

2016 AGM RESEARCH PRESENTATIONS



Top: Anna Leonard, Jillian Clark, Annabel Sorby-Adams, Aliastair Jukes, Renée Turner

At this year's AGM Team Neuro researchers gave presentations on their recent work into spinal cord injury, stroke and skull based neurosurgery. All the presentations summarised the high-quality, innovative and clinically-relevant research being conducted by our dedicated research team, comprised of both basic scientists and clinical researchers. The team continues to conduct world-class research, working towards a common goal of finding new interventions and treatment strategies for life-threatening neurosurgical conditions such as spinal cord injury, stroke, traumatic brain injury, brain tumours and neurodegenerative disorders.

-Dr Renée Turner NRF Director of Neurosurgical Research.

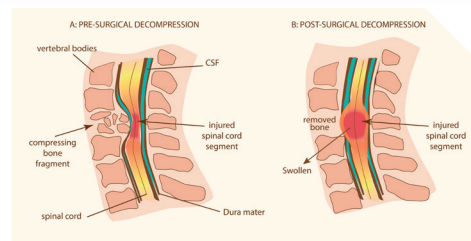
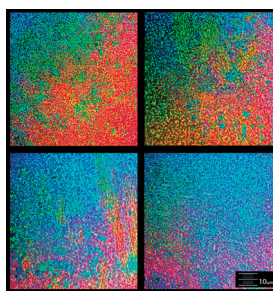
Annabel Sorby-Adams (PhD candidate, The University of Adelaide) presented aspects of her PhD studies on improving clinical translation in stroke through determining the clinical course of brain swelling and elevated pressure in a novel, pre-clinical model. Brain swelling and increased brain pressure are the



leading cause of death and disability in the first week following stroke. Despite this, current treatments are limited and fail to address the underlying cause of swelling, highlighting the need for targeted treatments. When developing new treatments, it is first essential to determine the timeline of when brain swelling and elevated pressure evolves following stroke to guide therapeutic administration. We have shown that brain swelling and pressure rises over time and peaks at 5-6 days following stroke. This suggests that new therapeutic agents targeting brain swelling will likely be effective in reducing complications when administered prior to this time point. Our next investigations will examine the effect of a novel treatment, the NK1 tachykinin receptor antagonist, and whether it can prevent the development of brain swelling and life-threatening elevations in brain pressure.

Dr Jillian Clark (Postdoctoral Research Fellow, Hampstead Rehabilitation Centre) discussed nanoscale Hyperspectral Microscopy Imaging of Immune Cells in spinal cord injury. Neurotrauma activates an immune response to protect the host. This event activates beneficial clearance and repair, but also creates a chronic state of neuroinflammation. What constitutes neuroinflammation and how immune cells shape this is key. Jillian's objective is to measure the peripheral inflammatory response and use this as a "read out" of the neurotrauma induced chronic inflammatory state, all within 24 hours of arrival at the acute trauma centre. New technology known as Nanoscale Hyperspectral Microscopy imaging will take advantage of the endogenous colours of biology, and specifically of immune cells in the blood, to provide powerful new information about mechanistic responses to spinal cord injury and potentially guide point of care decisions.

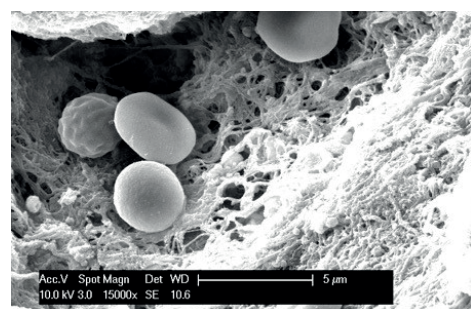
Dr Anna Leonard (Post-Doctoral Research Fellow and Lecturer at the University of Adelaide) reported on targeting raised pressure within the spinal cord after a traumatic spinal cord injury. Spinal cord injury leaves patients disabled and dependent for basic daily activities. There are currently no effective treatments available for SCI and novel therapies are urgently required to reduce such devastating disability. Anna's research reveals that tissue swelling and an increase in pressure in the spinal cord significantly contribute to poor outcomes following spinal cord injury. Future studies will focus on increasing the space in which the spinal cord exists to accommodate for its increased volume due to swelling. This will



alleviate the subsequent pressure increase, promoting tissue survival and reducing functional deficits.

Dr Alastair Jukes (Abbie Simpson Fellow – Skull Base Neurosurgery)

Major arterial injury is an uncommon but potentially fatal complication of endoscopic skull base surgery. The main focus of Alastair's research examines ways to control the haemorrhage once it occurs using patches and glues applied endoscopically and then determining how to decrease the formation of pseudoaneurysm (a potentially fatal condition of damaged blood vessels) once the patient has recovered. He is also using flow cytometry to examine the response of platelets to various haemostatic agents such as crushed muscle to determine if he can extract substances for use in patches or glues and using drugs that inhibit fibroblasts in a pre-clinical laminectomy model to try and reduce post-operative adhesions. Lastly he is performing studies of surgeons undergoing training using these endoscopic haemorrhage models to determine the right balance between stress and learning.



NRF TEAM NEURO RAISES \$41,000 FOR LIFE-SAVING NEUROSURGICAL RESEARCH

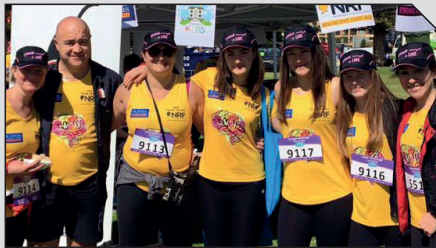


Lucinda – Brain Tumour Warrior

A huge thank you to all of our wonderful participants, supporters, volunteers, and friends in the City-to-Bay Fun-Run this year! NRF Team Neuro looked fantastic and everyone did an outstanding job raising funds and awareness for NRF-funded research into brain tumours, stroke, aneurysms, spinal cord injury, traumatic brain injury, neurodegenerative diseases, paediatric conditions and much more.

Everyone had their own personal neurosurgical reason and story for being part of NRF Team Neuro, ranging from brain tumour survivors, researchers, individuals competing in memory someone lost to a neurological condition and raising money for cures and improved treatments for people living with ongoing neurological conditions. Together we make a world-class team, together we do make a difference. Thank you to all the participants, volunteers, sponsors and a HUGE thank you to all the donors!

NRF TEAM NEURO PARTICIPANTS



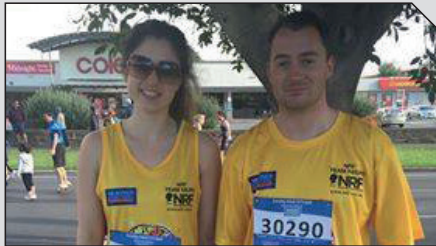
Dr Amal, Renee and Team



Running for Richard



Strong Enough to Live



Aldgate Vet Clinic



Allison and Caitlin



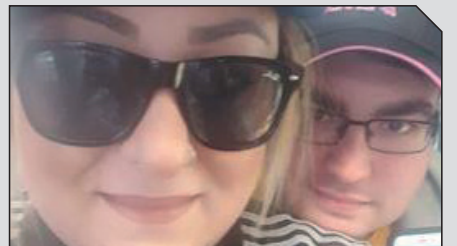
Team Patrick



Mahiki Hair and Rhiannon



Cecilia (Sydney)



Rachela & Harry

THANK YOU TO ALL THE TEAMS AND VOLUNTEERS!

Additional Team Members: Claudio / Dr Jones & Partners / Emma / Jo / Max / Grace / Judith / Sally / Sancilio Family / (SETL) Kate / Sam / Tom

Volunteers: Image Design - Lucinda Gregory / On the Day – Annabel / David / Isha / Lyndsey / Marissa / Renée / Rohit / Stefan



Dr Jones & Partners
Team Kit Sponsors



Aussie Farmers Direct
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Kids Memorial Hospital
Kids Kit Sponsors



Strong Enough To Live
Cap Sponsor



NRF DONATES \$68,000 TO GLIOBLASTOMA RESEARCH

New research from UniSA and SA Pathology's Centre for Cancer Biology (CCB) could support more effective chemotherapy treatment for one of the most lethal brain cancers, glioblastoma. The NRF, in conjunction with Lightsview Ride Like Crazy contributed \$68,000 allowing leading brain cancer researcher, Prof. Stuart Pitson, to take his work one step closer to clinical trials.

As head of CCB's Molecular Signaling Laboratory Prof Pitson and his team examine the molecular mechanisms controlling the growth and survival of cancer cells with the goal of developing new agents to target these mechanisms for anti-cancer therapy. Prof Pitson says glioblastoma is one of the most aggressive forms of brain cancer and is especially resilient to treatment.

"We have discovered that this kind of brain cancer is quite resistant to radiotherapy and chemotherapy because in

glioblastoma the metabolism of lipids is defective. We've found what we call a 'survival protein', which protects it from these treatments. Our research has focussed on how we can overcome this and improve the beneficial effects of the chemotherapy and radiotherapy for sufferers."

"We've isolated the survival protein and have discovered an agent that makes the brain cancer cells more sensitive and therefore vulnerable to the chemotherapy treatment. Our goal is to develop the agent so that it can be used with chemotherapy, maximising its attack on the tumour."

"We are advancing this work into pre-clinical models and the results have been extremely promising and at this stage of the project we are extremely grateful for this important support from the NRF. Clinical trials in patients with glioblastoma are at least four years away but this is an important advance in the treatment of a terrible cancer."

HEAD CASE FUN DAY RAISES OVER \$10,000

Over \$10,000 has been raised through the Head Case Family Fun Day in Kadina on Sunday, June 26. Hannah Philbey organised the event with the help of family and friends as a fundraiser for the NRF. Hannah was diagnosed with a brain tumour 12 months ago and has since had surgery and radiotherapy. "None of this would have been possible without the support and help from our wonderful friends, family, local businesses and our amazing community," Hannah said.

Thank you to all the volunteers who face painted more than 70 children, manned trading tables and the BBQ. Thank you to all the businesses who contributed raffle prizes, silent auction items, food/drinks and money. Hannah's fundraising will support new researchers from UniSA and SA Pathology's Centre for Cancer Biology who are closing in on a way to thwart the cancer's survival mechanism with tailored chemotherapy.

Thank you Head Case Family Fun Day organisers: Corinne Bussenschutt, Sarah Gardner, Rachel Meier, Steph Rundle, Hannah Philbey, Anita Rundle, Lisa Cundy and their families.

KIND REGARDS - THE HEAD CASE GROUP



A HUGE THANK YOU TO THE FOLLOWING BUSINESSES FOR THEIR KIND DONATIONS:

360Private
Emmetts
Larwoods
Mitre 10
NAB
RawEleven
YP AG

Belinda – Blez bakes
Elders Insurance
Garlands Crash Repairs
May's Meats
Landmark Operations
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Woolworths Kadina

Copper Coast Miniature Railway
Copper Coast Sports & Leisure Centre
District Council of Copper Coast
Megs Books shop
Post office Kadina
Port Broughton IGA & Butcher
The Farm Shed Museum & Tourism Centre

2016 FUNDRAISERS

FOR MORE INFORMATION AND TO BOOK
RING 08 8371 0771 OR VISIT WWW.NRF.COM.AU

RAISING FUNDS AND AWARENESS FOR ANEURYSM

A lovely 5km walk along the foreshore.

Saturday 17th Dec 2016

Start: 8:00am

Williamstown Life Saving Club / Williamstown VIC 3016

Entry Fee: \$25

For an extra \$5 you can walk with your dog

Includes: t-shirt, drink bottle & timed walk

Organised by Great Victorian Swim Series

To Enter: www.nrf.com.au

To Fundraise: <https://nrf.gofundraise.com.au/page/GinaHarris0>



WOW walk for aneurysm

MOVIE PREMIERS



TryBooking proudly supports charities by donating back all booking fees

CAFÉ SOCIETY

American romantic comedy-drama film written and directed by Woody Allen.
Starring Jeannie Berlin, Steve Carell, Jesse Eisenberg, Blake Lively, Parker Posey, Kristen Stewart, Corey Stoll and Ken Stott.

Sunday 30th Oct 2016

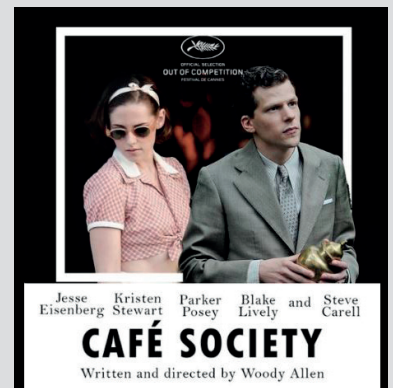
Doors open 3:30pm | Movie: 4.00pm

The Regal Theatre. 275 Kensington Rd, Kensington Park SA 5068

Entry Fee Adults \$25 | Students \$20 | Children \$18

Includes: drink and nibbles

To Book trybooking: www.nrf.com.au



FANTASTIC BEASTS & WHERE TO FIND THEM JK ROWLINGS NEW EPIC

Sunday 20th Nov 2016

Doors Open: 3:00pm | Movie: 3:45pm

Capri Theatre. 141 Goodwood Road, Goodwood SA 5034

Entry Fee Adults \$25 | Students \$20 | Children \$18

Includes: drink and lolly bag

To Book trybooking: www.nrf.com.au



HELP RAISE FUNDS TO FIGHT CANCER



Sunday 15th January 2017

Register, Fundraise or Donate at: www.ridelikecrazy.com

Distances: Full Course 107 Km | Short Cut 91 Km | Half Course 51Km

Fees: Adult ride \$115 | Child ride \$55 | Bus transfer \$25

Part proceeds to the NeuroSurgical Research Foundation and Flinders Foundation.
The first 500 registered participants for RLC who raise \$200 are eligible for a full refund of their registration cost (fundraising on the team flinders site).

