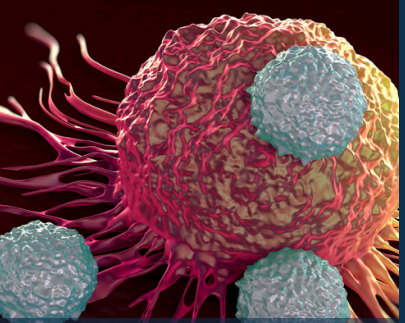

T cells attacking a cancer cell
Image: Cyteph

EXPANDING ACCESS TO "OFF-THE-SHELF" T CELL THERAPY FOR CANCER AND TRANSPLANT PATIENTS

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CELL AND GENE THERAPIES

Under the leadership of **Prof Rajiv Khanna**, Distinguished Scientist at QIMR Berghofer, Co-Director of the Queensland Immunology Research Centre, and Founder of Cyteph, this project is pioneering allogeneic or 'off-the-shelf' T cell therapies for transplant patients and a dual-targeting CAR T platform to transform cancer treatment. By creating a cell bank of donor-derived virus specific T cells, many patients can be treated with a single batch, eliminating the need for costly and time-consuming individualised cell collection.

Support from TIA through the Pipeline Accelerator Scheme was instrumental in advancing this research, enabling two phase I clinical trials. TIA vouchers enabled the team to access Q-Gen Cell Therapeutics' expertise and facilities, allowing them to develop a manufacturing process and create banks of cells that have been used to treat immunocompromised transplant patients with persistent viral complications and patients with a type of brain cancer called glioblastoma multiforme. This early support enabled funding successes, including a $1.1M from the NHMRC and $1.3M from the Children's Hospital Foundation Queensland. It also enabled a partnership with the Australian Bone Marrow Donor Registry, strengthening the foundation for a national-scale program.

With growing evidence that donor-derived immune cells can be safely matched and used in therapy, the long-term goal is to ensure Australian patients have access to this breakthrough treatment at no cost. By collaborating with leading Australian organisations in transplantation and immunotherapy, the team aims to create a national repository of "off-the-shelf" virus-specific T cell therapies.

Encouraging results in transplant patients led to a broader vision - expanding this approach to treat brain cancer. Using CMV-specific T cells as a platform to deliver CAR T- therapies, the team secured a $1.5M MRFF CUREator grant, leading to the creation of a new company, Cyteph. With a Phase I clinical trial for patients with recurrent glioblastoma multiforme due to finish late 2025, this project is laying the groundwork for wider clinical adoption.

> "TIA's support was the catalyst that set this program in motion, enabling a small initial project to evolve into a platform with the potential to transform cancer treatment nationwide." **Prof Rajiv Khanna**

Impact:

TRL 1 | TRL 2 | TRL 3 | TRL 4 | TRL 5 | **TRL 6** | TRL 7 | TRL 8 | TRL 9