



NRF

NeuroSurgical Research Foundation



ANNUAL REPORT 2020/2021

NEUROSURGICAL RESEARCH FOUNDATION






With foresight and planning, the founders of the NeuroSurgical Research Foundation ensured that the foundation supports all administrative costs, ensuring 100% of your donations go to the valuable 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 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
-  Paediatric Neurosurgical Research
-  Neurotrauma:
 - Spinal Cord Injury
 - Traumatic Brain Injury
 - Concussion
-  Neurodegeneration:
 - Parkinson's disease
-  Vascular disease
 - Stroke
 - Ruptured 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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@NeuroSurgR



@neurosurgicalresearch

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







PRESIDENT'S REPORT

DR GLENN MCCULLOCH FRACS

Dr Glenn McCulloch FRACS
President

2020/2021 was a year that nobody will ever forget due to the onset of the COVID-19 pandemic, which has changed the way we all behave in our lives, communities, and workplaces. We sincerely thank you for your ongoing support. Your generous and ongoing donations enabled the NRF to continue its important work funding world-class neurosurgical research.

In this annual report you will find:

-  A summary of neurosurgical research at the University of Adelaide by Associate Professor Renée Turner, the NRF Director of Neurosurgical Research.
-  A summary of neurosurgical research at the University of SA by Professor Stuart Pitson, the NRF Chair of Brain Tumour Research.
-  A report from the Abbie Simpson Scholar, Dr. Adam Wells
-  Reports on neurosurgical research funded by NRF scholarships and scholarships in association with other organisations.

This has been my first year in the role of President of the NRF and it has been heart-warming to see the dedication of all involved. I would also like to welcome our new Board Members – Dr Santosh Poonnoose and Dr Xenia Doorenbosch - both are clinical neurosurgeons who will make their own special contributions to the future of the NRF.

One special feature in 2021 has been the launch of the TAR Dinning Memorial Scholarship on April 18, 2021 at Ayers House. This event took place in the 2021-2022 NRF Financial Year but it warrants mention now. The initiative was made possible by a significant donation from Nadia Kingham and Anthea Dinning, the daughters of one of the Founders of the NRF Dr TAR ("Jim") Dinning. Details of the Scholarship will be in next year's annual report.

There are many people to thank for the successful activities of 2020/2021 – 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 in 2021/2022 and beyond.

BOARD & ADVISORY MEMBERS



BOARD MEMBERS 2020/21



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Ms Nadia Kingham



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Mr Stephen White



Dr Xenia Doorenbosch

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Prof Stuart Pitson

Prof Peter Reilly AO

Dr Frances Corrigan

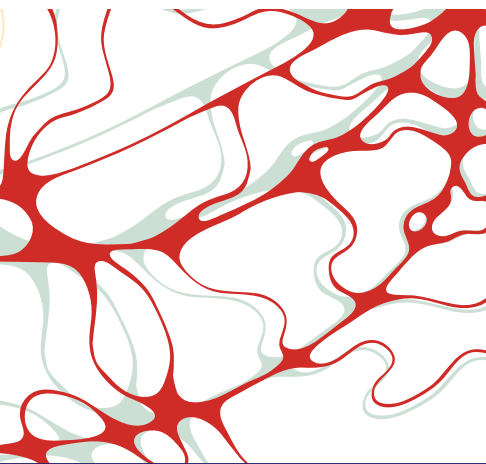
NRF Director of Neurosurgical Research

NRF Chair of Brain Tumour Research

Scientific Committee

Scientific Committee





EXECUTIVE OFFICER'S REPORT GINTA ORCHARD FFIA



Thank you to our NRF donors, fundraisers, researchers, volunteers and supporters who have continued to support the NRF and our life-changing neurosurgical research during one of the most challenging years in living memory.

While many charities struggled due to the changes brought forth by the COVID-19 pandemic, the NRF has gone from strength to strength. Our team adapted to the changing environment, and developed alternative fundraising opportunities, such as the DIY Virtual City to Bay Fun Run and launching our new virtual Star of Hope. We also used the lockdown period wisely by investing in a new integrated database and communications system.

On reflection, when I started working at the NRF in 2002 we had 400 donors and a website. We did not have a database and I was only working 20 hours a week. We now have nearly 9,000 donor records with 5,000 active records and 4 part-time staff members. We are extremely active in social media and peer to peer fundraising. These new channels have enabled us to spread our message and grow with an increased national impact without increasing our workforce too much. In fact, we are very proud to say that 100% of every donation goes directly to research and not administration.

I encourage each and every one of our NRF members to challenge themselves and think of new and exciting ways to fundraise for neurosurgical research. Research gives the gift of hope. A hope for a better future and a hope for a cure. The other benefit from our success is increased research funding. We are now funding researchers across multiple Universities and hospitals and the incredible discoveries our researchers are making are so inspiring. Please enjoy reading about these in this annual report. I would like to invite you to attend our Research Update Events run in May and September advertised on our social media and website.

I also encourage everyone to connect with the NRF across our social media channels, our website, and regular relevant e-communications to learn about our fundraising and research events throughout the upcoming year.

Ginta Orchard
NRF Executive Officer

ABBIE SIMPSON CLINICAL FELLOW
DR ADAM WELLS Neurosurgeon



**ABBIE SIMPSON
CLINICAL FELLOW**

**Summary of Clinical
Neurosurgery Research,
Royal Adelaide Hospital**

This year, the Royal Adelaide Hospital Department of Neurosurgery appointed a research assistant Ms Lola Kaukas to facilitate clinical research at the RAH and expand research output. In line with this goal several upcoming projects have been established with funding and ethics approval underway.

In collaboration with the Trauma Service and Department of Emergency Medicine we have developed a project investigating the use of Rotational Elastometry (ROTEM) blood tests in the early assessment of traumatic brain injury. ROTEM assays are an advanced method of detecting coagulation defects in trauma patients which can provide rapid bedside results to facilitate earlier intervention, and which have the potential to predict outcome following traumatic brain injury (TBI). We aim to begin enrolling patients in late 2021.

In another project in collaboration with our colleagues at Flinders University and Macquarie University Hospital we are investigating an innovative approach to incorporating artificial intelligence (AI) in intracranial pressure (ICP) monitoring. By developing an AI model to perform analysis of existing ICP physiological data and neuroimaging and predict impending and future raised ICP states, we aim to facilitate proactive (rather than reactive) management of raised intracranial pressure, a significant cause of mortality and morbidity after traumatic brain injury.

Furthermore, in collaboration with Prof Robert McLaughlin and the Biophotonics team from the University of Adelaide we are approaching the clinical phase of a project looking at the use of tumour detecting 'smart' brain biopsy needles in malignant brain tumours. The needles are capable of detecting malignant primary brain tumours following administration of Gliolan, a fluorescent drug that illuminates under blue-light when aggregated within the tumour cells. The use of these combined tools will enable more efficient and accurate tumour sample collection, which could save theatre time, reduce the likelihood of repeat biopsies and facilitate earlier and more accurate diagnosis.

Finally, we are also excited to begin enrolling South Australian patients into the Australia and New Zealand multi-centre BONANZA trial and have achieved increased contribution to the South Australian Neurology Tumour Bank following a decrease in state-wide sample collection in the 2020 calendar year.

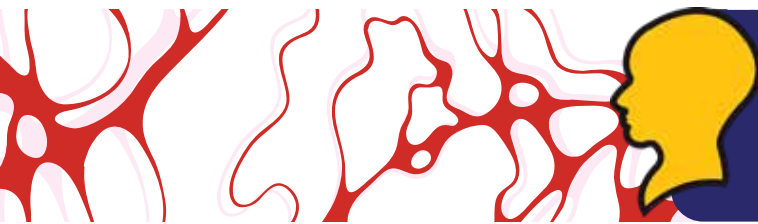
At present the standard of care for managing severe traumatic brain injuries is limiting secondary brain injury by limiting increased pressure in the swollen brain. BONANZA is an exciting clinical trial which will be investigating how adding the measurement and treatment of brain tissue oxygen may improve mortality and clinical outcomes.

The Royal Adelaide Hospital will be a vanguard centre in this international trial and will be crucial to recruiting brain-injured patients. Likewise, the Royal Adelaide Hospital is a key contributor for providing tissue to the SANTB; although hospital activity was decreased last year and a significant reason for that was the COVID pandemic, we are pleased to report that we have been able to significantly increase our patient recruitment to the SANTB and provide badly needed tissue to our Neuroscience researchers.



Dr Adam Wells

Neurosurgeon, Royal Adelaide Hospital



SPINAL CORD INJURY RESEARCH FLINDERS UNIVERSITY



RESEARCHER:
FUNDING:
TITLE:

DR GOBERT LEE
\$16,360

Deep Synthesis of Spinal CT Images from MRI for Neurosurgical Planning – Improving Workflow and Minimising Exposure to Ionisation Radiation

PROJECT:

Computed tomography (CT) and magnetic resonance imaging (MRI) images are routinely used in neurosurgery for clinical decision making, pre-operative planning and post-operative follow-up. They provide complementary information but are acquired on different imaging devices and at a separate time. This interrupts the clinical workflow, adds to health-care costs, and poses challenges in registering the images for analysis. Using innovative technologies, our aim is to synthesise spinal CT images from MRI images - providing the necessary MRI information without performing any real CT scans. This will improve clinical workflow, reduce costs to patients and the health system, as well as help minimise patient exposure to ionising radiation due to a CT scan. The impact also extends beyond spine imaging, notably to paediatric neuroimaging, where childhood exposure to ionising radiation has demonstrable causal effects on the development of cancer in later life.

NRF CHAIR OF BRAIN TUMOUR RESEARCH PROF STUART PITSON



**Brain Tumour
Research SA**

I am proud to announce the launch of the newly created Brain Tumour Research SA (BTRSA), a collaboration of brain tumour researchers and clinicians across South Australia, in partnership with the NeuroSurgical Research Foundation (NRF). The objective of BTRSA is to foster research into the cause, diagnosis, prevention, and treatment of brain tumours through increasing capacity in brain tumour research in SA, enhancing collaboration between researchers and clinicians, attracting major national brain tumour research funding, and raising public awareness of the need for research into these insidious diseases. Over the coming years I look forward to sharing with you exciting new brain tumour research initiatives driven by BTRSA. For more information, please visit nrf.com.au/btrsa



Despite the changes and uncertainties brought about by COVID-19, the last year has been a productive and successful period for our brain tumour research. We have continued to build our 'living biobank' of glioblastoma cells extracted from tumours generously donated by patients. From this we have generated a series of powerful resources to advance South Australian glioblastoma research towards better patient therapies. Indeed, in the last year we used these resources to help two local research groups perform the essential advanced pre-clinical assessment of two different new potential therapies for glioblastoma. While the studies are ongoing, we hope these new approaches may enter clinical trials in patients soon.

I am also pleased to say that, with Drs Briony Gliddon and Melinda Tea, we were successful in gaining substantial research funding of \$817,000 from the National Health and Medical Research Council to examine new approaches to open the blood-brain barrier to better deliver drugs to brain tumours. The award of this grant was only possible due to seed funding from the NRF to start the research, emphasizing the important contribution the NRF makes to brain tumour research in South Australia.

2021 also saw Wai Chuen (Darren) Lau join our brain tumour research group to undertake a PhD examining new approaches for the treatment of childhood medulloblastoma. In this work, again funded by the NRF, Darren and the team will build advanced medulloblastoma research resources which are similar to those we have established for glioblastoma, so that we can assess a new therapy we have developed against forms of this tumour that we hope may be more effective and safer than those currently available. These advanced resources will also provide a platform to assess other new therapies against medulloblastoma developed by other researchers in South Australia and further afield.

A handwritten signature in black ink, appearing to read 'Stuart Pitson'.

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



BRAIN TUMOUR RESEARCH UNIVERSITY OF SOUTH AUSTRALIA



RESEARCHER:

DR MELINDA TEA

FUNDING:

\$49,926

TITLE:

Developing preclinical models of sonic hedgehog medulloblastoma and assessment of targeting 14-3-3 in these models

PROJECT: Medulloblastoma is the most common malignant brain tumour in children, frequently occurring in early childhood before the age of five. Treatment for medulloblastoma involves surgical resection, radiation of the brain and spine, and chemotherapy. The five-year survival rates have improved over the last 20 years, however exposure of the developing brain to chemotherapy and radiotherapy has

detrimental life-long side effects. These include neurological and auditory deficits, secondary cancers, and hormonal dysfunction, as well as non-physical deficits such as learning difficulties and psycho-social issues. Therefore, new less toxic targeted therapies for medulloblastoma are desperately needed. We have identified a new therapeutic target for medulloblastoma, and new experimental drugs for this target that show great promise as a potential new therapy for medulloblastoma. Our aim is to assess this potential new therapeutic approach in advanced preclinical models of medulloblastoma. Successful outcomes will provide impetus for future clinical trials for medulloblastoma treatment.



RESEARCHER:

DR NIRMAL ROBINSON

FUNDING:

\$29,690

TITLE:

Targeting Endoplasmic Reticulum-specific autophagy using a small molecule to treat glioblastoma

PROJECT: Glioblastoma multiforme (GBM) is an aggressive type of brain cancer with a median survival of 11-15 months. Current therapies are of limited value. The environment in which GBM grows is low in oxygen (hypoxia) which is lethal to normal cells, but cancer cells have evolved mechanisms to adapt and grow. Importantly, these mechanisms also render GBM cells resistant to therapies. The Endoplasmic Reticulum (ER) is a structure within cells where proteins are produced and has a central role in

maintaining cellular homeostasis. Hypoxia in the tumour perturbs protein synthesis and ER (ER-stress) which is destructive to normal cells. We have discovered that GBM cells overcome ER-stress by degrading stressed parts of ER through a process termed as ER-phagy. We propose that inhibiting ER-phagy using a drug in combination with currently available therapies could be an efficient alternative therapeutic strategy to treat GBM.



RESEARCHER:

DR BRIONY GLIDDON

FUNDING:

\$29,972

TITLE:

Targeting Cyclin-dependent kinase 4 in glioblastoma

PROJECT: Glioblastoma (GBM) is the most commonly diagnosed brain tumour in adults; it is a very aggressive and highly fatal cancer with a median survival of less than 15 months. The poor survival of patients affected by glioblastoma has remained virtually unchanged for the last 30 years. Currently treatment consists of surgical removal, post-operative radiation therapy and chemotherapy. Despite this aggressive therapy, the disease invariably progresses or recurs as resistance to chemotherapy drugs develops. For these reasons, the development of new drug targets and effective targeted

therapies for this cancer are essential. Our recently funded NRF grant project aims to use an established clinically relevant mouse model of glioblastoma to test the efficacy of some newly developed drugs which have shown to be highly effective at killing glioblastoma cells by stopping them from dividing.

BRAIN TUMOUR RESEARCH UNIVERSITY OF SOUTH AUSTRALIA



RESEARCHER:

DR GUILLERMO GOMEZ

FUNDING:

\$29,856

TITLE:

Identification and targeting of the master regulators of glioma cancer cell plasticity to overcome therapy resistance in glioblastoma.

PROJECT: There is significant progress in the genetic and functional characterisation of different Glioblastoma (GBM) subtypes. However, this knowledge has not advanced clinical management of the disease. My laboratory has developed critical expertise for the culture of patient-derived glioblastoma tumour organoid models that replicate the primary tumour's

architecture, cellular composition, and therapy response. This project uses this new technology for the identification of the molecular mechanisms that contribute to therapy resistance. This knowledge is critical for the development of new and more effective therapies for Glioblastoma.



RESEARCHER:

DR LISA EBERT

FUNDING:

\$30,000

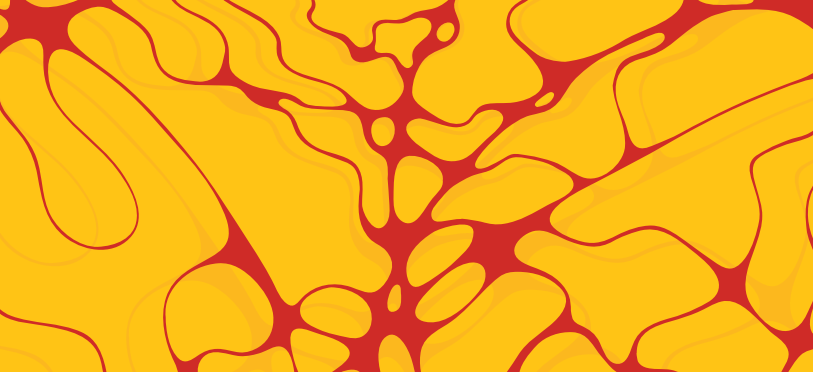
TITLE:

Optimising a new immunotherapy approach for glioblastoma

PROJECT: Dr Lisa Ebert is a Senior Research Fellow at the Centre for Cancer Biology in Adelaide. Her research focuses on cancer immunotherapy: a new type of cancer treatment that uses a patient's own immune system to fight their cancer. Such approaches are yielding exciting new therapies for some cancer types. Sadly, however, these discoveries are yet to benefit patients with primary brain tumours such as glioblastoma – a devastating disease with

no effective treatment that claims the lives of around 1,000 Australians every year. With the ongoing support of the NRF, Dr Ebert and her team are working to change this outlook, by developing a new treatment for glioblastoma using CAR-T cells. This cutting-edge approach involves 'super-charging' a patient's own immune cells to enable them to specifically destroy cancer cells. With encouraging pre-clinical results, this research is set to enter clinical trials in glioblastoma patients within the next 12-18 months.

Dr Ebert was recently awarded \$360,000 in funding over 3 years from the Ray and Shirl Norman Cancer Research Trust to investigate CAR-T therapy for brain cancer. Dr Ebert will investigate the development of a novel CAR-T therapy for brain cancer (with fellow researchers Michael Brown, Stuart Pitson and Guillermo Gomez). The NRF funded two project grants in 2020 and 2019, which laid the groundwork for Dr Ebert to apply and win this new funding grant, to continue this vital work for brain cancer patients and their families.







As always, the 2020/2021 year has been a very busy time for “Team Neuro”. It has seen me step back from the laboratory for a period of time as I welcomed my second child Xavier in January. However, the Translational Neuropathology Laboratory students have really taken the helm during this time, and I am extremely proud of their progress and achievements. On behalf of the team, I’d like to congratulate Dr Annabel Sorby-Adams and Dr Jessica Sharkey on their recent PhD completions.

NRF DIRECTOR OF NEUROSURGICAL RESEARCH ASSOCIATE PROF RENÉE TURNER



As a group we continue to seek to understand the events that occur in the brain following a stroke and how this impacts both short- and long-term outcomes.

-  Treating post-stroke complications - Cerebral oedema and elevated intracranial pressure account for significant mortality and morbidity following stroke. We have shown that blocking the action of the neuropeptide substance P, reduces dangerous brain swelling and intracranial pressure following stroke. Phase II trials are currently underway for this treatment.
-  Stroke diagnosis and monitoring - Currently stroke diagnosis relies on imaging with CT or MRI, meaning that many patients, particularly those in rural or remote settings, experience treatment delays which ultimately impact outcomes. We have been validating a novel, portable and affordable stroke diagnostic device that can be taken directly to the patient to reduce treatment times and improve post-stroke outcomes.
-  Understanding blood-brain barrier changes - Alterations to the blood-brain barrier are central to post-stroke complications such as cerebral oedema and neuroinflammation, such that our studies are examining this barrier in detail, in both normal ageing and following stroke, in order to identify novel treatment targets.
-  Determining what drives the delayed loss of brain tissue - Dementia and cognitive decline are common following stroke however the underlying mechanisms of these complications are not well understood. We are examining the role of neuroinflammation in the delayed loss of brain tissue following stroke with the hope of identifying novel treatment targets to halt this long-term complication and reduce patient disability.

Associate Professor Renée Turner

NRF Director of NeuroSurgical Research



Team Neuro is extremely proud of their researcher's achievements and the exciting post-doctoral opportunities they are pursuing.



DR ANNABEL SORBY-ADAMS has recently completed her PhD studies which investigated the efficacy of NK1 receptor antagonist treatment for cerebral oedema and elevated intracranial pressure following stroke. She received outstanding reports from her assessors and as a result has been awarded the Dean's Commendation for Doctoral Thesis Excellence and was also awarded the Elizabeth Penfold award for the best neurosurgical manuscript in South Australia for 2020. Annabel is currently completing a Post-Doctoral position with Prof. Mike Murphy and Prof. Thomas Krieg investigating the effects of reperfusion injury following stroke using MRI and PET imaging. In 2022 she will take up post as a Fulbright Scholar at Massachusetts General Hospital and Harvard University (Boston, USA) to assess low-field, portable MRI for neurological conditions.



DR JESSICA SHARKEY has recently completed her PhD studies characterising the injury profile that occurs following both mild and moderate-severe traumatic brain injury in a clinically-relevant pre-clinical model, to inform development of novel treatment strategies. She received outstanding reports from her assessors and as a result has been awarded the Dean's Commendation for Doctoral Thesis Excellence. Since the award of her PhD Dr Sharkey has commenced a Post-Doctoral position at St Vincent's Hospital in Melbourne to work with Dr Barry Dixon on a clinical trial assessing a novel non-invasive brain tissue oxygen sensor in patients with traumatic brain injury. In mid-2022 she will commence a post at the University of Pennsylvania (USA) to work with Prof. Doug Smith, a world leading neurotrauma expert, on axonal injury following traumatic brain injury (TBI).



RESEARCHER:
FUNDING:
TITLE:

DR AMY CLAIRE REICHEL
\$29,960

The role of diet in mediating the effect on cognitive impairment and cortical perineuronal net alterations following traumatic brain injury

PROJECT: A major part of my research program involves understanding how the network of molecules that surround neurons – called the extracellular matrix – can influence cognitive function – in particular, memory formation. My recent research shows that poor nutrition can damage perineuronal nets and cause memory impairments. I will be investigating how the combination of brain injury and nutritional status functionally affects neurons, perineuronal nets and memory abilities using a translational rodent model.



NEUROSURGICAL RESEARCH UNIVERSITY OF ADELAIDE



RESEARCHER:
FUNDING:

ASSOC PROF LYNDSLEY COLLINS-PRAINO
JAMES & DIANA RAMSAY FOUNDATION
\$73,229 X 3 YEARS TOTAL \$219,687

TITLE:

The evolution of decision-making impairment in Parkinson's disease (PD): Prediction and prevention

PROJECT: This project will develop a comprehensive behavioural testing battery to characterise differences in the integrity of specific basal ganglia circuits involved in decision making in different subtypes of PD. Additionally, we will identify genes relevant to basal ganglia circuit function that may predict risk and progression of cognitive decline in PD.



RESEARCHER:
FUNDING:

DR FRANCES CORRIGAN
JAMES & DIANA RAMSAY FOUNDATION
\$71,500 X 3 YEARS TOTAL \$214,500

TITLE:

Targeting inflammation to prevent brain swelling following paediatric head injury

PROJECT: This project will investigate a potential therapeutic, an NK1 antagonist, which blocks the actions of the pro-inflammatory mediator substance P, which is present in higher levels in children. Substance P release causes ongoing neuronal injury and blocking its effects represents a novel mechanism for improving outcome.



RESEARCHER:
FUNDING:

DR PAUL TRIM
\$29,998

TITLE:

Does the brainstem drive neurodegeneration following traumatic brain injury?

PROJECT: Traumatic brain injury (TBI) is a major cause of disability and mortality worldwide, with increasing recognition that it can have life-long consequences. TBI may increase the risk of dementia, with suggestions that a dose-dependent relationship might exist. TBI is associated with neuropathological changes characteristic of Alzheimer's disease (AD). This project will test a novel hypothesis regarding the pathogenesis of AD following TBI using immunohistochemistry and will highlight potential imaging biomarkers.



RESEARCHER:
FUNDING:

DR ANNA LEONARD
\$31,688

TITLE:

Novel peripheral stimulation technology to reduce neuroinflammation following traumatic spinal cord injury (SCI)

PROJECT: To improve outcomes and quality of life for individuals with SCI, devices that are minimally invasive, comfortable and effectively alter pain are desperately needed. The current study will investigate a new wireless device called a "graft-antenna", which can be implanted on uninjured peripheral nerves, such as the sciatic nerve, and stimulated via electromagnetic induction. We propose that weekly peripheral stimulation via this novel method will reduce neuroinflammation whilst promoting tissue repair and regeneration within the spinal cord itself.

CHRIS ADAMS SCHOLARSHIP UNI SA RESEARCH GRANT



Chris Adams lost his battle with a grade-three anaplastic astrocytoma brain tumour in November 2015. Chris' family is now dedicated to honouring his memory and spirit through the NRF and the 'Strong Enough to Live' campaign which supports vital research to find a cure for brain cancer. The annual Chris Adams UniSA Research Grant provides \$5,000 to an early career researcher in the area of brain tumours and brain cancer.



2019 RECIPIENT: DR MELINDA TEA

In 2019, Dr Melinda Tea was awarded the 2019 Chris Adams UniSA Research Grant to undertake overseas training into the highly specialised and advanced use of the Bruker Micro-CT system instrumental in understanding the fatal brain cancer, glioblastoma (GBM).

Dr Tea from the Centre for Cancer Biology (CCB) at the University of South Australia (UniSA) is making strides towards both establishing a living glioblastoma biobank

as a powerful resource to enhance glioblastoma research locally and nationally and using this resource to develop novel therapeutic strategies to combat glioblastoma.

The Molecular Signalling Laboratory recently established an advanced preclinical model of GBM through support from the NRF and their burgeoning partnerships to combat one of the most powerful and unforgiving cancers.

Ultimately, this intensive training course (when undertaken) will provide the Molecular Signalling Lab with a better understanding of how GBM tumours respond to new and improved therapies, and in the long term may lead to desperately needed improved outcomes for these patients.



2020 RECIPIENT: PHD CANDIDATE KAITLIN SCHEER

In 2020, PhD Candidate Kaitlin Scheer was awarded the scholarship which will enable her to delve deeper into her research on the complicated vascular network in the biology of Glioblastoma. It will also enable Kaitlin to further forge important bonds with fellow international researchers invested in similar areas.

As an integral part of the Tissue Architecture and Organ Function Laboratory at the Centre for Cancer Biology, Kaitlin is developing a model that could lead to better prediction of poor responders, allowing these patients to pursue other treatment options.

"Glioblastoma is particularly insidious as the blood vessels associated with these highly vascularised tumours support cancer growth and act as highways to facilitate invasion of tumour cells deeper into healthy brain tissue," says Kaitlin.

"The model presents new opportunities for brain cancer research. It would be an invaluable tool to better understand how drugs and immune cells infiltrate the tumour and modulate the tumour microenvironment."

"This is essential for the design of new therapies, including small molecule drug-inhibitors, combination therapy, and immunotherapy," she said.



FUNDRAISING VIRTUAL CITY TO BAY

VIRTUAL CITY TO BAY 2020 RAISES OVER \$15,000!

We are very proud to announce that NRF Team Neuro was successful in raising \$15,225.21 in 2020 through our virtual City to Bay!

Despite the COVID-19 restrictions and challenges the NRF is fortunate to raise these funds for life-changing neurosurgical research in South Australia.








This means that over the past 10 years, the NRF has raised more than \$340,000 for neurosurgical research – an incredible achievement.

Thank you to our corporate sponsors, Dr Jones & Partners Medical Imaging and Calvary Adelaide Hospital for their support.

Thank you to everyone in NRF Team Neuro who contributed, held a fundraiser, or took part in the Virtual event. In particular, thank you to researchers Melinda Tea and Victoria Pope from the Centre for Cancer Biology for organising a half marathon row and walking tour fundraiser!

Well done to everyone who took part - we appreciate your dedication, commitment, and ability to adapt to the changing times.

THANK YOU TO NRF TEAM NEURO:

-  Ally Pearson
-  Helen & Amy Waller
-  Centre for Cancer Biology
-  Researchers Mel Tea & Victoria Pope
-  Tom Willis
-  Sam Trenerry
-  Dr Jones & Partners Medical Imaging



- a: Tom Willis
- b: Researchers Mel Tea & Victoria Pope
- c. Centre for Cancer Biology
- d. Dr Jones & Partners Medical Imaging
- e. Researchers Mel Tea & Victoria Pope

COMMUNITY FUNDRAISING THANK YOU TO OUR FUNDRAISERS



CRITTER'S CHOICE BOOK RAISES \$8,638 FOR BRAIN CANCER RESEARCH



When her youngest son died of brain cancer aged 26, counsellor Cherrie Adams found writing to process her grief.

She had one piece published, in Psychology Today, and another in a collection of works, Fear and Courage, then thought about writing a book to raise funds for brain cancer research.

Her late son Christopher, or "Crittter" as he was known to family and friends, had already set up a fundraising platform, Strong Enough To Live.

"I didn't want to write a story that told his medical journey, on just the last 11 months of this beautiful man's very large life," Mrs Adams said.

"My intention was that by reframing the actual events, I would be able to offer Crittter the empowerment and choices that he had been deprived of by his disease."

All proceeds from the sale of Crittter's Choice are donated to the NRF for brain cancer research in SA.



PETE'S ARMY RAISES \$12,300 FOR BRAIN CANCER RESEARCH

Peter Cutting, 51 of Cherry Gardens was diagnosed with a glioblastoma in April 2020. His family and friends rallied together and set up an online fundraiser for the NRF, which raised an incredible \$12,300 for brain cancer research. Thank you to Peter, his wife Liz and daughters Jess and Amy Cutting for their support.

ADELAIDE BRAIN TUMOUR SUPPORT GROUP RAISES \$8,410 FOR RESEARCH

Thank you to the Adelaide Brain Tumour Support group for their ongoing fundraising which has been achieved through a variety of activities, events and online sales. For example, we held a Brain Tumour Research Christmas Lunch and sold a variety of soy wax candle products both online and at events and other activities. The support of this group enables the NRF to fundraise specifically for brain tumour research.





LIFE MEMBERS, FRIENDS, BENEFACTORS & AMBASSADORS

NRF LIFE MEMBERS

Helli Campbell
Derek Frewin AO
Brian North AO

Richard Campbell
Carolyn Hewson AO
Robert Searcy

Richard Fewster
Robert Neill
Mel Zerner

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

James & Diana Ramsay Foundation SA Police - Ride Like Crazy

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

June Bowman
Harvey Foundation
Strong Enough to Live

Coopers Brewery Foundation
Jody Koerner
Wilkins Family Foundation

Dr Jones & Partners
Judy Rischbieth

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

Barbara Kelley & Family

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

Fred Caruso
Brian & Sue North
Nick & Anna Vrodos

Jo Cooper
Patrick of Coonawarra
Rosemary Waterman

Letcombe Foundation
Richard Turner

BENEFACTORS (\$10,000+)

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Chelsea Dawn Fuller
Casandra Hewett
Bethwyn Levi
Melissa O'Brien
Rosel Stokes
Allys Todd
Dean Williams

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 life saving 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, 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.

Thank you to the following for leaving a gift in their Will to the NRF:

Basil Reginald Burke	Edith Audrey Burville
Ronald Graham Dalip	Patricia Mary Pieterek

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:

David Cenko	Fiona Dostal	Amanda Maiolo	Janet Marshall
Jed McDonald	Darren Williams	Mark Brenton Standley	Hannah Philbey

IN CELEBRATION DONATIONS



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 donation received this year –via our website and Facebook Fundraisers.

Cherrie Adams	Benjamine Bailey	Kristin Blight	Cecilia Brito
Matt Carey	Daniel Dellamalva	Greta Dunne	Debz Green
Julie Hancock	Wendy Hockey	Eliza Jayne	AJ Kelly
Jessica Lynch	Meredith McArthur	Brianna Jade McKie	Sarah Mitchell
Ragan Newton	Christie Nunn	Zhen Qiang LI	Margie Sharpe
Annette Taylor	Lynn White	Kristen Wilkins	Jusuper M Starstudio
Stacey Wildespin			



FINANCIAL STATEMENT YEAR END 31 MARCH 2021

The NeuroSurgical Research Foundation Inc STATEMENT OF COMPREHENSIVE INCOME

	2021	2020
	\$	\$
NOTE		
INCOME - RESEARCH FUND		
Donations and Fundraising	659,314	893,913
Investment Income	48,544	
TOTAL INCOME	707,858	893,913

LESS EXPENSES		
Research Grant Expenditure	4	370,031
		673,528
SURPLUS/ (DEFICIT) RESEARCH FUND	337,827	220,385

INCOME - SCHOLARSHIPS FUND		
Donations and fundraising	136,204	
TOTAL INCOME	136,204	
Surplus (deficit) Scholarship Fund	136,204	

INCOME - Operations Fund		
Investment Income	839,087	(269,151)
Membership	741	905
Government grants and wage subsidies	120,550	---
TOTAL INCOME	960,378	(268,246)

Less Expenses		
Administrative Expenses	217,454	179,356

Surplus (deficit) - Investment Fund	742,924	(447,602)
TOTAL COMPREHENSIVE INCOME	1,216,955	(227,217)

NOTES

Note 4

NRF Chair of NeuroSurgical Research Neurodegeneration	84,513	73,229
NRF Chair of NeuroSurgical Research Stroke	---	225,704
NRF Chair of NeuroSurgical Research SCI/TBI	75,632	9,698
Paediatric Research	---	71,500
Paediatric - other	---	31,214
Equipment - Royal Adelaide Hospital	---	46,058
Equipment - Women's and Children's Hospital	---	16,985
University SA - Brain Tumour Research	31,995	21,561
Un-allocated research grants	177,891	177,579
	370,031	673,528

Note 5 UN-ALLOCATED RESEARCH GRANTS PAYABLE

Opening balance	193,231	195,226
University of SA - Brain Tumour Research	(122,250)	(149,574)
University of SA - Traumatic Brain Injury	(2,375)	(30,000)
NRF Chair of NeuroSurgical Research - Neurodegeneration	(18,715)	---
Current Year Expense	177,891	177,579
Closing Balance	227,782	193,231

STATEMENT OF FINANCIAL POSITION

	Note	2021	2020
		\$	\$
CURRENT ASSETS			
Cash and cash equivalents		408,413	469,884
Inventories		500	500
Prepayments and accrued income		1,753	5,080
Accrued income		---	69
TOTAL CURRENT ASSETS		410,666	475,533

NON-CURRENT ASSETS			
Office Equipment and Computer Software		2,549	508
Managed Investment Portfolio		5,041,209	3,821,072
TOTAL NON-CURRENT ASSETS		5,043,759	3,821,580
TOTAL ASSETS		5,454,425	4,297,113

CURRENT LIABILITIES			
Payables		5,834	122,195
Un-allocated research grants payable	5	227,782	193,231
Income in advance		17,829	---
Accrued expenses		4,192	4,217
Provisions		11,605	6,801
TOTAL CURRENT LIABILITIES		267,242	326,444

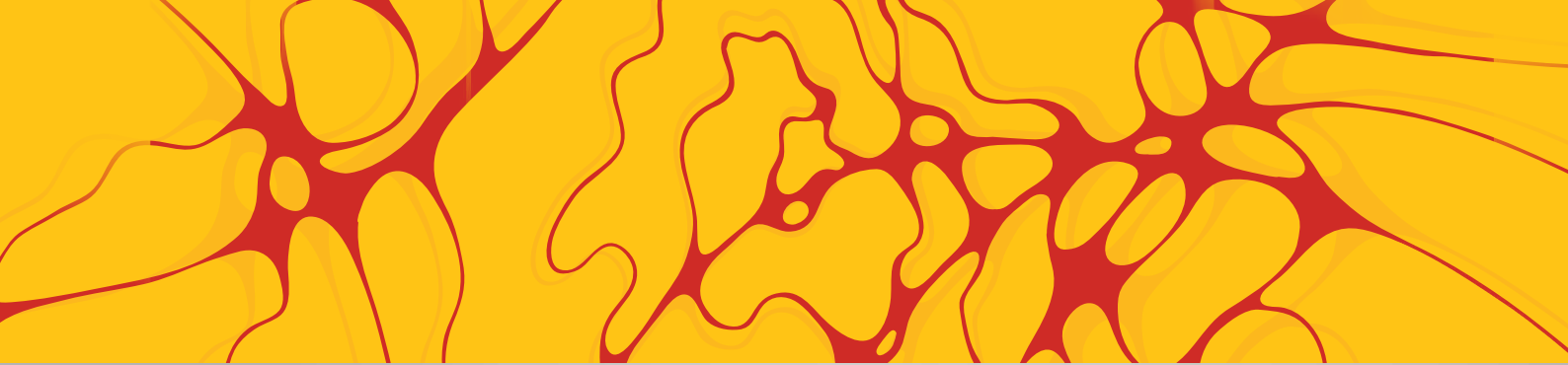
NON-CURRENT LIABILITIES			
Provisions		12,529	12,970
TOTAL NON-CURRENT LIABILITIES		12,529	12,970
TOTAL LIABILITIES		279,771	339,414

NET ASSETS		5,174,654	3,957,699
TOTAL ACCUMULATED FUNDS		5,174,654	3,957,699

STATEMENT OF CHANGES IN ACCUMULATED FUNDS

Year ended 31 March 2021	Research Fund	Scholarship Fund	Operations Fund	Total
Accumulated funds at beginning of year	263,756	---	3,693,943	3,957,699
Total comprehensive income	337,827	136,204	742,924	1,216,955
Accumulated funds at end of year	601,583	136,204	4,436,867	5,174,654
Year ended 31 March 2020	Research Fund	Scholarship Fund	Operations Fund	Total
Accumulated funds at beginning of year	43,371	---	4,141,545	4,184,916
Total comprehensive income	220,385	---	(447,602)	(227,217)
Accumulated funds at end of year	263,756	---	3,693,943	3,957,699

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.



NRF

NeuroSurgical Research Foundation

NeuroSurgical Research Foundation

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