



THE UNIVERSITY OF
SYDNEY

Brain Matters

Issue 33 Using Our Brains Donor Program

From the Director, Professor Jillian Kril:

In reflecting on the activities of the past year I am pleased to say that it has been another busy, yet productive year. Tissues donated through the Using our Brains donor program have assisted research into a number of degenerative diseases as well as our primary focus of alcohol-related brain damage.

One of the goals this year has been the expansion of the UoB donor program. We are keen to attract more people to participate in our program. The complexity of the human brain makes access to well-characterised tissues vital for advancing our knowledge of brain diseases. Our team has actively engaged with a variety of clinical and community groups.



Professor Kril with members of the
Rotary Club of Upper Northern Beaches

I had the opportunity to meet with members of the Northern Beaches Rotary club, while Scientific Director Greg Sutherland attended APSAD conference in Hobart. If you are a member of a community group that would like to learn more about brain donation, please contact us and we will try and arrange for someone from the team to come and speak with the group.

August saw the retirement of our Donor Liaison Officer, Toni McCrossin. Toni has played a pivotal role in the UoB donor program for over ten years and many of you will have communicated with Toni either in the course of your enrolment in UoB or as a participant in our ongoing study of cognition and nutrition. We are grateful for Toni's longstanding contribution to the program - she will be missed by us all.

I hope you enjoy reading about the work of the UoB program and wish you all the best for the festive season and for 2020.



Professor Jillian Kril
Director - NSW Brain Tissue
Resource Centre

Change of address, email or update of medical information

Please complete the 2019 annual update included with this newsletter to ensure that your contact details and recent medical history is up to date in our records. If you require any assistance with completing the form, please contact us.

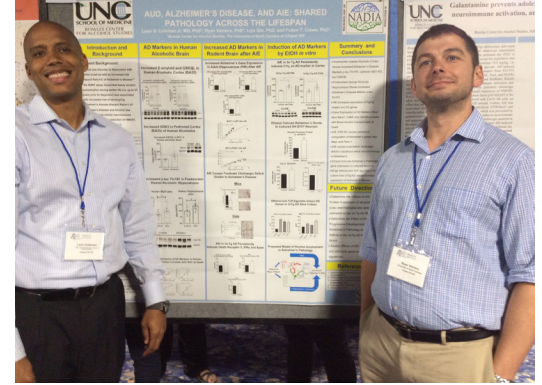
Conferences

UoB staff attended various conferences to share our work and network with neuroscience researchers

The annual Research Society on Alcoholism, held in June Minneapolis, USA provided a forum for alcohol researchers from all disciplines to present their work. Several brain researchers showcased their latest findings, including increased markers of Alzheimer's Disease in human brain from long term alcohol users.

The Asian Pacific Regional meeting of the International Society for Biological and Environmental Repositories (ISBER) was held in Shanghai. There is a keen interest in establishing biobanking in this region and we had many discussions about our donor program.

The Australasian Biospecimen Network Association conference gave insights into a variety of collections (human and non-human) and the opportunity to promote our program and facility.



Dr Leon Coleman and A/Prof Ryan Vetreno from the University of North Carolina present findings at RSoA 2019



Toni McCrossin presents UoB work at ISBER 2019

Research spotlight

Microglia are the immune cells of the brain. Discovered in the 1880s, it was long thought that these cells remained inactive unless there was injury to the brain. In the case of trauma, infection or a stroke the microglia respond by mobilising to the injury site and removing damaged cells to facilitate healing.

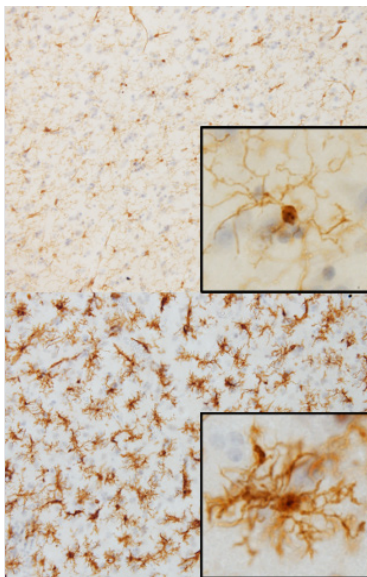


Fig. 1 TOP: microglia in control brain and BOTTOM: in a brain with alcohol use and severe liver damage

However, the brain is unlike the rest of the body as neurons are not replaced. In 2009 Japanese scientists were able to demonstrate that microglia are also highly mobile in the normal brain. We now know that microglia not only monitor brain function but assist in trimming unwanted connections in the brain. This trimming is most extensive in utero but continues throughout life, maintaining the strength of connections in response to our needs. With this new understanding, scientists started re-imagining how the dysfunction of microglia might be as, or more important in brain diseases compared to their immune roles – also called neuroinflammation. Our group has examined microglia in normal brains

and brains from those who had dementia and histories of alcohol use. We have found that in alcoholic brains with extensive liver damage, the number of microglia increases substantially (Fig 1). In contrast, the most affected areas of the brains of people with Alzheimer's disease (AD) show a loss of microglia. Whereas we only see immune-responsive microglia in individuals who have signs of AD in their brain but no living history of dementia. The latter suggests that neuroinflammation could be more involved in resisting AD than contributing to it. This is a very exciting area and no doubt there are many more important findings to come out of microglia research.

Step Up for Dementia

The Using our Brains Donor program is supporting the StepUp for Dementia Research initiative

The StepUp for Dementia Research initiative is an online, postal and telephone service that connects people interested in dementia research with researchers conducting studies into dementia prevention, diagnosis, treatment, care and cure. This new matching service is set to revolutionise research participation, fast-tracking more effective and inclusive dementia research across Australia.

You can be part of this initiative and assist with the next dementia breakthrough. The program is open to anyone aged 18 and over – either with or without dementia. To sign up and register for StepUp for Dementia Research, please visit <https://stepupfordementiaresearch.org.au/> or call 1800-7837-123. The website also includes a FAQ section that answers many of the questions about the initiative.

Research participation

A big thank you to the UoB donors who participated in the neurocognition project. All participants received a report summarising their results. More details from this project to come.

The UoB operates out of the Charles Perkins Centre (CPC) at the University of Sydney. CPC researchers are working towards untangling 'lifestyle disease' such as obesity, heart disease and diabetes. Many UoB donors have participated in various CPC research projects in recent times. Please indicate on the annual update if you are interested in participating and look for future notifications on our facebook page.

Donation enables the advancement of medical research to understand, treat and cure disease

Staff profile

Caine Smith, Research Assistant, PhD candidate NSW BTRC



What is your background and how long have you worked at BTRC?

I have a Bachelor's and Master's degree in Neuroscience and previously volunteered at the Brain Injury Association in Wellington, NZ. My Master's research used an animal model to investigate how alcohol exposure to the foetal brain affected learning and memory areas. I joined the BTRC in 2015.

What are the most rewarding aspects of working with BTRC?

The opportunity to participate in and facilitate research to scientists all around the world.

What is the focus of your PhD and why is this work important?

A significant portion of my PhD research focuses on how alcohol abuse affects brain. This is important to know because alcohol consumption is increasing in Australia, and nearly a fifth of the population are expected to experience alcohol-related illness or harm sometime during their lifetime.

UoB does the Global Challenge

Diet and exercise play an important role in maintaining brain health.



UoB staff getting active for brain health

This year, the team took part in the Virgin Pulse Global Challenge. Over 100 days, we took steps to increase our overall health and well-being by exercising more and trying to eat a more balanced diet. Dedicated to the task, we took out most improved team within the University of Sydney.

Australia's Physical Activity Guidelines recommend the following -

18 to 64 yrs: up to 300 mins of moderate or 150 mins vigorous activity per week

> 64 yrs: 30 mins of moderate activity per day

Talk to your GP to find out how you can get active to maintain brain health.

S2H4BRAINRESEARCH

The UoB would like to draw your attention to a fund-raising initiative of Clinical Associate Professor Raymond Schwartz, an affiliate of the Department of Pathology at the University and member of the Brain Tissue Resource Centre. Raymond together with his sons and other colleagues will sail the Sydney to Hobart yacht race and are using the opportunity to raise funds for research into Alzheimer's disease and Parkinson's disease at the University. The proceeds will help support the work of Greg Sutherland and Jillian Kril at the CPC and Professors Glenda Halliday and Simon Lewis at the Brain and Mind Centre. A full description of the S2H4BRAINRESEARCH challenge can be found at <https://crowdfunding.sydney.edu.au/project/16697>

Connect with us on social media

Using our Brains now has a Facebook page!

To connect with you, our donors, your families and to reach out to potential new donors, we have set up a Facebook page.

Follow us at: <https://www.facebook.com/usingourbrains/>

In Memoriam

The Using our Brains Donor Program would like to acknowledge the generosity shown by our donors and donor families. It is an act of great foresight and kindness to give at a time of loss, so that others may be helped in the future. To the families of donors that have died this year, the Using our Brains Donor Program would like to extend its sincere sympathy and gratitude.

Over the years, friends and families of donors have given memorial donations to the Using our Brains Donor Program in lieu of flowers. If you would like to donate to our research program, please contact us for details.

For more information

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