

World-first experimental cancer treatment paves way for clinical trial in Australia

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First documented use of neoadjuvant triple immunotherapy in glioblastoma



A peer-reviewed paper detailing the experimental cancer treatment developed by Professor Georgina Long AO, University of Sydney medical oncologist and Medical Director of the Melanoma Institute Australia, has been published in *Nature Medicine*, paving the way for a clinical trial to be conducted by researchers at the Brain Cancer Centre in Melbourne.

The paper details the experimental treatment given to a patient who was diagnosed with glioblastoma, a highly aggressive brain cancer. Professor Long used her expertise in immunotherapy and drew on melanoma science to devise, lead and administer the treatment.

It is the first documented use of neoadjuvant triple immunotherapy in glioblastoma, involving a combination of three checkpoint inhibitor immunotherapies (drugs that activate the immune system, instructing T-cells to kill tumour cells) administered prior to surgery.

When resected, the tumour treated with immunotherapy showed increased diversity, abundance, and activation of immune cells compared to the tumour prior to receiving immunotherapy. These immune cells may recognise and attack cancer cells: their increased presence may suggest a strong immune response. At the time of final submission of the paper on 9 January 2025, the patient had no clear signs of cancer recurrence after more than 18 months.

An Australian-led international clinical trial will scientifically investigate the efficacy of the approach within a large cohort of eligible glioblastoma patients and could commence within a year. It will trial the use of double immunotherapy. In some patients, it will be combined with chemotherapy.

The Brain Cancer Centre has world-leading expertise in glioblastoma and was established in partnership with the Walter and Eliza Hall Institute of Medical Research (WEHI) with support from the Victorian Government.

People with glioblastoma have an average survival time of 12 to 18 months, with only 25 percent of patients surviving more than one year and less than five percent surviving more than three years.

Last week, Professor Long published a paper in *The Lancet Oncology* which detailed the development of a dual combination immunotherapy which has seen a seven-year survival rate in 51 percent of patients with melanoma that had metastasised in the brain. The previous survival rate was 16 weeks.