



IMPACT REPORT 2023/24

NeuroSurgical Research Foundation



NeuroSurgical Research Foundation

**Thank you for supporting the
NeuroSurgical Research Foundation.
100% of your generous donations go to vital research
into disease and conditions of the brain and spine.**

The NeuroSurgical Research Foundation was formed in 1963 and was the first of its kind in Australia. The objective of the Foundation is directed to funding research into the cause, diagnosis, prevention and treatment of disease, injuries or malfunction of the brain, spine and nerves. Our founders ensured that the Foundation supports all administrative costs, to make sure 100% of all donations go towards research.

Our researchers share a common goal, to improve the lives of people facing a neurosurgical or neurological disease diagnosis, now and in the future.

We fund research into the following diseases and conditions:

- Brain Tumours & Brain Cancer
- Neurotrauma:
 - Spinal Cord Injury
 - Traumatic Brain Injury
 - Concussion
- Neurodegeneration:
 - Parkinson's Disease
- Vascular Disease:
 - Stroke
 - Aneurysms

There are many ways you can help to fund our research:

- Give today.
- Pledge over time - join us as a regular giver.
- Fundraise for us.
- Plan for the future - make a gift in your will.

DONATIONS TO THE NEUROSURGICAL RESEARCH FOUNDATION ARE TAX DEDUCTIBLE.



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Thank you to our volunteer designer Jessica Anderson for producing this report.

The NeuroSurgical Research Foundation acknowledges the traditional Country of the Kurna people of the Adelaide Plains and pays respect to Elders past and present

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Board Members 2023/24



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NRF Director of Neurosurgical Research

NRF Chair of Brain Tumour Research

Scientific Committee

Scientific Committee

Scientific Committee

Scientific Committee

Abbie Simpson Clinical Fellow

President's Report



This has been my first year in the role of NRF President. It has been inspiring to see the dedication of all involved. I would also like to thank Dr Glenn McCulloch for bringing us through the very difficult times during the COVID outbreak. Also acknowledging a restructure of the board with Assoc Prof Santosh Poonnoose (Director of South Australian Neurological Tumour Bank) taking the role of Vice President. Whilst my emphasis and greatest contribution is towards clinical neurosurgery I am deeply committed and look forward to leading the NRF so that we can continue to give hope to our patients and support world class researchers here in South Australia.

This year we celebrated **60 years** and hosted the **NRF Sparkling 60th Celebration** which was our most dazzling and well attended event yet with over 430 people coming together in support of neurosurgical research over the years, detailed in this report.

Your donations last year during our celebratory 60th year have reached the labs and are making an impact today. With your help, we are able to contribute **\$1,378,531 to 34 different grants and equipment projects**. Over the past 5 years our researchers have been able to utilise **\$700,000 of NRF seed funding to attract \$32M** in further research funding to SA. This equates to a 45 fold return for every NRF donated dollar, which is an outstanding result, so thank you very much for all your support.

What can we do better? That is what has driven a lot of what we are doing. The reality is that as we surgeons we can only do so much. We still haven't got a gold bullet to get rid of this horrible disease. A bridge happening here which the NRF has facilitated is the tumour bank and Brain Tumour Research SA. BTRSA is a group of researchers, clinicians, neurosurgeons, medical

oncologists & radiation therapists, brought together. In these past **5 yrs we have brought \$32M into the state for research**. The difference the NRF is making by supporting all of us, is that we are really growing in the work we are doing here, and what you are doing by donating and giving time to this whole cause is just being amplified. So where do we go from here? We need to start getting clinical trials, making these things available to our patients and I hope we go from strength to strength.

There are many people to thank for the successful activities of 2023/2024 – our staff, volunteers, donors, board members, researchers, fundraisers, event organisers, corporate sponsors, and most of all, our patients, and their families. We look forward to your ongoing support over the next few years.

A handwritten signature in blue ink that reads 'Nick Vrodos'.

Dr Nick Vrodos FRACS
NRF President

Director of NRF NeuroSurgical Research Report



Students in the Translational Neuropathology Lab (Team Neuro) have been busy working on their projects in stroke, traumatic brain injury and spinal cord injury over the past 12 months. Here's a snapshot of the exciting projects they've been working on.

Stroke Research Program Led by Assoc Prof Renée Turner

Paige Minagall (3rd yr Research Integrated Learning student) has been assessing blood and brain tissue levels of the neuropeptide substance P across multiple stroke models. Substance P is a key driver of life-threatening brain swelling following stroke, such that understanding its profile following stroke is key to optimising the potential window for therapeutic intervention.

Samantha Joubert (Honours student) won the Cerebrovascular Biology Award for best oral presentation at the 2023 Joint Scientific Meeting (Aust. Atherosclerosis Society, Aust. Vascular Biology Society, Aust. & NZ Microcirculation Society) for her work using MRI to map the temporal profile of brain atrophy that occurs in post-stroke secondary neurodegeneration in our clinically relevant stroke model, essential in determining the window for intervention to halt brain tissue loss and improve long-term stroke outcomes.

Wishy Thirasantikamol (Honours student) is exploring how the brain atrophy in post-stroke secondary neurodegeneration aligns with changes within the brain (i.e. loss of neurons and the accumulation of neurodegenerative proteins), and whether proteins within the cerebrospinal fluid (fluid which bathes the brain) could potentially be used as biomarkers for post-stroke secondary neurodegeneration.

Rosie Costigan-Dwyer (1st yr PhD student) is utilising cutting-edge MRI techniques and our

clinically-relevant stroke model to characterise alterations to the blood-brain barrier and how they relate to the loss of brain tissue distal to the initial stroke, which occurs in post-stroke secondary neurodegeneration. Rosie's early data shows evidence of blood-brain barrier permeability changes at sites far from the stroke site in the months post-stroke, which has potential implications for brain tissue loss.

Dr Tim Webber (1st yr PhD student) is harnessing clinical ICU expertise to assess the neuroprotective properties of high-dose intravenous sodium ascorbate across a suite of clinical acute brain injury studies, encompassing subarachnoid haemorrhage and traumatic brain injury, for which treatment options that salvage brain tissue and improve patient outcomes are lacking.

Shannon Stuckey (Final yr PhD student) was awarded Best Oral Presentation at the 2023 Australasian Neurotrauma Symposium for her work exploring the contribution of neuroinflammation in a long-term model of post-stroke secondary neurodegeneration. Shannon has shown that blood levels of inflammatory markers are elevated at > 1 year post-stroke, at the same time as secondary neurodegeneration pathology within the brain, suggesting that there may be a significant therapeutic window to intervene and halt this chronic stroke complication.

Isabella Bilecki (PhD student) has recently wrapped up her PhD studies looking at changes to the blood-brain barrier in both the context of ageing and stroke. Isabella's main thesis findings suggest that leakiness of the blood-brain barrier and associated functional decline is exacerbated with advancing age at time of stroke, which has potential implications for more tailored stroke treatments. Isabella has recently taken on a teaching position at the University of Adelaide, so we wish her all the best in this role!

Dr Rebecca Hood (Post-Doctoral Fellow) has been exploring the "no-reflow" phenomenon in acute stroke, whereby despite restoration of blood flow there is continued brain tissue loss and functional decline. Rebecca is seeking to determine whether "no-reflow" occurs in the penumbral tissue (at risk brain tissue) and how the blood vessels themselves may contribute to this process. Understanding the mechanisms driving this complication is key in developing targeted treatments for the 1 in 4 ischaemic stroke patients which it effects.

The stroke research group have established new collaborations with neuroscientists, neuroimaging specialists, biomarker specialists and clinical colleagues at Saint Louis University (USA), Oxford University (UK), Cambridge University (UK), University of Doha for Science and Technology (Qatar), Flinders University and Queen Elizabeth Hospital. Together, these collaborations will

Research

explore the nature and extent of dysregulation of the gut-brain axis following stroke and the evolution of post stroke secondary neurodegeneration, towards identifying novel treatment targets and the potential therapeutic window for intervention to improve post-stroke outcomes. Team Neuro is grateful for the generous and ongoing support of the NRF donors, it enables us to keep doing what we love, ultimately striving towards improving outcomes for patients with stroke, traumatic brain injury and spinal cord injury. On behalf of the research leads and all of our students, thank you! Please be sure to seek out our researchers at the NRF events throughout the year, they would love the opportunity to talk to you about their research and to personally thank you for your continued support.



Associate Professor Renée Turner
NRF Director of NeuroSurgical Research



Head Injury Research Group *Led by Assoc Prof Frances Corrigan*

NRF support has continued to allow us to investigate novel therapeutics in a clinically relevant model of axonal injury, with this work well received when presented by PhD student Justin Krieg at the National Neurotrauma Symposium in Brisbane. Honours student Hasini Kapuwelle is extending the work this year by examining whether blockade of the inflammatory mediator, substance P can improve outcome in a paediatric model of injury. Carl Hooper is also continuing his work in this model in partnership with Argenica, with promising early results on a novel therapeutic for treatment of post-con-

cussion symptoms. Abhiram Hiwase has transitioned to the second year of his PhD program, extending his work on blood coagulation abnormalities following head injury with the support of key project grants from the NRF. Eleanor Bowley-Schubert is finishing up her PhD investigating how head injury increases the risk of dementia, presenting at National Neurotrauma and the CAMAND meeting in Brisbane, winning a poster award at the latter.



Spinal Cord Injury Research Program *Led by Assoc Prof Anna Leonard*

PhD Student, Kavi Sivasankar, will submit her thesis on understanding how an injury to the spinal cord causes chronic cognitive dysfunction within the spinal cord injury (SCI) population – Congratulations Kavi!

Final year PhD student, Ryan Dorrian, is continuing his work on electrical stimulation to improve outcomes after SCI. This utilises a novel way of applying peripheral electrical stimulation which could revolutionise this field. Testament to Ryan's outstanding work, he was awarded the best oral presentation at the Australasian Neurotrauma Network annual symposium in December 2023. In 2024, Ryan has been joined by honours student Yi (Colin) Feng Liu, who is investigating changes to bladder outcomes following Ryan's peripheral electrical stimulation model. This is a hugely important outcome that has a significant impact on quality of life for people living with SCI. Excitingly, Colin has worked to modify and improve a test for bladder function that will increase its accessibility and hopefully promote greater research into bladder function, creating more meaningful outcomes for the SCI population.

Final year PhD student, Keziah Skein, assisted by 2024 honours student Samuel Stewart, is looking into how sustaining a traumatic brain injury (TBI) at the same time as a SCI could lead to worsened outcomes compared to a single neurotrauma and whether a unique biomarker may help to diagnose TBI when an SCI has occurred. Both Ryan and Keziah will be travelling to Cambridge, UK, in August 2024 to attend the International Neurotrauma Symposium (INTS) 2024 conference, where they will present their research and then with travel grants from the Spinal Research Institute will attend the International Spinal Cord Society (ISCoS) annual conference in Antwerp, Belgium, to present. We wish all of our students the very best as they engage with these exciting opportunities and look forward to learning from them on their return.

NeuroSurgical Research

The University of Adelaide



STROKE RESEARCH

RESEARCHER: Dr Rebecca Hood
FUNDING: \$48,327
TITLE: Investigating the 'no reflow' phenomenon in a clinically relevant model of stroke

PROJECT: The most common cause of stroke (~85%) is blockage of a brain blood vessel by a clot (ischaemic stroke). The current goal of stroke treatment is to remove the clot from the vessel (recanalisation) and restore blood flow to the affected area (reperfusion) as fast as possible. However, despite successful recanalisation, many patients do not achieve adequate reperfusion, termed the 'no reflow' phenomenon, and this is associated with worse patient outcomes. This pilot study seeks to determine whether this phenomenon occurs in, at risk, yet potentially salvageable brain tissue (penumbra).



TRAUMATIC BRAIN INJURY RESEARCH

RESEARCHER: Assoc Prof Frances Corrigan
FUNDING: \$43,000
TITLE: Does head injury at the time of sustaining a spinal cord injury result in the development of neuropathic pain?

PROJECT: Following a concussion, the timeline of symptom recovery varies, ranging from a few weeks to those with persistent symptoms years following the initial insult. There are currently no objective measures to identify those at risk of a prolonged recovery trajectory, which is crucial to facilitate early intervention and targeted treatment. This project will utilize our clinically relevant preclinical model of concussion to investigate an array of promising biomarkers to determine which can predict outcome following concussion.

Inaugural Tony Walsh TBI Vacation Scholarship - University of Adelaide



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.

"This research involves evaluating new treatments for head injury to see if they improve outcomes by reducing damage within the brain"

Supervisor - Assoc Prof Frances Corrigan, Head Injury Laboratory - TBI, School of Biomedicine, University of Adelaide.

NRF Research Vacation Scholarships

School of Biomedicine, University of Adelaide



Anis Gadapi - Investigation of predictors of outcome in preclinical 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 paediatric model of injury."

Supervisor - Assoc Prof Frances Corrigan, Head Injury Laboratory - TBI.



Alyssa Harris - Understanding the secondary injury processes that occur post-SCI and how these can be targeted to improve outcomes

"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.

Equipment

The University of Adelaide



RESEARCHER: Assoc Prof Anna Leonard
RESEARCH: Spinal Cord Injury
FUNDING: \$59,020
EQUIPMENT: Cat Walk TX Gait Analysis System

PROJECT: Neurological diseases or injuries can drastically impair motor function; however, these deficits can be difficult to identify and characterise in preclinical models. The Catwalk is a state-of-the-art system that will allow us to automatically quantify deficits in key motor outcomes, including walking speed, stride pattern, pressure, and coordination. This will enhance our understanding of various pathologies such as Spinal Cord Injury, Traumatic Brain Injury and Stroke, and enable us to examine potential interventions that may one day improve outcomes for people living with these conditions.



RESEARCHER: Assoc Prof Lyndsey Collins-Praino
RESEARCH: Neurodegeneration Research
FUNDING: \$34,060
EQUIPMENT: Dual-arm digital stereotax

PROJECT: The dual-arm stereotax with digital readout allows for the generation of experimental models of neurological disease with a high degree of precision not previously possible. This equipment has broad applications across multiple disease models, ranging from Parkinson's Disease to stroke to traumatic brain injury, and will allow us to carry out the foundational experiments that further our understanding of disease mechanisms and bring us one step closer to translating treatment strategies from the bench to the bedside.



RESEARCHER: Dr Rebecca Hood
RESEARCH: Stroke Research
FUNDING: \$10,507
EQUIPMENT: Abbott iSTAT Analyser Wireless

PROJECT: The Abbott iSTAT Analyser Wireless is a state-of-the-art blood analyser used in many hospitals around Australia to provide real-time diagnostic information on patient's blood gases, particularly those in emergency care. Researchers at the University of Adelaide will be using this handheld, portable device to make sure that experimental conditions closely mimic the clinical scenario. This helps ensure their research is translationally relevant whilst they investigate a number of important neurological diseases including stroke and traumatic brain injury.

During surgical and emergency procedures it's essential to ensure that arterial blood gases (the oxygen and carbon dioxide levels in the blood as well as the blood's pH balance) remain within normal (physiological) levels. Variance outside of normal levels can worsen patient outcomes, therefore it is important to carefully monitor these parameters.

10 Years of Funding Over \$1M Towards NRF Research



The James & Diana Ramsay Foundation (JDRF), has been providing significant funding for research into brain cancer, paediatric head injury and Parkinson's disease, to the NRF since the year 2013.



JDRF has generously funded over \$1 million in NRF research across four different projects. This funding has been instrumental in advancing our understanding of these diseases and has helped to drive important breakthroughs in treatment and prevention strategies. We are grateful for JDRF's ongoing support and look forward to continuing to work together to improve outcomes for individuals living with these debilitating diseases.

Photo: Nicholas Ross Chairman JDRF, Assoc Prof Michael Brown, Assoc Prof Lisa Ebert, Kerry de Lorme Executive Director JDRF, Kiah Elsworthy Grants Manager JDRF and Ms Nga Truong.



JDRF has pledged funding of \$300,000 over three years to develop these new therapies with the research being spear-headed by A/ Prof Lisa Ebert at the Centre for Cancer Biology at the Uni SA: Developing new immune-based therapies for brain cancer, specifically glioblastoma.

Glioblastoma is the deadliest form of brain cancer, yet current treatment options are largely ineffective. In response to this desperate need, we are developing a new treatment for glioblastoma, based on a revolutionary type of 'living drug' known as CAR-T cells. In this approach, T cells (part of our immune system) are isolated from a patient's blood and genetically engineered to give them cancer-killing activity.

Full team: Assoc Prof Lisa Ebert (pictured), Prof Michael Brown and Ms Nga Truong Research Assistant.

Past research funded by JDRF includes:

Paediatric traumatic brain injury. It is vital to take steps to prevent brain swelling in children to ensure their health and well-being. Assoc Prof Frances Corrigan is looking at a specific pro-inflammatory known as substance P which causes ongoing injury. Blocking its effects represents a novel mechanism for improving outcomes for head injuries in children. JDRF pledged a total of \$214,500 over 3 years to this project, which concludes this year. The importance of our youth's health at a critical stage in brain development is paramount to better outcomes.

Likewise understanding the diseases that effect our older generation is as important, especially with the increase in occurrences of Parkinson's Disease (PD). Assoc Prof Lyndsey Collins-Praino, Head of the Ageing & Neurodegenerative Disease Laboratory at the University of Adelaide, is heading a project looking at the evolution of decision-making impairment in PD funded for 3 years totalling \$219,687. This research will also attempt to identify genes that may predict risk and progression of cognitive decline in PD.

JDRF also provided a five-year grant to cover the costs for the establishment of research activities between 2013 - 2017 at the Neurosurgery Department, Women's and Children's Hospital. Funding provided salary for a research assistant to setup a database of all children with surgical diseases of the brain and spinal cord allowing for early identification of patterns and trends of treatment outcomes. Assoc Prof Amal Abou-Hamden aimed to encourage and help other units around the country to follow allowing further collaborations at national level as well as international.

NRF Chair of Brain Tumour Research Prof Stuart Pitson

University of South Australia & SA Pathology Centre for Cancer Biology



Prof Stuart Pitson: Molecular Therapeutics Laboratory, Centre for Cancer Biology

It has been another busy and productive year in brain tumour research at the Molecular Therapeutics Laboratory at the Centre for Cancer Biology (an alliance between the University of South Australia and the Central Adelaide Local Health Network). Developing advanced resources to catalyse brain tumour research in South Australia has always been one of our core goals. We have had strong success in this area by developing some of the most advanced preclinical models of adult glioblastoma available in the country. In the last year, these models have not only been critical for our own glioblastoma research, but have also supported four other local research groups in their quests to understand glioblastoma and develop new therapies. Indeed, Drs Briony Gliddon and Melinda Tea from our laboratory were part of two separate teams, led by Associate Professor Guillermo Gomez and Dr Tessa Gargett, that recently received over \$3 million in research funding from the Federal Government via the National Health and Medical Research Council to develop new therapeutic approaches to treat glioblastoma.

Building on this success with adult glioblastoma, in the last year we have begun a new initiative to develop advanced resources in paediatric brain tumour research here in South Australia.

This work has a particular focus on medulloblastoma, which is one of the most common childhood brain tumours, and diffuse midline glioma, which has no effective therapies and terrible outcomes for the young patients it inflicts. Working with Professor Jordan Hansford, a paediatric oncologist from the Women's and Children's Hospital and SAHMRI, and supported by the NRF, the Wilkins Family Foundation and the Harvey Foundation, we have begun to establish advanced preclinical models of these diseases. We hope the availability of these models in Adelaide will catalyse local researchers to focus on these diseases.

I wish to extend our sincere appreciation to those that have provided incredible support for our research through donations of research equipment. Donated in memory of Felicity Plew, we are honoured to now possess "Felicity's Countess", an automated cell counting platform that allows for the rapid analysis of brain tumour cells that will greatly accelerate our drug discovery efforts.

This year we have been fortunate to host Stella Russo, a Bachelor of Health and Medical Science student from the University of Adelaide, who is undertaking a research placement in our laboratory supported by an NRF Research Vacation Scholarship. Stella is currently spending eight weeks in the laboratory learning about and conducting brain tumour research by examining how new drugs might be able to enhance immunotherapies for glioblastoma.

A handwritten signature in black ink, appearing to read 'Stuart Pitson', written in a cursive style.

Prof Stuart Pitson
NRF Chair of Brain Tumour Research
Centre for Cancer Biology - University of South Australia

Brain Tumour Research Molecular Therapeutics Laboratory

University of South Australia & SA Pathology Centre for Cancer Biology



RESEARCHERS: Dr Briony Gliddon, Prof Stuart Pitson & Dr Melanie Tea
FUNDING: Wilkins Family Foundation - Sandy & Michael Wilkins
Funding: \$75,000 (over 3 yrs)
Harvey Foundation \$25,000
Total project funding \$100,000 (2023 -2025)
TITLE: Developing advanced preclinical models of paediatric brain cancers.

PROJECT: Develop a living paediatric brain cancer biobank through processing of fresh tumour material (resected from children with brain tumours as part of their normal therapy) into patient-specific: 1. cell lines, 2. organoids & 3. patient-derived advanced preclinical models of paediatric disease. Our focus will be on malignant paediatric brain tumours: medulloblastoma, high grade glioma (including anaplastic astrocytoma, diffuse midline glioma (DMG/DIPG) and glioblastoma) and ependymoma. The development and use of these models will facilitate better understanding of the drivers of tumour growth and resistance to current therapies, enable the discovery and evaluation of new therapies, and translation of this research into the clinic.



RESEARCHER: Dr Briony Gliddon
FUNDING: \$50,000 (Pete's Army - In Memory of Pete Cutting)
TITLE: Developing a humanised preclinical model of glioblastoma for drug discovery and improved translational research.

PROJECT: Preclinical models that recapitulate key characteristics of glioblastoma, namely invasiveness, heterogeneity, immune microenvironment, and intact blood-brain-barrier are essential for successful clinical translation of research. The immune system is fundamental to how glioblastoma responds to treatments, however, preclinical models that mimic interactions between the immune system and glioblastoma tumour are limited. To overcome this, we propose to develop humanised preclinical model of glioblastoma which will produce human immune cells and which harbour brain tumours derived from patient glioblastoma cells. This will generate superior preclinical models of glioblastoma, leading to improved translation of research and better patient outcomes.



RESEARCHER: Dr Melanie Tea
FUNDING: Countess (Automated Cell Counter) In Memory Felicity Plew
TITLE: Rapidly analyses the number of cancer cells in a sample, including drug screening assays.

PROJECT: How does brain tumour research benefit from this machine? We are developing new approaches to treat brain tumours. Counting of cancer cells is essential for many experiments in the laboratory. Currently, this is mainly done manually, taking considerable research time. This machine would accelerate our research by automatically counting cancer cells in a sample in seconds, with high accuracy, making experiments more reproducible and freeing up valuable researcher time to conduct more brain tumour research.



RESEARCHER: Dr Nirmal Robinson
FUNDING: \$49,780
TITLE: Targeting “don’t eat me signal” (CD47) and metabolism to treat glioblastoma

PROJECT: Glioblastoma has been untreatable because it invades other regions of the brain, becomes resistant to currently available therapies and can escape elimination by the immune system. We have identified that GBM cells produce a ‘don’t eat me’ signal known as CD47 to escape from immune cells and which aids migration and invasion. Furthermore, loss of CD47 increases mitochondrial (energy power house of cells) function and metabolism. Therefore, we propose to preclinically evaluate a combination treatment strategy using an antibody that targets CD47 and an inhibitor of mitochondrial metabolism.



RESEARCHER: Dr Chloe Shard
FUNDING: \$46,950 (In memory of Rick Schembri)
TITLE: Targeting glutamine metabolism as a new therapeutic avenue for glioblastoma

PROJECT: Glioblastoma is the most aggressive form of brain cancer, with a median survival rate of 15 months, which has not changed for decades. Despite surgery, radiotherapy and chemotherapy treatment, tumour recurrence occurs in almost every case of glioblastoma, highlighting a desperate need for new treatment options. Tumour cells have a high demand for energy, often fuelled by metabolites supplied by the surrounding healthy brain cells. This project aims to identify new therapeutic targets in aggressive glioblastoma tumours by inhibiting supportive metabolic networks in the microenvironment to improve brain cancer patients’ survival.



RESEARCHER: Dr Manjun Li
FUNDING: \$50,000
TITLE: Improving GD2-targeting immunotherapy for glioblastoma

PROJECT: GD2 is a promising tumour marker for CAR T cell immunotherapy for brain tumours, and indeed, we have contributed to the establishment of two clinical trials using GD2-targeting CAR T cell immunotherapies for treatment of adults with glioblastoma and children with diffuse midline glioma. Our preclinical findings, however, suggest that enhancing GD2 expression in the tumour is likely to improve clinical responses to this therapeutic approach. Thus, this proposal examines approaches to do this, to improve GD2-targeting CAR T cell immunotherapies for glioblastoma. Successful outcomes could also impact the therapy of children with diffuse midline glioma and forms of medulloblastoma.

Brain Tumour Research

Central Adelaide Local Health Network



RESEARCHER: Prof Michael Brown
FUNDING: \$50,000
TITLE: Improving immunotherapy for aggressive brain cancer using cytokine boosting

PROJECT: The most common and most lethal aggressive adult primary brain cancer is glioblastoma multiforme (GBM). Standard treatment using surgery, radiotherapy, and chemotherapy is lengthy and modestly extends survival but breeds treatment-resistant disease that almost always causes death. The infiltrative and invasive nature of GBM defeats conventional treatment attempts because removing all disease destroys too much normal brain. Genetically engineering a patient's own lymphocytes against GBM to make chimeric antigen receptor (CAR)-T cells is a promising new therapy. However, GBM's hostile microenvironment limits the effectiveness of CAR-T cells. We have discovered two ways that may overcome this limitation of CAR-T cell therapy.



RESEARCHER: Assoc Prof Lisa Ebert
FUNDING: \$50,000 (In Memory Patrick Tocaciu)
TITLE: CAR-T cell therapy for glioblastoma: exploiting the blood vessel pathway

PROJECT: Glioblastoma is the deadliest form of brain cancer, yet current treatment options are largely ineffective. In response to this desperate need, we are developing a new treatment for glioblastoma based on a revolutionary type of 'living drug' known as CAR-T cells. Here, we aim to maximise the ability of CAR-T cells to enter brain tumours. 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.



RESEARCHER: Dr Tim Webber
FUNDING: \$49,751
TITLE: Developing an instrumented preclinical model of delayed cerebral ischaemia following subarachnoid haemorrhage

PROJECT: Subarachnoid haemorrhage (SAH) is a type of stroke. It occurs when a blood vessel in the brain is weakened and ruptures leading to bleeding around, and into the brain. One in three people who have this type of stroke will die, and those that survive often have permanent brain injury. There are few treatments known to be effective for reducing mortality and improving long term outcomes following SAH. Our program will develop a world-first preclinical model of SAH, providing the platform for preclinical trials of novel therapies and a pathway for rapid translation to human studies.

\$3.2M Federal Funding WIN for NRF seed funded researchers



Assoc Prof Guillermo Gomez and Dr Tessa Gargett

Groundbreaking glioblastoma research to improve treatment options feature in the Uni SA's latest National Health and Medical Research Council (NHMRC) Ideas research grants.

Glioblastoma is the most frequent and lethal type of brain cancer. Invasion of glioblastoma tumour cells into the surrounding healthy brain tissue escape surgery and are the main cause of therapy resistance and tumour recurrence in patients.

Assoc Prof Guillermo Gomez (\$2.12 million) - Harnessing an unexpected new role of the CD47:SIRPA axis to target glioblastoma invasion

This project will investigate how brain tumour cells reprogram to invade the surrounding healthy brain tissue and suppress immune activity. We will also investigate the mechanisms by which tumour cells become invasive and exploit new vulnerabilities for the development of more effective anti-cancer therapies for glioblastoma.

Our results will lay the foundations for new treatments for brain cancer that reduce tumour cell invasion and facilitate immunotherapy to prevent tumour recurrence.



Dr Tessa Gargett (\$1.14 million) - Micro-targeting IL-2 delivery to remodel the glioblastoma microenvironment

Fortunately we are in the midst of a technological revolution when it comes to medical science. This project will take the very latest developments in cell and gene therapy and apply them to the challenge of treating brain cancer.

We are currently testing CAR-T therapy in glioblastoma and diffuse midline glioma patients. In this project we will bring a new gene technology to Australia that allows direct delivery of biological therapies into the brain tumour. We will combine this with our CAR-T cell therapy with the aim of achieving meaningful control of tumour growth.

In collaboration with the University of Cambridge, UK, we will develop a gene therapy that produces small molecules known as cytokines only within the brain tumour environment. Cytokines such as IL-2 provide growth and survival signals for CAR-T cells and should improve their function in the brain. We will test this in numerous preclinical models in combination with our existing CAR-T therapy. We will search for combinations and doses that achieve lasting control of tumour growth, without toxicity.

Equipment: CliniMACS Plus Funding: \$50,000

A medical device that performs closed system cell selection for cell therapy manufacturing. The system ensures purity of the final cell therapy product so that it can be safely administered to patients and is TGA-compliant.



THANK YOU!

Grey May raises over \$86,000



THANK YOU for supporting our **Go Grey in May** campaign to raise brain tumour awareness and funds for vital brain tumour research!

We would like to **thank everyone who donated, fundraised, sponsored, bought a badge or star of hope, shared their story, attended an event, participated in our online auction, or got involved in any way to help spread awareness** and Go Grey in May!

100% of your donations help fund research into better treatments for brain tumours and ultimately a cure.



Thank you to our wonderful sponsors Jones Radiology, for sponsoring the entire month of Grey May! Including donating \$10 from every brain tumour MRI scan



A huge thank you to all our brain tumour warriors who shared their personal stories to help raise brain tumour awareness, including our Grey May video series which can be viewed on youtube.



We held a very successful Brain Tumour Research Update and Lab Tour in collaboration with Brain Tumour Research SA at the UniSA Centre for Cancer Biology. UniSA even lit up in support of Grey May. With a fantastic variety of speakers and presentations on everything from clinical trials to patient support and the importance of dental health during chemotherapy. We received lots of wonderful positive feedback from attendees.



Thank you Radiology SA for supporting the event which included donating \$10 from every brain tumour MRI scan performed in SA during May.



Thank you to all our wonderful prize donors and everyone who participated in our Grey May Online Auction.

All of the presentations are still available to watch on our website and YouTube



12 months ago Brave for Dave began a petition to establish South Australia's first Brain Tumour Support Coordinator to assist SA patients and families. This has now become a reality and we welcome Hayley Henley to the community.

None of this would be possible without your support, so from the bottom of our hearts thank you.

NRF Paediatric Research Central Adelaide Health Network and Flinders Health & Medical Research Institute



RESEARCHER: Prof Michael Brown
FUNDING: \$50,000
TITLE: Making immunotherapy for childhood brain cancer more effective

PROJECT: Diffuse intrinsic pontine glioma (DIPG) is the most common, aggressive and lethal of childhood brain cancers. The infiltrative and invasive nature of DIPG in the brain's 'junction box' limits the effectiveness of potential treatments. Genetically engineering a patient's own white blood cells against DIPG to make chimeric antigen receptor (CAR)-T cells is emerging as a promising new therapy. However, CAR-T cell therapy is not effective in all DIPG patients and may induce adverse conditions. We have discovered a method that may overcome this limitation of CAR-T cell therapy.



RESEARCHER: Assoc Prof Jordan Hansford
FUNDING: \$47,551 (Total project funding \$150,000 (2024 - 2026))
TITLE: South Australian Paediatric Brain Cancer Biobank

PROJECT: We wish to develop key facilities to expand paediatric brain cancer research in South Australia. To do this it is essential to establish a comprehensive, well annotated and run paediatric brain cancer biobank that will foster high quality discovery and clinical research. It is particularly important to have this paediatric brain cancer biobanking capacity established in South Australia as we move toward proton therapy for children with brain tumours at SAHMRI and the Bragg Centre for Proton Therapy and Research. We are seeking support to establish this important initiative.



NEURODEGENERATION RESEARCH
RESEARCHER: Assoc Prof Larisa Bobrovskaya
FUNDING: \$49,848
TITLE: Establishing the role of orexin neurons in Parkinson's biology and symptoms

PROJECT: In our laboratory we investigate the role of specific neurons (called orexin neurons) in PD. The orexin neurons can influence multiple functions throughout the body including motor control, sleep-wakefulness, memory, cognition, mood and gastrointestinal function. Orexin neurons are damaged in PD, however, our knowledge about the causal contribution of orexin neurons in PD is very limited. Thus, further research is urgently needed.

Brain Tumour Research SAHMRI & Flinders Health and Medical Research Institute



South Australian Health and Medical Research Institute (SAHMRI)

RESEARCHER: Assoc Prof Cedric Bardy

FUNDING: \$47,551

TITLE: Comparing the function of lab-grown human neurons to the adult human brain

PROJECT: Human induced pluripotent stem (hiPSC) cells have the capacity to mimic the genetic landscape of the human brain across neurodevelopment. Moreover, hiPSC-derived monolayer cultures have demonstrated that key neurodevelopmental features can be recapitulated in-vitro. This has enabled researchers to evaluate neurological disorders across neurogenesis and recapitulate electrophysiological phenotypes. However, whether such lab-grown brain models recapitulate biophysical properties specific to humans is unknown. Therefore, our project aims to systematically compare the intrinsic firing features of hiPSC-derived neurons with ex vivo cortical human biopsies. If successful, this project will advance the relevance of preclinical models for neurological disorders and ultimately improve bench-to-clinic translation.



Australian Bragg Centre for Proton Therapy and Research (SAHMRI 2)

RESEARCHER: Assoc Prof Peter Gorayski

FUNDING: \$47,790

TITLE: Paediatric Radiation Therapy with AI-based Segmentation for Enhanced Treatment Planning (PRAISE)

PROJECT: The proposed project aims to improve the treatment of paediatric brain cancer using advanced artificial intelligence (AI) technology. We are developing a system that will help doctors accurately identify and outline the critical areas of the brain during radiation therapy planning. By leveraging AI algorithms and analysing large datasets of brain images with tumours, we aim to automate and optimise this process, ensuring precise treatment targeting while minimising side effects. This innovative approach has the potential to enhance the effectiveness and safety of treatment, leading to better outcomes for children with brain cancer.



Flinders Health and Medical Research Institute

RESEARCHER: Prof Simon Conn

FUNDING: \$100,000 (Perpetual)

TITLE: Precision medical approaches for the treatment of gliomas with cannabinoids

PROJECT: Glioblastoma (GBM) is the most common and lethal type of brain cancer in both children and adults. Despite advances in detection and treatment the survival rate (less than 5%), has not improved in the past 30 years. Therefore, more effective therapies are desperately needed to extend quality patient survival. Our research team has preliminary evidence that the active compounds of medicinal cannabis, known as phytocannabinoids, are able to kill GBM cells. This project aims to provide the necessary preclinical evidence to support the translation of cannabis therapy to GBM patients by identifying which compounds are the most effective, which patients are most likely to respond to this treatment and how much of the treatment should be prescribed. This innovative and personalised approach, called precision medicine (right drug) and dosing (right amount), using novel cannabis extracts might constitute a revolutionary anti-cancer therapy.

NRF Scholarship Recipients

Fostering the next generation of brilliant minds



Chris Adams Scholarship

Eunwoo (Chris) Nam – Enhancing CAR-T cells to treat glioblastoma more effectively

Glioblastoma (GBM) is the most common and aggressive type of malignant brain tumour. In this project, we aim to equip CAR-T cells with chemokine receptors that match those chemokines found in GBM. This is expected to enhance the ability of CAR-T cells to specifically migrate to the GBM tumour and thus increase the number of CAR-T cells fighting against cancer cells.

Photo: Martin Adams, Assoc Prof Lisa Ebert, Eunwoo (Chris) Nam, Prof Michael Brown & Cherrie Adams.



Strong Enough to Live PhD

Bryan Gardam – Investigating the dendritic cell – T cell axis in glioblastoma

Our research aims to understand which dendritic cells are reduced in GBM, and find ways to fix this problem. We hope to investigate ways to target the dendritic cell – T cell axis to make a difference in the outcomes for people with glioblastoma.

The project investigates white blood cells called dendritic cells which detect foreign substances and present them to other white blood cells called T cells. T cells are the soldiers of the immune system that, once primed by dendritic cells, launch an adaptive immune response.

Photo: Cherrie Adams, Assoc Prof Lisa Ebert, Bryan Gardam, Prof Michael Brown & Martin Adams.



Dione Gardner-Stephen – New treatment options for the childhood cancer medulloblastoma

Medulloblastoma is a devastating childhood brain cancer, it is a difficult disease to study due to its embryonic origins. This project aims to establish a reliable method for maturing human induced pluripotent stem cells into cerebellum-like organoids for systematic study. Using powerful bioinformatics techniques to analyse our models and comparing patient data informing our understanding of how and why medulloblastomas arise.

Photo: Cherrie Adams, Assoc Prof Quenten Schwarz, Dione Gardner-Stephen & Martin Adams.



Richard BATTERY Glioblastoma Research Vacation Scholarship

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.

Photo: Kerry BATTERY, Samuel Wallis & Dr Nirmal Robinson.

NRF Vacation Scholarship

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 (absent no photo available).

Abbie Simpson Clinical Fellow

Dr Adam Wells



The Clinical Neurosurgical Research Group has continued to grow over 2023/2024 with the support of the Neurosurgical Research Foundation. Late last year, I was reappointed as the NRF 2023-2026 Abbie Simpson Clinical Fellow enabling the advancement of our research output for the years to come. This funding has allowed ongoing appointment of a dedicated full time research officer, Miss Lola Kaukas, to assist in managing the extensive breadth of research activities within the group.

Encouraging and facilitating student engagement through research experiences, higher degrees by research and early career research remains one of our priorities. This year, we have welcomed multiple returning and new research students to the group, including Mr. Abhiram Hiwase (PhD), Mr. Jesse Ey (PhD), Dr. Nicholas Candy (PhD), Dr. Vigneshwar Ventakesh (Masters), Dr. Danny Biju (Masters), Mr. Samuel Diprose (undergraduate research student) and Mr. Linyi Zhi (undergraduate research student). Student projects span broad areas of interest, from the pre-hospital and neurosurgical management of traumatic brain injury, to coagulopathy in common neurosurgical conditions such as chronic subdural haematomas (cSDH).

The past 12 months has seen ongoing recruitment for our NRF supported observational clinical study, ROTEM TBI. To date, we have recruited over 200 patients into the project to investigate coagulopathy in moderate to severe traumatic brain injury. ROTEM testing provides detailed information regarding the quality of blood clots in critically unwell patients. Our preliminary results report that ROTEM detected coagulopathy strongly predicted lethal head injury in patients with TBI, denoting a clinical

advantage for ROTEM use in this population.

In 2023 we commenced two highly relevant clinical studies investigating coagulopathy in Chronic Subdural Haematoma (cSDH). CSDH is an extremely common neurosurgical condition where aged blood products collect on the brain surface. This can exert life-threatening compression of the brain, and often requires surgical evacuation to resolve. For up to one third of patients who undergo surgical evacuation, their bleed will recur requiring further surgical management. Despite the rising prevalence of cSDH within our population, the factors associated with recurrent bleeding are not well characterised. Our studies “Pre-operative ROTEM in Elective Chronic Subdural Haematoma Evacuation (RISE)” and “Characterising Fibrinolysis in Chronic Subdural Haematoma (FICS)” employ ROTEM testing and haematoma fluid analysis to investigate the role of coagulopathy in cSDH pathophysiology. RISE aims to evaluate the use of ROTEM coagulopathy detection in these patients to ascertain if otherwise undetectable coagulopathy is contributing to cSDH development and recurrence. FICS aims to elucidate the role of excessive fibrinolysis, a form of coagulopathy, in cSDH pathophysiology by collecting and analysing samples of evacuated haematoma fluid and membranes for key coagulation mediators. We are engaging with our colleagues at The University of Cambridge and The Cambridge University Health Trust based in Addenbrokes Hospital, UK, to enable international collaboration of our pivotal cSDH research. To date, we have recruited over 40 patients from the RAH Department of Neurosurgery to both studies. This work has generated a biobank of coagulation data and haematoma fluid and membrane samples for proteomic analysis, and we anticipate commencing sample and data analysis in collaboration with SA Pathology and SAHMRI in the near future.

Moving forward, we are expanding our work on cSDH with a retrospective audit of anti-platelet agent (APA) washout practices in patients requiring surgical evacuation. Cessation of APA upon cSDH is essential for safe medical and surgical management, however, the safest period of pre-operative cessation remains controversial. This audit aims to evaluate APA washout periods within our department and examine their relationship with relevant clinical outcomes such as cSDH recurrence, length of stay and ongoing complications. This work will be completed by Masters student Dr. Vigneshwar Ventakesh.

Abbie Simpson Clinical Fellow & Scholarships

In collaboration with Monash University, we remain a recruitment site for the international BONANZA multi-centre randomised clinical trial. This work is examining the implementation of an improved neuro-intensive care management protocol guided by continuous brain tissue oxygenation monitoring. We also continue to work closely with the SANTB through tissue collection and donation. This collaboration enables the provision of incredibly valuable fresh and frozen tumour samples to researchers to support vital research in the development, detection, and treatment of neuro-oncological disease.

Our work, kindly supported by the NRF, has enabled ongoing collaborations with multiple research groups and institutions throughout Australia and internationally. We acknowledge the hard work and expertise of our collaborators including the RAH Intensive and Critical Care team, the RAH Trauma Service and Emergency Department, MedSTAR Retrieval Service, the University of Adelaide, the University of South Australia, Flinders University, Flinders Medical Centre, Monash University, International University of Ecuador, and the University of Cambridge in contributing to this life-saving research.



Dr Adam Wells
Neurosurgeon, Royal Adelaide Hospital



Stroke Research Royal Adelaide Hospital

RESEARCHER: Ms Lola Kaukas

FUNDING: \$25,980

TITLE: Characterising Local Fibrinolysis in Chronic Subdural Haematoma Fluid (FICS)

PROJECT: Chronic Subdural Haematoma (cSDH) is an extremely common neurosurgical condition in which aged blood products collect on the brain surface beneath the skull, typically requiring surgical evacuation. CSDH prevalence is rising with our ageing population, and cSDH surgical evacuation is predicted to become one of the most encountered neurosurgical procedures by 2030. Up to 1/3 of patients undergoing cSDH evacuation will require repeat surgery due to recurrent bleeding, however, the pathways contributing to this are poorly understood. This study seeks to understand the haemostatic mechanisms that contribute to cSDH development, recurrence, and related surgical outcomes.



Traumatic Brain Injury Research University of Adelaide

RESEARCHER: Mr Abhiram Devendra Hiwase

FUNDING: \$49,660 (John Crowley Memorial Scholarship)

TITLE: Could Rotational Thromboelastometry (ROTEM) be a New Theragnostic Tool in the Management of Severe Traumatic Brain Injury

PROJECT: Coagulopathy, or impaired blood clotting, complicates TBI. It worsens bleeding in the brain & confers a 9-fold increased risk of death. Current coagulopathy detection methods are slow & potentially inaccurate. ROTEM, a rapid point-of-care study, shows promise for precise & timely coagulopathy diagnosis. However, there is a lack of data to support its routine use in patients with isolated severe TBI. Our recent findings have revealed that abnormal ROTEM profile is associated with worse outcomes. We aim to investigate the underlying mechanisms & develop guidelines for utilising ROTEM in TBI management.

NRF Executive Officer Ginta Orchard



Our 60th celebration year we have had a lot to celebrate. Funding more lifesaving and life-changing neurosurgical research than ever with \$1.3m to 34 research projects which have all been featured in this report. I attribute our success to you, our valuable donors, supporters, volunteers, sponsors and researchers.

In these 60 years we have fostered many valuable partnerships which have been instrumental in this success. I would particularly like to thank some of the following amazing NRF long-term supporters:

James & Diana Ramsay Foundation who have to date donated over \$1million to various critical NRF research projects, you can read the full details on page 10.

The Wilkins Family Foundation who have funded research projects and equipment since 2015, you can read about the latest brain tumour research funded on page 13.

Strong Enough to Live has fundraised for Scholarships, PhDs and equipment for brain tumour research in memory of their son Chris Adams since 2015. Meet the latest 3 recipients on page 20.

Brave for Dave is one of our newest supporters who has come on board in memory of Dave who died in 2022 from a glioblastoma. Chloe, his wife and sons Duke and Banks continue his legacy for change for people with a brain tumour through advocating for a SA Brain Tumour Support Nurse. This nurse will start at the Royal Adelaide Hospital in June 2024.

Other valuable Scholarships set up in memory of loved ones are the Richard Buttery NRF Glioblastoma Research Vacation Scholarship and Tony Walsh Traumatic Brain Injury (TBI) Research Vacation Scholarships. This year's recipients are listed on pages 8 and 20.

It would not be a 60th year without a Sparkling Dinner, which we hosted in August with over 400 people attending. This event would not have been at all possible without our amazing staff, supporters and volunteer team who helped me put this together, full details and sponsor acknowledgements can be found on pages 24 & 25.

Thank you!

Supportive NRF Staff Kimberley Cottell, Kerry Buttery, Matiss Reinhardts.

Amazing Volunteers (recruiting prizes and on the night): Jessica Anderson, Kat Nehme, Di Floreani, Daniel White, Patsy Meehan, Markus Orchard, Caitlin Zilm, David Orchard, Ints and Margota Pukitis, Lilita Daenke, Rudis Dancis, Andrew Franze, Barbie Franze, Janvi Shah and Erik Ruehl.

Key Supporters Emma van Kekem (MC), past Patron Carolyn Hewson AO (Speaker), past President Glenn McCulloch (Speaker) and entertainment by the Velvet Soap Opera Company led by Kate Campbell who sung in memory of cousin Hannah Philbey.

Thank you to everyone who has been part of the NRF 60 year family and journey. Together we are improving treatments, improving outcomes and fostering increased research and collaboration. I am looking forward to working with you all on the next 60 years of funding lifesaving neurosurgical research.

A handwritten signature of Ginta Orchard in black ink.

Ginta Orchard
NRF Executive Officer



NRF Celebrates 60 Years

60th Sparkling Dinner raises \$195,000



In 1963, from humble beginnings, the NeuroSurgical Research Foundation was formed by Dr Trevor Dinning and Prof Donald Simpson - two dedicated neurosurgeons, with the objective of funding research into the cause, diagnosis, prevention and treatment of disease or malfunction of the brain, spine and nerves. Over the years, we have witnessed groundbreaking discoveries that have transformed the landscape of neurosurgery, enabling us to offer new hope and better outcomes to patients and their families. From pioneering minimally invasive techniques to harnessing the power of neuroimaging, our collective endeavours have pushed the boundaries of what's possible in treating neurosurgical disorders.

Since 1963 the NRF has directly funded \$12 million in neurosurgical research and leveraged these funds to attract \$23 million in Federal and Industry funding. The total benefit to SA neurosurgical community \$35 million. The NRF Sparkling 60th Celebration - our most dazzling & well attended event yet with over 430 people coming together in support. Together, thanks to your amazing efforts we raised \$195,000 for lifesaving neurosurgical research.

A big thank you from Team NRF to all those who attended, supported and volunteered their time. The highlight was the amazing tunes provided by the one and only Velvet Soap Opera Company which saw many people hitting the dance floor. Without our generous sponsors, the night would not have been possible,

Our tremendous drinks & fundraising sponsors provided the best SA has to offer:

- Coopers beers including the new Australian Lager
- Patrick of Coonawarra selection of wines
- Sidewood Estate Wine Wall
- 23rd Street Distillery gins for cocktails on the night

Thank you to all 110 prize donors for making the fundraising possible.





Gold Sponsor



Silver Sponsors



Adelaide Hospital



The Memorial Hospital by ACHA Health

Bronze Sponsors

Morgan Stanley



NRF Life Members Honour Board

NRF LIFE MEMBERS

Helli Campbell
Richard Fewster
Glenn McCulloch
Robert Searcy

Richard Campbell
Derek Frewin AO
Robert Neill
Mel Zerner

Francis X Donlan
Carolyn Hewson AO
Brian North AO

STAR OF THE FOUNDATION (\$1,000,000+)

James & Diana Ramsay Foundation

FRIENDS OF THE FOUNDATION - PLATINUM (\$500,000+)

John Crowley Scholarship

SA Police - Ride Like Crazy

FRIENDS OF THE FOUNDATION - DIAMOND (\$250,000+)

Strong Enough to Live

Wilkins Family Foundation

FRIENDS OF THE FOUNDATION - GOLD (\$100,000+)

June Bowman
Harvey Foundation

Coopers Brewery Foundation
Jody Koerner

Anthea Dinning & Nadia Kingham
Jones Radiology

MAJOR BENEFACTORS - SILVER (\$50,000+)

Barbara Kelley & Family
Francis X Donlan
Patrick of Coonawarra

Fred Caruso
Brian & Sue North

Jo Cooper
Fred & Marina Pascale

MAJOR BENEFACTORS - BRONZE (\$25,000+)

Brave for Dave
Peter & Roslyn Griffiths
Pete's Army
Richard Turner
The University of Adelaide

Calvary Adelaide
Letcombe Foundation
Rick Schembri
Running for Richard

CMV Foundation
Memorial Hospital
Antony & Mary Louise Simpson
Nick & Anna Vrodos

BENEFACTORS (\$10,000+)

Adelaide Brain Tumour Support (ABTS)
Simon Fahey
LifeHealthCare
Glenn McCulloch
Picnic for Carmel
SANTOS
Tony Tony Tony
Mel Zerner

Australian Executor Trustees
Harris Foundation
Medtronic
NuVasive
Santosh Poonnoose
Sarah Constructions
Walk for Phil

Coopers Brewery
Tyler Fuller
Gett'n Wiggy
Frank & Margaret O'Neill
Radiology SA
Shimmi for Immi
William Buck

BENEFACTORS (\$5,000+)

Margaret Dingle
Ginta Orchard
Richard & Susan Simpson

Cassandra Hewett
Morgan Stanley

ICON
Pete ♥ Pete

AMBASSADORS

Cherrie Adams
Kerry Buttery
Chloe Drogemuller-Fiebig
Chelsea Dawn Fuller
Gross & Family
Cecilia Pascale
Matt Rowett
Rosel Stokes
Ella Vaccaro
Dean Williams

Jessica Anderson
Alicia Critchley
Casey Kay Fitzhardy
Tyler Fuller
Bethwyn Levi
Allison & Lili Pearson
Simon Schwerdt
Natalia Thompson
Tarnya van Driel

Charles Brice
Pam Downward
Di Floreani
Lucinda Gregory
Toni McArthur
Patrick Renner
Lauren Spear
Allys Todd
Kristen Wilkins & Family

Government House Reception

NRF supporters acknowledged for service at Reception at Government House Adelaide.

A group of dedicated supporters of the NeuroSurgical Research Foundation (NRF) were thanked for their service by Her Excellency the Honourable Frances Adamson AC, Governor of South Australia, and Mr Rod Bunten, at a Reception held at Government House Adelaide on Wednesday 7th February 2024.

This reception acknowledged the outstanding contributions of a number of personal, community, and corporate benefactors who have contributed to the success of the Foundation in 2023, the NRF's 60th Celebration year. NRF President Dr Nick Vrodos congratulated the award recipients and corporate sponsors and thanked them for their support.

The full list of award recipients is below:

Star of the Foundation - \$1,000,000+ James & Diana Ramsay Foundation

Friend of the Foundation - Platinum \$500,000+ John Crowley Scholarship

Friend of the Foundation – Diamond \$250,000+ Strong Enough to Live

Friend of the Foundation – Diamond \$250,000+ Wilkins Family Foundation

Major Benefactor - Silver Donations \$50,000+ Fred Caruso (pictured below)

Major Benefactor - Silver Donations \$50,000+ Marina & Fred Pascale

Major Benefactor - Silver Donations \$50,000+ Patrick of Coonawarra

Major Benefactor - Bronze Donations \$25,000+ Peter & Roslyn Griffiths

Major Benefactor - Bronze Fundraising \$25,000+ Running for Richard

Major Benefactor - Bronze Fundraising \$25,000+ Brave for Dave

Benefactor - Fundraising \$10,000+ Tyler Fuller

Benefactor - Fundraising \$10,000+ Tony Tony Tony

Life Membership Glenn McCulloch

Prof Donald Simpson AO 10 Years Service Award Anthony Johnson



Dr Nick Vrodos, Fred Caruso, Hon Frances Adamson AC.



NRF award recipients, Hon Frances Adamson AC, Mr Rob Bunten.

THANK YOU!

Community Fundraising



Adelaide Brain Tumour Support Group Christmas Lunch



Archer Street PhysioCentre - Grey May Patrick Renner Fundraiser



Brave 4 Dave - Riverland Clash In memory of Dave Fiebig



Gett'n Wiggy In memory of Denise Knutsen. Fundraisers Sarah Neal, Katie Weeks and Steve Johnstone



Hair Cut for Nannou Michael Imbrogno Fundraiser



Morgan Stanley Golf Day



NRF 2024 Calendar Sally Lemon Fundraiser



Richard Schembri In memory - Monster Run



Ride for a Remedy Jo Guidice Fundraiser



Running for Richard Indiana Jones Movie Premier



The Big Ride Tyler Fuller Fundraiser



Walk for Phil & Elliott Elliott Goodfellow Fundraiser also In memory Phil Matalone

Thank you to our other amazing community fundraisers!

Rose Perkins - 3km every day, **Richard Garcia** - Run for a Reason, **Phoebe's Seeds of Hope** In memory of Phoebe Smith, **Tarnya van Driel** - Grey May, **Nadia & Fantasia Family** - Brave for Dave.

Fundraising Supporting the NRF

The objective of the Foundation is directed towards funding research into the cause, diagnosis, prevention and treatment of disease or malfunction of the brain, spine and nerves and it is through the generosity of our supporters that we are able to continue this lifesaving work.

DONATIONS AND REGULAR MONTHLY PAYMENTS



The NRF relies on your generosity to continue to support vital neurological and neurosurgical research and to be able to donate equipment for both research and treatment.

Regular monthly donations are a great way to spread your giving throughout the year, and an annual statement summarising your donations will be delivered to you.

One-off donations and regular monthly donations can be made either online, at www.nrf.com.au, by clicking the "Donate Now" button, scan the QR code on this page or by completing the enclosed form.

GIFTS IN WILLS



Looking for a way to make your final wishes really count? Consider leaving a gift in your Will to the NeuroSurgical Research Foundation. To leave a gift in your Will to the Foundation, contact your solicitor, who will advise you of the required documentation. The correct full name to be listed in your will should read NeuroSurgical Research Foundation.

You can also leave a gift in your Will online and create a legally valid Will in as little as 15 minutes using Willed. Visit nrf.com.au/gifts-in-wills to learn more.

Thank you to the following for leaving a gift in their Will to the NeuroSurgical Research Foundation:

Basil Reginald Burke Phyllis Joan Crowley Ronald Graham Dalip Felicity Plew

IN MEMORIAM DONATIONS



In memoriam gifts are donations that may be made in lieu of sending flowers, or in memory of a loved friend, relative, or colleague. They are a positive and thoughtful way to honour the memory of a loved one. Family members are notified of all donors, and gifts are receipted and acknowledged promptly.

The NRF wishes to acknowledge the following In Memoriam donations received from families and friends in memory of their loved ones:

Chris Adams	Joshua Altmann	Mark Brenton Standley	Richard Buttery
Jeannette Corrigan	Peter Cutting	Richard Johnston	Julie Louise Mazzachi
Felice (Phil) Matalone	Jennifer Moloney	Kim Morris	Hannah Philbey
Felicity Plew	Lyn Sears	Rick Schembri	Phoebe Smith
Dustin (Dusty) Turner	Anthony (Tony) Walsh		

IN CELEBRATION & FACEBOOK FUNDRAISERS



Next time you're celebrating a birthday, anniversary, engagement, or special event, why not ask friends and family to skip presents and donate to lifesaving research instead?

The NRF wishes to acknowledge the following In Celebration donations received this year via our website and Facebook Fundraisers.

Cherrie Adams	Anthony Corrigan	Emma Hullah	Em Leigh Winterburn
Libby LibraWolf	Tammee Philip	Davi Robbins	Tarnya Van Driel
Lynn White			



SCAN ME

SCAN WITH YOUR PHONE CAMERA AND MAKE YOUR DONATION TO THE NRF TODAY!

NRF Team Neuro Raised \$22,670 in 2023



A big thank you to everyone who walked, ran and fundraised in this year's City to Bay, together you all raised an incredible \$22,670 for neurosurgical research. Contrasting to last years horrible windy and rainy weather, we welcomed a glorious sunrise to start our day of setting up and preparing for NRF Team Neuro's arrival at base camp in Wigley Reserve. Our wonderful volunteers, the Adams family (Strong Enough To Live) and Alan (Tony Tony Tony) were hard at work setting up and preparing for the runners to arrive.

This year we had 52 individuals and 4 teams who joined NRF Team Neuro remembering those lost to diseases such as brain cancer & traumatic brain injuries. 100% of all donations and fundraising will go directly to innovative new research.



Jones Radiology
A Clearer Picture



Special Mention Tasha Vickers (Jones)



Tony Tony Tony - In memory of Tony Walsh.
Christine Walsh, Angelique & Glen Smelt,
James, Kath & Allan Lovell and Rowena Holmes



Cecilia Pascale
Stadium Stomp & City to Bay



Pete's Army
In memory of Pete Cutting



Tom Willis - Running for Grossy
In memory of Tom Gross



Team Uni SA - Stuart, Olivia & Lachlan
Pitson, Briony Gliddon, Manjun Li, Mel
Tea, Sakthi Lenin and Suzie Shen

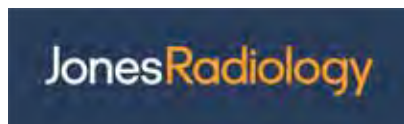


Tara Sparkes



Team Neuro Base Camp

Thanks to our long term sponsor



Financials 2023/24

The NeuroSurgical Research Foundation Incorporated. For the Year Ended 31st March 2024.

The NeuroSurgical Research Foundation Inc Statement of Comprehensive Income	2024 \$	2023 \$
NOTE		
INCOME - RESEARCH FUND		
Donations and Fundraising	1,014,217	1,563,606
Investment Income	166,578	9,343
TOTAL INCOME	1,180,795	1,572,950
LESS EXPENSES		
Research Grant Expenditure	4 1,057,412	401,898
SURPLUS (DEFICIT) RESEARCH FUND	123,383	1,171,052
INCOME - SCHOLARSHIPS FUND		
Donations and fundraising	---	200
Investment Income	43,044	795
TOTAL INCOME	43,044	995
Less expenses scholarship awards	---	(15,000)
SURPLUS (DEFICIT) SCHOLARSHIP FUND	43,044	(14,005)
INCOME - OPERATIONS FUND		
Investment Income	443,367	(125,280)
Government parental leave payments	15,889	---
Membership	673	665
TOTAL INCOME	459,929	(124,615)
LESS EXPENSES		
Administrative Expenses	287,675	251,843
SURPLUS (DEFICIT) OPERATIONS FUND	172,254	(376,458)
TOTAL COMPREHENSIVE INCOME	338,681	780,589

NOTES

Note 4 - RESEARCH GRANTS EXPENDITURE

NRF Chair of NeuroSurgical Research – Neurodegeneration	49,848	10,750
NRF Chair of NeuroSurgical Research – Stroke	58,834	35,195
NRF Chair of NeuroSurgical Research – SCI / TBI	164,160	80,465
University SA - Paediatric Research	47,790	29,475
University SA - Brain Tumour Research	321,891	216,033
Flinders University - Brain Tumour Research	100,000	31,000
Royal Adelaide Hospital – Stroke	80,731	---
Royal Adelaide Hospital – Brain Tumour Research	200,000	50,000
SAHMRI - TBI	50,000	---
Scholarships & PhD	72,194	---
University Adelaide - Equipment	93,080	---
Unallocated Research Grants	(181,116)	(51,020)
	1,057,412	401,898

STATEMENT OF CHANGES IN ACCUMULATED FUNDS

Year ended 31 March 2024	Research Fund	Scholarship Fund	Operations Fund	Total
Accumulated funds at beginning of year	1,805,719	181,753	3,817,700	5,805,172
Total comprehensive income	123,383	43,044	172,254	338,681
Accumulated funds at end of year	1,929,102	224,797	3,989,954	6,143,853
Year ended 31 March 2023	Research Fund	Scholarship Fund	Operations Fund	Total
Accumulated funds at beginning of year	634,667	195,758	4,194,158	5,024,583
Total comprehensive income	1,171,052	(14,005)	(376,458)	780,589
Transfer to Research Fund	---	---	---	---
Transfer to Scholarship Fund	---	---	---	---
Accumulated funds at end of year	1,805,719	181,753	3,817,700	5,805,172

Note 5	UN-ALLOCATED RESEARCH GRANTS PAYABLE	
Opening balance	249,213	300,233
Current year expense Unallocated research grants	(181,116)	(51,020)
Closing balance	68,097	249,213

Statement of Financial Position	Note	2024 \$	2023 \$
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CURRENT ASSETS

Cash and cash equivalents		487,059	658,648
Inventories		500	500
Receivables		1,476	5,224
Prepayments and accrued income		2,149	4,444
TOTAL CURRENT ASSETS		491,184	668,816

NON-CURRENT ASSETS

Office Equipment and Computer Software		886	1,256
Managed Investment Portfolio		5,788,205	5,101,493
Investments		27,209	338,378
TOTAL NON-CURRENT ASSETS		5,816,300	5,441,128
TOTAL ASSETS		6,307,484	6,109,943

CURRENT LIABILITIES

Payables		5,107	1,129
Un-allocated research grants payable	5	68,907	249,213
Income in advance		48,327	---
Accrued expenses		7,035	24,703
Provisions		35,065	29,726
TOTAL CURRENT LIABILITIES		163,631	304,771

TOTAL LIABILITIES		163,631	304,771
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NET ASSETS		6,143,853	5,805,172
TOTAL ACCUMULATED FUNDS		6,143,853	5,805,172

This financial report has been prepared in order to satisfy the financial reporting requirements of the Associations Incorporation Act 1985 (SA) and the Australian Charities and Not-for-profits Commission Act 2012. These pages are extracts from the Audited Financial Statement. If you require a full set of the Financial Statement, please contact Ginta Orchard - Hon Secretary by either phone (08) 8371 0771 or email ginta.orchard@nrf.com.au.

Thank you to Williams Buck for pro-bono audit services.





NeuroSurgical Research Foundation

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The NeuroSurgical Research Foundation acknowledges the traditional Country of the Kurna people of the Adelaide Plains and pays respect to Elders past and present.



SCAN WITH YOUR PHONE CAMERA AND MAKE YOUR DONATION TO THE NRF TODAY!