



Publication of Pre-clinical data of a dual targeting CAR for treatment of Multiple Myeloma

January 2, 2018 at 8:00 AM EST

APRIL CAR-T cells concurrently target BCMA and TACI to reduce the risk of antigen negative disease relapse

London, 2 January 2018

Autolus Limited, a clinical-stage biopharmaceutical company focused on the development and commercialisation of next-generation engineered T-cell therapies, today announced the publication of pre-clinical data from a novel, dual-targeted, proliferating-inducing ligand (APRIL) Chimeric Antigen Receptor (CAR) in Blood, the journal of the American Society of Hematology.

Dr Lydia Lee of UCL Cancer Institute and her co-authors* show that multiple myeloma patient samples express variable and typically low levels of B-cell maturation antigen (BCMA) or calcium modulator and cyclophilin ligand interactor (TACI). CAR T-cells deploying a modified form of human APRIL can recognise both BCMA and TACI and were shown to effectively kill in vitro primary multiple myeloma cells and cell lines expressing a physiological range of either BCMA or TACI. Furthermore, this dual targeting approach allows persistent disease suppression in in vivo animal models, even in the event of BCMA downregulation or loss.

AUTO2, an APRIL CAR-T therapy is currently under clinical investigation in the APRIL study, a single-arm, open-label, multi-centre, phase I/II study evaluating the safety and clinical activity in patients with relapsed or refractory multiple myeloma.

Dr Jesus G. Berdeja, Director of Myeloma Research & Senior Investigator, Hematologic Malignancies, Sarah Cannon Research Institute commented:

“Emerging evidence shows that the level of available antigen on the surface of cancer cells may be an important factor in determining the efficacy of CAR T-cells. Treatment of multiple myeloma with its low antigen expression may benefit from a dual targeting approach, potentially impacting both initial response and reducing relapse.”

Dr Christian Itin, CEO of Autolus Ltd, added:

“This publication illustrates an example of our approach to address defence mechanisms used by cancers cells to evade CAR-T treatment. Variable antigen expression and antigen loss under CAR-T treatments have been reported for multiple myeloma and B cell malignancies. Dual targeting CAR-T approaches may maximise initial treatment effect and minimise the risk of relapse.”

The full manuscript “An APRIL based chimeric antigen receptor for dual targeting of BCMA and TACI in multiple myeloma has potent activity in vitro and in vivo” can be found in Blood: <http://www.bloodjournal.org/>

– Ends –

Further information:

JW Communications

Julia Wilson

+44 (0)7818 430877

juliawilsonuk@gmail.com

*Lydia Lee¹, Benjamin Draper¹, Neil Chaplin¹, Brian Philip¹, Melody Chin¹, Daria Galas-Filipowicz¹, Shimobi Onuoha², Simon Thomas², Vania Baldan², Reyisa Bughda², Eva Kokalaki¹, Dominic Patel³, Manuel Rodriguez-Justo³, James Francis², Kwee Yong¹, Martin Pule^{1,2}

¹Department of Haematology, UCL Cancer Institute, London, UK,

²Autolus Ltd, London, UK,

³Department. of Histopathology, UCL, London, UK

Notes for Editors:

About Autolus

Autolus is a private, clinical-stage, biopharmaceutical company, focused on the development and commercialisation of engineered T-cell immunotherapy products to combat cancer. Utilising its advanced cell programming and manufacturing technologies, Autolus has a pipeline of products in development for the treatment of both haematological malignancies and solid tumours. For further information please visit the Company's website at: www.autolus.com

About Multiple Myeloma

Multiple myeloma is a type of blood cancer that affects the plasma cells and is the second most commonly diagnosed blood cancer, after non-Hodgkin lymphoma. In multiple myeloma, malignant plasma cells accumulate in the bone marrow, crowding out the normal plasma cells that help fight

infections. These malignant plasma cells then produce abnormal proteins (m protein) which may cause tumors, damage the kidneys, and impair immune system function. In some cases, the malignant cells may cause a single tumor, called a solitary plasmacytoma, but if multiple tumors are formed, then the disease is called multiple myeloma. There are a number of approved therapies to treat the disease but there is currently no cure.