

# New discovery may reverse brain damage



Tex and Margo Bryan are both very excited about the latest research breakthrough in dementia

**Dementia is a devastating disease, that impacts not only the sufferers, but also the friends and family who care for them.**

The disturbing fact is that dementia is on the rise in Australia.

Approximately 280,000 Australians were living with dementia in 2012. Without a medical breakthrough, the number of people with dementia in Australia is expected to be around 940,000 by 2050.\*

Tasmania had more than 7,000 people with dementia in 2012; this number is projected to increase to approximately 20,000 by 2050.\*

Researchers at Menzies are working to make sure these projected figures don't become a reality, and the hard work is paying off.

A research team, led by Professor David Small recently discovered that a protein called amyloid precursor protein (APP), which is indirectly responsible for causing Alzheimer's disease, may also play a key role in the development of a cure.

The team has discovered, rather surprisingly, that APP is responsible for the growth of new neurons (nerve cells) in the brain.

"In addition to its role in causing Alzheimer's disease, APP may be part of a solution to the disease," Professor Small said.

"We may be able to use APP to encourage the brain to replace damaged neurons.

"Dissecting out the yin and yang of APP's actions may be a key to the treatment of Alzheimer's disease, as well as a number of other similar diseases.

"This discovery gives us some real clues about how we may be able reverse the

brain damage caused by Alzheimer's disease. It also presents us with several avenues for developing new treatment strategies," he said.

Tex Bryan, 63, of Hobart, was diagnosed with early-onset dementia four years ago and says that living with the disease is like trying to finish a jigsaw without the last piece.

Tex's wife Margo says the whole experience has been very upsetting and frustrating for Tex.

"It has had a deep impact on Tex and the rest of the family," Margo said.

Margo and Tex are both very excited by this latest research breakthrough by Menzies' researchers.

"For Tex it would be phenomenal," Margo said.

\* Source: Dementia Across Australia: 2011-2050, a report prepared by Deloitte Access Economics in September 2011.

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Brain Injury and Repair	Wednesday, 30 October 2013 at 5.30pm
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# Director's message



Professor Tom Marwick, Director

## Welcome to the spring edition of the *Bulletin* for 2013.

The past few months have been very exciting at Menzies, with new research discoveries and the completion of the UTAS Medical Science Precinct.

In late June we celebrated the announcement that Menzies was awarded nearly \$1 million in federal research grants from the Australian Research Council (ARC) through the Linkage Projects scheme. Congratulations to Dr Fay Johnston and Professor Greg Woods on this outstanding outcome. Details on the research projects the funding will support can be found on page 3.

I would also like to congratulate Professor David Small, who was successful in securing significant funding from the National Health and Medical Research Council (NHMRC) in early June. Professor Small received \$390,758 that will be used to examine the molecular mechanisms that cause Alzheimer's disease.

In this edition of the *Bulletin* you will read about a number of our research studies that are currently recruiting study participants. If you are eligible and interested in taking part, I encourage you to do so.

I hope you enjoy reading the stories within these pages.

Once again, thank you for your ongoing interest and support of Menzies Research Institute Tasmania.

Yours sincerely,

Professor Tom Marwick  
Director

# Taking heart screening to rural Tasmania

## **Menzies is excited to be launching a new heart screening project in rural Tasmania.**

With the support of the Tasmanian Community Fund and technology company Siemens, the project will hit the road and undertake heart screening in rural areas of Tasmania.

The purpose of the project is to run a screening program for cardiac dysfunction and trial the use of protective therapy to limit the development of heart failure in patients over the age of 65.

Menzies' Director, Professor Tom Marwick, will head up the new statewide project.

"Heart failure has reached epidemic proportions in Australia, especially among the elderly and commonly in rural environments," says Professor Marwick.



Menzies is launching a brand new heart screening project for rural Tasmanians

"In the program's first year we anticipate studying 800 patients with diabetes, obesity, high blood pressure, past cancer therapy or known cardiac disease within rural Tasmania.

"The initial focus will be in the Oatlands area but our intent is to make linkages across the State.

"It is difficult to diagnose and manage heart failure without echocardiography (ultrasound of the heart)," he said. "But requiring this imaging is particularly a burden for the elderly and those living in rural areas, who would usually need to travel to major cities for the testing."

"Thanks to the Tasmanian Community Fund and Siemens we are now able to take heart screening to rural Tasmanians.

"Having this technology is very important to us as heart failure is increasing in Tasmania and is among the most frequent causes of hospital admissions and related health costs," he said.

The three-year screening program will commence in late 2013 and is recruiting participants now.

### **Study Participants Needed:**

If you are aged 65 years or older, live in rural Tasmania, suffer from either diabetes, obesity, high blood pressure, cardiac disease or have previously undertaken past cancer therapy, and have no history of heart failure, you may be eligible to participate. For more information visit [www.menzies.utas.edu.au/taself-study](http://www.menzies.utas.edu.au/taself-study) or contact Hilda Yang on 6226 4265 or [Menzies.taself@utas.edu.au](mailto:Menzies.taself@utas.edu.au)

## Do you take blood pressure tablets?

### **Study volunteers needed**

Menzies Research Institute Tasmania is conducting a national study on improving treatment for people with high blood pressure.

If you are taking blood pressure lowering tablets and are aged 70 years or younger you may be eligible to participate.

If you are interested and would like further information



If you are taking blood pressure lowering tablets we need you

Please contact:

Penny Veloudi on (03) 6226 4629 or Jen Rayner on (03) 6226 4714

Email: [Menzies.LowCBP@utas.edu.au](mailto:Menzies.LowCBP@utas.edu.au)

[www.menzies.utas.edu.au/bp-study](http://www.menzies.utas.edu.au/bp-study)

Research approved by the Tasmanian Health and Medical Human Research Ethics Committee (H&M HREC) (Ref H0012445)

# Menzies awarded \$1 million in ARC grants



Menzies' Dr Fay Johnston was awarded the largest of the ten grants received by UTAS

**There was cause for celebration in late June as Menzies was awarded significant research funding from the Australian Research Council (ARC).**

Menzies received nearly \$1 million in federal research grants from ARC through the Linkage Projects scheme.

The funding will support two diverse, world-class research projects at Menzies; one focusing on the development of a vaccine to protect Tasmanian devils and the other conducting research to compare the health effects of planned forest burns in Australia and Canada.

The funding forms part of ten grants received by the University of Tasmania worth almost \$12 million. The grants represent the biggest success for UTAS in a single Linkage Projects funding round for more than a decade.

Menzies' Dr Fay Johnston was awarded the largest of the ten grants received by UTAS, securing \$559,330 for her project: 'Bushfires, smoke and people: assessing the risks and benefits from planned burning on the urban-rural interface.'

The exposure of communities to smoke pollution is a serious side-effect of planned burns. Dr Johnston's project aims to enable authorities to protect public health by determining acceptable levels of smoke originating from planned burns.

Professor Greg Woods, who leads the Devil Facial Tumour Disease research team at Menzies, received \$412,912 to undertake the project titled: 'Development of an immune-enhancing vaccine to protect Tasmanian devils against facial tumour disease'.

The iconic Tasmanian devil is threatened with extinction from a fatal transmissible facial cancer. This project will develop and test a vaccine against the tumour, which aims to ultimately protect devils in the wild.

## Blood pressure – take 10 minutes



Blood pressure readings are more accurate after ten minutes

**A new Menzies' study has found that waiting an extra five minutes before measuring a patient's blood pressure results in a more accurate reading.**

**The simple change in practice could reveal that far more patients have their blood pressure under control than currently thought.**

The study, published in the *Journal of Human Hypertension*, analysed data of 250 patients, aged 18-75 years, with treated hypertension.

Current guidelines recommend blood pressure be measured after five minutes of seated rest, but this new research shows that both brachial (arm) and central blood pressure were significantly lower when measured at ten minutes rather than five minutes after seated rest.

Menzies' PhD student and first named author on the paper, Sonja Nikolic, says blood pressure may continue to decrease for up to ten minutes of seated rest, after which it tends to reach a plateau level.

"Our research showed that blood pressure recorded after ten minutes

was more representative of true blood pressure control which was assessed using the patients' seven-day home blood pressure readings."

"The other important point was that the blood pressure recorded at ten minutes, but not after the conventional five minute wait, was highly related to structure of the heart, one of the organs most vulnerable to high blood pressure," Mrs Nikolic said.

Mrs Nikolic says the findings build on existing literature in the area and have relevance to appropriate methods to diagnose hypertension, as well as to use in clinical trials in which blood pressure is measured.

"This new research means that blood pressure measured after the recommended five minute rest period may not be a good representation of true blood pressure and using this as the sole method to assess blood pressure control may result in misclassification or inappropriate management of some individuals."

"The next step is to increase patient and doctor education regarding the need to take blood pressure measures outside of the clinic environment. This is currently being worked on by Menzies researchers in collaboration with the National Heart Foundation of Australia and the High Blood Pressure Research Council of Australia."

A position statement and practical documents to help patients and doctors should be available later in the year.

## Tools down! Medical Science Precinct complete

**It started with a bold vision that aimed to catapult medical research in Tasmania to new heights. Eight years later, we are pleased to announce that the vision is now a reality with the new UTAS Medical Science Precinct (MSP) reaching practical completion in late June this year.**

The new Medical Science 2 (MS2) building has been a talking point for the Hobart community, with many people commenting on the unique exterior of the building, but there is more to the design of the building than just the look. A lot of the design is aimed at improving the energy efficiency in the building, which has resulted in MS2 achieving the Green Building Council of Australia five star Green Star rating.

The colourful lines on the façade represent the Hobart landscape, but are also a louvre system designed to control the sun and the glare.

The long awaited café opened for business in early August. The café is open to the public, so next time you are in the city, why not enjoy a coffee and a bite to eat while taking in the vibrant architectural surrounds of the Medical Science Precinct.

Lyons Architect Director, Mr Adrian Stanic says they are proud of the completed precinct, which houses Menzies, the Faculty of Health Science and the School of Medicine.

"We're incredibly pleased with it. It's been a long time in the making and the execution and the workmanship in the building has just been fantastic," Mr Stanic said.

Levels 1 and 2 of the Medical Science Precinct are open to the public for self-guided tours, between 9am-5pm, Monday-Friday.

# Thank you to our valued supporters

Thank you to all of our donors and volunteers for your ongoing support and commitment to Menzies. Listed below are **new** individual and community supporters of Menzies for May 2013 – July 2013.

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## Small island, big science: Menzies hosts Youth ANZAAS

More than 40 top science students from Australia and New Zealand gathered in Hobart to get hands-on with science through the Australia & New Zealand Association for the Advancement of Science (ANZAAS).

Tasmania hosted this year's youth ANZAAS Conference for the first time since 1998.

Year 10 to 12 students signed up from all states and territories as well as from New Zealand for four days of science excursions and hands-on activities.

On Tuesday 9 July, the students had a devil of a day. Under the conference theme 'Small Island, Big Science' the students learnt about the Tasmanian devil facial tumour disease (DFTD). This involved visits to UTAS School of Zoology, Bonorong Park and Menzies.

Menzies' Professor Greg Woods and his research team outlined the immunology of DFTD and vaccine related research to the students. This was followed by a workshop for the enthusiastic students who were provided with a range of data to analyse.

Their first task was to identify DFTD using a microscope and real Tasmanian devil samples. Once this was completed the next objective was to interpret laboratory data that represented results from some of the vaccine related studies. This included microscopy to identify immune responses against the tumour and results from a range of laboratory tests.

These future scientists were also given a tour of Menzies' research laboratories.

ANZAAS, founded in 1888, has a long history of promoting science: fostering public

interest in science, facilitating communication and interaction between scientists of different disciplines, and encouraging the curiosity of youth in science.



ANZAAS participants identified DFTD using a microscope and real tasmanian devil samples

# Researcher Profile: Dr Stephen Richards



Dr Stephen Richards

## What is the current focus of your research?

Insulin resistance, a precursor to type-2 diabetes, is our main focus and we've been focussing on why one of the main tissues involved, muscle, is less sensitive to insulin when we get overweight or obese.

Our group made the discovery some years ago that, like exercise, insulin also increases blood flow in muscle, particularly in the smallest vessels. This response is very important, because if you block it, the muscle becomes insulin resistant. Of all the body's responses to insulin, this one is the most easily and rapidly lost when becoming obese, so we've been looking at how this occurs and ways we might restore it.

## What are some of the recent findings from your work?

We've known for some time that circulating fats and dietary fat potentially impair muscle blood flow responses to insulin. But recent work by Dr Michelle Keske and Dr Dino Premilovac from our group have found that even quite small increases in dietary fat, such as increasing calorie intake from fats from

10 to 20 per cent, cause insulin resistance by impairing blood flow.

Since multiple factors may be involved in causing insulin resistance, we've widened our search to look at the chronic inflammation that is associated with long term obesity and whether it might interfere with blood flow responses. We've recently found that high fat diets induce a degree of inflammation in muscle, which could conceivably account for the low blood flow.

It is also recognised that adipose tissue, or body fat, is a source of inflammatory factors, but the reasons are obscure. We think that poor blood flow, not in muscle, but in fat may be part of the cause of inflammation, because hypoxia (or low oxygen) is probably one of the triggers of the inflammation. So in obesity changes in one tissue (fat) may lead to changes in other tissues (muscle etc.) that eventually lead to type-2 diabetes.

## What is the biggest challenge in your area of research?

Someone smart said extraordinary claims require extraordinary evidence. We have some really novel ideas, but convincing others is often limited by the techniques you have at your disposal. I greatly admire those who come up with novel research techniques – these become the generators of new discoveries.

A more personal challenge is to balance research with extensive teaching duties as an academic. Fortunately there are synergies between teaching and research. Being involved in research keeps your teaching up to date, and teaching forces you to read outside your

area, often highlighting observations or concepts that impact on your research questions. Students are also a main driver of research, by enrolling in research degrees and actually doing a lot of the experiments!

## What is the most interesting aspect about your work?

Novel insights seem to come when least expected, often when experiments give results completely opposite to what all your previous work has lead you to expect. This is discomfoting at the time (especially when it goes counter to what you told the granting committee). But being forced to change your viewpoint makes you ask questions that hadn't occurred to you before. The constant evolution of your understanding of a problem stops you from ever getting into a rut. As you get older your picture of the body and its workings gets bigger, more complex and more interconnected. It's all very Zen.

## What do you enjoy doing in your spare time?

I have two teenage boys (14 & 18) who play soccer (or football to the puritans) and despite having never played they trust me to manage one team and help coach the other. Like most members of our research group, I'm fairly physically active, and swim, run and ride each day (occasionally all three if "balancing out" the effects of wine the night before). My wonderful wife indulges me in all this and recently let me buy an expensive bike for my 50th, but I think she secretly views all the exercise as a bit obsessive! When not fighting off obesity I'm reading scifi or playing with power tools in my shed.

## Menzies' Chinese students compete in Five Minute Science Competition

Six Menzies' Chinese PhD students participated in the Five Minute Science Competition in June, which was hosted by the Australian Chinese Association for Biomedical Sciences (ACABS) at the Alfred Centre in Melbourne.

Menzies' Chinese students gave an impressive performance at the competition as they competed against 60 of their peers from research institutions around Melbourne including the University of Melbourne, Monash University, RMIT University, CSIRO, Water and Eliza Hall Institute and Monash Institute of Medical Research.

Menzies' Yanlin Hu won second prize at the competition with her presentation 'Role of Amyloid Precursor Protein (APP) in Neurogenesis'.



Menzies' Chinese students gave an impressive performance at the competition



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Tasmania 7000  
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## Call for expectant mothers to participate in new study



The study hopes to find out if vitamin D supplementation in infants may improve bone health

### Researchers are seeking expectant mothers and their babies to participate in a new research trial.

The trial will examine whether vitamin D supplementation in mildly deficient infants improves bone health at age 2 and whether this improvement persists longer term, at age 4 years.

An improved bone health may reduce fractures in childhood, delay the onset of osteoporosis later in life, and as a result reduce fractures in adulthood.

In the first instance, they are looking to enrol the mother and baby for twelve months in the study.

If you would like more information please contact:

Roxanne Maher

Phone: (03) 6226 7713

Email: roxanne.maher@utas.edu.au



Research Assistant, Jocelyn Darby with Heather Cowled who suffers from lupus

### Menzies is thrilled to have received generous support from the Lupus Association of Tasmania this year.

The Association has donated \$35,000 to Menzies in support of a new participant-based research study focusing on lupus or system lupus erythematosus (SLE).

The project titled "Human SLE: Searching new biomarkers and potential targets for therapy" will be headed by Menzies' Professor Heinrich Korner.

The project will analyse blood samples from patients and healthy volunteers to identify the presence of marker molecules showing high activity of white blood cells which are responsible for the symptoms of SLE.

It is hoped that identifying these marker molecules will lead to earlier diagnosis and better treatment for lupus patients.

### Interested in volunteering for our lupus study?

If you have been medically diagnosed with lupus by a specialist and are interested in volunteering for this study please contact Wendy Carter on 03 6226 4688 or [wendy.carter@utas.edu.au](mailto:wendy.carter@utas.edu.au)

## Lupus Association partners with Menzies

The Lupus Association of Tasmania was founded over 30 years ago by a small group of people, some with lupus and some supporting family members.

Association Secretary, Mr Bruce McCormack says the main goals of the Association are to provide a support and friendship group, raise awareness of lupus and other autoimmune diseases, and raise funds for research.

For further information on the Lupus Association of Tasmania please call Bruce or Colleen McCormack on 03 6343 3078 or email [clantoss@bigpond.com](mailto:clantoss@bigpond.com)

**The Lupus Association of Tasmania will be holding an information night on lupus at Menzies, in Hobart, on Thursday 21 November from 5.30pm – 6.30pm. To register your interest in attending please call Lydia or Jo on 03 6226 7700.**

## Save the Date: The Art of Christmas 2013

We are pleased to invite you, your friends and colleagues to Menzies' major fundraising event – The Art of Christmas 2013 on Thursday 17 October, 6 - 8pm at the UTAS Medical Science Precinct, Hobart.

We encourage you to pop the date in your diary so you don't miss out on this wonderful night.

The Art of Christmas features original artwork by acclaimed Tasmanian artists who generously donate their artwork for sale and auction to raise funds for medical research in Tasmania.

### Honda Foundation \$5000 People's Choice Award

We are thrilled to announce that the Honda Foundation is sponsoring the event this year and is providing a \$5,000 People's Choice Award for the most popular artwork. Keep an eye on Menzies website for details on how to vote for your favourite artwork.



Festive Birds by Kate Piekutowski





Yes, I would like to help the  
Menzies Research Institute Tasmania.

I would like to make a one-off donation of \$ \_\_\_\_\_

I would like to have monthly donations of \$ \_\_\_\_\_  
deducted from my credit card.

**Note: all donations over \$2 are tax deductible.**

**Please complete the following details:**

Title: Mr / Mrs / Miss / Other \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

Email: \_\_\_\_\_

**Please accept my donation/s in the form of:**

Cash     Cheque/Money Order\*

\*Payable to the Menzies Research Institute Tasmania

**OR**

**Please debit my:**

Visa     MasterCard

Credit Card No.: \_\_\_\_\_

Expiry Date:        / \_\_\_\_\_

Name on Card: \_\_\_\_\_

Signature: \_\_\_\_\_

I/We wish that my/our donation be used for research  
purposes at the discretion of the Menzies Research  
Institute Tasmania, unless a particular research  
purpose is stated as follows:  
\_\_\_\_\_

Please do not publish my name in the 'Valued  
Supporters' section of Menzies' next *Bulletin*.

Please send me information on remembering Menzies  
in my Will.

**Thank you for your support.**

Please post to:  
Menzies Research  
Institute Tasmania  
Reply Paid 77465  
Hobart TAS 7000



Menzies  
Research  
Institute  
Tasmania

# More than Flowers



## In Memoriam

May 2013–July 2013

We gratefully acknowledge gifts made  
in honour of:

- Anonymous (6)
- Mrs Margaret Bradshaw
- Mrs Judith Burrill
- Mr Hedley Davie
- Mr Donald Forbes
- Mrs Patricia Gordon
- Mrs Lola Griffith
- Mr Eric Hunnibell
- Mrs Mary McManus
- Mr John Murray
- Mrs Ellen Nash
- Mrs Jean Russell
- Mr John Sluce
- Mrs Patricia Vallance
- Mr Allan Warrener

## *Society for the Future*



*One sentence in your Will can fund  
life-saving medical research.*

*Remember Menzies Research  
Institute Tasmania in your Will.*

If you would like more information please  
contact Larissa Bartlett on 03 6226 7782  
or email [Larissa.Bartlett@utas.edu.au](mailto:Larissa.Bartlett@utas.edu.au)

Bequests save lives by funding research.

## *Thank you!*