Autolus Therapeutics announces publication in ACS Chemical Biology

January 23, 2024 at 7:00 AM EST

LONDON, Jan. 23, 2024 (GLOBE NEWSWIRE) -- Autolus Therapeutics plc (Nasdaq: AUTL), a clinical-stage biopharmaceutical company developing next-generation programmed T cell therapies, today announced a publication in *ACS Chemical Biology*[1] entitled: 'Designer small molecule control system based on Minocycline induced disruption of protein-protein interaction.' [1]

Cell-based therapies have become increasingly complex and are being used to treat a wide range of diseases such as cancer and autoimmunity. However, cell therapies have the capacity to engraft and function autonomously, making it challenging to modulate potency or toxicity by adjusting administration or dosage. Developing methods for remotely and precisely controlling the activity of cellular therapies in a tuneable and reversible way is desirable. Most control systems use either small molecules with considerable concomitant pharmacologic effects, or unlicensed/difficult to obtain small molecules. In addition, many systems use potentially immunogenic xenogeneic protein components making clinical use impractical.

To address this, Jha et al. describe a compact small molecule control system, called minoDab, using minimally immunogenic protein domains and the antibiotic minocycline as an inducer. Minocycline is in widespread clinical use, is safe and is highly bioavailable. Protein scientists at Autolus developed a single-domain antibody-based system where minocycline induces disruption of a protein-protein interaction. This system is compact and versatile allowing development of a wide range of applications including OFF-switch CAR systems, controlled secretion of cellular payload such as cytokines, and customized synthetic cell-cell communication systems.

"Cellular therapy of cancer, especially of solid tumours, can be challenging due to off tumor activity and immunotoxicity," **said Dr Martin Pule, Chief Scientific Officer, Founder of Autolus and senior author.** "This control system is very practical from a clinical perspective since it uses Minocycline for control. Such systems should improve the efficacy and safety of cellular therapies and accelerate clinical development."

Autolus has a range of control systems with minoDab complementing the RQR8[2] and rapaCasp9[3] safety switches.

1. Jha, R. et al. Designer Small-Molecule Control System Based on Minocycline-Induced Disruption of Protein–Protein Interaction. ACS Chem. Biol. (2024) doi:10.1021/acschembio.3c00521

2. Philip, B. *et al.* A highly compact epitope-based marker/suicide gene for easier and safer T-cell therapy. *Blood* **124**, 1277–1287 (2014). doi:10.1182/blood-2014-01-545020

3. Stavrou, M. *et al.* A Rapamycin-Activated Caspase 9-Based Suicide Gene. *Mol. Ther.* **26**, 1266–1276 (2018). doi: 10.1016/j.ymthe.2018.03.001

About Autolus Therapeutics plc
Autolus is a clinical-stage biopharmaceutical company developing next-generation, programmed T cell therapies for the treatment of cancer and autoimmune disease. Using a broad suite of proprietary and modular T cell programming technologies, the Company is engineering precisely targeted, controlled and highly active T cell therapies that are designed to better recognize target cells, break down their defense mechanisms and eliminate these cells. Autolus has a pipeline of product candidates in development for the treatment of hematological malignancies, solid tumors and autoimmune diseases. For more information, please visit www.autolus.com.

Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements that are not historical facts, and in some cases can be identified by terms such as "may," "will," "could," "expects," "plans," "anticipates," and "believes." These statements include, but are not limited to, statements regarding the Company's anticipated transition plans and timing from a clinical to commercial stage company. Any forward-looking statements are based on management's current views and assumptions and involve risks and uncertainties that could cause actual results, performance, or events to differ materially from those expressed or implied in such statements. These risks and uncertainties include, but are not limited to, the risks that Autolus' preclinical or clinical programs do not advance or result in approved products on a timely or cost effective basis or at all; the results of early clinical trials are not always being predictive of future results; the cost, timing, and results of clinical trials; that many product candidates do not become approved drugs on a timely or cost effective basis or at all; the ability to enroll patients in clinical trials; and possible safety and efficacy concerns. For a discussion of other risks and uncertainties, and other important factors, any of which could cause Autolus' actual results to differ from those contained in the forward-looking statements, see the section titled "Risk Factors" in Autolus' Annual Report on Form 20-F filed with the Securities and Exchange Commission on March 7, 2023, as well as discussions of potential risks, uncertainties, and other important factors in Autolus' subsequent filings with the Securities and Exchange Commission. All information in this press release is as of the date of the release, and Autolus undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events, or otherwise, except as required by law.

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