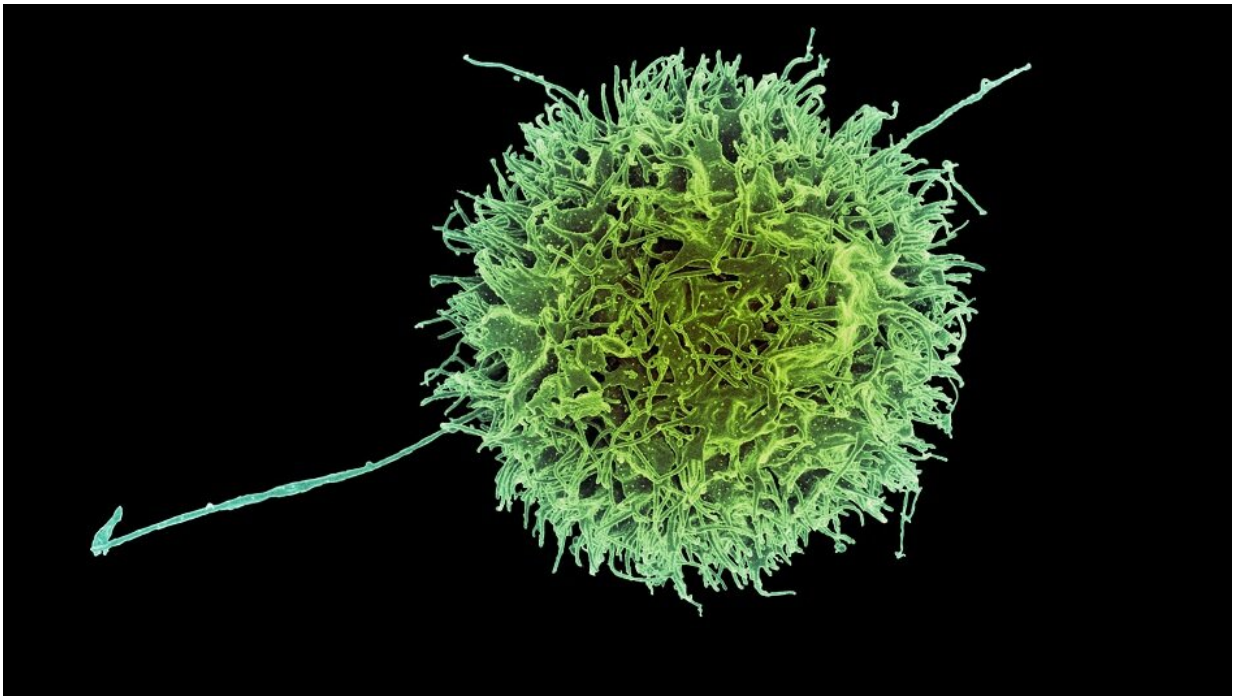
New 'killer' immunotherapy shows early promise in range of solid tumors

April 11 2022



Colorised scanning electron micrograph of a natural killer cell from a human donor. Credit: NIAID. CC BY 2.0

A new type of immunotherapy making use of the immune system's "natural killer cells" could offer potential against a range of cancers that can evade current treatments, early results from a phase I trial suggest.

Researchers found the new immunotherapy showed signs of

effectiveness in a third of patients with a range of advanced cancers that had stopped responding to standard treatment, including bowel and lung cancers.

The immunotherapy, known as AFM24, redirects the body's own natural killer cells and engages them to kill tumor cells, without having to go through a complex process to re-engineer a patient's own cells, as happens with CAR-T cell therapy.

The researchers believe the new treatment has the potential to be safer and less complex than cell therapies like CAR-T, and might also work against a wider range of cancer types.

Ongoing phase I trial

An international team including researchers at The Institute of Cancer Research, London, and The Royal Marsden NHS Foundation Trust assessed the new treatment in 24 patients initially in the ongoing phase I trial.

Early findings are being presented at the American Association for Cancer Research (AACR) Annual Meeting 2022.

The trial, funded by the drug's manufacturer Affimed N.V., is testing the immunotherapy's safety and appropriate dosage, as well as its efficacy in solid tumors positive for EGFR—a key protein often involved in cancer growth.

A third of patients evaluated (8 out of 24) responded to the immunotherapy and saw their cancer stop growing after being treated with AFM24. This is a promising finding for a phase I clinical trial, as early-phase trials are typically run in patients who have very advanced cancers as a last resort.

Our researchers regularly present their latest findings at the AACR Annual Meeting in the US.

Patients saw their cancer shrink or stop growing

Two patients with bowel cancer and one with lung cancer who received the immunotherapy saw their cancer shrink or stop growing for more than three months.

AFM24, administered intravenously, was generally well tolerated by patients and the researchers were able to recommend a dose for further evaluation.

The immunotherapy has a "warhead" targeted at EGFR, which is commonly produced by lung, bowel, kidney, stomach, pancreatic and biliary cancers. The treatment works by activating natural killer cells, immune cells that release toxic molecules to kill tumor cells, and directing them to cancer cells expressing EGFR—increasing their ability to selectively kill cancer cells.

The next phase of this study will further evaluate the effectiveness of AFM24 and is now ongoing. Further studies have also been launched to evaluate AFM24 in combination with other immunotherapies such as atezolizumab to target EGFR-positive tumors.

Immunotherapy shows signs of effectiveness

The trial's UK lead Dr. Juanita Lopez, Clinical Researcher at The Institute of Cancer Research, London, and Consultant Medical Oncologist at The Royal Marsden NHS Foundation Trust, said:

"Natural killer cells are an essential part of the immune system and are

able to recognize cancer cells. This new immunotherapy, AFM24, can redirect natural killer cells to tumors by targeting a protein called EGFR, which is often found on the surface of cancer cells. Our early findings suggest it shows signs of effectiveness in some patients with very advanced cancers who have stopped responding to conventional treatments.

"This treatment is still highly experimental and our trial is at an early stage, but we are excited by its potential. It does not have to be personalized for each patient like CAR-T cell therapy, so it could potentially be cheaper and faster to use, and might work against a wider range of cancers."

'Highly innovative'

Professor Kristian Helin, Chief Executive of The Institute of Cancer Research, London, said:

"We have seen major strides in the use of immunotherapy for cancer over recent years, with particular excitement over the use of 'cell therapies' to direct immune cells at tumors, often by engineering a patient's own cells.

"This new treatment is highly innovative because it finds a way to direct natural killer cells within the immune system to tumors without requiring complex and expensive re-engineering of a patient's own cells. So far, we've only seen initial findings in a small group of patients, but the results look promising, and we're optimistic that this could be a new type of immunotherapy for cancers that are otherwise hard to treat."

'The least side effects'

Nursing home Estates Manager Richard Condie, 64 from Surrey, was diagnosed with bowel cancer at his local hospital in 2015 and was treated with surgery. However, after being referred to The Royal Marsden for further investigations, scans revealed the disease had spread to his liver. He has since taken part in three clinical trials at the hospital and is currently being treated with AFM24, which has stabilized his cancer and shrunk some of his tumors. Richard said:

"Since 2015, I have been treated with various chemotherapies, an immunotherapy as well as two surgeries which all, for a period of time, worked. However, by January 2021, I was told I had run out of options. About five months later, I was really relieved that, thanks to genetic testing, I was able to join this new trial, which I started in October 2021.

"I receive the drug as an infusion once a week and, out of all the treatments I've been given over the past seven years, this one has come with the least side effects. I'm able to work, live an active lifestyle—for instance, I walk my dog, Jet, three miles every morning—and spend time with my wife, three children and four grandchildren, and one more is on the way."

More information: CT149 / 16—A phase 1/2a first-in-human study of AFM24, a CD16A/epidermal growth factor (EGFR) bispecific Innate Cell Engager (ICE), in patients with locally advanced or metastatic EGFR-expressing solid tumors: Preliminary findings from the dose-escalation phase. www.abstractsonline.com/pp8/#! … 7/presentation/20193

Provided by Institute of Cancer Research

Citation: New 'killer' immunotherapy shows early promise in range of solid tumors (2022, April