# Fighting cancer

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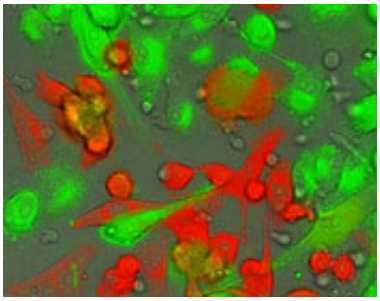

Image shows the serial killing of three melanoma cells (red) by a single non-cancer-specific Tcell (green) in the presence of the drug, IMCgp100.

(Medical Xpress) -- ‘Hijacking’ cells that normally attack common infections to target cancer instead could offer the body a ready-made army against the killer disease University researchers and Oxford-based biotech company, Immunocore Limited have uncovered.

Published in *Nature Medicine*, the study examined the potential of molecules on the surface of anti-cancer killer T cells, known as T cell receptors (TCRs) to be used to treat cancers for which few disease-specific targets are available.

The Immunocore team engineered a range of TCRs to bind very tightly to cancer cells and equipped them with the ability to activate non-cancer specific T cells. This new class of drug, named ‘ImmTACs’ (Immune Mobilising mTCR against Cancer), can be used to ‘hi-jack’ the body’s existing T cells that normally kill viruses and redirect them to kill cancer

cells instead.

The team included Nat Liddy and Katy Adams, Immunocore employees and PhD students at Cardiff University, as well as Professors Andy Sewell and David Price, School of Medicine.

Nat Liddy said: "With Immuncore's novel ImmTAC drugs we found we could effectively target cancer cells and mark them for destruction by the killer T cells that might normally fight common infections.

"Our initial studies and findings show that administration of ImmTAC could, potentially, result in the regression of established tumors".

Recent advances have enabled molecular targeting of disease using immune molecules called antigen receptors. There are two main classes of antigen receptor: antibodies and T cell receptors.

Therapeutic application of antibodies has been a huge medical success over the last decade and over 40% of the new drugs on the market in 2011 were based on these molecules.

Exploitation of T cell receptors (TCRs) has so far lagged behind, but research led by Immunocore Ltd, with help from Cardiff University's Institute of Infection and Immunity, is set to close the gap and open up an entirely new field of medical treatments.

Professor Andy Sewell, School of Medicine, said: "T cell receptors have advantages over antibodies as these molecules can see inside cells and tell if they are abnormal. Similar technology based around antibodies has shown great promise in clinical trials. This new TCR-based research technology extends this potential as it could possibly be applied to any form of cancer."

The most advanced of Immunocore's ImmTACs, a drug called IMCgp100, is already in clinical trials in the UK and US for the treatment of melanoma. A second oncology ImmTAC, IMCmage1, is set to enter the clinic in both countries later this year and is applicable to the treatment of a large number of poorly served cancer indications.

James Noble, Immunocore's CEO, said: "The power of this new technology lies in its ability to be used for a host of cancers that are currently very difficult to treat. We look forward to building on the emerging clinical data and generating a robust pipeline of products over the coming years".

**More information:** Immunocore

Provided by Cardiff University