In the news

PIMP MY RIDE

'Pimped' up T cells with an increased ability to detect HIV-1-infected cells could offer a new therapeutic option for patients with chronic HIV-1 infection according to new research in *Nature Medicine* (published online 9 November 2008).

The authors of the study isolated a T-cell receptor (TCR) from T cells that had been collected in 1996 from a patient who had effectively resisted HIV-1 infection. Random mutation and selection of this TCR *in vitro* resulted in a receptor that binds an HIV-1 peptide 450 times more strongly than the original isolated TCR. Engineered T cells expressing this TCR could detect cells infected with HIV-1 strains that escaped detection by natural T cells and responded in a more vigorous manner.

Andy Sewell, senior author of the study, predicts that if such engineered T cells were administered to patients, "the virus will either die or be forced to change its disguises again, weakening itself along the way." (*PENN Medicine News Release*, 10 November 2008.) He believes that even if HIV-1 is only 'crippled' by the therapy, the virus could then be more susceptible to conventional therapies (*BBC News*, 10 November 2008).

The results in human cell cultures are promising, but there is no guarantee that similar effects would be observed in patients. However, Bent Jakobsen (co-author and Chief Scientific Officer at Adaptimmune Ltd, which owns the rights to the technology) thinks that the study "does give hope that [the engineered T cells] will do much more than the immune system does" (*guardian.co.uk*, 10 November 2008). A clinical trial of the engineered T cells in 35 patients with advanced HIV-1 infection will begin next year. Another downside could be that the engineered cells are too potent. According to James Riley, co-senior author: "The big concern is autoimmunity — that these things will ... also recognise things that we don't want them to." (*New Scientist*, 9 November 2008.)

Kirsty Minton