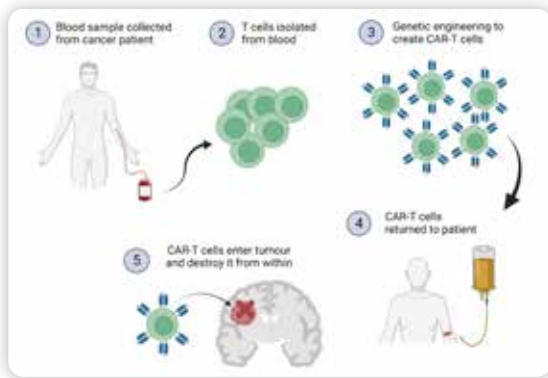


NEURONEWS

FUNDING LIFESAVING | NEUROSURGICAL RESEARCH

Groundbreaking glioblastoma immunotherapy trials running at RAH



This latest project, funded by the NRF in partnership with the James & Diana Ramsay Foundation, has commenced at the Royal Adelaide Hospital with \$300,000 committed over 3 years, titled: *Developing new immune-based therapies for brain cancer, specifically glioblastoma.*

This research is aiming to develop a radical new treatment that goes beyond traditional approaches for glioblastoma based on a revolutionary type of 'living drug' known as CAR-T cells. T cells are a type of immune cell that circulate in the bloodstream and protect our bodies from infection. CAR-T cells are variants of a patient's own T cells that have been 're-programmed' via genetic engineering in the laboratory to have specific cancer-killing activity. Billions of these engineered T cells are returned to the patient's bloodstream, where they can hunt down and destroy cancer cells, while leaving healthy cells unharmed. This technology may sound like science fiction but is used already for the treatment of certain types of leukaemia.

Working alongside Assoc Prof Ebert is Dr Tessa Gargett who is an immunologist and cell therapy specialist.

Currently, every year in Australia, almost 2,000 people receive a devastating diagnosis of brain cancer. The most common - and most lethal - form of brain cancer is glioblastoma. Even with surgery, radiation and chemotherapy, most glioblastoma patients only survive ~15 months after initial diagnosis, and there have been no significant improvements to treatment for over 15 years.

Over the last 5 years, Assoc Prof Ebert has developed a strong research focus on brain tumours, and is currently developing novel immunotherapies to tackle these cancers, all the way from pre-clinical discovery and validation to clinical trials. Her work has also been instrumental in building momentum in brain cancer research in SA.



"CAR-T cell therapy has the advantage of causing much less long-term toxicity and damage to healthy tissues. Our team has been developing new CAR-T cell therapies and now has a suite of potential therapies that are ready for advanced clinical testing in adults and children with brain cancer".

Associate Professor Lisa Ebert B.Sc.(Hons),
PhD Senior Research Fellow

Central Adelaide Local Health Network, SA Health
- Centre for Cancer Biology



"We will do this by studying blood vessels within brain tumours of glioblastoma patients and preclinical models, to find out what makes them permissive to the entry of CAR-T cells. Then we will engineer our therapy to take full advantage of this gateway, hence enhancing treatment success."

Dr Tessa Gargett, Research Officer - Centre for Cancer Biology, UniSA, Royal Adelaide Hospital

BREAKING NEWS: Dr Gargett has received \$1.14M in government funding as a result of this NRF seed funding made possible by you, our generous donors. Make sure to follow this story in our next newsletter edition.

FUNDRAISE FOR THE NRF!



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There are a few ways you can host a fundraiser!

- ▶ In celebration - donating towards a special occasion or life event
- ▶ In Memory - hosting an event in memory of your loved one
- ▶ Personal Challenge - Set a personal challenge that is meaningful to you
- ▶ Star of Hope - Help us light up the night sky through this online appeal

Your efforts ensure 100% of every dollar goes directly to groundbreaking research. **Join us in making 2024 our best year yet!**



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NRF VACATION SCHOLARSHIP RECIPIENTS

Fostering the next generation of brilliant minds

▶ **This year the NRF awarded 7 Vacation Scholarships to our latest and brightest young minds!**

These scholarships allow students the opportunity to work on real and exciting research projects during their summer break alongside SA's best researchers in the neurosurgical field. Aiming to gain real-world experience and entice them to pursue a future research career in neuroscience, these recipients spent the summer working on ground-breaking research projects in their chosen areas of interest which include stroke, traumatic brain injury, spinal cord injury and glioblastoma research.



Richard Buttery
NRF Glioblastoma Research Vacation Scholarship - Year 3 - UniSA

Samuel Wallis - Evaluating lysosome function in glioblastoma

My project is to investigate a potential vulnerability in glioblastoma cells. Glioblastoma cells survive in hypoxic conditions by undergoing ER-phagy, a process where the cells break down sections of the endoplasmic reticulum which are undergoing stress. By inhibiting the cell membrane receptor CD47, this may allow for this process to be disrupted. My project investigates the connection between CD47 and ER-phagy and whether glioblastoma can be treated by a combination of drugs that inhibit CD47 and ER-phagy.

Supervisor - Dr Nirmal Robinson, Cellular-Stress and Immune Response Laboratory, Uni SA

NRF Research Vacation Scholarship - UniSA



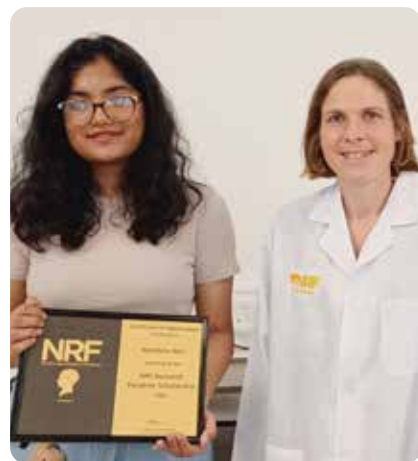
Stella Russo - More effective therapies are desperately needed for glioblastoma.

"In this project, we will examine the effect of deletion of SphK1 and/or SphK2 on glioblastoma proliferation, migration and response to chemotherapy and radiotherapy. Successful outcomes will provide valuable insights into the sphingosine kinases as new therapeutic targets for glioblastoma"

Supervisor - Prof Stuart Pitson, Molecular Therapeutics, Uni SA

Inaugural Tony Walsh TBI Vacation Scholarship - Uni Adel

Nandana Nair - Introduction to Traumatic Brain Injury Research, Aim: To experience the broad range of activities within the laboratory from behavioural analysis, immunofluorescence and data analysis.



"The research is leaned towards evaluating new treatments for head injury to see if they improve outcome by reducing damage within the brain"

Supervisor - A/Prof Frances Corrigan, Head Injury Laboratory - TBI, School of Biomedicine, University of Adelaide

The University of Adelaide Scholarships



Anis Mohammad Gadapi

Investigation of predictors of outcome in pre-clinical models of traumatic brain injury.

"TBI is the leading cause of morbidity with patients often suffering from consequences such as cognitive deficits, social abnormalities, anxiety, depression, pain and motor dysfunction. There are currently no pharmacological treatments known to improve patient outcomes. Given that these impairments have a significant impact on a patient's quality of life, my research aims to investigate how head injuries interact with underlying risk factors to promote the development of neurodegenerative diseases, as well as investigate novel therapeutics for head injuries in a pediatric model of injury".

Supervisor - A/Prof Frances Corrigan, Head Injury Laboratory - TBI

Alyssa Harris

Introduction to surgical processes, reviewing and analysing behavioural tasks, observation and participation in histological procedures, analysis of histology, statistical analysis of data collected.

"There is a particular focus on neuroinflammation, oedema and pressure within the acute setting, and also in understanding how these acute processes can influence chronic outcomes such as cognition and neuropathic pain. By evaluating these outcomes we can better understand how SCI affects patients and work towards developing more effective treatments".

Supervisor - Dr Anna Leonard Spinal Cord Injury Research Group - SCI



Rosie Costigan-Dwyer

Exploring the short and long-term consequences of ischaemic stroke: no reflow, neuroinflammation and blood-brain-barrier disruption.

"My project aims to explore the long-term timeline of neuroinflammatory and blood brain barrier changes occurring at secondary neurodegeneration (SND) sites post-stroke. By exploring these changes we are hoping to provide insight into the development of targeted therapies that could halt/treat SND post-stroke".

Supervisor - Assoc Prof Renee Turner, Translational Neuropathology Laboratory - Stroke

Samantha Joubert

A volumetric neuroimaging study: Investigating neurodegenerative pathology and brain volume changes in a stroke model.

"At the University of Adelaide we are lucky to have access to specialised imaging facilities to allow us to conduct high resolution scans that allow us to measure the size changes in many brain regions post-stroke. My project will be analysing the MRI scans generated using these facilities to better visualise the timeline of damage post-stroke".

Supervisor - Dr Rebecca Hood, Translational Neuropathology Laboratory - Stroke



PLAY FOR PURPOSE RAFFLE 22



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- ✓ Start the new year with BIG prizes!
- ✓ It's the gift that gives you the chance to win amazing prizes, all while supporting the NRF.
- ✓ \$5 from every \$10 ticket will support our cause, so your gift could be life-changing in more ways than one!
- ✓ Win a \$250K gold bullion & much more!
- ✓ Draw 22 closes at 8pm on 14 March.



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Be part of history. Join NRF Team Neuro for the 50th City to Bay and celebrate each decade along the famous 12k route.



▶ REGISTER NOW!

We need your help to raise \$50,000 for the 50th running of the City-Bay Fun Run. Calling all past NRF Team Neuro participants: Invite 4 friends to join you so we can reach our 100 participant goal!

Make a New Year's resolution to be a part of the 50th in '24! Get your teams pumped, register now, and make this YOUR City-Bay!



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Did you know you can write your legal will from the comfort of your own home?

Leaving a gift in your will is a powerful way to create a lasting legacy. By including a gift to the NRF, you can transform lives by contributing to groundbreaking research, innovative treatments, and improved patient care.

Lasting Impact: Pioneering research on the link between Traumatic Brain Injuries and Parkinson's Disease



In a ground-breaking study by the University of Adelaide, researchers are on the verge of providing vital insights into the long-term brain

health of individuals who have experienced traumatic brain injuries (TBIs) or are living with Parkinson's Disease (PD). Led by Associate Professor Lyndsey Collins-Praino and Dr Irina Baetu, these studies aim to identify factors in the brain that increase the risk of neurodegenerative diseases and long-term memory impairment following a TBI, that may predict the development of cognitive problems in PD and pave the way for a more informed and personalised approach to clinical diagnosis and prognosis for TBI survivors.

- TBI is not merely an acute event but an ongoing diagnosis
- 5 - 15% of all dementia cases are estimated to be related to TBI
- Concussions and minor brain injuries increase the risk of PD by about 56% severe injury escalates that risk to over 80%
- Even for those who recover in the short term, there's still a potential risk of developing long-term degenerative outcomes

▶ GET INVOLVED

The research team are currently seeking participants from South Australia who: **have either had a concussion or TBI after the age of 6, or who have been diagnosed with PD (or who would like to participate as a healthy control)**

