

Souped-up immune cells force leukaemia into remission

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Augmented immune cells have made an impressive impact on the survival of people with leukaemia.

Thirteen people with a form of the cancer called multiple myeloma were treated with genetically engineered T-cells, and all improved. "The fact we got a response in all 13, you can't get better than that," says James Noble, CEO of [Adaptimmune](#) in Abingdon, UK, which developed the treatment.

Cancers often develop because T-cells have lost their ability to target tumour cells, which they normally destroy. To retune that targeting, a team led by [Aaron Rapoport](#) at the University of Maryland in Baltimore engineered T-cell genes that coded for a receptor on the cell's surface. They extracted T-cells from each person, then inserted the engineered genes into these cells and re-injected them.

100-day remission

The souped-up cells were better able to recognise proteins called NY-ESO-1 and LAGE-1, found on myeloma cells but not healthy ones. All 13 people also had the standard treatment for multiple myeloma, which boosts white blood cell count.

Three months after the injection, 10 of the 13 were in remission or very close to it – a 77 per cent response rate – and the others showed drastic reduction in their cancer. Standard treatment alone gives a response rate of between 33 and 69 per cent. The work was presented this week at the [American Society of Hematology Annual Meeting](#) in Atlanta, Georgia.

Different cancers

Only time will tell whether a one-off injection is enough, Noble says. But given the promising results, the firm is treating another 13 people with myeloma and hopes to treat others with [different types of cancer](#). It is also exploring the scope for engineering more T-cell receptors.

The work is encouraging, but a trial that does not include the standard therapy is needed, says Holger Auner, a myeloma specialist at Imperial College London. Adaptimmune says it has plans to do this.