Autolus Therapeutics presents new preclinical data during the Virtual 2020 AACR Annual Meeting

June 22, 2020

- AUTO5 in T cell lymphoma – new *in vitro* and *in vivo* data presented demonstrating highly selective targeting of TRBC2 by a novel CAR T candidate

- AUTO6NG in small cell lung cancer – *in vitro* and *in vivo* data suggesting broader application beyond neuroblastoma

- AUTO7 in prostate cancer – new preclinical data highlighting activity in an immunologically cold tumor using proprietary Autolus modular programming technology

Conference Call and Webcast to be held Thursday, June 25, 2020 at 8:30 AM EDT / 1:30 PM BST

LONDON, June 22, 2020 (GLOBE NEWSWIRE) -- Autolus Therapeutics plc (Nasdaq: AUTL), a clinical-stage biopharmaceutical company developing next-generation programmed T cell therapies, today announced preclinical data related to AUTO5 in T cell lymphoma and AUTO6NG in small cell lung cancer, as well as an oral presentation related to AUTO7 in prostate cancer at the American Association for Cancer Research (AACR) Virtual Annual Meeting II on June 22 - 24, 2020.

"Behind our lead programs AUTO1 in ALL and AUTO3 in DLBCL, we have a number of exciting preclinical product candidates progressing towards the clinic," said Dr Christian Itin, chairman and chief executive officer of Autolus. "These data updates for AUTO5, AUTO6NG and AUTO7 illustrate the strength of our broad and modular cell programming technology to adapt the product properties to the specific tumor type."

"The Autolus R&D team is pleased to be presenting data updates across our preclinical pipeline, highlighting the strength of our in-house cell programming technology. The programs illustrate the utility of the technology for highly selective targeting with AUTO5 in T cell lymphoma as well as addressing the hostile solid tumor microenvironment with AUTO6NG and AUTO7 for the treatment of small cell lung cancer and prostate cancer, respectively," said Dr Martin Pulé, chief scientific officer and founder of Autolus. "We look forward to progressing these next generation preclinical programs into the clinic in 2021."

AUTO7: Anti-PSMA humanized CAR T cell with improved persistence and resistance to tumor microenvironment for metastatic castration resistant prostate cancer (mCRPC)
AUTO7 is a multi-modular CAR T cell program aimed at generating resilient CAR T cells that can withstand the hostile solid tumor microenvironment (TME). By introducing Autolus' proprietary programming modules, the new data demonstrate a positive effect on tackling the complex tumor biology in a metastatic, castration-resistant prostate cancer setting. AUTO7 uses an optimized CAR to target cancer cells expressing PSMA, even at low levels, and includes four of Autolus' suite of cell programming modules to overcome tumor defenses and enhance efficacy: the dSHP2 programming module shielding AUTO7 from checkpoint inhibition, the dominant negative TGFβRII module acting as a decoy for inhibitory TGFβ signaling, the IL7 chimeric cytokine receptor (CCR) module enhancing CAR T cell survival, and finally, a module that activates immune responses at the tumor site through limited secretion of IL-12. All programming modules provide their effect within the CAR T cell and the immediate surrounding environment, rather than having a systemic effect with its potential associated systemic toxicities.

The preclinical data presented by Autolus demonstrate that AUTO7 is highly potent in cytotoxicity assays against cells expressing PSMA, even at low levels, and demonstrate the feasibility of this multi-modular cell programming approach in overcoming the immunotherapeutic challenges presented by advanced prostate cancer, which is typically otherwise an immunologically cold tumor.

Oral Presentation Title: AUTO7: Anti-PSMA humanized CAR T cell with improved persistence and resistance to tumor microenvironment for metastatic castration resistant prostate cancer (mCRPC)
Session Title: Mini-symposium; MS.IM02.01 - Adoptive Cell Therapy
Abstract: 1070
Date & Time: June 23, 2020, 9:00 AM - 10:30 AM
Presenter: Dr Marco Della Peruta, Senior Scientist II, Immunobiology, Autolus Therapeutics

AUTO6NG overcomes immune suppressive mechanisms in the TME and demonstrate preclinical anti-tumor activity in GD2-expressing solid tumors
AUTO6 is a GD2-targeting CAR T candidate, developed in collaboration with UCL, that has been shown to be clinically active in neuroblastoma.* GD2 has been evaluated and validated as an attractive CAR T target antigen in small cell lung cancer (SCLC). AUTO6 alone has demonstrated efficacy in an *in vitro* SCLC model, but successful tumor targeting alone was not sufficient to drive *in vivo* efficacy in the same SCLC model. Autolus has designed enhancing modules to specifically overcome TME defenses in solid tumor settings. In addition to the original AUTO6 GD2 CAR and safety switch, the company has tested the impact of adding its dSHP2 module, its dominant negative TGFβRII module and its IL7 CCR module, as described above. Autolus has presented new preclinical data demonstrating the validity of GD2 as a CAR T target in SCLC and the ability of these efficacy-enhancing modules to drive *in vivo* efficacy in an SCLC mouse model. The new data presented by Autolus suggest that AUTO6NG can overcome the immune suppressive mechanisms in the TME.

*AACR 2018 presentation of AUTO6 clinical data, Dr Karin Straathof, UCL

Poster Presentation Title: AUTO6NG overcomes immune suppressive mechanisms in the TME and demonstrate preclinical anti-tumor activity in GD2-expressing solid tumors

Poster Session Title: Poster Session; PO.TB06.05 - Immune Cells in the Tumor Microenvironment 2
Poster: 2661 / 9
Date & Time: June 22, 2020, 9:00 AM - 6:00 PM
Presenter: Dr Muhammad Al-Hajj, Senior Vice President, Head of Translational Medicine, Autolus Therapeutics

AUTO5: Targeting TRBC2 for the treatment of T cell lymphomas
There is currently no approved programmed T cell therapy available as a stand-alone treatment for T cell lymphomas. AUTO4 is the company's TRBC1 CAR T cell candidate aimed at targeting TRBC1+ patients (approximately 40% of the T cell lymphoma population). AUTO5, a novel CAR T candidate targeting the TRBC2+ population, is designed to capture the remaining 60% of the T cell lymphoma population. Autolus has presented data showing that AUTO5 is able to selectively target TRBC2+ and spare TRBC1+ cells in a mixed healthy peripheral blood mononuclear cells (PBMC) population. The company demonstrates that its novel anti-TRBC2 binder incorporated in a second-generation CAR with optimized architecture can selectively kill TRBC2+ T cells of healthy PBMC donors. Alongside the killing efficiency, AUTO5 is also capable of specific cytokine release and proliferation in response to interaction with TRBC2 target cells. The same specific killing effect was observed *in vivo* when mice were challenged in a co-infused mixed TRBC1/TRBC2 tumor model. The anti-TRBC2 CAR was able to clear the TRBC2+ T cells, while sparing the TRBC1+ T cell population. These data highlight the specificity and selectivity of the company's T-cell lymphoma product candidate, AUTO5.

Poster Presentation Title: Targeting TRBC1 and 2 for the treatment of T cell lymphomas
Poster Session Title: Poster Session; PO.IM02.02 - Adoptive Cell Therapy 2
Poster: 2183 / 15
Date & Time: June 22, 2020, 9:00 AM - 6:00 PM
Presenter: Dr Mathieu Ferrari, Associate Director of Binder Discovery, Autolus Therapeutics

Investor call on Thursday, June 25, 2020
Management will host a conference call and webcast at 8:30 AM EDT/1:30 PM BST to discuss the AACR data. To listen to the webcast and view the accompanying slide presentation, please go to: https://www.autolus.com/investor-relations/news-and-events/events.

The call may also be accessed by dialing (866) 679-5407 for U.S. and Canada callers or (409) 217-8320 for international callers. Please reference conference ID 1866794. After the conference call, a replay will be available for one week. To access the replay, please dial (855) 859-2056 for U.S. and Canada callers or (404) 537-3406 for international callers. Please reference conference ID 1866794.

About Autolus Therapeutics plc
Autolus is a clinical-stage biopharmaceutical company developing next-generation, programmed T cell therapies for the treatment of cancer. 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 cancer 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 and solid tumors. For more information please visit www.autolus.com.

About AUTO5
AUTO5 is a programmed T cell product candidate in pre-clinical development for T cell lymphoma, a setting where there are currently no approved programmed T cell therapies. AUTO5 is specifically designed to target TRBC2 derived cancers, which account for approximately 60% of T cell lymphomas, and is a complement to the AUTO4 T cell product candidate currently in clinical development.

About AUTO6NG
AUTO6NG is a next generation programmed T cell product candidate in pre-clinical development. AUTO6NG builds on preliminary proof of concept data from AUTO6, a CAR targeting GD2-expression cancer cell currently in clinical development for the treatment of Neuroblastoma. AUTO6NG incorporates additional cell programming modules to overcome immune suppressive defense mechanisms in the tumor microenvironment, in addition to endowing the CAR T cells with extended persistence capacity. AUTO6NG is currently in preclinical development for the potential treatment of other GD2-expressing solid tumors than Neuroblastoma, including Osteosarcoma, Soft Tissue Sarcoma, Small Cell Lung Cancer, and Melanoma.

About AUTO7
AUTO7 is a next generation programmed T cell product candidate in pre-clinical development for the treatment of advanced prostate cancer. It encodes a CAR harboring a highly sensitive and stable binder to the prostate ligand PSMA. In addition, AUTO7 incorporates four novel cell programming modules: a truncated SHP2 (dSHP2) protein to shield checkpoint inhibition; a dominant negative TGFβRII (dnTGFβRII) protein to protect from inhibition induced by TGFβ; a IL7 chimeric cytokine receptor (IL7_CCR) to support CAR T cell survival; and an engineered IL-12 (SS-IL12) module to activate immune cell response at the tumor site.

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 Autolus' financial condition and results of operations, including its expected cash runway; the development of Autolus' product candidates, including statements regarding the timing of initiation, completion and the outcome of pre-clinical studies or clinical trials and related preparatory work, and the periods during which the results of the studies and trials will become available; Autolus' plans to research, develop, manufacture and commercialize its product candidates; the potential for Autolus' product candidates to be alternatives in the therapeutic areas investigated; and Autolus' manufacturing capabilities and strategy. 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. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our 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 3, 2020 as well as discussions of potential risks, uncertainties, and other important factors in Autolus' future filings with the Securities and Exchange Commission from time to time. All information in this press release is as of the date of the release, and the company 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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