



2017/2018 Annual Report

NeuroSurgical Research Foundation **MISSION STATEMENT & BOARD MEMBERS**

- To promote, foster, develop and assist the study of all matters related to neurosurgery.**
- To encourage, stimulate and aid research and investigation into such matters and to stimulate public interest in neurosurgery.**
- To cooperate with other organisations in neurosurgical work and research.**
- To encourage Post-Graduate medical study in neurosurgery.**
- To assist the NRF Chair of Neurosurgery.**
- To raise funds for the above purposes.**

BOARD MEMBERS 2017/18

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The Hon Catherine Branson AC
Assoc Prof Renée Turner
Prof Peter Reilly AO

Patron
NRF Director of Neurosurgical Research
Chair Scientific Committee

THE HON CATHERINE BRANSON AC

Patron's Report



As this year came to a close the NRF community mourned the passing of Professor Donald Simpson AO, one of the founders of the Foundation.

The late Professor Simpson served on the NRF Board from 1963 – 2009 and as President from 1993 – 2004. During these years he helped raise public awareness of neurosurgery and also significant research funds. The first neurosurgical chair at the University of Adelaide was established with funding from the NRF during Professor Simpson’s term as President.

Professor Simpson was highly regarded both nationally and internationally as a skilled surgeon and researcher. His concern for his patients, and his ability to recall their names and circumstances years after he first met them, were legendary. We will remember him also as a warm and compassionate man who had a fine sense of humour and whose interests extended well beyond surgery. He will be sorely missed from our community.

Turning to happier things, the NRF was delighted this year to be able to present a cheque for \$1 million to the University of South Australia to establish the NRF Brain Tumour Research Chair. This presentation took place at a celebratory Gala Dinner held at the Adelaide Convention Centre. With the help of our friends and supporters, this dinner resulted in nearly \$100,000 of further funds being raised for neurosurgical research.

Once again I wish to express my gratitude to Ms Ginta Orchard, Executive Officer of the NRF, for her ongoing hard work and to the Board Members of the NRF who volunteer their time to oversee the operations of the Foundation.

I wish also to acknowledge the very many supporters of the NRF who either through their generosity as donors or through their important voluntary work assist the NRF to achieve its objectives. I extend my warmest thanks to you all.

A handwritten signature in black ink, appearing to read "Catherine Branson".

The Hon Catherine Branson AC
Patron

President's Report

PROF ROBERT VINK AM



The previous 12 months has seen the Neurosurgical Research Foundation engaged in a wide variety of activities centred on broadening our base of supported South Australian researchers undertaking world-class research of relevance to neurosurgical patients, and of raising the profile of the NRF as a body that supports such research.

Foremost was the \$1.0 M donation to the University of South Australia (UniSA) to create a second NRF Chair, the NRF Chair of Brain Tumour Research, who will complement the existing NRF Chair of Neurosurgical Research based at the University of Adelaide. UniSA has recently completed construction of their Cancer Research Institute at the western end of North Terrace, which will house the largest concentration of cancer researchers in South Australia, including the new NRF Chair. It is expected that the new Chair will be named in the coming months. The endowment of this research Chair is an outcome of the strategic retreat held early last year to identify research opportunities where the NRF could make a highly significant impact in neurosurgical research.

In addition to the Chair endowment, the NRF also donated \$120,000 to the University of South Australia support an annual student or early career researcher scholarship supporting brain tumour research. This scholarship will be known as the Chris Adams UniSA Research Grant in memory of Chris Adams, whose family has been fundraising since 2015 to support brain tumour research.

Throughout the last 12 months, the NRF has supported a wide variety of research projects including paediatric neurosurgery equipment (Neurosurgical Department, WCH), traumatic brain injury (Dr Claire Jones, UoA), spinal cord

injury (Dr Jillian Clark, UoA and Dr Anna Leonard, UoA), concussion (Dr Frances Corrigan, UniSA), Parkinson's disease (Dr Lyndsey Collins-Praino, UoA), the South Australian Tumour Bank (Dr Rebecca Ormsby and Dr Santoosh Poonoose, Flinders), childhood brain cancer (Dr Lisa Ebert, UniSA), medulloblastoma (Dr Querten Schwarz, UniSA) and glioblastoma (Prof. Stuart Pitson, UniSA). This breadth of support marks a milestone for the NRF in that I believe this is the first time that research projects have been funded at all three universities in South Australia.

With our desire to continue to fund this level of research activity moving forward, the NRF has now developed a spending policy (with the help of Perpetual) that has seen the creation of an administration investment fund and a research investment fund. The proceeds of each fund will be used to cover administration costs, in the case of the administration investment fund, and to support future research in the case of the research investment fund. Such an approach will provide more stability to our finances and facilitate a more consistent approach to research funding in future years. We also adopted a more formalized approach with respect to management of conflicts of interest, which is particularly useful given that we now support a broader base of researchers and clinicians at all three universities.

At the board level, Lindsay Hick submitted his resignation in the face of increasing work commitments. We will certainly miss Lindsay's active participation, particularly on the finance sub-committee where his expertise in the financial sector was very useful. Thank you Lindsay for your contribution over the last 12 years and I trust that we will still see you at NRF events as time permits.

Congratulations to our patron the Hon Catherine Branson QC who was made a Companion of the Order of Australia (AC) for her services as a judge of the Federal Court of Australia and as an advocate for human rights and civil liberties, as well as her services to judicial administration and professional development, and to governance roles in tertiary education. Cathy has been instrumental in ensuring the NRF board follows proper procedure and in guiding the NRF with respect to developing their governance policies.

It also gives me pleasure to welcome Ms Ally Todd to our administrative team, joining our

Executive Officer Ginta Orchard as the Senior Administration Officer in the NRF office. Ally has been a supporter of the NRF for a number of years, being herself a brain cancer survivor, and has volunteered at a number of NRF events, including being the MC at one of our recent dinners. We look forward to working with Ally to continue the growth and realising the mission of the NRF in the coming years.

Finally, it is with great sadness that I note the passing of Vale Professor Donald Simpson AO, who along with Professor Trevor Dinning was one of the founding fathers of the NRF. Professor Simpson had a profound impact on the neurosurgical community locally, nationally and internationally. I am certain he left a deep personal imprint on everyone who had the privilege of engaging with him, as he did me. His work in the field of traumatic brain injury was legendary and he made Adelaide one of the leading head injury research centres in the world. He was instrumental in establishing the first NRF Chair of Neurosurgical Research in the country at the University of Adelaide. His statement as NRF President in 1993 encapsulated his remarkable vision in this respect: "A research Chair is not a soft seat with an old man asleep on it. A research Chair is a powerhouse energising a hospital, a university, a nation". A NRF dinner celebrating the life and contributions of Professor Simpson will be held on Friday November 2nd at the National Wine Centre.

In conclusion, I thank the members of the board who continue to donate their extremely valuable time and expertise to the NRF and its mission of supporting world-class neurosurgical research.



Professor Robert Vink AM

President - NeuroSurgical Research Foundation



Left to Right: Prof Robert Vink AM, Prof Donald Simpson AO & Dr Brian North AO

NRF Director of NeuroSurgical Research Report ASSOC PROF RENÉE TURNER



The 2017/2018 year has been a very busy time for the Translational Neuropathology Laboratory with many new students joining the lab, whilst others are completing their research studies.

In 2017 the team welcomed 5 new junior Team Neuro members, we congratulate all the Neuroscience mums on their new arrivals and wish them all the best as they balance research careers and motherhood.

Five new Honours students and 1 Masters student joined the lab in 2018 to undertake research projects investigating stroke, spinal cord and traumatic brain injury as part of their Honours degree.

Isabella Bilecki is investigating changes in the blood-brain barrier following stroke and how this may lead to functional impairments. Isabella was awarded a Peter Couche Foundation scholarship to support her Honours studies.

Levi Elms is determining the temporal profile of serum levels of the neuropeptide substance P following stroke and how this may relate to functional outcome. Levi was awarded a Peter Couche Foundation scholarship to support his Honours studies.

Rebecca Dowden has joined the lab from the University of Nottingham (UK) to complete her Masters and is examining injury biomarkers in blood and cerebrospinal fluid following traumatic brain injury.

Christine Gayen is determining how pressure changes in the spinal canal following spinal cord injury.

Lola Kaukas is using MRI and ultrasound imaging to examine tissue swelling and morphological changes following spinal cord imaging.

Tobias Quinlivan is investigating amyloid precursor protein derivatives as novel therapeutic agents for traumatic brain injury.

The research studies of our current PhD students are progressing well with the experimental component of their research programs on, long-term consequences and treatment of traumatic brain injury, treatment strategies for brain swelling following stroke and neuroinflammation in Parkinson's Disease.

Annabelle Sorby-Adams is investigating how brain swelling and increases in intracranial pressure evolve following stroke, how this relates to functional outcome and whether targeting with an NK1 tachykinin receptor antagonist is an effective treatment strategy. Annabelle will be presenting her latest findings at the upcoming Australasian Neuroscience Society meeting and was recently been awarded a Hans-Jürgen and Mariann Ohff scholarship to travel to Germany to present at the International Society for Neuroprotection and Neurorepair meeting (Dresden, Germany). She also won the CMAX prize at the 2017 Florey Post-Graduate Research conference.

Alina Arulsamy is examining long-term outcomes following traumatic brain injury. She is nearly completion of her experimental work and will soon be writing up her PhD studies. Alina will be presenting a summary of her PhD studies at the upcoming Australasian Neuroscience Society meeting.

Jessica Sharkey is investigating whether amyloid precursor protein can be used to reduce axonal damage in the brain to improve outcome following traumatic brain injury. Jessica will be presenting her latest work at the upcoming Australasian Neuroscience Society meeting.

Bianca Guglietti is determining the role of the brains' resident inflammatory cells in cell death and disease progression in Parkinson's Disease. Bianca will be presenting on the study progress at the upcoming Australasian Neuroscience Society meeting.

Wrapping up their PhD studies in 2017 were Dr Stephanie Plummer and Dr Kelly McAteer. Stephanie has taken up a fixed-term teaching role at the University of Adelaide and we wish her well as she embarks on her career. We also wish Kelly all the best in her future career.

Also leaving the laboratory in 2017 was Dr Frances Corrigan who following maternity leave has taken up an academic position as Senior Lecturer in Anatomy at the University of South Australia, we wish her all the best in this new role.

The laboratory has been extremely productive in terms of publication output and conference presentations over the past year. In particular, publications have been in a number of international journals including Behavioural Brain Research, Concussion and Brain Behaviour and Immunity, amongst others. Dr Lyndsey Collins-Praino's research into Neurodegenerative Disease was awarded over \$130,000 in external funding, including from the Australia Japan Foundation and IMPACT Philanthropy. Lyndsey's research has attracted significant media attention across all media platforms including The Conversation, ABC National News and radio. Members of the group have delivered conference presentations at a number of national and international scientific meetings including National Neurotrauma Symposium (Hobart) and Australasian Neuroscience Meeting (Sydney). In addition Team Neuro members have delivered invited presentations at the Australasian Neuroscience

Meeting (Sydney), National Neurotrauma Symposium (Hobart) and Parkinson's SA conference. Senior members of the laboratory have also established new research collaborations with groups at University of Nagoya (Japan), Monash University (VIC), Uniformed Services University (Maryland, USA), Macquarie University (NSW) and Flinders University. Such research collaborations, presentations and publications highlight the novel and innovative research conducted by the team.

Finally, following the sad news of the passing of Vale Professor Donald Simpson AO, we reflect on the outstanding contributions he made as one of the founders of the NRF. His mission to engage and energise the neurosurgical community continues to motivate and inspire us as the next generation of neurosurgical researchers.

The research progress and achievements by the group would not have been possible without your support as donors to the NRF so thank you once again for your generous support of the NRF.



Associate Professor Renée Turner
NRF Director of NeuroSurgical Research



Left to Right: Dr Emma Thornton and baby Isaac, Dr Frances Corrigan with baby Asha and Scarlett, Dr Lyndsey Collins-Praino and baby Alexander, A/Prof Renée Turner with baby Zoë and Dr Anna Leonard with baby Hamish.

PROF DONALD SIMPSON AO

by Prof Peter Reilly AO



Donald Simpson was born 91 years ago into a family with a strong tradition of learning and service.

He lived and died close to his original family home in Burnside.

He attended St Peters College. His academic progress was outstanding highlighted by a Tennyson medal and then by a series of scholarships and medals during his medical studies at the University of Adelaide.

He graduated in 1949. During his subsequent year as resident medical officer at the Royal Adelaide Hospital he published the first of many research papers – on neuroanatomy. He published his last paper - on medical history in 2013.



In 1951 he began studies in Oxford in neuroanatomy under Professor Sir W.E. Le Gros Clarke then undertook research in neuropathology and training in neurosurgery at the Radcliffe Infirmary under Mr J.B. Pennybacker.

Based on a clinical and pathological review of a series of meningiomas treated by Sir Hugh Cairns and Mr. J.B. Pennybacker Donald developed a grading system relating the recurrence rate to the completeness of surgical removal. The Simpson Grading system remains a clinical standard.

He married Joanna Erlistoun Thomson of Adelaide, in London in 1952. They returned to Adelaide in 1956 and Donald joined TAR (Jim) Dinning at the Royal Adelaide Hospital.

Over subsequent years these two colleagues and close friends laid the foundation for a neurosurgical department of clinical excellence, research and training.

Donald visited the New Guinea highlands in 1957 and 1959 as a member of a University of Adelaide group investigating Kuru, the progressive neurodegenerative disorder common at that time among the Fore people. He developed a close and enduring friendship with Dr. Carlton Gajdusek, who was awarded the Nobel Prize in physiology for his work in defining prion disease.



He was appointed Honorary Neurosurgeon at the Queen Elizabeth Hospital from 1959 to 1966, Honorary Neurosurgeon at the Adelaide Children's Hospital (later the Women's and Children's Hospital) from 1956 then Director of Paediatric Neurosurgery from 1970.

Donald was dedicated to the total care of each patient, of every child and their families. He thought about them, worried about them and was always available to them. He visited their homes.

With Annabel Carney he established and conducted a multidisciplinary spina bifida clinic which was a model of its kind.

Donald worked and taught at the Cho-Ray hospital Saigon for some months during the Vietnam War in 1972 to 1973.

He was the first President of the Indo-China Refugee Association established in 1975 (now the Australian Refugee Association).



Through the Neurosurgical Society of Australasia Donald organised several combined Australasian and Vietnamese neurosurgical meetings. These meetings brought together for the first time neurosurgeons from

north and south and led to the formation of the Vietnam Neurosurgical Society.

Donald resigned from the Women and Children's Hospital in 1985 and took a part-time position in the NH & MRC Road Accident Research Unit as Senior Research Associate.

In 1982 he was appointed Clinical Reader in the department of Paediatrics at the University of Adelaide and Clinical Professor in 1987. For many years he conducted weekly multidisciplinary head injury meetings at the Royal Adelaide Hospital.

Donald's contributions to neurosurgery – particularly in paediatric neurosurgery and neurotrauma, in Adelaide, Australia and internationally have been considerable.

He was President of the Neurosurgical Society of Australasia, Chairman of the Neurosurgical Board, President of the International Society for Paediatric Neurosurgery and a member of numerous national working parties and committees particularly related to head injury.

He was a key collaborator with Professor David J David in establishing a Craniofacial Unit at the Royal Adelaide Hospital and Adelaide Children hospitals, and with Professor Jack McLean at the (then) Road Accident Research Unit, particularly on studies on crash helmets and the neuropathology of brain injury.



For these many significant contributions Donald was honoured by the Neurosurgical Society of Australasia, the Royal Australasian College of Surgeons and by the University of Adelaide with a Doctorate of the University in 1985. He was recognised by the nation in 1980 as a Member of the Order of Australia and in 2004 as an Officer.

Donald had a remarkable memory and breadth of knowledge, combined with a nose for the arcane and bizarre, a whimsical humour and a most elegant turn of phrase.

His many lectures were always marked by deep learning and a captivating and unique style.

The Neurosurgical Research Foundation, established

in 1996 by Jim Dinning with Donald as a foundation member and Chairman from 1994 to 2004, grew under their guidance from a small organisation to a highly successful research resource funding internationally recognised research and two professorial chairs.

The success of the Foundation, to which Donald and



his family were significant benefactors, was a further fulfilment of the vision of Jim and Donald for neurosurgery in South Australia and gave Donald great satisfaction.

Joanna was unquestionably a great support for him and her death in 2007, a deeply felt loss. Donald often said the neurosurgical wives needed to be special to cope with the disruptions to social and family life. Joanna clearly fulfilled this requirement.

As his clinical duties decreased Donald expanded his interest in medical history.

He completed a Diploma of Applied History in 1997. In 2000 he was awarded an MD for his thesis on the Adelaide Medical School 1885-1914. He published 29 papers on medical history, most recently in 2013.

I was greatly attracted to his knowledge, wisdom, grace, humour and humility. Above all I experienced him as good man – a goodness which, when one meets it, raises the possibility that there may be such goodness in oneself.

Donald Simpson is survived by 3 children and 4 grandchildren.

Prof Peter Reilly AO
Clinical Professor of Neurosurgery
School of Health and Medical Sciences
University of Adelaide
South Australia

Images Left to Right:

- Prof Donald Simpson AO • Prof Donald Simpson AO
- Prof Donald Simpson AO in Papua New Guinea
- Prof Peter Reilly AO • Prof Donald Simpson AO
- Dr Trevor (Jim) Dinning
- Prof Donald Simpson AO with an early bike helmet
- Front Row: Emeritus Professor Derek Frewin AO, Prof Donald Simpson AO & Prof Nigel Jones. Back Row: NRF Chair Students 2004

Executive Officer's Report

GINTA ORCHARD



Thank you to our donors, fundraisers and supporters, your donations and fundraising is greatly valued. Your valuable donations and fundraising will fund research projects in Brain tumour research, Neurodegeneration, Paediatric research, Parkinson's disease, Spinal Cord Injury, and Traumatic Brain Injury. We have showcased these projects in this report on the next three pages.

On a personal note I have now experienced cancer myself first hand. I am lucky my cancer was breast cancer. Thanks to millions of donor dollars and research hours invested years ago into breast cancer my prognosis is good. This is not the case for people living with Brain Cancer, particularly glioblastoma. Mortality rates of this lethal brain cancer have barely changed in 50 years.

Now more than ever I encourage you to please continue to donate to your key neurosurgical area of interest. Research does make a difference and research is saving lives.

Our team here at the NRF is growing and I thank the team who have worked in the office this year. Administrative support from Kerry and Matiss who process all your valuable donations and generate the receipts. Kat and Ally who have come on board to help with Marketing, Social Media and Events.

Additionally, I have a very special thank you to all the volunteers who have helped at events and in the office this year. Their assistance is critical in the NRF success: David, Di, Ellen, Kahla, Jessica, Lucinda, Markus, Robin, and Selga.

Please join us on social media at Ginta Orchard NRF and the Neurosurgical Research Foundation on Facebook & Twitter for up-to-date research stories, latest event information, and fundraisers.

A handwritten signature of the name "Ginta Orchard".

Ginta Orchard
Executive Officer



What your support achieved in 2018, funded research summary.

Your donations to the NRF will fund 11 new research projects, that is \$347,888 valuable research dollars going towards Neurodegeneration (NDEG), Parkinson's, Spinal Cord Injury (SCI), Traumatic Brain Injury (TBI), Paediatric (PAED) and Brain Tumour (BT) Research.

Dr Quenten Schwarz	\$20,496	BT	Uni SA	Medulloblastoma
Dr Rebecca Ormsby	\$41,600	BT	Flinders	BT bank foundation
Prof Stuart Pitson	\$58,150	BT	Uni SA	Equipment BT research 2 items
Dr Frances Corrigan	\$24,442	NDEG	Uni SA	Neurodegeneration repeated concussion
Dr Lyndsey Collins-Praino	\$20,000	NDEG	Adelaide Uni	Relationship TBI & Parkinson's
Dr Claire Jones	\$30,000	PAED	Adelaide Uni	TBI
Dr Lisa Ebert	\$30,000	PAED	Uni SA	Immunotherapy childhood cancer
Dr Jillian Clark	\$20,000	SCI	Adelaide Uni	Cooling decompression SCI
Dr Anna Leonard	\$30,000	SCI	Adelaide Uni	Neuroinflammation SCI
W&C Hospital	\$73,200	Equip	W&C Hospital	SONOPET for paediatric brain tumours

Supported by generous donations

EQUIPMENT, RESEARCH, FUNDING

NEW RESEARCH AND EQUIPMENT FUNDED BY THE NRF THROUGH GENEROUS DONATIONS



Researcher: Dr Claire Jones Spinal Research Group & Centre for Orthopaedic and Trauma Research, Adelaide Medical School, NHMRC Early Career Research Fellow; Adjunct Lecturer, School of Mechanical Engineering, University of Adelaide

Research: Designing and validating an apparatus to induce concussive injury in a pre-clinical paediatric model.

Despite evidence to suggest that children and adolescents take longer to recover from a concussion and may be more vulnerable to long-term detrimental effects, the majority of concussion research has focused on adults. Little is understood about the scaling of these parameters required for paediatric pre-clinical models. The aim of this research program is to develop a new apparatus to impart a mechanically relevant concussive brain injury mechanism, which can be scaled for age, in a pre-clinical model.



Researcher: Dr Anna Leonard Lecturer in Anatomy & Pathology, Adelaide Medical School, The University of Adelaide

Research: Investigating the relationship between neuroinflammation and the development of cognitive deficits following traumatic spinal cord injury: Can Fyn kinase inhibition break the link?

Spinal cord injury is commonly thought of as a disorder of paralysis, however, there is emerging evidence to suggest that an injury to the spinal cord can also affect the brain, initiating an inflammatory response resulting in cognitive deficits. Our research is focused on investigating the neuroinflammatory response within the brain following traumatic spinal cord injury and how this may lead to cognitive decline. Additionally, we are interested in how location may affect these results, specifically whether a higher (cervical) or lower (thoracic) injury causes greater cognitive decline. Our final aim is to determine whether inhibition of the neuroinflammatory response will improve cognition providing a potential treatment for SCI individuals against cognitive decline.



Researcher: Dr Lisa Ebert BSc, PhD – The University of South Australia

Research: Discovering targets for immunotherapy of aggressive childhood cancers

Our team is focussed on developing new therapies for brain cancer, based on a revolutionary new approach known as CAR-T cell therapy. This technique has already shown remarkable success in treating some forms of leukaemia. It involves collecting ‘killer’ T cells from a cancer patient’s own blood, and using genetic engineering techniques to make them specifically latch onto, and then kill, cancer cells. We are currently developing and testing CAR-T cells which specifically recognise brain cancer cells, and – with the support of organisations such as the NRF – hope to progress this work toward patient clinical trials within the next 5 years.

**Supported by generous donations
EQUIPMENT, RESEARCH, FUNDING**



Researcher: Dr Querten Schwartz PhD – The University of South Australia

Research: Investigating the role of 14-3-3 ζ in medulloblastoma, childhood brain cancer

Medulloblastoma arises from abnormal growth of cerebellar granule cells and is the leading cause of cancer-associated death in children. There is a desperate need to understand the molecular defects underlying this malignancy so that new therapies can be devised. Our unpublished work demonstrates that the scaffolding protein 14-3-3 is a key regulator of the sonic hedgehog signalling pathway which is thought to drive the growth of cerebellar granule cells, and medulloblastoma. We now plan to test if removal of 14-3-3 will reduce the burden of medulloblastoma in cell models of this disease.



Researcher: Dr Frances Corrigan Senior Lecturer in Anatomy, School of Health Sciences, University of South Australia Translational Neuropathology Laboratory, at the University of Adelaide

Research: The role of alcohol in promoting the development of neurodegeneration following a repeated concussion.

A history of repeated concussions has been linked to three times higher risk of developing a neurodegenerative disease, to which there are currently no effective treatments. How repeated concussion promotes neurodegeneration, and what role alcohol abuse plays in that process, is poorly understood, making it difficult to intervene in the disease process. Work is ongoing to characterize the effects of chronic alcohol exposure on pathological changes following repeated concussion and determine whether this leads to long-term changes in behaviour, particularly cognition, depressive-like behaviour, and anxiety. This is particularly important given the accepted usage of alcohol within the community and the lack of understanding of what constitutes a safe level of alcohol consumption following a mild traumatic brain injury.



Researcher: Dr Lyndsey E. Collins-Praino, Lecturer in Anatomy and Pathology

Research: Does TLR4 activation mediate the relationship between TBI and Parkinson's Disease

Parkinson's disease (PD) is the second most common neurodegenerative disease after Alzheimer's disease, affecting 10 million people worldwide and 1 in every 350 Australians. While the exact causes of PD are currently unknown, one risk factor is traumatic brain injury. Despite growing awareness of the link between TBI and PD, however, brain mechanisms that account for this relationship are unknown. One potential mechanism may be neuroinflammation. A potent inducer of neuroinflammation is activation of Toll-like receptor 4 (TLR4), a pattern recognition receptor broadly expressed in the central nervous system. The current study will investigate whether the development of neuroinflammation and PD-like pathology following TBI is mediated by TLR4 activation. This has the potential to shed light on the mechanism by which a major risk factor for PD may lead to disease, and may help to identify novel therapeutic targets.

NEW RESEARCH AND EQUIPMENT FUNDED BY THE NRF THROUGH GENEROUS DONATIONS



Researcher: Dr Rebecca Ormsby BSc (Hons), PhD Coordinator, SA Neurological Tumour Bank And Coordinator, SA Brain Bank at the Centre for Neuroscience (Human Physiology) Flinders University

Research: The establishment of a comprehensive database management system for the South Australian Neurological Tumour Bank.

The SA Neurological Tumour Bank (SANTB) is a not-for-profit resource established to collect and bank blood and neurological tumour tissue from patients undergoing surgery to diagnose or remove their tumour. These specimens are available to researchers in SA and interstate to facilitate research projects into neurological cancer. NRF funds will help to establish and maintain a secure, customizable, web-based database management system to capture and link accurate, reliable and standardized patient clinical data (eg. pathology, treatment, survival) to each specimen. Obtaining comprehensive clinical data is extremely important to maximize the research value of each tumour collected in the drive to improve the outcome of patients with neurological cancer.



Researcher: Dr Jillian Clarke PhD (Med) Senior Research Fellow South Australian Spinal Cord Injury Research Centre, Affiliate Associate Professor of Medicine Centre for Orthopaedics and Trauma Research, The University of Adelaide

Research: Immediate Cooling and Emergency Decompression in Traumatic Cervical Spinal Cord Injury: A Safety and Feasibility Study.

The proven safety profile of mild therapeutic hypothermia in cardiac arrest and neonatal brain injury encourages the study of whole body cooling combined with surgical decompression in the context of acute spinal cord injury. NRF funding will enable the purchase of a dedicated intravascular cooling device for the investigation of patients admitted to the Spinal Unit, Royal Adelaide Hospital. We will gather safety data that will determine the desirability of conducting a randomised clinical trial, which will be necessary to tell us if this modality is clinically useful.



Researchers: Prof Stuart Pitson: NHMRC Senior Research Fellow Head, Molecular Signalling Laboratory, Dr Melinda Tea: Brain Tumour Researcher and Dr Jason Powell: Brain Tumour Researcher - Centre for Cancer Biology University of South Australia and SA Pathology

Two new Brain Tumour Research equipment projects funded.

Tissue dissociator: The gentleMACS tissue dissociator allows for the gentle break-down of brain tumour tissue into individual brain tumour cells, that can then be studied in the laboratory. It allows the isolation and study of brain tumour stem cells, which are only a very minor component of the total tumour mass, but are usually the main reason for tumour regrowth after therapy.

Stereotactic alignment and injection system: This advanced computer-aided stereotactic alignment and injection system enables the accurate implantation of human brain tumour cells directly into the correct tissue environment. These implanted cells form tumours providing the gold standard model for both studying brain tumour biology and assessing new potential therapies. This advanced system will allow us to develop a powerful resource for brain tumour research in SA that will allow the evaluation of our novel anti-tumour agents and provide the ideal system for evaluation of any potential new anti-brain tumour drugs developed in other laboratories around Australia and internationally.

NRF TEAM NEURO 2017

Raising money for lifesaving research



**NRF Team Neuro raises
\$25,020 for life-saving
NeuroSurgical Research**



Thank you to all of our wonderful participants, sponsors, volunteers, and friends in the City-to-Bay! NRF Team Neuro looked fantastic and everyone did an outstanding job raising funds and awareness for NRF research into brain tumours, stroke, neurodegenerative disease, neurotrauma, paediatric and much more. Everyone had their own personal reason and story for taking part ranging from brain tumour survivors, researchers and those competing in memory of someone lost. All raising much needed funds for improved treatments, extended life expectancy and ultimately cures for neurosurgical conditions. Thank you Lucinda Gregory – Image Design

Thank you to all the participants and a huge thank you to all the donors!



Team Patrick for the 5th year



Ally & Caitlin for the 5th year



Marg & Amy Dr Jones & Partners 5th year



Lucinda & Emma Brain Tumour Warrior with Cherie & Martin Adams SETL



Running for Richard - Kerry, Adam, James



Bec & Naomi

VOLUNTEERS: Anna, Bob, Heather, James, Nicholas, Oana, Rosemary, & Ryan.

Other NRF Team Neuro members:

Dr Jones & Partners: Margaret, Thy, Lawry, Anna-Marie, Amy

Jeans: Lauren & Fergus

Phillips (Wombat): Sue, Kay, David, Andrea, Tony, Jayne

Simon & Crew: Simon, Aileen, Sam, Sarah, Danielle, Laura, Renee

Uni Adelaide: Stephanie, David, Martin

Uni SA: Stuart, Briony, Lauchlan, Olivia, Jason, Alice, William, Melinda

Thank you

to NRF Team Neuro:
Comprising of over 687
team members has
already raised \$235,000 for
life saving and life changing
neurosurgical research
since 2011.

Generously Sponsored by
Dr Jones & Partners

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Patrick of Coonawarra

Strong Enough To Live



SATURDAY 20

CHRIS A

MANY THANKS TO ALL THE DONORS,
RAISING \$47,500 FOR BRAIN CANCER RESEARCH

THANK YOU

Cherrie and Marty, Matt and Jen, Russ and Ellie would like to thank everyone who contributed to the Ball celebrating Christopher's life. In particular, they are very grateful for the tireless efforts of the hardworking committee - Ginta Orchard, Shelley Kierse, Cherrie Adams, Emma Charlton, Ellie Foster, Lucinda Gregory and Marty Adams who made it all happen.

SPECIAL THANKS ALSO GO TO:

VENUE: The Ellington

PA: Scene Change

BALLOONS: Party World

LOGO DESIGN: Miles Wilson

PHOTOGRAPHER:

Lucy Partington

MC: Emma Charlton

SOLOIST: Ellie Foster

BAND: The Revue

MUSIC: DJ Savvas

FLOWERS: Jessica Kehoe,

Petal & Cake Co

SPEAKERS

Amal Abou-Hamden

The Veronicas

Stuart Pitson

Matt Adams

Patrick Shanahan

VOLUNTEERS

Allys Todd

Candace Cummings

Katherine Nehme

Sara Jackson

We were overwhelmed by the generosity of those that contributed to the evening as sponsors and donors of prizes for the raffle and auctions. We urge you to support these wonderful people, who are listed below. We sincerely appreciate your support for the NRF and funding for brain cancer and tumour research, and for joining with us to remember our beautiful son, brother and friend - Chris Adams.

PRIZE DONORS



Harvey Norman

Adelaide Build Assist
Arty Farty Sculpture Studio
Beachside Dental Studio
Coopers Brewery
Eyelashes By Shonny
Kick N' Box Fitness Studio
John Brooks
Laser Clinics Australia
Mark Kimber
Mountadam Vineyards
O'Leary & Whalley family
Patsy Meehan
Rosemary Bennett
Renato Campana
Tom Keukemeester
VIVA Zapata's Mexican Cantina

Adams Family
Barli Paterson
Betty Ballerina
Denis Smith
Haigh's Chocolates
Kindred Self
John Abbott
Leigh Morgan
Marcia K. Vaughan
Mitch Stanley
Oakley
Perpetual
Singapore Airlines
Steph Say - PAFC
University of SA
Zapata's Mexican Restaurant

Adelaide Colonics
Barossa Valley Cider Co
Bellatrix Hair and Beauty
Electra House Level One
Emmaline's Country Kitchen
Inspire Health & Fitness
Kooyonga Golf Club
Lula Blu
Maximilian's Restaurant
Naturally Kate
Patrick of Coonawarra
Robbie's Chop Shop
Simon Adams
Tamra Smith
Yolanda Van Aken

Anne Ashwood
Ben Bailey
BluTulip Florist
Highgate Vogue
Izway Wines
Jennifer Cox
La Rambla
Kilikanoon
Muse Boutique
Neil Balme
Nourish You
Ryan Smith – Adelaide Crows
St Hallett Winery
The East
Tasca Viva

TH MAY 2017

AMS BALL

PONSORS AND GUESTS WHO ATTENDED
RAIN TUMOUR RESEARCH.



**University of
South Australia**

DIAMOND SPONSOR



**HILLTOP CROSSFIT
MT BARKER**

PLATINUM SPONSOR



Southern



SILVER SPONSORS

Get Involved... DONATIONS, FUNDRAISING & CHALLENGES

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.

The NRF wishes to thank Ronald Graham Dalip and Gunther Alfred Friese for leaving a Gift in their Wills to the NeuroSurgical Research Foundation.

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:

Christopher Adams	Virginia Bajev	Richard Buttery	Dean Bowman
Keith Crowley	Norman Daley	Nicholas Diakomichalis	Matilda Evans
Maxwell Fargher	Joan Gill	Tom Gross	Ivars Jansons
Bryan William Kay	Bill Leech	Bruce Light	Amanda Maiolo
Eve Nowakowski	Sue Sharpe	Mark Brenton Standley	

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 thank the following In Celebration events created this year:

Diana Bleby	Di & Daniel Floreani	Edmund Kreft	Karen Thompson
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Di & Daniel Floreani - In Celebration Donation



Patsy Meehan - Dry July

Fundraising events & personal challenges

You can help raise money for the NRF by creating your own fundraising activity or event. Go online to www.nrf.com.au and click "Fundraise Now" to start, or phone us and we will assist you.

The NRF wishes to acknowledge the following fundraising events and personal challenges created this year:

Thank you to "Strong Enough To Live" group who continue to fundraise

In Memory of Chris Adams

Cherrie Adams - Swim Challenge

Patsy Meehan - Dry July

Foundation Donations

The Neurosurgical Unit at the Adelaide Women's & Children's Hospital are over the moon receiving a SONOPET Ultrasonic Aspirator donated by The Wilkins Family Foundation which will benefit neurosurgeons, theatre nurses and patients.

The SONOPET is a machine used by neurosurgeons to remove brain tumours in soft tissue and fine bone without damaging surrounding tissue, for patients at the Adelaide Women's & Children's Hospital (W&CH) aged under 18. At the W&CH neurosurgeons operate on approximately 25 Paediatric patients annually with primary brain tumours and additional 5-10 Paediatric patients with skull base tumours and will use the SONOPET on these patients. This instrument uses ultrasonic power during these surgeries to remove the tumours.

The SONOPET is state of the art technology, but more importantly it is easy to set up for nurses, much safer for the patient and the long hand attachments means it can be used in difficult situations, such as deep tumours or intranasal which equals a much less intrusive procedure for patients and a more successful outcome. Thank you to The Wilkins Family Foundation.



Sandy & Michael Wilkins with neurosurgeon Stephen Santorenoes



Cherrie Adams - Swim Challenge



Strong Enough To Live
In Memory of Chris Adams

FINANCIAL ACTIVITY

The NeuroSurgical Research Foundation Incorporated Statement of Comprehensive Income for the year ended 31st March 2018

		2017	2018
		\$	\$
NOTE			
INCOME			
Donations and Fundraising	2	363,124	367,227
Investment Income		431,504	243,375
TOTAL INCOME		794,628	610,602
LESS EXPENSES			
Administrative Expenses	3	(147,174)	(149,888)
SURPLUS/(DEFICIT) BEFORE GRANT EXPENDITURE		647,454	460,714
Research Grant Expenditure	4	(396,963)	(366,491)
TOTAL SURPLUS / (DEFICIT) FOR YEAR		250,491	94,223
NOTE 4 - RESEARCH GRANTS			
NRF Chair of NeuroSurgical Research – Spinal Cord Injury		48,408	31,592
NRF Chair of NeuroSurgical Research – Neurodegeneration		51,950	29,417
Brain Tumour Research – University SA		133,939	57,334
Brain Tumour Research – Flinders Brain Tumour Bank		---	41,600
Paediatric Research – Women's and Children's Hospital		26,066	73,200
Paediatric Research – University SA		9,420	20,580
University SA – Chris Adams Scholarship		119,168	832
University SA – Brain Tumour Research		---	94,221
Grants – Unallocated		8,012	17,715
		396,963	366,491

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 William Buck Chartered Accountants for pro bono audit services.

	2017	2018
	\$	\$
NOTE		
CURRENT ASSETS		
Cash and Cash Equivalents	49,762	125,483
Inventories	----	500
Sundry Debtors & Prepayments	17,936	16,161
Deposits	80,619	---
TOTAL CURRENT ASSETS	148,317	142,144
NON-CURRENT ASSETS		
Office Equipment and Computer Software	1,965	1,423
Managed Investment	4,307,249	4,532,596
TOTAL NON-CURRENT ASSETS	4,309,214	4,534,019
TOTAL ASSETS	4,457,531	4,676,163
CURRENT LIABILITIES		
Payables	(193,888)	(317,654)
Provisions	(10,721)	(13,264)
TOTAL CURRENT LIABILITIES	(204,609)	(330,918)
NON-CURRENT LIABILITIES		
Provisions	(8,865)	(6,965)
TOTAL LIABILITIES	(213,474)	(337,883)
NET ASSETS	4,244,057	4,338,280
TOTAL ACCUMULATED FUNDS	5	4,244,057
		4,338,280

FINANCIAL ACTIVITY

The NeuroSurgical Research Foundation Incorporated Statement of Comprehensive Income for the year ended 31st March 2018

	2017	2018
	\$	\$
NOTE		
ACCUMULATED FUNDS – CORPUS	3,903,647	3,903,647
ACCUMULATED FUNDS – OTHER		
Opening Balance	89,919	340,410
Surplus / (Deficit) for the year	250,491	94,223
Transfer to Corpus	---	---
	340,410	434,633
TOTAL ACCUMULATED FUNDS	5	4,244,057
		4,338,280

NOTE 5 ACCUMULATED FUNDS

	Corpus	General Funds	Paediatric Fund	Total
Balance 31/03/2016	3,903,647	89,919	---	3,993,566
Surplus/(Deficit) Allocation	---	647,454	---	647,454
Surplus/(Deficit) Expenditure	---	(396,963)	---	(396,963)
 Balance 31/03/2017	 3,903,647	 340,410	---	 4,244,057
Surplus/(Deficit) Allocation	-	460,714	---	460,714
Research Grant Expenditure	-	(366,491)	---	(366,491)
 Balance 31/03/2018	 3,903,647	 434,633	---	 4,338,280

Lightsview Ride Like Crazy 10 Years

RIDE LIKE CRAZY

Since 2009 Lightsview Ride Like Crazy has attracted over 12,000 riders and donated over \$1.6 million to charity. Ride Like Crazy will leave a lasting legacy and be remembered for the pathway it has created for brain cancer research, prevention and treatment in South Australia.

In September 2008, 43-year-old Senior Sergeant Mick 'Crazy' Koerner was diagnosed with an inoperable brain tumour. Given a prognosis of only two weeks, he showed great strength to witness around 600 cyclists take to the Adelaide Hills on 22 January 2009 in a fundraising event named in his honour. Due to the overwhelming success of the first event, SAPOL adopted the ride as a community event in 2010 with the aim of raising valuable funds to fight cancer. Sadly, Senior Sergeant Koerner lost his battle on 14 November 2009, however his memory has lived on through this extremely popular ride.

Ride Like Crazy and NRF Partnership 2010 – 2018

- Ride Like Crazy partnered with the NRF for 9 years
- Raising \$630,000 for NRF Brain Tumour Research
- The NRF funds have been used to fund researchers in two major SA Research Institutes, the University of Adelaide and the University of South Australia.
- The NRF funds have purchased equipment and consumables to support the research programs.

Professor Stuart Pitson (2016 – 2018) Uni SA

Lethal adult brain tumours, glioblastoma, and the most common childhood brain tumour, medulloblastoma.

Heidi Neubauer (2016-2017) Uni SA (Now working Ludwig Boltzmann Institute for Cancer Research, Vienna)

Identifying and targeting the molecular basis of glioblastoma tumour growth and chemoresistance.

Kimberley Mander (2013-2016) Uni Adelaide

Determining the mechanism of cancer cell entry in the development of secondary brain tumours.

Stefan Court-Kowalski (2014-2017) Uni Adelaide

Brain cancer treatment through the blockade of tumour water channels.

Kate Lewis (2011 – 2013) Uni Adelaide (Now working AMINO, San Francisco)

Investigating how the cancer enters the brain and looking at stopping the brain barrier opening and allowing the tumour to travel into the brain.

Elizabeth Harford-Wright (2010 – 2012) Uni Adelaide (Now working INSERM, Paris)

The first in the world to show that the lethal complication of brain swelling is associated with increased substance P in leaky blood vessels around brain tumours.





The objective of the Foundation is directed towards research into the cause, diagnosis, prevention and treatment of disease or malfunction of the brain, spine and nervous system.



NeuroSurgical Research Foundation

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