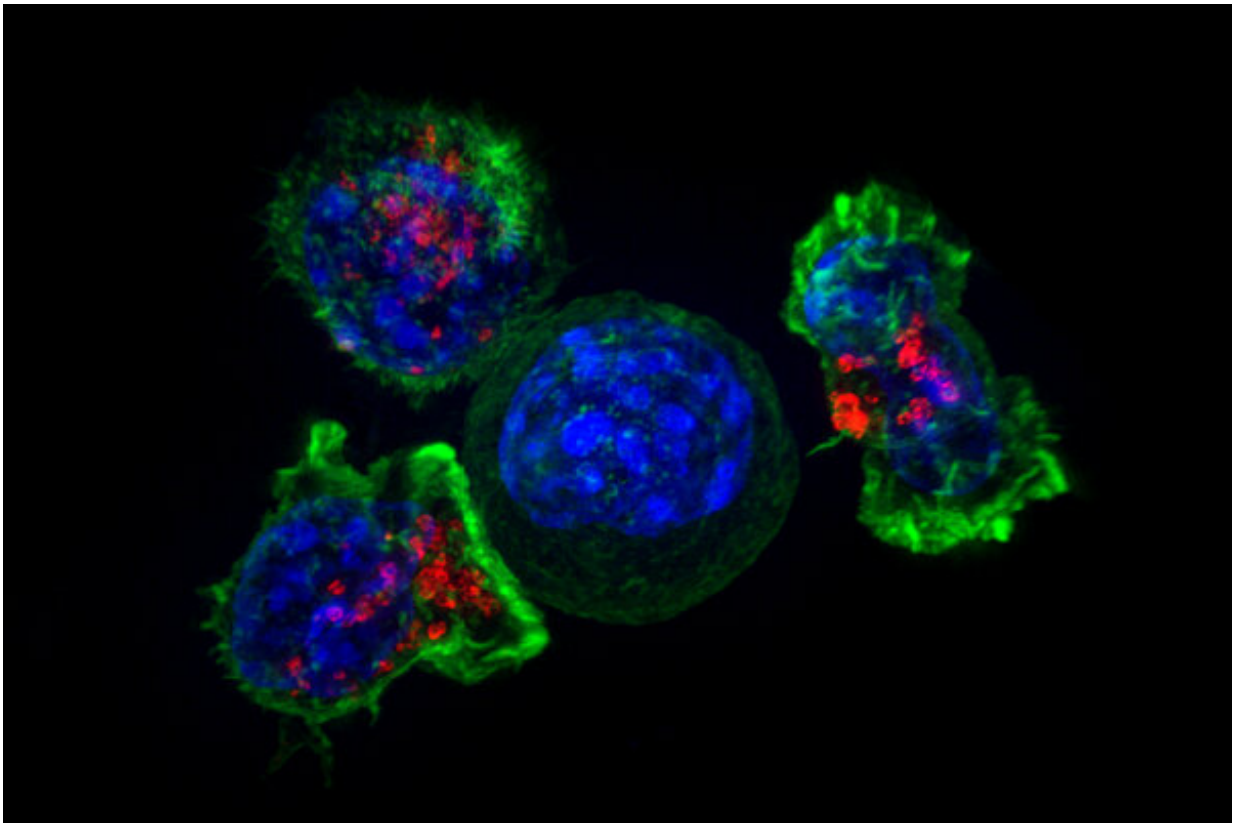


Exploring CAR T-cell therapy to treat breast cancer

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Credit: NIH

Peter Mac researchers are developing a potential new way to make CAR T-cell therapy more effective against breast cancer and other solid cancers.

CAR T-cell therapy is a type of immunotherapy where a patient's own immune cells are collected and reengineered, before being infused back into the patient to fight their [cancer](#).

But CAR T-cells also contain a gene that can suppress this immune response. A Peter Mac-led study into this phenomenon has just been published in the scientific journal *Nature Communications*.

"Cancer hijacks these pathways to shut off an [immune response](#) that would otherwise be beneficial," says Dr. Paul Beavis, one of the senior authors of the study.

Using a gene editing technique known as CRISPR, Dr. Beavis and his team were able to show that by knocking out this gene, CAR T-cell therapy was significantly more effective at fighting [breast cancer](#).

While the research has so far only been conducted using mice and human CAR T-cells in mice models, Dr. Beavis is confident it has the potential to progress to [clinical trials](#), particularly as the sort of procedures they've been using have been used in clinical trials elsewhere.

And that's good news for Shepparton local and research consumer advocate Karen Gill. Ms Gill was one of the founders of the Shepparton News Pink Ribbon Brunch, which has run annually for some 15 years in memory of a former Shepparton News employee who lost her battle with breast cancer, and has worked with Dr. Beavis since 2017.

Through the event's fundraising for the National Breast Cancer Foundation (NBCF), it has been directly supporting Dr. Beavis's research. For Ms Gill the impact of the research is clear.

"It is only with research, such as Paul's, that we have any chance of achieving the NBCF's goal of Zero Deaths from breast cancer by 2030,"

she says.

Dr. Sam Oakes, NBCF's Director of Research Investment says: "Breast cancer is the most commonly diagnosed cancer in Australia with 1 in 7 women diagnosed in their lifetime. Since NBCF's inception in 1994, the five-year survival rate for breast cancer has increased from 76% to 91%, thanks largely to research.

"We are proud to support world-class researchers like Dr. Beavis whose use of cutting-edge technology involving CAR T therapy will directly contribute to more effective treatment options and ultimately help stop deaths from [breast](#) cancer," says Dr. Oakes.

More information: Lauren Giuffrida et al, CRISPR/Cas9 mediated deletion of the adenosine A2A receptor enhances CAR T cell efficacy, *Nature Communications* (2021). [DOI: 10.1038/s41467-021-23331-5](https://doi.org/10.1038/s41467-021-23331-5)

Provided by Peter MacCallum Cancer Centre

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