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Tests on cell therapy to fight HIV

James Randerson
Science correspondent

Researchers have developed a new “assassin cell” therapy for treating HIV which involves engineering the patient’s own immune system to fight the virus more effectively.

The therapy – which has proved effective in laboratory tests using human cell cultures – will be tested in a clinical trial of 35 patients with advanced HIV infection that is due to start next summer.

Efforts to find a traditional vaccine against HIV – the virus that causes Aids – have so far drawn a blank. “HIV mutates so quickly,” said Dr Bent Jakobsen at Adapimmune, the company in Oxford that is developing the new approach. “Gradually it gets better and better at escaping the detection of the immune system.”

Jakobsen and his colleagues began to pursue a different approach after investi-

gating a patient who had resisted his HIV infection particularly effectively. “When we tested the T cells from this patient, it looked as if he was responding to a number of those variants that normally escape the immune system,” he said.

T cells are components of the immune system that attack and destroy cells within the body that are infected. In this patient, the T cell receptor protein seemed particularly good at recognising HIV antigens.

The team isolated the receptor protein and then improved its ability to recognise HIV further by randomly mutating it.

Treating patients will involve taking a blood sample and adding an engineered virus containing genes for the improved T cell receptor. The patient’s own T cells then take up the genes and so are equipped with the improved receptor. These cells are then injected back into the patient.

The clinical trial of 35 patients next summer will take place at the University of Pennsylvania in Philadelphia.