Immunocore’s ImmTAV shown to redirect the immune system to kill HIV-infected cells from patients treated with antiretroviral therapy

- Data published in peer-reviewed Molecular Therapy demonstrate Immunocore’s new class of bispecific antiviral reagents, ImmTAVs, can recruit T cells to kill HIV-infected CD4+ T cells
- Persistence of latent HIV in CD4+ T cells is a major barrier to eradication
- First demonstration of the potential for an ImmTAV to treat infectious diseases

(Oxford, UK, 8th June 2016) Immunocore, a world-leading biotechnology company developing novel T cell receptor (TCR) based biological drugs to treat cancer, infectious diseases and autoimmune disease, today announced that positive new data have been published that demonstrate the potential of a novel antiviral drug created by Immunocore to harness the immune system to kill HIV-infected cells.

Persistence of HIV in a latent state in long-lived CD4+ T cells is a major barrier to eradication, and these data demonstrate the potential of an ImmTAV as a therapy to facilitate clearance of reactivated, latently-infected reservoir cells.

The paper, Elimination of latently HIV-infected cells from antiretroviral therapy-suppressed subjects by engineered immune mobilising T cell receptors, was published in the peer-reviewed journal Molecular Therapy on June 6th 2016, (doi: 10.1038/mt.2016.114).

The new soluble engineered reagent, called an ImmTAV (Immune mobilising monoclonal TCRs Against Virus), is a bi-specific biologic composed of a picomolar affinity T cell receptor directed against an immunodominant HIV epitope, and its escape variants, fused to an anti-CD3 scFv domain.

The ImmTAV was found in ex vivo studies to assist T cells in killing HIV-infected cells from patients who had successfully been treated with antiretroviral therapy. The ImmTAV worked more efficiently than the patients' natural immune response to HIV because it has been designed to detect very low levels of viral proteins and re-direct them to HIV-infected cells.

Data published in the paper establish that an ImmTAV can kill HIV-infected CD4+ cells despite very low presentation of cell surface viral epitopes, a common feature of latently infected cells enabling them to escape the patients’ immune system. Of note, the ImmTAV also eliminates infected T cells, following reactivation of latent HIV, from patients on antiretroviral therapy.
Bent Jakobsen, Chief Scientific Officer of Immunocore, commented: “Eliminating HIV from long-lived CD4+ cells, where they remain inaccessible to immune effector cells, is one of the biggest challenges in the search for a cure for HIV. These data help to underscore the broad scope and expandable potential of Immunocore’s expertise in soluble high affinity T cell receptor technology.”
About ImmTAVs

ImmTAVs (Immune mobilising mTCR Against Virus) are small protein molecules that, like ImmTACs, enable the immune system to recognize and kill diseased cells, in this case, virus infected cells. For further information regarding the technology platform see About ImmTACs below.

About ImmTACs

Immunocore’s proprietary technology is focused on small protein molecules called ImmTACs (Immune mobilising mTCR Against Cancer) that enable the immune system to recognise and kill cancerous. Immunocore's ImmTACs, a new class of drug with ultra-high affinity for intracellular cancer targets, are synthetic, soluble T cell receptors (TCRs) that recognise diseased cells containing disease specific targets. The ImmTACs enable circulating T-cells to selectively identify and kill diseased cells. The ImmTAC platform is unique in its high specificity and potency and broad applicability to a wide range of intracellular targets and disease indications. ImmTACs can access up to nine-fold more targets than typical antibody-based therapies, including monoclonal antibodies.

TCRs naturally recognise diseased cells and Immunocore’s world-leading competitive advantage is its ability to engineer high affinity TCRs and link them to an antibody fragment that activates a highly potent and specific T cell response to recognise and destroy cancer cells. The most advanced ImmTAC, IMCgp100, is currently in Phase I/IIa clinical trials for the treatment of late stage melanoma. Immunocore has a growing internal pipeline of ImmTACs addressing many different cancer types and has developed a broad database of intracellular cancer targets.

The TCR-based platform can address a significantly larger range of disease indications than currently respond to existing immuno-oncology agents and combine the characteristics of very high potency, encouraging safety and low cost of goods.