



PRESS RELEASE

Collectis Publishes Creation of “Smart CAR T-Cells” for Potentially Safer, More Effective Treatments for Cancer in *Nature Communications*

Collectis Researchers Build CAR T-Cells Able to Sense and React to Their Environment by Secreting Therapeutic Proteins That Improve Their Ability to Fight Cancerous Cells

November 13, 2019 – New York (N.Y.) – Collectis (Euronext Growth: ALCLS; Nasdaq: CLLS), a biopharmaceutical company focused on developing immunotherapies based on gene-edited allogeneic CAR T-cells (UCART), announced today a paper published in *Nature Communications* that describes a proof-of-concept for rewiring the cell pathway to create highly intelligent T-cells that can recognize cancerous tumors and cause a micro secretion of therapeutic proteins onto these tumors, which ultimately reshapes the tumor microenvironment and improves the T-cells ability to fight cancer. By utilizing gene editing techniques to rewire the TCR α , CD25 and PD1 genes, the study enabled CAR T-cells to micro secrete the pro-inflammatory cytokine, IL-12, in a tumor and time-dependent manner, paving the way for a next generation of tightly controlled, highly active and potentially safer CAR T-cell treatments.

“Discussion around the tumor microenvironment has become a popular topic in the CAR T-cell space, and with recent advancements in gene editing technologies, especially TALEN[®], it is now possible to manipulate the way a T-cell regulates itself to adapt to its environment,” said Dr. Philippe Duchateau, Ph.D., Chief Scientific Officer, Collectis. “With seamless modification of multiple genes, and subsequently rewiring their natural regulatory processes, this approach causes the T-cells to secrete therapeutic proteins of interest in a tightly controlled and localized manner. We have essentially transformed the current T-cells used today into precise and powerful micro-robots that can spray IL-12 specifically onto cancer cells – potentially avoiding the toxicity of a systemic injection of IL-12, while enhancing CAR-T activity.”

“Our extensive knowledge in TALEN[®]-based gene editing and DNA donor template design enabled us to develop this groundbreaking proof-of-concept, a milestone that paves the way to the next generation of CAR T-cells,” added Dr. Julien Valton, Ph.D., Innovation Team Leader, Collectis. “These highly intelligent CAR T-cells can sense and remodel their microenvironment in a tailored, highly regulated, and antigen-specific manner, allowing us to have more control over increasingly potent treatments and less risk of general secretion into healthy tissues. This engineering strategy could bring smarter, safer and more effective treatments to the forefront for patients in need.”

Julien Valton, Ph.D., Innovation Team Leader, Cellular Engineering & Adoptive CAR T-Cell Immunotherapy

Dr. Julien Valton obtained his Ph.D. at the University Joseph Fourier in Grenoble, France, where he was trained as an enzymologist. He then joined the Yale School of Medicine to apply his knowledge to therapeutic research by investigating the mechanism of inhibition

of receptor tyrosine kinases that are involved in the development of gastrointestinal cancer. In 2009, he moved a step further into the field of applied science by joining the Innovation Department of Collectis, where he actively participated in using and improving TALEN® gene editing technology for targeted gene therapy and genome engineering. He is now using TALEN® along with protein engineering techniques to develop the next-generation CAR T-cells to treat different malignancies.

[Repurposing Endogenous Immune Pathways to Tailor and Control Chimeric Antigen Receptor T-cell Functionality](#)

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About Collectis

Collectis is developing the first of its kind allogeneic approach for CAR-T therapies, pioneering the concept of off-the-shelf and ready-to-use gene-edited CAR-T cells to treat patients. As a clinical-stage biopharmaceutical company with over 19 years of expertise in gene editing, we are developing game-changer product candidates in immunoncology. Utilizing TALEN®, our proprietary gene editing technology, and PulseAgile, our pioneering electroporation system, we are harnessing the power of the immune system to target and eradicate cancer cells.

As part of our commitment to a cure, Collectis remains dedicated to its goal of providing life-saving UCART product candidates to address unmet need for multiple cancers including B-cell acute lymphoblastic leukemia (B-ALL), non-Hodgkin lymphoma (NHL) and multiple myeloma (MM). Collectis is listed on the Nasdaq (ticker: CLLS) and on Euronext Growth (ticker: ALCLS).

Collectis headquarters are in Paris, France, with additional locations in New York, New York and Raleigh, North Carolina. For more information, visit www.collectis.com.

Follow Collectis on social media: [@Collectis](#), [LinkedIn](#) and [YouTube](#).

TALEN® is a registered trademark owned by Collectis.

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