38,603)	(43,413)	(13,143)	(31,607)	(44,750)
Royalties and other operating income and expenses	(272)	(4,899)	(5,171)	(474)	(1,402)	(1,876)	(384)	(2,005)	(2,389)
Total operating expenses	(4,980)	(88,569)	(93,549)	(9,395)	(114,351)	(123,746)	(19,584)	(106,782)	(126,366)
Operating income (loss) before tax	(4,931)	(26,053)	(30,984)	(8,810)	(58,492)	(67,302)	(18,837)	(73,813)	(92,650)
Financial gain (loss)	259	8,119	8,378	87	(41)	46	—	(11,033)	(11,032)
Net income (loss)	(4,672)	(17,934)	(22,606)	(8,722)	(58,533)	(67,255)	(18,837)	(84,846)	(103,683)
Non controlling interests	—	(190)	(190)	—	—	—	4,315	—	4,315
Net income (loss) attributable to shareholders of Collectis	(4,672)	(18,124)	(22,796)	(8,722)	(58,533)	(67,255)	(14,522)	(84,846)	(99,368)
Adjustment of share-based compensation attributable to shareholders of Collectis	789	32,613	33,402	1,098	57,524	58,622	5,957	42,968	48,925
Adjusted net income (loss) attributable to shareholders of Collectis	(3,883)	14,489	10,606	(7,625)	(1,009)	(8,633)	(8,565)	(41,877)	(50,442)
Depreciation and amortization	(99)	(1,838)	(1,937)	(345)	(1,866)	(2,211)	(551)	(2,820)	(3,371)
Additions to tangible and intangible assets	526	3,886	4,413	10,410	4,164	14,573	792	1,849	2,642
Impairment of tangible assets	—	—	—	—	—	—	—	(798)	(798)

(1) Intersegment revenues and other income of Therapeutics segment for 2015 as disclosed in prior years amounted to €0.8 million, or \$0.9 million. In this statement, Intersegment revenues and other income of Therapeutics segment for 2015 amount to \$2.6 million and comprise both management fees and direct costs reinvoicing. The counterpart of this change is the line Segment revenues and other income. It has no impact on External revenues of Therapeutics segment.

Reconciliation of Plant result of operations

Since Calyxt, Inc., the agricultural biotechnology subsidiary of Celectis, is a U.S. entity, its financial statements have been prepared in accordance with U.S. GAAP. However, the Plant segment operations, as previously described, have been prepared in accordance with IFRS. The tables below present a reconciliation of the main figures of results of operations for our Plant segment with Calyxt stand-alone financial statements.

Reconciliation of Plant Segment result of operations for the year ended December 31, 2017

	For the full year ended December 31, 2017						Calyxt Stand alone financial statements (US GAAP)
	Collectis Consolidated financial statements Reportable segments note (IFRS)	Calyxt equity award plan IFRS/US GAAP difference : Non cash stock-based compensation (1)	Collectis and Calyxt equity award IFRS/US GAAP difference : Non cash stock-based compensation (1)	Intersegment transactions (2)	Reclassifications (3)	Other (4)	
\$ in thousands							
External revenues and other income	747	—	—	167	(405)	(1)	508
Research and development expenses	(6,057)	1,134	(6,086)	—	(563)	16	(11,556)
Selling, general and administrative expenses	(13,143)	6,316	(6,006)	(2,501)	436	157	(14,741)
Royalties and other operating income and expenses	(384)	—	—	(114)	504	(7)	—
Total operating expenses	(19,584)	7,450	(12,092)	(2,615)	378	166	(26,297)
Operating income (loss) before tax	(18,837)	7,450	(12,092)	(2,448)	(27)	165	(25,789)
Financial gain (loss)	—	—	—	(1)	27	(218)	(191)
Net income (loss)	(18,837)	7,450	(12,092)	(2,449)	—	(53)	(25,980)

Reconciliation of Plant Segment result of operations for the year ended December 31, 2016

	For the year ended December 31, 2016						Calyxt Stand alone financial statements (US GAAP)
	Collectis Consolidated financial statements Reportable segments note (IFRS)	Calyxt equity award plan IFRS/US GAAP difference : Non cash stock-based compensation	Collectis equity award IFRS/US GAAP difference : Non cash stock-based compensation	Intersegment transactions (2)	Reclassifications (3)	Other (4)	
\$ in thousands							
External revenues and other income	585	—	—	131	(317)	—	399
Research and development expenses	(4,112)	477	(928)	—	(1,058)	(17)	(5,638)
Selling, general and administrative expenses	(4,809)	621	(20)	(3,443)	945	37	(6,670)
Royalties and other operating income and expenses	(474)	—	—	(155)	430	(1)	(200)
Total operating expenses	(9,395)	1,098	(948)	(3,598)	317	19	(12,508)
Operating income (loss) before tax	(8,810)	1,098	(948)	(3,468)	—	19	(12,109)
Financial gain (loss)	87	—	—	(64)	—	(1)	23
Net income (loss)	(8,722)	1,098	(948)	(3,532)	—	18	(12,086)

Reconciliation of Plant Segment result of operations for the year ended December 31, 2015

	For the year ended December 31, 2015						Calyxt Stand alone financial statements (US GAAP)
	Collectis Consolidated financial statements Reportable segments note (IFRS)	Calyxt equity award plan IFRS/US GAAP difference : Non cash stock-based compensation	Collectis equity award IFRS/US GAAP difference : Non cash stock-based compensation	Intersegment transactions (2)	Reclassifications (3)	Other (4)	
\$ in thousands							
External revenues and other income	49	—	—	72	(72)	1,223	1,272
Research and development expenses	(2,874)	384	(583)	—	8	298	(2,766)
Selling, general and administrative expenses	(1,834)	405	(109)	(2,568)	535	—	(3,569)
Royalties and other operating income and expenses	(272)	—	—	(75)	(403)	(1)	(751)
Total operating expenses	(4,980)	789	(692)	(2,643)	141	297	(7,086)
Operating income (loss) before tax	(4,931)	789	(692)	(2,571)	69	1,521	(5,814)
Financial gain (loss)	259	—	—	(261)	(69)	(4)	(75)
Net income (loss)	(4,672)	789	(692)	(2,832)	—	1,517	(5,889)

- (1) Calyxt equity award plan: In IFRS, the Calyxt equity award plan non-cash stock based compensation is recorded for stock options and other equity compensation plan awards issued by all entities of the consolidated group. The grant-date fair value of share warrants, employee warrants, stock options and free shares granted to employees is recognized as a payroll expense over the vesting period. In U.S. GAAP, the expenses related to the stock options granted in 2014, 2015 and 2016 under the Calyxt, Inc. Equity Incentive Existing Plan and in 2017 under the Omnibus Plan are only incurred upon a triggering event or Initial Public Offering of the Calyxt, Inc., as defined by the plan. Accordingly, with the completion of the IPO on July 25, 2017, we recognized a Plant segment compensation expense of \$7.5 million in the year ended December 31, 2017 for stock options and other equity compensation plan awards granted under the plans for which vesting related to the IPO. The stock options issued under the plans had an exercise price equal to the estimated fair value of the stock at the grant date for the Omnibus Plan and the IPO date for the Existing Plan.

Collectis equity award: Since 2016, Collectis allocates share-based compensation to the share-related entity (rather than the entity related to the employee that benefited from such compensation), considering that the share-based compensation is an expense linked to such entity's performance. Consequently, in the segment disclosure, all share-based compensation based on Collectis shares have been charged in the Therapeutics segment, even if some Calyxt employees are included in a Collectis stock-option plan. However, the Collectis equity award plan non-cash stock based compensation expenses related to Collectis stock-option plans have been recorded in the Calyxt stand-alone financial statements prepared under U.S. GAAP.

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- (2) Intersegment transactions primarily relate to management fees invoiced by Collectis to Calyxt. Intersegment transactions are eliminated in the consolidated financial statements as well as in Collectis' presentation of key performance indicators by reportable segment. However, intersegment transactions are included in Calyxt's stand-alone financial metrics.
 - (3) Reclassifications relate to expenses, which are classified differently under IFRS for Collectis' consolidated financials and U.S. GAAP for Calyxt's stand-alone financial statements.
 - (4) Other principally reflects adjustments recorded in the Calyxt stand-alone financial statements, which are immaterial when considered by Collectis on a consolidated basis for purposes of the Collectis consolidated financial statements. Note that this category includes (i) in 2017, the restatement of Calyxt's sale and lease back transaction with respect to its Roseville, Minnesota property, which is recorded as a finance lease in US GAAP and an operating lease under IFRS and (ii) in 2015, the restatement of stand-alone financial statement related to previous years' revenue recognition.

Note 4. Impairment tests

Accounting policy

Amortizable intangible assets and depreciable tangible assets are tested for impairment when there is an indicator of impairment. Goodwill is tested for impairment at least once a year. 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, 2015 or 2016. In 2017, as we have 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 Consolidated Statement of 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

	Software and Patents	Assets under construction	Total
Net book value as of January 1, 2015	1,246	—	1,246
Change in scope	—	—	—
Additions to intangible assets	97	—	97
Depreciation expense	(174)	—	(174)
Translation adjustments	(127)	—	(127)
Net book value as of December 31, 2015	1,041	—	1,041
Gross value at end of period	2,194	—	2,194
Accumulated depreciation and impairment at end of period	(1,153)	—	(1,153)
Net book value as of January 1, 2016	1,041	—	1,041
Additions to intangible assets	212	439	652
Disposal of intangible assets	(74)	—	(74)
Depreciation expense	(226)	—	(226)
Translation adjustments	(28)	(21)	(49)
Net book value as of December 31, 2016	924	419	1,343
Gross value at end of period	2,256	419	2,675
Accumulated depreciation and impairment at end of period	(1,332)	—	(1,332)
Net book value as of January 1, 2017	924	419	1,343
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)

Intangible assets mainly consist of electroporation technology patents acquired in 2011. The 2016 and 2017 additions in intangible assets under construction corresponds to the internal development of existing technology.

Note 6. 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.

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.”

Payments made under operating leases are expensed on a straight-line basis over the term of the lease. Lease incentives received are 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 appears that substantially all the risks and rewards incidental to ownership are transferred from the lessor to the lessee, the associated leased assets are 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 are 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, 2015	1,416	1,703	50	—	3,169
Additions to tangible assets	1,477	2,488	331	186	4,481
Disposal of tangible assets	—	118	—	—	118
Depreciation expense	(681)	(1,023)	(58)	—	(1,761)
Reclassification	—	(19)	20	—	1
Translation adjustments	(139)	(370)	(3)	(4)	(517)
Net book value as of December 31, 2015	2,072	2,897	340	182	5,490

	Lands and Buildings	Technical equipment	Fixtures, fittings and other equipment	Assets under construction	Total
\$ in thousands					
Gross value at end of period	4,065	11,686	836	182	16,769
Accumulated depreciation and impairment at end of period	(1,993)	(8,790)	(496)	—	(11,280)
Net book value as of January 1, 2016	2,072	2,897	340	182	5,490
Additions to tangible assets	11,164	1,076	562	902	13,704
Disposal of tangible assets	—	(3)	(1)	(183)	(186)
Depreciation expense	(741)	(1,077)	(167)	—	(1,986)
Reclassification	—	3	(3)	—	—
Translation adjustments	(59)	(38)	(23)	(4)	(122)
Net book value as of December 31, 2016	12,436	2,858	707	898	16,900
Gross value at end of period	15,085	10,634	1,104	898	27,721
Accumulated depreciation and impairment at end of period	(2,649)	(7,775)	(397)	—	(10,821)
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)

No assets have been pledged as security for financial liabilities. There is no restriction on title of property, plant and equipment, except for assets recognized under finance lease agreements.

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. Assets under construction primarily relates to Calyxt's additional building for \$0.5 million and the rest relates to Therapeutics activity. We also continue 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 Cellectis sites for \$0.7 million and other equipment for \$0.7 million.

Details of finance lease

	As of December 31,	
	2016	2017
\$ in thousands		
Gross value	4,171	4,448
Accumulated depreciation	(3,946)	(4,366)
Net	225	82

The finance leases relate mainly to laboratory equipment and IT equipment.

Note 7. Financial assets and liabilities**7.1 Accounting principles***Financial assets*

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.

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 valuation allowance for trade and other receivables is recognized if their recoverable amount is less than their carrying amount.

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

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.

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.

7.2 Detail of financial assets and liabilities

The following table shows the carrying amounts and fair values of financial assets and financial liabilities.

2016	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	—	691	691	691
Trade receivables	—	3,627	3,627	3,627
Subsidies receivables	—	8,723	8,723	8,723
Current financial assets	36,592	—	36,592	36,592
Cash and cash equivalents	254,568	—	254,568	254,568
Total financial assets	291,159	13,042	304,201	304,201
Financial liabilities				
Non-current financial liabilities	—	30	30	30
Current financial liabilities	1,692	38	1,730	1,730
Trade payables	—	9,722	9,722	9,722
Other current liabilities	—	5,196	5,196	5,196
Total financial liabilities	1,692	14,986	16,678	16,678

2017	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	—	1,004	1,004	1,004
Trade receivables	—	2,753	2,753	2,753
Subsidies receivables	—	9,524	9,524	9,524
Current financial assets	40,602	—	40,602	40,602
Cash and cash equivalents	256,380	—	256,380	256,380
Total financial assets	296,982	13,281	310,263	310,263
Financial liabilities				
Non-current financial liabilities	—	13	13	13
Current financial liabilities	—	21	21	21
Trade payables	—	9,460	9,460	9,460
Other current liabilities	—	6,570	6,570	6,570
Total financial liabilities	—	16,064	16,064	16,064

7.3. 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 Pfizer).

As of December 31, 2016, 64% of our cash and cash equivalents were denominated in US dollars and 69% of our current financial assets and cash and cash equivalents were denominated in US dollars. As of December 31, 2017, 75% of our cash and cash equivalents were denominated in US dollars and 79% of our current financial assets and cash and cash equivalents were denominated in US dollars.

As of December 31, 2016, we held the following derivative financial instruments, denominated in US dollars:

<u>2016</u>	<u>Notional</u>	<u>Fair Value</u>	<u>Maturity</u>
		<u>\$ in thousands</u>	
USD forward sale contracts	44,914	(1,776)	2017 to 2018
USD forward purchase contracts	—	—	—
Total derivative financial instruments		(1,776)	
of which :			
Derivative financial assets		—	
Derivative financial liabilities		(1,776)	

As of December 31, 2017, we held the following derivative financial instruments, denominated in US dollars:

<u>2017</u>	<u>Notional</u>	<u>Fair Value</u>	<u>Maturity</u>
		<u>\$ in thousands</u>	
USD forward sale contracts	18,775	558	2018
USD forward purchase contracts	—	—	—
Total derivative financial instruments		558	
of which :			
Derivative financial assets		558	
Derivative financial liabilities		—	

We do not apply hedge accounting to these instruments.

Liquidity risk

Our financial debt consists of finance lease liabilities (\$34 thousand as of December 31, 2017).

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, 2017, we held \$256.4 million in cash and cash equivalents.

Interest rate risk

As of December 31, 2015, we were only liable for governmental conditional advances with either no interest or interest at a fixed, generally below market rate. Consequently, we were not significantly exposed to fluctuations in interest rates for our liabilities. These governmental conditional advances were settled during the year 2016.

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 8. 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.

Description of inventories

As of December 31, 2017 and 2016, they consist of \$250 thousand and \$118 thousand, respectively, in raw materials and laboratory consumables (representing pharmaceutical and chemical products). No provision for impairment has been recorded as of December 31, 2016 and 2017.

Note 9. Trade receivables and other current assets

Accounting policies for trade receivables and other current assets are described in Note 7.1.

9.1 Trade receivables

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
Trade receivables	3,914	3,079
Valuation allowance	(287)	(326)
Total net value of trade receivables	3,627	2,753

All trade receivables have payment terms of less than one year. The change in trade receivables between December 31, 2016 and December 31, 2017 is mainly due to lower receivables on collaboration contracts.

9.2 Subsidies receivables

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
Research tax credit	8,389	9,039
Other subsidies	1,500	1,812
Valuation allowance for other subsidies	(1,166)	(1,326)
Total	8,723	9,524

Research tax credit receivables as of December 31, 2016 include the accrual for a French research tax credit related to 2016 for \$7.6 million and the remaining amount relates to refundable tax credits in the United States.

Research tax credit receivables as of December 31, 2017 include the accrual for a French research tax credit related to 2017 for \$8.2 million and the remaining amount mainly relates to refundable tax credits in the United States.

The valuation allowance for other subsidies corresponds to a grant, which was fully reserved in 2014.

9.3 Other current assets

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
VAT receivables	1,605	1,543
Prepaid expenses and other prepayments	6,615	8,304
Tax and social receivables	285	873
Deferred expenses and other current assets	363	2,993
Total	8,870	13,713

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 2017, 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, 2017, 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, (ii) other deferred expenses for \$0.6 million, (iii) other current assets for \$0.3 million.

Tax and social receivables as of December 31, 2017 include \$0.6 million of tax receivables and \$0.3 million of social charges on personnel expenses.

Note 10. Current financial assets and Cash and cash equivalents

As of December 31, 2016	Carrying amount	Unrealized Gains/(Losses)	Estimated fair value
	\$ in thousands		
Current financial assets	36,592	—	36,592
Cash and cash equivalents	254,567	—	254,567
Current financial assets and cash and cash equivalents	291,159	—	291,159
As of December 31, 2017	Carrying amount	Unrealized Gains/(Losses)	Estimated fair value
	\$ in thousands		
Current financial assets	40,602	—	40,602
Cash and cash equivalents	256,380	—	256,380
Current financial assets and cash and cash equivalents	296,982	—	296,982

10.1 Current financial assets

Accounting policies

Current financial assets that 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.

Details of current financial assets

Current financial assets are measured at fair value through profit or loss and are classified as follows within the fair value hierarchy:

- Instruments classified under level 1 are measured with reference to quoted prices in active markets; they consist of notes indexed to equity index. Their nominal value amount to \$40.3 million and their fair value amount to \$39.7 million as of December 31, 2017.

Instruments classified under level 2 are measured with reference to observable valuation inputs; they consist in zero-premium accumulator. Their nominal value amount to \$0.6 million and their fair value amount to \$0.6 million as of December 31, 2017.

10.2 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, 2016	As of December 31, 2017
	\$ in thousands	
Cash and bank accounts	222,089	219,368
Money market funds	12,451	13,026
Fixed bank deposits	20,028	23,986
Total cash and cash equivalents	254,568	256,380

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 11. Financial liabilities**11.1 Detail of financial liabilities**

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
Finance leases	30	13
Total non-current financial liabilities	30	13
Finance leases	38	21
Derivative instruments	1,692	—
Total current financial liabilities	1,730	21
Trade payables	9,722	9,460
Other current liabilities	5,197	6,570
Total Financial liabilities	16,678	16,064

Derivative instruments consist of fair value of zero premium collar instruments and accumulators that are classified under level 2 in the fair value hierarchy (note 7.3. Financial risks management).

11.2 Due dates of the financial liabilities

Balance as of December 31, 2017	Gross Amount	Less than One Year	One to Five Years	More than Five Years
	\$ in thousands			
Finance leases	34	21	13	—
Derivative instruments	—	—	—	—
Financial liabilities	34	21	13	—
Trade payables	9,460	9,460	—	—
Other current liabilities	6,570	6,570	—	—
Total financial liabilities	16,064	16,051	13	—

Note 12. Other current liabilities

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
VAT Payables	192	9
Accruals for personnel related expenses	4,140	5,982
Other	864	579
Total	5,196	6,570

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, 2016 and December 31, 2017, is mainly driven by higher annual bonus of Plant segment personnel for \$0.8 million, social charges on stock options grant recorded in 2017 for \$0.6 million, foreign exchange impact on the opening balance for \$0.6 million, partially offset by other immaterial variances for \$0.2 million..

As of December 31, 2016 and 2017, “Other” include subsidies liabilities for \$0.5 million and \$0.3 million, respectively. The decrease in “Other” is due to the reimbursement of a subsidy of \$0.3 million, that was received in excess during previous years.

Note 13. Deferred revenues and deferred income

Accounting policies

As disclosed in Note 3, non-refundable upfront payments are deferred and recognized as revenue over the period of the collaboration agreement.

Details of deferred revenues and deferred income

	As of December 31, 2016	As of December 31, 2017
	\$ in thousands	
Deferred revenues	38,768	26,056
Lease incentive	161	—
Total Deferred revenue and deferred income	38,929	26,056

Deferred revenues

Since 2014, most of the deferred revenues corresponds to upfront payments for the collaboration agreements with Les Laboratoires Servier and Pfizer Inc.

Lease incentive

In November 2011, when we entered into an operating lease agreement for our headquarters in Paris (BioPark), we received a lease incentive of €1.1 million from the lessor, which is deferred and amortized over the 6-year lease term (until October 2017). This amount is booked as a reduction in operating lease expenses.

Note 14. Capital

14.1 Share capital issued

Accounting policy

Share capital comprises ordinary shares and shares with double voting rights classified in equity. 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.

Nature of the Transactions	Share Capital	Share premium	Number of shares	Nominal value in \$
	\$ in thousands			
Balance as of January 1, 2015	2,014	263,100	29,446,721	0.05
Capital increase by issuance of common shares (IPO Nasdaq)	297	209,899	5,500,000	—
Capital increase by issuance of ordinary shares (BSA, BSPCE, SO and free shares)	13	4,325	231,893	—
Non-cash stock based compensation expense	—	32,614	—	—
Balance as of December 31, 2015	2,323	509,938	35,178,614	0.05
Capital increase by issuance of ordinary shares (BSA, BSPCE, and free shares)	9	723	156,446	—
Non-cash stock based compensation expense	—	57,524	—	—
Balance as of December 31, 2016	2,332	568,185	35,335,060	0.05
Capital increase by issuance of ordinary shares (BSA, BSPCE, SO and free shares)	35	2,921	625,002	—
Share based compensation	—	42,968	—	—
Other movements	—	(37)	—	—
Balance as of December 31, 2017	2,367	614,037	35,960,062	0.05

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.

Capital evolution in 2016

- During the year ended December 31, 2016, we issued 156,446 ordinary shares resulting from exercise of 50,000 BSA and 6,700 BSPCE and acquisition of 99,488 free shares.

Capital evolution in 2015

- On March 30, 2015, we issued 5,500,000 ordinary shares in the form of American Depositary Shares on the Nasdaq Global Market for gross proceeds of \$228.3 million. In connection with this issuance, \$18.1 million in fees were deducted from the share premium.
- During the twelve month period ended December 31, 2015, we issued 101,893 ordinary shares related to the conversion of warrants, 70,000 ordinary shares related to stock options exercises and 60,000 ordinary shares corresponding to free shares granted in 2013.

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, 2017, we had 35,960,062 ordinary shares outstanding of which 5,155,335 had a double voting right.
- At December 31, 2016, we had 35,335,060 ordinary shares outstanding of which 4,531,047 had a double voting right.
- At December 31, 2015, we had 35,178,614 ordinary shares outstanding of which 7,470,898 had a double voting right.

Otherwise, our ordinary shares are not entitled to any preferential voting right or restriction.

14.2 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.

Holders of vested stock options and warrants are entitled to subscribe to a capital increase of Collectis at predetermined exercise price.

Date	Type	Number of warrants/shares outstanding as of 01/01/2017	Number of warrants/shares granted	Number of warrants/shares vested/exercised	Number of warrants/shares voided	Number of warrants/shares outstanding as of 12/31/2017	Maximum of shares to be issued	Number of warrants/shares exercisable as of 12/31/2017
07/20/2007	BSPCE C	126,292	—	126,179	113	—	—	—
02/28/2008	BSPCE D	1,867	—	—	—	1,867	1,939	1,867
07/27/2010	BSPCE E	19,702	—	—	—	19,702	20,464	19,702
03/19/2013	Free shares	2,000	—	2,000	—	—	—	—
01/08/2015	Free shares	50,000	—	50,000	—	—	—	—
03/12/2014	Free shares	440,550	—	414,950	10,000	15,600	15,600	—
03/24/2015	Stock Options	1,763,840	—	—	14,785	1,749,055	1,749,055	1,206,528
03/27/2015	BSA	180,000	—	—	—	180,000	180,000	120,000
05/18/2015	BSA	50,000	—	—	—	50,000	50,000	33,333
09/08/2015	BSA	274,200	—	—	—	274,200	274,200	182,800
09/08/2015	Stock Options	1,868,800	—	—	66,800	1,802,000	1,802,000	1,061,625
03/14/2016	BSA	187,200	—	—	—	187,200	187,200	62,400
03/14/2016	Stock Options	2,030,587	—	17,544	67,095	1,945,948	1,945,948	799,849
10/28/2016	BSA	188,000	—	—	40,000	148,000	148,000	49,333
10/28/2016	Stock Options	2,773,028	—	14,329	143,098	2,615,601	2,615,601	754,770
11/10/2017	BSA	—	240,000	—	—	240,000	240,000	—
11/10/2017	Stock Options	—	1,220,000	—	—	1,220,000	1,220,000	—
Total		9,956,066	1,460,000	625,002	341,891	10,449,173	10,450,007	4,292,208

- In June 2017, our subsidiary Calyxt Inc. granted stock options and restricted stock unit in Calyxt Inc. representing as of December 31, 2017 a 12.9% interest of that subsidiary if fully exercised to a small group of its employees, directors and executive officers. The compensation expense for 2017 amounted to \$6.7 million (see Note 15).
- In April 2016, our subsidiary Calyxt Inc. granted options in Calyxt Inc. representing as of December 31, 2017 a 6.1% interest of that subsidiary if fully exercised to a small group of its employees, directors and executive officers. The compensation expense for 2017 amounted to \$0.6 million (see Note 15).
- In September 2015, our subsidiary Calyxt Inc. granted options in Calyxt Inc. representing as of December 31, 2017 a 0.4% interest of that subsidiary if fully exercised to a small group of its employees, directors and executive officers. The compensation expense for 2017 amounted to \$0.1 million (see Note 15).

14.3 Non-controlling interests

On December 19, 2013, Collectis S.A. contributed its 75% investment in Ectycell S.A.S. to Collectis Bioresearch S.A.S., and Caisse des Dépôts et Consignations contributed \$4.8 million to Collectis Bioresearch S.A.S. As a result, Ectycell S.A.S. became a wholly-owned subsidiary of Collectis Bioresearch S.A.S., of which, in turn, Collectis owns 75.5% and Caisse des Dépôts et Consignations owns 24.5%. This transaction was accounted for as an equity transaction between us and the non-controlling interest, resulting in the transfer of a 24.5% of the consolidated equity of Collectis Bioresearch to a non-controlling interest for an amount of \$4.6 million.

On May 18, 2015, Collectis S.A. repurchased the Collectis Bioresearch S.A.S. shares held by Caisse des Dépôts et Consignations for \$4.0 million. Thereafter, no non-controlling interest has been recorded.

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. As of December 31, 2017, non-controlling interests represent 20.3% of Calyxt shares.

The following table summarizes the information relating to each of our subsidiaries that reported non-controlling interest (“NCI”):

	CALYXT	
	2016	2017
	\$ in thousands	
Revenue	585	747
Net Profit (Loss)	(8,732)	(18,837)
Net Profit (Loss) attributable to NCI	—	(4,315)
Other comprehensive income	1,259	(5,856)
Total comprehensive income	(7,473)	(24,693)
Total comprehensive income attributable to NCI	(12)	(4,723)
Current assets	5,626	59,753
Non-current assets	10,967	2,072
Current liabilities	1,746	3,027
Non-current liabilities	—	—
Net assets	18,339	64,852
Net assets attributable to NCI	—	13,145

The statement of consolidated comprehensive income (loss) discloses an amount attributable to non-controlling interests for the year ended December 31, 2016. It relates to the change in currency translation adjustment linked with the cumulative non-stock share-based compensation recorded for Calyxt.

14.4 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.

The initial advance payment made to Natixis Securities 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 (\$0.3 million as of December 31, 2016) and the balance is presented in the line item “Other non-current financial assets” in the statements of consolidated financial position.

Note 15. Share-based payments

Accounting policy

The grant-date fair value of share warrants, employee warrants, stock options and free shares granted to employees is recognized as a payroll expense with a corresponding increase in equity, over the vesting period. The amount recognized as an expense is adjusted to reflect the actual number of awards for which the related service conditions are expected to be met.

Determining the fair value of share-based awards at the grant date requires judgment, we use the Black-Scholes option-pricing model to determine the fair value of share options. The determination of the grant date fair value of options using an option-pricing model is affected by our ordinary share fair value as well as assumptions regarding a number of other complex and subjective variables. These variables include the fair value

of our ordinary shares, the expected term of the options, our expected share price volatility, risk-free interest rates, and expected dividends, which are estimated as follows:

- Fair value of our ordinary shares. We use the closing sales price per ordinary share as quoted on Alternext market of Euronext in Paris on the grant date for Collectis grants and valuations prepared by third parties for Calyxt grants.
- Expected term. The expected term represents the period that our share-based awards are expected to be outstanding. As we do not have sufficient historical experience for determining the expected term of the ordinary share option awards granted, we have based our expected term on the simplified method, which represents the average period from vesting to the expiration of the award.
- Expected volatility. For Collectis grants, the expected share price volatility takes into account the Collectis closing share prices and closing share price of industry peers for the remaining expected term of the ordinary share option grant. For the Calyxt grants, the expected volatility is based on comparable transactions method.
- Risk-free rate. The risk-free interest rate is based on the yields of French government securities with maturities similar to the expected term of the options for each option group for Collectis grants and US Treasury bonds for Calyxt grants.
- Dividend yield. 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.

Service and performance conditions attached to the transactions are not taken into account in determining fair value. If any of the assumptions used in the Black-Scholes model changes significantly, share-based compensation for future awards may differ materially compared with the awards granted previously.

Details of share-based compensation

Share warrants and employee warrants consist of Bon de Souscription d'Action ("BSAs") and Bon de Souscription de Parts de Créateur d'Entreprise ("BSPCEs") which are granted to our employees.

Under these programs, holders of vested options are entitled to subscribe to a capital increase of Collectis at predetermined exercise price.

The following table provides the impact related to these programs in the statement of consolidated operations per fiscal year.

The new instruments issued during the year ended December 31, 2017 are the following:

- October 11, 2017, 1,220,000 Collectis stock options were granted to certain of our employees and officers. Non-cash stock-based compensation expense recorded during the year ended December 31, 2017 was \$0.5 million.
- October 11, 2017, 240,000 Collectis warrants were granted to members of our board of directors. Non-cash stock-based compensation expense recorded the year ended December 31, 2017 was \$0.5 million.
- June 14, 2017, 2,119,698 Calyxt Inc. stock options were granted to certain of Calyxt Inc.'s and Collectis S.A.'s and Collectis Inc.'s employees, officers, members of the board of directors, and consultants. In connection with such stock option grants, non-cash stock-based compensation expense recorded during the year ended December 31, 2017 was \$2.0 million.
- June 14, 2017, 1,452,333 Calyxt Inc. restricted stock units were granted to certain of Calyxt Inc.'s and Collectis S.A.s' and Collectis Inc.'s employees, officers, members of the board of directors and consultants. In connection with such restricted stock unit grants, non-cash stock-based compensation expense recorded during the year ended December 31, 2017 was \$4.7 million.

Subsequent to the grant date of these instruments, on July 20, 2017, Calyxt executed a 2.45-to-1 stock-split, which applied to the total number of Calyxt Inc.'s shares of common stock options and restricted stock units. Data presented herein include the impact of this stock-split on the granted stock options and restricted stock units.

Share warrants and employee warrants which are referred to as Bon de Souscription d'Action ("BSAs") are granted to our board members and consultants.

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.

The following table provides the expenses related to share-based compensation instruments during the years ended December 31, 2015, 2016 and 2017.

Non-cash share-based compensation expense	Free shares 2014 and before	Free shares 2015	Stock options 2015	BSA 2015	Stock options Calyxt 2015	Stock options 2016	BSA 2016	Stock options Calyxt 2016	Stock options 2017	BSA 2017	Stock options Calyxt 2017	RSU Calyxt 2017	Total
For the year ended													
\$ in thousands													
December 31, 2015	407	4,739	25,205	2,261	790	—	—	—	—	—	—	—	33,402
December 31, 2016	102	7,160	29,985	3,436	321	15,616	1,224	777	—	—	—	—	58,622
December 31, 2017	1	2,618	12,588	1,571	164	23,704	1,459	611	546	481	1,977	4,697	50,418

The key terms and conditions related to these BSAs and BSPCEs are provided in the Notes 15.1 to 15.5.

15.1 Detail of Collectis S.A. BSPCE E

Date of grant: July 27, 2010

The BSPCEs were vested before January 1, 2012 up to 19,702 BSPCEs and vested for post January 1, 2012 on the basis of the following vesting schedule:

- Up to 19,702 BSPCE on July 27, 2012
- Up to 19,704 BSPCE on July 27, 2013

<u>Date of grant (Board of Directors)</u>	<u>07/27/2010</u>	<u>07/27/2010</u>	<u>07/27/2010</u>
Vesting period (years)	1	2	3
Plan expiration date	07/27/2020	07/27/2020	07/27/2020
Number of BSPCE granted	19,702	19,702	19,704
Share entitlement per BSPCE	1	1	1
Exercise price (in euros per share)	8.28	8.28	8.28
Valuation method used	Black-Scholes	Black-Scholes	Black-Scholes
Grant date share fair value (in euros per share)	8.28	8.28	8.28
Expected volatility	54%	54%	54%
Average life of BSPCE	5.5	6.0	6.5
Discount rate	3.14%	3.14%	3.14%
Expected dividends	0%	0%	0%
Performance conditions	NA	NA	NA
Fair value per BSPCE (in euros per share)	5.52	5.52	5.52

15.2 Detail of Collectis S.A. free shares

The free shares are subject to a two-year vesting period for French employees and four years for foreign citizens.

Date of grant (Board of Directors)	09/18/2012	03/19/2013	03/19/2014	01/08/2015	05/18/2015	05/18/2015
Vesting period (years)	2	2	2	2	2	4
Number of Free shares granted	102,099	102,000	100,000	50,000	426,300	24,100
Share entitlement per Free share	1	1	1	1	1	1
Grant date share fair value (in euros per share)	5.37	6.86	6.16	19.10	28.17	28.17
Expected dividends	0%	0%	0%	0%	0%	0%
Performance conditions	n.a	n.a	n.a	n.a	n.a	n.a

15.3 Detail of Collectis S.A. stock options

The stock options are subject to a two-year vesting period for French employees and four years for foreign citizens.

Date of grant	03/24/2015	09/08/2015	03/14/2016	10/28/2016	10/11/2017
Vesting period	Graded	Graded	Graded	Graded	Graded
Plan expiration date	03/24/2025	08/09/2025	03/14/2026	10/28/2026	11/10/2027
Number of options granted	1,892,300	1,982,300	2,060,602	2,773,028	1,220,000
Share entitlement per options	1	1	1	1	1
Exercise price (in euros per share)	38.45	27.55	22.44	17.90	22.57
Valuation method used	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes
Grant date share fair value (in euros per share)	40.00	28.59	22.48	16.42	24.01
Expected volatility	59.8%	59.9%	62.8%	63.2%	65.6%
Average life of options	6.11	6.11	6.11	6.12	6.12
Discount rate	0.16%	0.42%	0.03%	0.00%	0.03%
Expected dividends	0%	0%	0%	0%	0%
Performance conditions	n.a	n.a	n.a	n.a	n.a
Fair value per options (in euros per share)	22.02	15.86	12.65	8.96	14.30

15.4 Detail of Collectis S.A. warrants

The key terms and conditions related to these warrants are provided in the table below.

Date of grant	03/27/2015	03/27/2015	05/18/2015	09/08/2015	03/14/2016	10/28/2016	11/10/2017
Vesting period (years)	Graded	Graded	Graded	Graded	Graded	Graded	Graded
Plan expiration date	03/27/2025	03/27/2025	05/18/2025	09/08/2025	03/14/2026	10/28/2026	11/10/2027
Number of warrants granted	130,000	50,000	50,000	274,200	229,361	188,000	240,000
Share entitlement per warrant	1	1	1	1	1	1	1
Exercise price (in euros per share)	38.45	38.45	29.58	28.01	27.37	18.68	24.34
Valuation method used	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes
Grant date share fair value (in euros per share)	32.15	28.17	28.17	28.59	22.48	16.42	24.95
Expected volatility	59.1%	59.1%	59.1%	60.5%	62.8%	63.1%	64.7%
Average life of warrant	6.00	5.83	6.00	6.00	6.00	6.00	6.00
Discount rate	0.42%	0.94%	0.94%	0.43%	0.04%	0.00%	0.12%
Expected dividends	0%	0%	0%	0%	0%	0%	0%
Performance conditions	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Fair value per warrant (in euros per share)	13.95	11.10	13.51	14.24	10.51	7.88	13.20

15.5 Detail of Calyxt Inc. stock options

The key terms and conditions related to these options are provided in the table below.

Date of grant	Employees 12/03/2014 (a)	Managers 12/03/2014 (b)	09/08/2015 (c)	04/07/2016 (d)	06/14/2017 (e)
Vesting period	Graded	Graded	Graded	Graded	Graded
Plan expiration date	12/03/2024	12/03/2024	09/08/2025	04/07/2026	06/14/2027
Number of options granted	71,050	159,250	113,925	1,678,250	2,119,698
Share entitlement per options	1	1	1	1	1
Exercise price (in \$ per share)	3.71	3.71	21.83	3.59	13.29
Valuation method used	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes	Black-Scholes
Grant date share fair value (in \$ per share)	3.71	3.71	21.83	3.59	13.29
Expected volatility	48.0%	48.0%	54.3%	30.0%	25.0%
Average life of options	6.16	6.04	5.53	5.74	6.57
Discount rate	1.74%	1.74%	1.65%	1.41%	1.96%
Expected dividends	0%	0%	0%	0%	0%
Performance conditions	Trigger event*	Trigger event*	Trigger event*	Trigger event*	n.a
Fair value per options (in \$ per share)	1.78	1.76	10.93	1.11	4.00

* The plans pursuant to which Calyxt stock options are issued require the occurrence of an IPO or a “triggering event” as a condition for the exercise of vested stock options and, in some circumstances, as a condition to vesting. If the condition is expected to occur during the service period, then it is a non-market performance condition. A triggering event is designed as any transaction that would result in Collectis losing control of Calyxt Inc. As such, the options to which the IPO or triggering event condition apply were measured at the grant date, but the expense was not recorded until the IPO occurred in 2017.

-
- (a) the options granted on December 3, 2014, shall vest as follows for employees:
- 25% of the total number of shares on April 10, 2015;
 - 6.25% of the total number of shares on the last day of each calendar quarter beginning from third quarter of 2015 (or 12.5% of the total number of shares on the last day of each calendar quarter beginning after a triggering event or initial public offering);
 - 25% at the date of a triggering event or initial public offering;
 - 100% in the event of termination without cause of resignation for good reason in the case of a change of control.
- (b) the options granted on December 3, 2014, shall vest as follows for managers and consultants:
- 20% of the total number of shares on January 3, 2015;
 - 20% of the total number of shares on April 10, 2015;
 - 5% of the total number of shares on the last day of each calendar quarter beginning from third quarter of 2015 (or 10% of the total number of shares on the last day of each calendar quarter beginning after a triggering event or initial public offering);
 - 25% at the date of a triggering event or initial public offering;
 - 100% in the event of termination without cause of resignation for good reason in the case of a change of control.
- (c) the options granted on September 8, 2015, shall vest as follows:
- 20% of the total Number of Shares on September 8, 2015;
 - 20% of the total Number of Shares on September 8, 2016; and
 - 5% of the Total Number of Shares on the last day of each calendar quarter beginning from the fourth quarter of 2016;
 - 25% at the date of a triggering event or initial public offering.

The vested portion of such options shall only become exercisable in the event that a triggering event or initial public offering occurs prior to the expiration date, in which case, an additional 25% of the total number of shares shall immediately vest. The total of vested options cannot exceed 100% of the number of options initially granted. A triggering event is designed as any transaction that would result in Collectis losing control of Calyxt Inc.

- (d) the options granted on April 7, 2016 shall vest as follows:
- C-Level; “VP” and Consultants
 - 20% of the total Number of Shares on April 7, 2016;
 - 10% of the total Number of Shares on April 7, 2017;
 - 5% of the total Number of Shares on the last day of each calendar quarter beginning from the second quarter 2017;
 - 25% of additional vesting in case of triggering event or initial public offering; and
 - 100% in the event of termination without cause or resignation for good reason in the case of a change of control.
 - Heads of department and Analysts
 - 20% of the total Number of Shares on April 7, 2017;

- 10% of the total Number of Shares on April 7, 2018;
 - 5% of the total Number of Shares on the last day of each calendar quarter beginning from the second quarter 2018.
- (e) the Calyxt options granted on June 14, 2017, shall vest as follows:
- C-Level, Directors and Consultants
 - 15% of the total Number of Shares on June 14, 2018;
 - 15% of the total Number of Shares on June 14, 2019;
 - 5% vest each quarter after the second anniversary of the grant.
 - CFO and CCO
 - 20% of the total Number of Shares on June 14, 2017;
 - 10% of the total Number of Shares on June 14, 2018;
 - 5% vest each quarter after the first anniversary of the grant.
 - Employees
 - 15% of the total Number of Shares on June 14, 2018;
 - 10% of the total Number of Shares on June 14, 2019;
 - 5% vest each quarter after the second anniversary of the grant.

15.6 Detail of Calyxt Inc. restricted stock unit

The key terms and conditions related to these options are provided in the table below.

Date of grant	06/14/2017 (a)
Vesting period	Graded
Number of RSU granted	1,452,333
Share entitlement per RSU	1
Grant date share fair value (in \$ per share)	13.29
Expected dividends	0%
Performance conditions	n.a

(a) the Calyxt RSU granted on June 14, 2017 shall vest as follows:

- C-Level, Directors and Consultants
 - 15% of the total Number of Shares on June 14, 2018;
 - 15% of the total Number of Shares on June 14, 2019;
 - 5% vest each quarter after the second anniversary of the grant.
- CFO and CCO
 - 20% of the total Number of Shares on June 14, 2017;
 - 10% of the total Number of Shares on June 14, 2018;
 - 5% vest each quarter after the first anniversary of the grant.
- Employees
 - 15% of the total Number of Shares on June 14, 2018;
 - 10% of the total Number of Shares on June 14, 2019;
 - 5% vest each quarter after the second anniversary of the grant.

Note 16. 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,		
	2015	2016	2017
Net profit (loss) attributable to shareholders of Collectis (\$ in thousands)	(22,796)	(67,255)	(99,368)
Adjusted weighted average number of outstanding shares, used to calculate both basic and diluted net profit per share	34,149,908	35,274,890	35,690,636
Basic / Diluted net profit (loss) per share (\$ / share)			
Basic net profit (loss) per share (\$ /share)	(0.67)	(1.91)	(2.78)
Diluted net profit (loss) per share (\$ /share)	(0.67)	(1.91)	(2.78)

Note 17. 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

	01/01/2016	Additions	Amounts used during the period	Reversals	OCI	12/31/2016
	\$ in thousands					
Pension	476	75	—	—	10	560
Employee litigation and severance	761	276	(641)	(281)	6	121
Commercial litigation	243	374	—	(129)	(19)	468
Redundancy plan	35	—	(17)	(12)	—	6
Total	1,513	724	(657)	(423)	(3)	1,154
Non-current provisions	476	75	—	—	10	560
Current provisions	1,037	649	(658)	(423)	(12)	594

	01/01/2017	Additions	Amounts used during the period	Reversals	OCI	12/31/2017
	\$ in thousands					
Pension	560	949	—	—	683	2,193
Loss on contract	—	1,876	—	—	—	1,876
Employee litigation and severance	121	29	(50)	(108)	9	1
Commercial litigation	468	552	(102)	(215)	79	782
Redundancy plan	6	—	—	—	1	7
Total	1,154	3,406	(152)	(323)	773	4,858
Non-current provisions	560	2,186	—	—	683	3,430
Current provisions	594	1,220	(152)	(323)	89	1,427

During the year ended December 31, 2017, additions in (i) commercial litigations mainly relates to one supplier and in (ii) loss on contract is mainly attributable to our willingness to discontinue the facility lease in Montvale, New Jersey (USA). Amounts used during the year ended December 31, 2017 mainly consist of the payments to a former supplier and in settlement of employee litigations.

During the year ended December 31, 2016 we recorded (i) provisions for commercial litigation that amounted to \$374 thousand, (ii) provisions for employees' severance expenses for \$191 thousand and

(iii) provisions for personnel litigation for \$83 thousand. Amounts used during the year ended December 31, 2016 mainly consist of personnel related payments. The reversals mainly relate to ordinary course litigation relating to both personnel matters and commercial litigations.

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, 2015, 2016 and 2017 amounted to \$0.8 million, \$0.8 million and \$0.8 million, respectively.

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 justify to 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:

	2015	2016	2017
% social security contributions	45.00%	45.00%	45.00%
Salary increases	2.00%	2.00%	3.50%
Discount rate	2.00%	1.75%	1.75%
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, 2015	(483)
Current service cost	(54)
Interest cost	(7)
Actuarial gains and losses	(16)
Reclassification/CTA	83
As of December 31, 2015	(477)
Current service cost	(65)
Interest cost	(9)
Actuarial gains and losses	(31)
Reclassification/CTA	20
As of December 31, 2016	(562)
Current service cost	(925)
Interest cost	(24)
Actuarial gains and losses	(515)
Reclassification/CTA	(168)
As of December 31, 2017	(2,194)

United States of America

There is no defined benefit plan for Collectis S.A.'s subsidiaries located in the United States.

Note 18. 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, 2017	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
	\$ in thousands				
Sale and lease-back agreement	30,080	1,055	2,676	2,676	23,673
Facility lease agreements	11,539	2,471	4,702	1,670	2,697
License agreements	18,413	1,238	2,476	2,476	12,223
Manufacturing agreements	7,679	7,679	—	—	—
Other agreements	1,702	1,702	—	—	—
Total contractual obligations	69,414	14,145	9,854	6,821	38,593

Obligations under the terms of the sale and lease-back agreement

The sale and lease-back agreement entered into by Calyxt in the third quarter of 2017 has a defined lease term and is classified as an operating lease agreement under IFRS. It results in off-balance sheet commitments.

Obligations under the terms of the facility lease agreements

Facility lease agreements in Paris, France, and in New York City, New York; Montvale, New Jersey; New Brighton, Minnesota; and Roseville, Minnesota (all in the USA) have been subscribed for a defined term. Future payments of these leases as disclosed in the table above, along with the letters of credit provided to the landlords of the Company's facilities in New York and in New Brighton, are off balance sheets commitments.

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.

Note 19. Related parties***Key management personnel remuneration***

Key management personnel include members of the Board of Directors and the CODM as of December 31, 2017, as described in Note 3.5.

Short-term employee benefits paid to key management personnel totaled to \$2.2 million in the fiscal year 2015, to \$2.4 million in the fiscal year 2016 and to \$3.6 million in the fiscal year 2017.

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 955,000 securities in share-based remuneration (free shares, warrants and stock options) over the year ended December 31, 2017. The associated non-cash stock-based compensation expense of \$0.7 million recognized for 2017.

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, 2015, 2016 and 2017 amounted to \$39 thousand, \$37 thousand and \$38 thousand respectively. No balances were outstanding at the end of each fiscal year. As of December 31, 2017, 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.

Bpifrance is a shareholder of Collectis S.A. and "Caisse des Dépôts et Consignations" ("CDC") was a shareholder of Collectis Bioresearch. OSEO, which is the former name of Bpifrance and is indirectly related to CDC, granted conditional advances and subsidies to us. On May 18, 2015, we signed with the "Caisse des Dépôts

et Consignations” a contract for our repurchase of its participation in Collectis Bioresearch., which represented 25% of the total shares thereof for an amount of €3.5 million. At the time of the merger with Collectis S.A., Collectis S.A. was the sole stockholder of Collectis Bioresearch. As of December 31, 2017, we have no outstanding balances with Bpifrance.

Note 20. Subsequent events

None.

Exhibit Index

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
1.1#	By-laws (status) of the registrant (English translation)	6-K	001-36891	99.1	January 9, 2018
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
4.1	Reserved				
4.2#*	Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated October 19, 2000 (English translation)	F-1	333-202205	10.2	March 12, 2015
4.2.1#*	Amendment No. 1 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated September 8, 2003 (English translation)	F-1	333-202205	10.2.1	March 12, 2015
4.2.2#*	Amendment No. 2 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated June 24, 2004 (English translation)	F-1	333-202205	10.2.2	March 12, 2015
4.2.3#*	Amendment No. 3 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated August 24, 2005 (English translation)	F-1	333-202205	10.2.3	March 12, 2015
4.2.4#*	Amendment No. 4 to Patent License Agreement #C-00061906 between L'Institut Pasteur and Cellectis S.A., dated December 27, 2007 (English translation)	F-1	333-202205	10.2.4	March 12, 2015
4.3#*	Patent License Agreement #C-00061905 between L'Institut Pasteur and Cellectis S.A., dated June 19, 2000 (English translation)	F-1	333-202205	10.3	March 12, 2015
4.3.1#*	Amendment No. 1 to Patent License Agreement #C-00061905 between L'Institut Pasteur and Cellectis S.A., dated September 8, 2003 (English translation)	F-1	333-202205	10.3.1	March 12, 2015
4.4#*	Research and Collaboration Agreement between Pfizer Inc. and Cellectis S.A., dated June 17, 2014	F-1	333-202205	10.4	March 12, 2015
4.4.1*	Amendment to the Research Collaboration and License Agreement, by and between the Company and Pfizer Inc., dated as of December 1, 2016				Filed Herewith
4.5#*	Research, Product Development, Option, License and Commercialization Agreement, among Les Laboratoires Servier SAS, Institut de Recherches Internationales Servier SAS and Cellectis S.A., dated February 17, 2014	F-1	333-202205	10.5	March 12, 2015

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
4.5.1#*	Amendment to the Product Development, Option, License and Commercialization Agreement, among Les Laboratoires Servier SAS, Institut de Recherches Internationales Servier SAS and Cellectis S.A., dated November 18, 2015	20-F	001-36891	4.5.1	March 21, 2016
4.5.2*	Amendment No. 2 to the Product Development, Option, License and Commercialization Agreement, by and between the Company and Les Laboratoires Serviers, dated as of November 28, 2016				Filed Herewith
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				Filed Herewith
4.7#*	Patent & Technology License Agreement between Ohio State Innovation Foundation and Cellectis S.A., dated October 23, 2014	F-1	333-202205	10.7	March 12, 2015
4.8†#	Change of Control Plan, effective as of September 4, 2014 (English translation)	F-1	333-202205	10.10	March 10, 2015
4.9†#	Summary of BSA Plan	F-1	333-202205	10.11	March 10, 2015
4.10†#	Summary of BSPCE Plan	F-1	333-202205	10.12	March 10, 2015
4.11†#	2012 Free Share Plan	F-1	333-202205	10.13	March 10, 2015
4.12†#	2013 Free Share Plan	F-1	333-202205	10.14	March 10, 2015
4.13†#	2014 Free Share Plan	F-1	333-202205	10.15	March 10, 2015
4.14†#	2015 Free Share Plan	20-F	001-36891	4.16	March 21, 2016
4.15†#	2015 Stock Option Plan	20-F	001-36891	4.17	March 21, 2016
4.16†#	2016 Stock Option Plan	S-8	333-214884	99.1	December 2, 2016
4.17†#	2017 Stock Option Plan	S-8	333-222482	99.1	January 9, 2018
4.18†#	Summary of BSA Plan	S-8	333-222482	99.2	January 9, 2018

Exhibit Number	Description of Exhibit	Schedule/ Form	File Number	Exhibit	File Date
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.				
*	Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment.				

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 Choulaka

By: André Choulaka

Title: Chairman and Chief Executive Officer

Date: March 13, 2018

CONFIDENTIAL TREATMENT REQUESTED BY CELLECTIS S.A.—CONFIDENTIAL PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED AND HAVE BEEN SEPARATELY FILED WITH THE COMMISSION

EXECUTION COPY

AMENDMENT

THIS AMENDMENT (“Amendment”) is made this 1st day of December, 2016 by and between **Pfizer, Inc.**, a corporation organized and existing under the laws of the State of Delaware and having a place of business at 235 East 42nd Street, New York, New York 10017 United States (“Pfizer”), and **Collectis SA**, a corporation organized and existing under the laws of France and having a place of business at 8 rue de la Croix Jarry, 75013 Paris, France (“Collectis”).

WHEREAS, Pfizer and Collectis are Parties to the Research Collaboration and License Agreement dated June 17, 2014 (as amended from time to time, the “Pfizer Collaboration Agreement”);

WHEREAS, in furtherance of, and as part of, the transactions contemplated by the Pfizer Collaboration Agreement, subject to the terms and conditions set forth in this Amendment, Collectis desires to clarify the grant of certain rights to Pfizer;

WHEREAS, pursuant to the Servier Agreement (as defined in the Pfizer Collaboration Agreement), Collectis granted certain exclusive patent rights to Servier on the terms set forth therein in respect of, among other things, the Other Products in the Other Field in the Other Territory;

WHEREAS, in furtherance of, and as part of, the transactions contemplated by the Servier Agreement and pursuant to the terms set forth therein, Servier has requested that Collectis license certain patent rights to Pfizer in respect of the Other Products in the Other Field in the Other Territory; and

WHEREAS, the parties desire to amend the Pfizer Collaboration Agreement as set forth below.

NOW, THEREFORE, for valuable consideration, the receipt of which is hereby acknowledged, the parties hereto agree as follows:

1. Section 1 is amended to include the following definitions:

1.88 “Other Field” means anti-tumor adoptive immunotherapy, together with any additional fields as amended from time to time by Collectis at the written direction of Servier pursuant to Section 4.3(b) of the Servier Agreement.

1.89 “Other Products” means, as of the Effective Date, UCART19 [***], corresponding to an allogeneic anti-tumor adoptive T-cell expressing a single chain chimeric antigen receptor (CAR) directed against [***] target, and including specific attributes, as initially developed by Collectis as per the Servier Agreement, and that are initially licensed by Collectis to Servier as per the Servier Agreement together with any additional allogeneic anti-tumor adoptive T-cell CARs that bind to [***] as may be optioned by Servier from Collectis under the

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

Servier Agreement, together with any additional products as amended from time to time by Collectis at the written direction of Servier pursuant to Section 4.3(b) of the Servier Agreement.

1.90 "Other Territory" means the United States of America together with any additional territories as amended from time to time by Collectis at the written direction of Servier pursuant to Section 4.3(b) of the Servier Agreement.

1.123 "Servier" means Les Laboratoires Servier, a corporation organized and existing under the laws of France and having a place of business located at 50 rue Carnot, 92150 Suresnes, France.

The remaining definitions will be renumbered in alphabetical order as necessary.

2. Section 4.1.2 of the Pfizer Collaboration Agreement is replaced in its entirety with the following:

4.1.2 [*] PatentRights.**

(a) Subject to the terms and conditions of this Agreement on a Pfizer Target-by-Pfizer Target basis and effective on the Target Designation Date for such Pfizer Target, Collectis hereby grants to Pfizer and its Affiliates the right to use the [***] engineered by Collectis pursuant to this Agreement to Develop Pfizer Licensed Products until the filing of an IND for each Pfizer Licensed Product, in the Field.

(b) Subject to the terms and conditions of this Agreement on an Other Product-by-Other Product basis and effective as of October 30, 2015 (or such later date as such Other Product is included hereunder pursuant to Section 4.3(b) of the Servier Agreement), Collectis hereby grants to Pfizer and its Affiliates the right to use the [***] engineered by Collectis pursuant to the Servier Agreement to Develop Other Products, and Collectis shall further have the obligation to grant the rights set forth in this Section 4.1.2(b) to subcontractors as directed by Pfizer pursuant to Section 4.1.5(b) herein, until the filing of an IND for each Other Product, in the Other Field.

(c) Subject to the terms and conditions of this Agreement, on a Pfizer Target-by-Pfizer Target basis and effective upon the filing of an IND for each individual Pfizer Licensed Product developed under 4.1.2(a), Collectis hereby grants to Pfizer and its Affiliates an exclusive (even as to Collectis) license under the [***] Patent Rights, to make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported and otherwise exploit and Commercialize such Pfizer Licensed Product in the Field in the Territory, with the right to sublicense as provided in Section 4.1.3. Notwithstanding the foregoing, Pfizer hereby acknowledges and agrees that Collectis shall have the right and obligation to grant licenses and rights to a Third Party as set forth in Section 4.15(b) and Pfizer's license and other rights under the [***] Patent Rights shall be

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

limited accordingly so long as any such agreement remains in effect with such Third Party. For the sake of clarity, the license granted to Pfizer by Collectis herein does not give Pfizer the right (i) to [***] or (ii) sublicense the [***] Patent Rights pursuant to Section 4.1.4, provided however that Pfizer may sublicense pursuant to Section 4.1.4 solely in relation to a transaction involving, with respect to all [***] Patent Rights, only the [***] Patent Rights owned by Collectis or owned by University of Minnesota.

(d) Subject to the terms and conditions of this Agreement, on an Other Product-by-Other Product basis and effective upon the filing of an IND for each individual Other Product developed under 4.1.2(b), Collectis hereby grants to Pfizer and its Affiliates an exclusive (even as to Collectis) license under the [***] Patent Rights, to make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported and otherwise exploit and Commercialize such Other Product in the Other Field in the Other Territory, and Collectis shall further have the obligation to grant the licenses and rights set forth in this Section 4.1.2(d) to subcontractors as directed by Pfizer pursuant to Section 4.1.5(b) herein. For the sake of clarity, the license granted to Pfizer by Collectis herein does not give Pfizer the right (i) to [***] or (ii) sublicense the [***] Patent Rights pursuant to Section 4.1.4, provided however that Pfizer may sublicense pursuant to Section 4.1.4 solely in relation to a transaction involving, with respect to all [***] Patent Rights, only the [***] Patent Rights owned by Collectis or owned by University of Minnesota.

(e) In accordance with Section 4.1.5(b) of this Agreement, Pfizer has directed Collectis to grant certain rights to Servier previously granted to Pfizer pursuant to Sections 4.1.2(a) and (c) herein. Pfizer hereby consents to the license granted by Collectis to Servier pursuant to the Servier Agreement, as amended. The parties acknowledge and agree that any rights or licenses that have been granted to Servier at Pfizer's request (including any expansions of such rights or licenses, pursuant to this Agreement, that Pfizer directs Collectis in writing to grant to Servier), or that may hereafter be granted by Collectis to Servier, a subcontractor as directed by Servier, or a Third Party at the request of Pfizer, are rights or licenses that were provided to Pfizer pursuant to this Agreement in accordance with the broad collaboration and development activities contemplated hereunder, and therefore Collectis has already received (or, in the future and in accordance with the terms of this Agreement, will have the right to receive) compensation that Collectis and Pfizer have determined is fair and equitable and that Collectis shall therefore not have the right to any additional payments or compensation from Servier, Pfizer or any other person or entity in connection with the foregoing. Without limiting the foregoing, the parties agree and acknowledge that all consideration paid or to be paid, whether one-time payments, milestone payments, royalty payments or otherwise, to Collectis under the Servier Agreement or this Agreement shall not be reduced or otherwise modified or amended because of the license granted to Servier or other parties as contemplated hereby.

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

3. Section 4.1.5 of the Pfizer Collaboration Agreement is replaced in its entirety with the following:

- (a) **Direct License to Affiliates.** Pfizer may at any time request and authorize Collectis to grant licenses directly to Affiliates of Pfizer by giving written notice designating to which Affiliate a direct license is to be granted. Upon receipt of any such notice, Collectis will enter into and sign a separate direct license agreement with such designated Affiliate of Pfizer. All such direct license agreements will be consistent with the terms and conditions of this Agreement, except for such modifications as may be required by the laws and regulations in the country in which the direct license will be exercised. The Parties further agree to make any amendments to this Agreement that are necessary to conform the combined terms of such direct license agreements and this Agreement to the terms of this Agreement as set forth on the Effective Date. In countries where the validity of such direct license agreements requires prior governmental approval or registration, such direct license agreements will not become binding between the parties thereto until such approval or registration is granted, which approval or registration will be obtained by Pfizer. All costs of making such direct license agreement(s), including Collectis' reasonable attorneys' fees, under this Section 4.1.4 will be borne by Pfizer. Collectis may provide a copy of any such license or similar agreements (and this Agreement) to any of its direct or indirect licensors to the extent required to comply with the terms of any license agreement to which Collectis is a party from time to time.
- (b) **Direct License to Third Parties.** Pfizer may at any time request and authorize Collectis to grant the rights and licenses set forth in Sections 4.1.2(a), 4.1.2(b), 4.1.2(c) and 4.1.2(d) of this Agreement directly to third parties by giving written notice designating to which Third Party such direct right or license is to be granted. Upon receipt of any such notice, Collectis will enter into and sign a separate direct license or similar agreement with such designated Third Party, which, to the extent involving [***] Patent Rights licensed to Collectis by Life Technologies Corporation, must include a license in respect of all of the [***] Patent Rights. All such direct license or similar agreements will be consistent with the terms and conditions of this Agreement, except for such modifications as may be required by the laws and regulations in the country in which the direct license or right will be exercised. Collectis may provide a copy of any such license or similar agreements to any of its direct or indirect licensors to the extent required to comply with the terms of any license agreement to which Collectis is a party from time to time. The parties further agree and acknowledge that no additional consideration would be due to Collectis from Pfizer or such Third Party in respect of the grant of any such license or similar right, and the grant of any such license or similar right shall limit Pfizer's license and other rights accordingly so long as any such agreement remains in effect with such Third Party. The parties acknowledge and agree that any rights or licenses that may hereafter be granted by Collectis at the request of Pfizer as contemplated by the immediately preceding sentence are rights or licenses that were previously provided to Pfizer pursuant to this Agreement in accordance with the broad

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

collaboration and development activities contemplated by such agreement, and therefore Collectis has already received (or, in the future and in accordance with the terms of this Agreement, will have the right to receive) compensation that Collectis and Pfizer have determined is fair and equitable and that Collectis shall therefore not have the right to any additional payments or compensation from Pfizer or any other person or entity in connection with the foregoing. The parties further agree to make any amendments to this Agreement that are necessary to conform the combined terms of such direct license or similar agreements and this Agreement to the terms of this Agreement. In countries where the validity of such direct license or similar agreements requires prior governmental approval or registration, such direct license or similar agreements will not become binding between the parties thereto until such approval or registration is granted, which approval or registration will be obtained by Pfizer or the Third Party, as applicable.

4. Sections 9.7.4(a) and (b) of the Pfizer Collaboration Agreement are replaced in their entirety with the following:
- (a) If Collectis terminates this Agreement with respect to any Pfizer Target pursuant to Section 9.4, or if Pfizer terminates this Agreement with respect to any Pfizer Target pursuant to Section 9.5, then (i) all licenses granted by Collectis to Pfizer under Sections 4.1.1, 4.1.2 and 4.1.3 with respect to any such Pfizer Target will terminate, (ii) any Pfizer Licensed Product Targeting such Pfizer Target will terminate, and (iii) any material or Confidential Information provided by Collectis to Pfizer in the course of the performance of this Agreement will be returned or destroyed as directed by Collectis.
 - (b) If Collectis terminates this Agreement in its entirety pursuant to Section 9.4, or if Pfizer terminates this Agreement in its entirety pursuant to Section 9.5: (i) all licenses granted by Collectis to Pfizer under Sections 4.1.1, 4.1.2(a), 4.1.2(c) and 4.1.3 will terminate, (ii) all rights and licenses granted by Collectis to Pfizer pursuant to Section 4.1.2(b) and 4.1.2(d), and all obligations to which the parties are bound hereunder with relation thereto, will continue in full force and effect, to the extent such rights and licenses were not previously or concurrently terminated (including as set forth in Section 9.7.4(a) herein) and will subsequently terminate in accordance with the terms of the Servier Agreement, wherein such rights and licenses were initially granted to Servier, (iii) Collectis will have no further obligations to Pfizer under this Agreement other than those obligations that expressly survive termination in accordance with Section 9.9, (iv) all rights and licenses granted by Pfizer to Collectis pursuant to Section 4.2 will continue, (v) Pfizer's right of first refusal set forth in Section 3.9 will continue to the extent that such Collectis Product is Covered by Licensed Pfizer Intellectual Property and (vi) any material or Confidential Information provided by Collectis to Pfizer in the course of the performance of this Agreement will be returned or destroyed as directed in writing by Collectis. For the avoidance of doubt, all rights and licenses granted by Collectis to Pfizer pursuant to Section 4.1.2(b) and 4.1.2(d), and all obligations to which the parties are bound hereunder with relation thereto,

will terminate immediately upon the earlier to occur of (i) termination or expiration of the of the license granted by Cellectis to Servier in respect of the [***] Patent Rights for the Other Products pursuant to the Servier Agreement, or (ii) on an Other Product-by-Other Product basis, termination or expiration of the license granted by Servier to Pfizer in respect of an Other Product pursuant to the Exclusive License and Collaboration Agreement dated as of October 30, 2015 by and between Pfizer and Servier (as amended from time to time).

Except as modified and amended herein, the terms and conditions of the Agreement shall remain in full force and effect. The Agreement and this Amendment constitute the entire understanding between the Parties and supersedes all prior agreements, whether written or oral. No modification or amendment to the Agreement or Amendment shall be valid unless in writing and signed by both Parties.

(remainder of page intentionally left blank)

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

IN WITNESS WHEREOF, the Parties hereby agree to the forgoing.

PFIZER, INC.

By: /s/ John DeYoung

Name: John DeYoung

Title: Vice President

CELLECTIS S.A.

By: /s/ André Choulaka

Name: André Choulaka

Title: Chief Executive Officer

CONFIDENTIAL TREATMENT REQUESTED BY CELLECTIS S.A.—CONFIDENTIAL PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED AND HAVE BEEN SEPARATELY FILED WITH THE COMMISSION.

EXECUTION COPY

Amendment No. 2 to the Product Development, Option, License and Commercialization Agreement

This Second Amendment (the “**Amendment**”) to the Research, Product Development, Option, License and Commercialization Agreement effective as of February 17, 2014 (as amended, the “**Agreement**”) is dated as of and shall become effective as of the November 28th, 2016 (hereinafter the “**Effective Date**”) 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, 92 150 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**.”

WHEREAS, in furtherance of, and as part of, the transactions contemplated by the Agreement, subject to the terms and conditions set forth in this Amendment, Cellectis desires to clarify the grant of certain rights to Servier;

WHEREAS, pursuant to the Agreement, Cellectis granted certain exclusive patent rights to Servier on the terms set forth therein in respect of, among other things, the Servier Products in the Field;

WHEREAS, pursuant to the Research Collaboration and License Agreement dated as of June 17, 2014 by and between Pfizer, Inc. (“**Pfizer**”) and Cellectis (as amended from time to time, the “**Pfizer Collaboration Agreement**”), Cellectis granted certain exclusive patent rights to Pfizer on the terms set forth therein in respect of, among other things, the Pfizer Products in the Pfizer Product Field;

WHEREAS, in furtherance of, and as part of, the transactions contemplated by the Exclusive License and Collaboration Agreement dated as of October 30, 2016 by and between Servier and Pfizer (the “**Pfizer-Servier Agreement**”) and pursuant to the terms set forth therein, Pfizer has directed that Cellectis license certain patent rights to Servier in respect of the Pfizer Products in the Pfizer Product Field in the Servier Territory; and

WHEREAS, the parties desire to amend the Agreement as set forth below.

NOW, THEREFORE, for valuable consideration, the receipt of which is hereby acknowledged, the Parties hereto agree as follows:

All capitalized terms used in this Amendment and not otherwise defined have the meanings assigned to them in the Agreement.

1. Definitions.

The Parties agree to add the following definitions in Article 1 of the Agreement:

“**Pfizer Product Field**” means human anti-tumor adoptive immunotherapy.

“**Pfizer Product**” means an allogeneic anti-tumor adoptive T-cell expressing a single chain chimeric antigen receptor (CAR) targeting [***], and including specific attributes, as initially developed by Collectis as per the Pfizer Collaboration Agreement, and that are initially licensed by Collectis to Pfizer as per the Pfizer Collaboration Agreement.

“**Pfizer Territory**” means the United States of America and its territories and possessions.

“**Servier Product**” means UCART19 [***], corresponding to an allogeneic anti-tumor adoptive T-cell expressing a single chain chimeric antigen receptor (CAR) directed against [***] target, and including specific attributes, as initially developed by Collectis as per the Agreement, and that are initially licensed by Collectis to Servier as per the Agreement together with any additional allogeneic anti-tumor adoptive T-cell CARs that bind to [***] as may be optioned by Servier from Collectis under this Agreement.

“**Servier Sublicensee**” means a sublicensee of Servier pursuant to the Agreement, which, for the avoidance of doubt, does not include any sublicense to the [***] Collectis Patents not owned by Collectis and/or the University of Minnesota.

“**Servier Territory**” means the world other than the Pfizer Territory.

“**[***] Collectis Patents**” means the patent and patent applications listed in Exhibit A of this Amendment.

The definition for “**Collectis Patents**” in Subsection 1.10 is replaced with the following:

“**Collectis Patents**” means all Patents that are Controlled by Collectis and its Affiliates at the Effective Date and thereafter during the Term and that Cover, or would be reasonably necessary or useful for, the Development, Manufacture or Commercialization of Pre-Candidate Product(s), Candidate Product(s), or Product(s), as appropriate, (including its composition, formulation, combination, product by process, or method of use, manufacture, preparation or administration). Collectis Patents shall include Collectis’ interest in Joint Patents that meet the above requirements, and in any event shall include [***] Collectis Patents and those other Patents set forth on Exhibit 2.

2. Exhibit A.

Exhibit A is added to the Agreement.

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

3. License Grant.

The Parties hereby agree to remove and replace Section 4.2 with the following:

4.2 Servier Rights and Obligations upon Exercise of Option.

- (a) Exclusive License. Upon Servier's exercise of its Option to License for a given Product, Collectis shall grant to Servier during the Term an exclusive (even as to Collectis), worldwide license with the right to grant sublicenses, under the Collectis IP (but specifically excluding the [***] Collectis Patents) to Develop, have Developed, manufacture, have manufactured, and Commercialize said Product in the Field.
- (b) With respect to each Product elected by Servier, through its Option to License, Servier will assume full responsibility, at its expenses, for the further Development, manufacture and Commercialization of such Product in the Field.
- (c) Upon Servier's exercise of the Option to License for a given Product, Servier will use, and will ensure that its Affiliates, Sublicensees, and subcontractors use Commercially Reasonable Efforts in Developing and Commercializing the corresponding Product in the Targeted Indications and the Targeted Territory, and are in compliance with this Agreement.
- (d) Upon Servier's exercise of its Option to License for a given Product and subject to the terms and conditions of the Agreement, Collectis hereby grants to Servier and its Affiliates, on a country by country basis throughout the world (i) the right to use the [***] engineered by Collectis pursuant to this Agreement for Development of the Product, until the filing of the corresponding IND or IMPD (or foreign equivalent), and (ii) after the IND or IMPD filing, an exclusive (even as to Collectis) license to the [***] Collectis Patents to use the [***] engineered by Collectis to make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported, and otherwise exploit and Commercialize such Product, without the right to grant sublicenses, provided that Servier may sublicense solely in relation to a transaction involving, with respect to all [***] Collectis Patents, only the [***] Collectis Patents owned by Collectis and/or owned by University of Minnesota. Notwithstanding the foregoing, Servier hereby acknowledges and agrees that, at Servier's direction, Collectis shall have the right and obligation to promptly and diligently grant licenses and rights under the [***] Collectis Patents to Pfizer or subcontractor designated by Pfizer, or any other third party designated by Pfizer and agreed to by Servier, in respect of the Servier Products in the Field in the Pfizer Territory, and Servier's license and other rights under the [***] Collectis Patents shall be limited accordingly so long as the relevant licenses in this Agreement (or any other relevant licenses entered into pursuant to the terms thereof) remain in effect. For the sake of clarity and notwithstanding anything to the contrary in this Agreement, the license granted to Servier by Collectis herein does not give Servier the right (i) to [***] or (ii) to sublicense the [***] Collectis Patents other than in relation to a transaction involving, with respect to all [***] Collectis Patents, only the [***] Collectis Patents owned by Collectis and/or owned by University of Minnesota.
- (e) Upon exercise of the Option to License on a Product-by-Product basis, and upon Servier's written direction, Collectis shall have the right and obligation to promptly and diligently grant a direct license, on a country by country and Product by Product basis, under the [***] Collectis Patents to any Servier Sublicensee, provided that the grant of such license to the extent involving [***] Collectis Patents licensed to Collectis by Life Technologies Corporation, must include a license in respect of all of the [***] Collectis Patents and will (i) correspondingly limit the license grants to Servier in Section 4.2(d), and (ii) provide the Servier Sublicensee with a similar right to obtain a direct license from

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

Collectis consistent with, and to the extent of, the sublicense rights the Servier Sublicensee otherwise receives from Servier with respect to the Collectis Patents other than the [***] Collectis Patents, provided that the grant of such direct license will correspondingly limit such license grants to such Servier Sublicensee. Collectis shall promptly and diligently execute a license agreement with Servier and such Servier Sublicensee for the purpose of granting such license to the Servier Sublicensee and limiting the corresponding license grant to Servier in Section 4.2(d). The parties hereby acknowledge that any such negotiations would be solely to limit Servier's rights herein for the benefit of such Servier Sublicensee and, as such, the parties agree and acknowledge that no additional consideration would be due to Collectis as no additional rights would be granted. The parties further agree and acknowledge that all consideration due to Collectis under the Agreement has been valued fairly and equitably in good faith, and would not be reduced or otherwise amended because of any limitation of Servier's rights for the benefit of a Servier Sublicensee. The parties acknowledge and agree that any rights or licenses that may hereafter be granted by Collectis at the written direction of Servier as contemplated by this Section 4.2(e) are rights or licenses that were provided to Servier pursuant to this Agreement in accordance with the broad collaboration and development activities contemplated by the Agreement, and therefore Collectis has already received (or, in the future and in accordance with the terms of this Agreement, will have the right to receive) compensation that Collectis and Servier have determined is fair and equitable and that Collectis shall therefore not have the right to any additional compensation from Servier or any other person or entity in connection with the foregoing.

The Parties hereby agree to insert the following Section 4.3:

4.3 Rights Among Collectis, Servier and Pfizer.

(a) Subject to the terms of this Agreement, at the written direction of Pfizer and in furtherance of and pursuant to the Pfizer Collaboration Agreement and the transactions contemplated thereby on a Pfizer Product-by-Pfizer Product basis, Collectis hereby grants to Servier and its Affiliates (i) the right to use the [***] engineered by Collectis pursuant to the Pfizer Collaboration Agreement to develop Pfizer Products, until, in each case, the filing of an IND for each Pfizer Product as directed by Pfizer, in the Pfizer Product Field, in the Servier Territory, and (ii) a fully paid-up and royalty free (with respect to Collectis), exclusive (even as to Collectis) license under the [***] Collectis Patents, to make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported and otherwise exploit and Commercialize such Pfizer Product, in each case solely in the Pfizer Product Field in the Servier Territory, without the right to grant sublicenses, provided that Servier may sublicense solely in relation to a transaction involving, with respect to all [***] Collectis Patents, only the [***] Collectis Patents owned by Collectis and/or owned by University of Minnesota, and Collectis shall further have the obligation to grant licenses and rights under the [***] Collectis Patents to subcontractors as directed by Servier, and to other third parties as directed by Servier and agreed to by Pfizer, pursuant to and as contemplated by the Pfizer-Servier Agreement in respect of the Pfizer Products (as directed in writing by Pfizer) in the Pfizer Product Field in the Servier Territory, and Servier's license and other rights under the [***] Collectis

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

Patents shall be limited accordingly so long as the relevant licenses in the Pfizer Collaboration Agreement (or any other relevant licenses entered into pursuant to the terms thereof) remain in effect. For sake of clarity, the license granted to Servier by Collectis herein does not give Servier the right to [***]. For further sake of clarity, Servier does not have the right to grant any sublicenses in respect of the rights licensed to it pursuant to Section 4.3(a) herein other than in relation to a transaction involving, with respect to all [***] Collectis Patents, only the [***] Collectis Patents owned by Collectis and/or owned by University of Minnesota, and any purported sublicense so made by Servier shall be null and void *ab initio*, provided that the foregoing is without limitation of Servier's rights that are set forth in Section 4.2(e) hereof.

(b) Servier hereby consents to the license directed by Servier and granted by Collectis to Pfizer pursuant to the Pfizer Collaboration Agreement, as amended, and the licenses that may hereafter be granted by Collectis at the written direction of Pfizer as agreed to by Servier pursuant to the terms thereof. The parties acknowledge and agree that any rights or licenses that have been granted to Pfizer at Servier's written direction to Collectis (including any expansions of such rights or licenses, pursuant to this Agreement, that Servier directs Collectis in writing to grant to Pfizer), or that may hereafter be granted by Collectis at the written direction of Pfizer and agreed to by Servier relating to those same rights granted to Pfizer, are rights or licenses that were provided to Servier pursuant to this Agreement in accordance with the broad collaboration and development activities contemplated hereunder, and therefore Collectis has already received (or, in the future and in accordance with the terms of this Agreement, will have the right to receive) compensation that Collectis and Servier have determined is fair and equitable and that Collectis shall therefore not have the right to any additional payments or compensation from Pfizer, Servier or any other person or entity in connection with the foregoing. Without limiting the foregoing, the parties agree and acknowledge that all consideration paid or to be paid, whether one-time payments, milestone payments, royalty payments or otherwise, to Collectis under the Pfizer Collaboration Agreement or this Agreement shall not be reduced or otherwise modified or amended because of the license granted to Pfizer or other third parties as contemplated hereby.

(c) The parties further acknowledge and agree that any rights or licenses that have been granted by Collectis to Pfizer at Servier's written direction to Collectis (including any expansions of such rights or licenses, pursuant to this Agreement, that Servier directs Collectis in writing to grant to Pfizer), or that may hereafter be granted by Collectis at the written direction of Pfizer and agreed to by Servier relating to those same rights granted to Pfizer, shall terminate on a Servier Product-by-Servier Product basis upon the earlier to occur of (i) termination or expiration of the license granted by Collectis to Servier in respect of the [***] Collectis Patents in further respect of a Servier Product pursuant to this Agreement, or (ii) on a Servier Product-by-Servier Product basis, termination or expiration of the license granted by Servier to Pfizer in respect of a Servier Product pursuant to the Pfizer-Servier Agreement (as amended from time to time).

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

The Parties hereby agree to remove and replace Section (III)(a) of the Agreement with the following:

Subject to entry into force of the Amendment, Collectis hereby grants to Servier a license in respect of the rights set forth in Section 4.2 for the UCART19 Product [***] as per the terms of Section 4.2 of the Agreement.

4. Termination.

The Parties hereby agree to remove and replace Section 11.1 with the following:

11.1 Term.

(a) This Agreement will become effective as of the Effective Date and, unless earlier terminated pursuant to the provisions of Sections 11.1(b), 11.2 or 12.2.3, will expire upon the later to occur of the last sales of the Product or the Pfizer Product, provided that all rights and licenses granted by Collectis to Servier pursuant to Section 4.3(a), and subject to Section 11.1(b), all obligations to which the parties are bound hereunder with relation thereto, will continue in force and effect, to the extent such rights and licenses were not previously or concurrently terminated and will subsequently terminate in accordance with the terms of the Pfizer Collaboration Agreement wherein such rights and licenses were initially granted to Pfizer. Upon expiration of the Royalty Term with respect to a Product, the licenses granted by Collectis to Servier under this Agreement with respect to such Product shall remain in effect as granted in accordance with this Agreement but become fully paid-up, royalty-free licenses until termination or expiration of this Agreement.

(b) The license granted pursuant to Section 4.3(a) herein shall terminate immediately upon the earlier to occur of (i) on a Pfizer Product-by-Pfizer Product basis, termination or expiration of the license granted by Collectis to Pfizer in respect of the [***] Collectis Patents in further respect of a Pfizer Product pursuant to the Pfizer Collaboration Agreement, or (ii) on a Pfizer Product-by-Pfizer Product basis, termination or expiration of the license granted by Pfizer to Servier in respect of a Pfizer Product pursuant to the Pfizer-Servier Agreement (as amended from time to time).

5. No other revisions.

Except as expressly set forth in this Amendment, the other provisions of the Agreement remain unchanged and continue in full force and effect. To the extent that the provisions of this Amendment conflict with what is set forth in the Agreement, the provisions of this Amendment shall take precedence. All disputes arising out of or in connection with this Amendment, unless otherwise specified in the Agreement, shall be resolved in accordance with the principles set forth in article 13.2 of the Agreement.

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

IN WITNESS WHEREOF, the Parties have caused this Amendment to the Product Development, Option, License and Commercialization Agreement to be executed by their duly authorized representatives.

Made in Paris, on November 28th, 2016

For Collectis SA

By: /s/ Andre Choulika

Name: Andre CHOULIKA
Title: Chief Executive Officer

For Les Laboratoires Servier,

By: /s/ Christian Bazantay

Name: Christian BAZANTAY
Title: Proxy

By: /s/ Eric Falcand

Name: Eric FALCAND
Title: Proxy

For Institut de Recherches Internationales Servier

By: /s/ Emmanuel Canet

Name: Dr. Emmanuel CANET
Title: President of R&D

Exhibit A

[**]

[**] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION

CONFIDENTIAL TREATMENT REQUESTED BY CELLECTIS S.A.—CONFIDENTIAL PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED AND HAVE BEEN SEPARATELY FILED WITH THE COMMISSION.

Execution Copy

OTC Agreement Number: A20110394
Case Number: 20100004
Cellectis Ref: CLS-12024-AM03

THIRD AMENDMENT TO EXCLUSIVE PATENT LICENSE AGREEMENT (“EPLA”)

THIS THIRD AMENDMENT TO EXCLUSIVE PATENT LICENSE AGREEMENT (the “Third Amendment”) is made and entered effective as of the date of the last signature (the “Third Amendment Effective Date”), by and between **Regents of the University of Minnesota** (the “University”), a Minnesota constitutional corporation under the laws of the state of Minnesota, and **Cellectis SA**, a Corporation under the laws of the France having a place of business at 8, rue de la Croix Jarry, 75013 Paris, France (the “Licensee”) each a “Party” and collectively, the “Parties”).

BACKGROUND

The Parties entered into the EPLA on January 10, 2011 and subsequently amended it under the First Amendment to the EPLA, dated May 24, 2012 and March 27, 2014. The Parties wish to further amend the EPLA as indicated below.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. **Upfront Payment.** Licensee shall pay to University One Million Dollars (\$1,000,000) as follows: Eight Hundred Thousand Dollars (\$800,000) upon execution of this Third Amendment; and the remaining Two Hundred Thousand (\$200,000) upon Licensee’s use of a Licensed Product in a clinical trial or eighteen (18) months from the Third Amendment Effective Date., whichever occurs first.
2. **Definition of Affiliate.** Section 1.1 of the Exhibit A Terms and Conditions of the EPLA is hereby revised by changing “ten percent (10%)” to “fifty percent (50%)” in the second sentence.
3. **Field(s) of Use.** Section 2 of the EPLA is hereby deleted and replaced with the following:

“Section 2, Field of Use: **Non-Agriculture Field of Use**” means all fields except the Agriculture Field of Use.

“**Agriculture Field of Use**” means any use of the Licensed Technology for engineering and developing plants, for any purpose.”
4. Section 11.4 of the EPLA (**Running Royalties and Annual Minimums**) is revised as follows:

A. Section 11.4.1 is deleted in its entirety and replaced with the following:

“11.4.1 Subject to subsection 11.4.3 and payable as provided in Section 6.4 of the Terms and Conditions, Licensee shall pay to the University royalties on the Net Sales Price of Commercial Sales of Licensed Products (whether sold by Licensee or a Third Party) as follows:

- Agriculture Field of Use. No obligation to pay royalties on the Net Sales Price of Commercial Sales of Licensed Products in the Agriculture Field of Use.
- Non-Agriculture Field of Use. [***]

B. Section 11.4.2 of the EPLA is hereby deleted.

C. Section 11.4.3 of the EPLA is hereby deleted and replaced with the following:

“11.4.3 if total royalties paid to University under Section 11.4.1 (Royalties) and under Section 11.5 each calendar year are less than thirty thousand dollars (\$30,000) (“Annual Minimum Royalty”), then Licensee shall pay to the University the difference between actual royalties and the Annual Minimum Royalty within forty-five (45) days after the end of the calendar year.”

5. **Section 11.5 (Sublicense Revenues)** is hereby deleted in its entirety and replaced with the following:

“11.5 Sublicense Revenue: As determined and payable in Section 6.4 of the Terms and Conditions, the Licensee shall pay to the University:

- [***] of Bare Sublicense Revenue, and
- [***] of Sublicense Revenue in the Non-Agriculture Field of Use.”

6. A new Section 11.6.4 of the EPLA is hereby added:

“11.6.4 Milestone Payments for revenues obtained by Licensee and/or its Affiliates on Commercial Sales of Licensed Products in the Agriculture Field of Use;

- When the cumulative revenues received by Licensee and/or its Affiliates on the combined Commercial Sales of Licensed Products reach for the first time \$100,000,000, Licensee shall pay to University, [***];
- When the cumulative revenues received by Licensee and/or its Affiliates on the combined Commercial Sales of Licensed Products reach for the first time \$200,000,000, Licensee shall pay to University, [***]; and
- When the cumulative revenues received by Licensee and/or its Affiliates on the combined Commercial Sales of Licensed Products reach for the first time \$1,000,000.000 Licensee shall pay to University, [***].

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

6. A new **Section 11.11** of the EPLA is hereby added.

“11.11 Annual Fee. Licensee shall pay to the University an annual fee of One Hundred Fifty Thousand Dollars (\$150,000) for the rights granted under this Agreement for the Agriculture Field of Use. Payment is due on the first day of each calendar year.”

7. A new **Section 11.12** of the EPLA is hereby added.

“11.12 Commercialization Fee: Licensee shall pay to the University [***] per seed containing New Trait(s) developed by Licensee and/or its Affiliates or Third Parties through the use of Licensed Technology that (A) is offered for sale by Licensee and/or its Affiliates or Third Parties in the Agriculture Field of Use, or (13) is licensed to a Third Party, excluding the following licenses: (1) licenses granted to farmers or grower groups for breeding, seed production and grain production; (2) licenses granted for co-development research projects; or (3) research licenses granted to a Third Party solely for evaluating a trait or variety. For clarity, when several New Traits are licensed together as a combination in a single seed variety (“Stack”) [***]. “New Trait” means a quality or characteristic that is genetically determined or genetically modified in a crop. For clarity, a New Trait may involve modification of multiple loci in the genome.” Payment is due upon the occurrence of (A) or (13).

8. **Definition of Sublicense Revenue.** Section 1.14 of the Terms and Conditions of the EPLA is deleted in its entirety and replaced with the following:

“***Bare Sublicense Revenues***’ means all revenue in whatever form earned by the [***].

For sake of clarity, the revenues earned by Collectis in connection with the [***] sublicense granted to Third Parties under the [***], are Sublicense Revenues”.

9. Section 6.4 (**Royalty Payment/Sales Reports**) of the Terms and Conditions of the EPLA is deleted in its entirety and replaced with the following:

“Royalty and Sublicense Revenue Payments/Reports.” Within sixty (60) days after the last day of a calendar quarter during the Term and the Post-termination Period, the Licensee shall deliver to the University a written report in a form acceptable to the University, recounting (i) the number and Net Sales Price amount of all sales, leases or other dispositions of Licensed Products, whether made by the Licensee or a sublicensee or Third Party and (ii) receipt of any Sublicense Revenues and/or Bare Sublicense Revenues during such calendar quarter. The Licensee shall deliver such written report to the University even if no payment is due. The Licensee shall deliver along with such reports, its payment for royalties, Sublicense Revenue and/or Bare Sublicense Revenues owed during such quarter.”

9. **Right of Assignment to Calyxt Corporation.** Section 12.4 of the ‘terms and Conditions of the EPLA is revised by adding the following sentence at the end of the paragraph: “Notwithstanding the foregoing, Licensee may assign its rights and obligations under this Agreement solely in the Agriculture Field of Use and solely to Calyxt, Inc. upon written notice to the University and payment of [***], provided at the time of such assignment, Licensee is not in default and Calyxt Inc. agrees (i) to assume all of Licensee’s obligations under the Agreement

[***] CONFIDENTIAL MATERIAL REDACTED AND SEPARATELY FILED WITH THE COMMISSION.

relative to the Agriculture Field of Use; and (ii) to assume fifty (50%) of the Patent Related Expenses. Calyxt, Inc., Licensee, and University shall execute such other documentation to Live effect to the assignment and reflect the bifurcation of the Field of Use.

10. Except as provided in this Third Amendment, the terms of the Agreement remain unchanged. Capitalized terms used in this Third Amendment that are not otherwise defined herein have the meanings ascribed to them in the Agreement.

IN WITNESS WHEREOF, acting through their respective duly authorized representatives, the University and the Licensee have duly executed, delivered and entered into this Third Amendment as of the Third Amendment Effective Date.

[Signature Page Follows]

Regents of the University of Minnesota

By: /s/ Jay Schrankler
Name: Jay Schrankler
Title: Executive Director

Date: 12-12-15

Collectis S.A.

By: /s/ André CHOULIKA
Name: André CHOULIKA
Title: Chief Executive Officer

Date: December 16, 2015

Subsidiaries of Collectis S.A.

Name of Subsidiary	State or Other Jurisdiction of Incorporation
Collectis, Inc.	Delaware
Calyxt, 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 Chouluka, 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 13, 2018

/s/ André Chouluka

Name: André Chouluka

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 13, 2018

/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, 2017 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 13, 2018

/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, 2017 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 13, 2018

/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.;
- (3) Registration Statement (Form S-8 No 333-222482) pertaining to the 2017 Stock Option Plan and BSA Plan of Collectis S.A.; and
- (4) Registration Statement (Form F-3 No. 333-217086) of Collectis S.A.;

of our reports dated March 13, 2018, 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, 2017.

/s/ ERNST & YOUNG et Autres

Paris La Défense, France

March 13, 2018

