Autolus Announces Publication of a Unique Therapeutic Approach for Treatment of Patients with T-Cell Lymphomas in Nature Medicine

November 14, 2017 at 8:00 AM EST

London, 14 November 2017

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 an article in Nature Medicine describing a unique targeting strategy for the treatment of patients with T-cell lymphomas.

T-cell lymphomas are a family of rare and aggressive cancers for which there are few treatment options. A key challenge of treating these cancers has been to identify a target that would allow the elimination of T-cell lymphoma while sparing healthy T-cells, as these play an essential role in providing protection against infections.

Dr Paul Maciocia and his co-authors* describe a new targeting approach based on the mutually exclusive expression of two subtypes of the T-cell receptor beta chain (TRBC1 and TRBC2). Normal T-cells contain both TRBC1 and TRBC2 compartments whereas T-cell Lymphoma cells express only TRBC1 or TRBC2 due to clonal origin and evolution of those cancerous cells.

As proof of concept for anti-TRBC immunotherapy, the team developed anti-TRBC1 CAR T-cells, which recognise and kill normal and malignant TRBC1 but not TRBC2 T-cells in mouse models of T-cell Lymphoma. Unlike non-selective approaches targeting the entire T-cell population, this approach eradicates a portion of T-cells containing the malignancy while preserving a healthy T-cell sub-population to preserve cellular immunity.

This work forms the scientific basis for AUTO4, a unique CAR T-cell product developed by Autolus to target TRBC1, which is due to enter the clinic in the coming months.

The full manuscript “Targeting T-cell receptor β-constant for immunotherapy of T-cell malignancies” can be found in the December 2017 issue of Nature Medicine – https://www.nature.com/articles/nm.4444

Commenting on the publication, Dr Julie Vose, Chief, Division of Hematology/ Oncology,Professor of Medicine, Nebraska Medical Center said:

> “T-cell lymphomas are blood cancers characterized by a very poor prognosis, particularly after a patient relapses following initial treatment. Unlike other blood cancers, it is not possible to use agents that totally remove all of the cell-type containing the malignancy as T-cells are needed to fight infections. This highly innovative approach addresses this challenge elegantly by selectively removing the portion of the T-cells containing the cancer while leaving a healthy T-cell population intact to provide protection against infection. Consequently, it offers real promise as a potential treatment for this aggressive form of cancer.”

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About Autolus

Autolus is a 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 T-Cell Lymphoma

Lymphoma is the most common blood cancer. It occurs when cells of the immune system called lymphocytes, a type of white blood cell, grow and multiply uncontrollably. Cancerous lymphocytes can travel to many parts of the body, including the lymph nodes, spleen, bone marrow, blood, or other organs, and form a tumour.

Non-Hodgkin's Lymphoma (NHL) is the most common classification of lymphoma and makes up approximately 4% of all cancers cases in the UK. Lymphomas can originate from two types of lymphocytes, B-cells and T-cells, with T-cell lymphomas being relatively rarer and accounting for only about 15% of NHL.

There are multiple sub-types of T-cell lymphomas, all with relatively poor prognosis. Current treatment options are not very effective. The NCCN guidelines recommend clinical investigation as a preferred option when patients progress after initial treatment.

Autolus gratefully acknowledges the support of The Wellcome Trust and Cancer Research UK who partially-funded some of the early work on this product.