

- Cells

## BREAKTHROUGH ANTI-AGEING CELL DISCOVERY COULD HELP YOU STAY YOUNGER FOR LONGER

### A white blood cell in our bodies could give extended youth

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The 'fountain of youth' is not locked away in a sorcerer's stone or mythical water source, according to new research. In fact, scientists in the US say the key to slowing ageing is hiding in our bodies.



Published in *Nature Aging*, the new research reveals that the trick to antiageing lies within the white blood cells, known as T cells. The scientists behind the research discovered that they can reprogramme these cells to turn them into ageing-cell killing machines, called chimeric anti-gen receptor (CAR) T cells.

When they tested the treatment on mice, the mice went on to live healthier lives, with lower body weights, improved metabolism and glucose tolerance, and increased physical activity. And all without any tissue damage or toxicity.

“If we give it to aged mice, they rejuvenate. If we give it to young mice, they age slower. No other therapy right now can do this,” said Corina Amor Vegas, one of the researchers and Assistant Professor at the Cold Spring Harbor Laboratory in Long Island, New York.

The researchers are calling this treatment the ‘living drug’. That’s because, when genetically modified, the CAR T cells actively attack a group of cells known as ‘senescent cells’. Senescent cells are responsible for many of the conditions and diseases we get as we grow old, such as obesity and diabetes. We accumulate more of them as the years go by and this builds up harmful inflammation. The CAR T cells, however, could remove them and therefore slow the impacts of ageing.

The treatment has already been approved in the US to tackle blood cancer (illustrated below, with T cells in purple and the cancer cells in green). This is the first time scientists have shown that CAR T cells can also slow – and even reduce – the effects of ageing, however.

While there are already drugs that can eliminate senescent cells, these have to be taken repeatedly. The effects of CAR T cells, though, are long-lasting – one dose at a young age protects you for life.

“With CAR T cells, you have the potential of getting this one treatment, and then that’s it,” said Amor Vegas. “For chronic pathologies, that’s a huge advantage. Think about patients who need treatment multiple times per day versus getting an infusion [that means] they’re good to go for years.”

Next, the scientists will investigate whether the cells will not only make your life healthier, but also help you live longer too.