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Title: Antigen-targeted soluble bispecific T cell receptor (ImmTAC[®]) molecules in immunotherapy

Abstract: Immunocore is a leading T cell receptor (TCR) biotechnology company, focused on delivering immunotherapeutic drugs against diseases with an un-met clinical need. Our primary therapeutic focus is oncology, however we also have programs in infectious and autoimmune diseases.

Immuno-oncology therapies function to harness the body's own immune system to eradicate cancer cells. Critical to this process is the T cell, capable of directing potent and antigen-specific immune responses. T cell receptor (TCR) antigens are short intracellularly processed peptides presented on the cell surface by human leukocyte antigen (HLA). As the majority of the proteome is processed and presented on the surface of cells and hence can be targeted by a TCR, TCR based therapies offer distinct advantages over antibody-based therapies that are limited to targeting only secreted or extracellular proteins.

Immune mobilizing monoclonal TCRs Against Cancer (ImmTAC) molecules are a novel class of bispecific biologic that utilise the natural advantages of the human TCR to target a diverse range of tumor associated antigens (TAA) across multiple indications. TAA are identified and validated in-house and TCRs that target TAAs are affinity-enhanced, solubilised and fused to a T cell-redirecting anti-CD3 effector function. ImmTAC molecules are an exquisitely human-specific biologic that required the development of an entirely in vitro preclinical package to support their clinical development.

Here we discuss a novel approach to cancer immunotherapy, detailing the engineering, preclinical testing and clinical development of ImmTAC molecules.

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