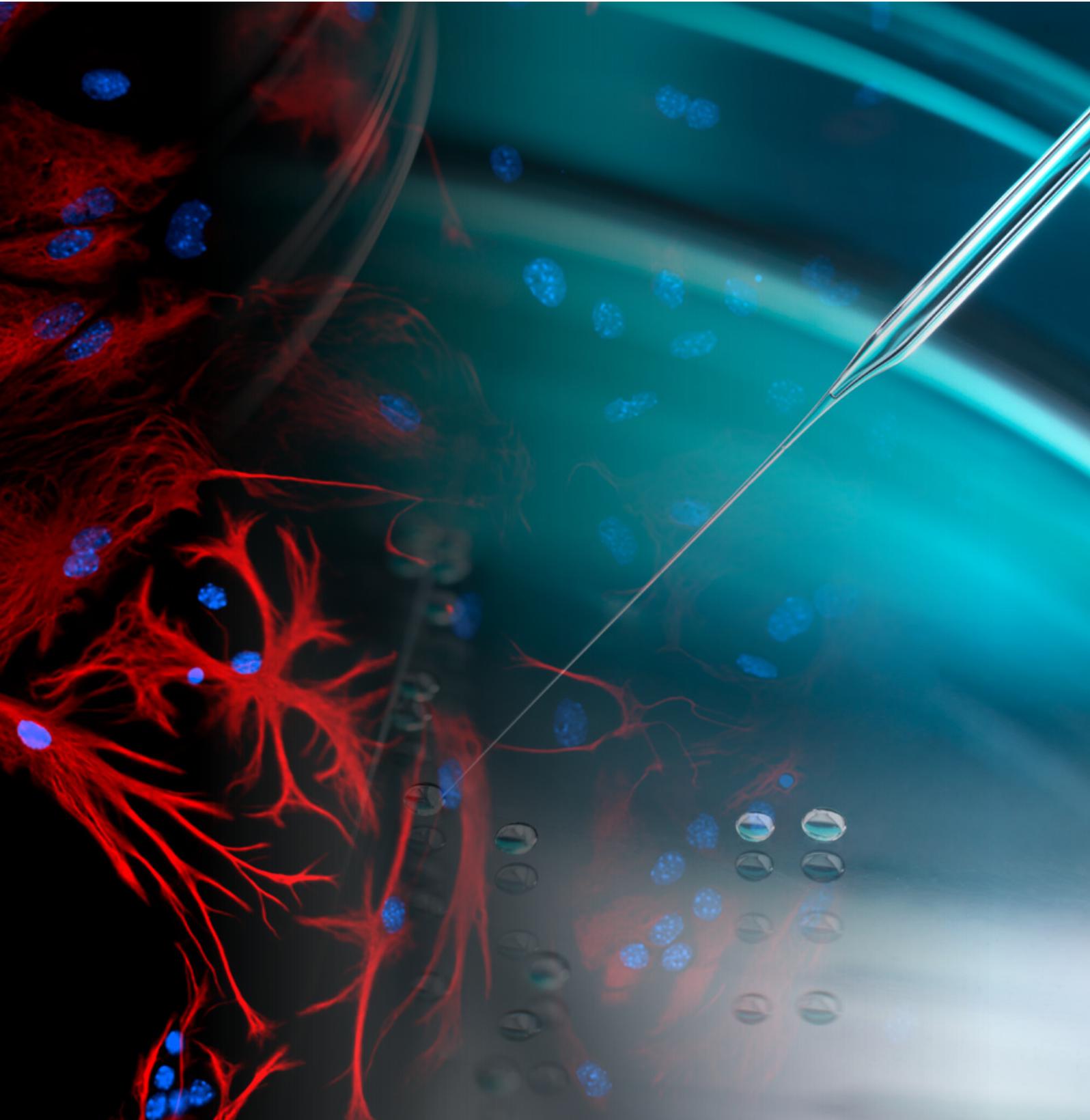


# Annual Report 2014





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# About us

Menzies Institute for Medical Research, an institute of the University of Tasmania, is one of Australia's leading health and medical research institutes and is recognised worldwide for its research excellence.

**Menzies exists to perform internationally significant medical research leading to healthier, longer and better lives for Tasmanians.**

## Our research

Menzies performs excellent basic laboratory, clinical and population health research in themes that reflect the burden of disease in the Tasmanian community and our expertise in addressing these diseases.

Our research takes a bench-to-bedside and disease prevention approach that is aimed at improving patient care and clinical outcomes for the community by translating knowledge into clinical and policy actions, and through the commercial application of discoveries.



*Menzies staff and students are encouraged to live by the health messages we promote. In 2014 at least 18 of our staff participated in Ride To Work Day. Lunchtime cycling, running and walking groups met weekly in 2014. Staff also donned Menzies t-shirts to participate in team events such as the B&E Run the Bridge and the Dragons Abreast corporate race day to raise money for breast cancer support.*

Menzies trains and educates future research scientists, clinicians and related health professionals. Our researchers capitalise on Menzies' unique role and profile in Tasmania, leveraging off a relatively stable population base and an environment where there are substantial challenges to the provision of health care based on funding limitations and specific challenges relating to disadvantage.

## Our five key research areas

### Public Health and Primary Care

Our Public Health and Primary Care theme seeks to better prevent and manage important population health problems. Projects address a broad range of conditions including cardiovascular disease, type-2 diabetes, cancer, multiple sclerosis and depression. Several projects are investigating how lifestyle factors (e.g. smoking and physical activity), obesity and hormones in childhood and early adulthood affect the risk of developing disease later in life. Research in this area includes epidemiology, behavioural science, environmental health, biostatistics and health economics.

Established partnerships with the Tasmanian Government and management of the Tasmanian Cancer Registry and Tasmanian Data Linkage Unit ensure a focus on applied research.

### Neurodegenerative Diseases/Brain Injury

Our neuroscientists aim to understand the mechanisms underlying the brain's response to trauma (e.g. road accidents and falls) and diseases such as dementia (including Alzheimer's disease), multiple sclerosis, Parkinson's disease and motor neuron disease. This research will assist in the development of new ways to diagnose, prevent or treat these devastating disorders.

### Cardio-Metabolic Health and Diseases

The primary aim of this theme is to reduce the burden of cardiovascular and metabolic disease on our community. The group uses interventions targeted at identifying and preventing the development of obesity, insulin resistance, type-2 diabetes, hypertension and heart disease.

Areas of interest include blood pressure assessment, assessment of large and small blood vessel function, and cardiac imaging in heart disease. Research techniques from laboratory models, clinical and population health studies and clinical interventions are used to discover new ways to prevent the progression of cardio-metabolic disease. Clinical trials are in progress to reduce the risk of developing cardiac disease in people with early “sub-clinical” disease.

### **Musculoskeletal Health and Diseases**

Research in this area optimises Tasmania’s unique population characteristics to investigate musculoskeletal disease, with a particular emphasis on osteoarthritis and osteoporosis. Epidemiological research into musculoskeletal disease helps us understand the impact of arthritis and other musculoskeletal conditions on the individual and the community, so the best medical care can be developed and delivered where needed.

### **Cancer, Genetics and Immunology**

Work in this theme is aimed at identifying the underlying causes of complex disease and the drivers of disease progression. These complex diseases include eye disease, cancer and immune disorders. We are using innovative technologies to identify the genetic changes which underlie risk of developing a disease or influence disease progression, in addition to laboratory-based approaches to understanding the biology of these diseases. Our work includes studies of several cancers including prostate, breast and blood cancers; eye diseases such as keratoconus and glaucoma; the Tasmanian Devil Facial Tumour Disease; and immune disorders such as multiple sclerosis and lupus.

## **A history of discoveries**

Menzies was established in 1988 by the University of Tasmania with support from the Menzies Foundation and the Tasmanian Government. Menzies was primarily established to address the health issues facing the Tasmanian community.

In 2014 we consolidated the highly innovative research taking place in the University of Tasmania’s state-of-the-art Medical Science Precinct, the building of which was completed between 2010 and 2013.

Over our 26 years, significant breakthroughs have been made by our scientists into the cause, prevention and treatment of a number of diseases impacting on Tasmanians and people around the world.

Menzies’ impressive record of research discoveries includes:

- The link between babies’ sleeping position and sudden infant death syndrome (SIDS)
- Genetic markers linked to men’s risk of developing prostate cancer
- The potential irreversible impact of childhood exposure to parental cigarette smoke on cardiovascular health later in life
- Association of higher vitamin D levels with a lower relapse risk in multiple sclerosis
- Potential avoidance of increased cardiovascular risk from childhood obesity if obesity in adulthood is avoided
- Remodelling of nerve cells in undamaged parts of the brain in response to acquired brain injury
- Development of risk algorithms for prediction of heart failure in persons at risk of heart failure, and risk assessment for hospital re-admission in patients with heart failure.

## **How we spend our donor funds**

Every donation received by Menzies, whether big or small, goes towards research undertaken in Tasmania. Donations may fund research projects, provide student scholarships, contribute to researcher salaries, or finance equipment purchase. Donations may support an initial research project that later attracts government funding. This is very important because government and competitive funding bodies favour funding established projects, which can make it difficult to get new research off the ground.

**Gifts to the Menzies Institute for Medical Research are an investment in a healthier future for all Tasmanians.**

# Chairman and Director's report

We can celebrate 2014 as a year of growth and consolidation at Menzies. It was a year in which our researchers made a record contribution in the number of published papers, and in which our enrolment of Higher Degree by Research (HDR) students hit a new high.

## Recognition

We saw national recognition for some of our leading researchers. Dr Kaylene Young was named as one of two inaugural winners of the Metcalf Prize for Stem Cell Research, a prestigious national award that recognises leadership in this area. Dr Young's expertise is in the potential for stem cells in the brain to repair brain injuries and even treat diseases such as multiple sclerosis and Alzheimer's. Professor Tom Marwick became a Foundation Fellow of the Australian Academy of Health and Medical Sciences. Professor Graeme Jones, who leads Menzies' Musculoskeletal Health and Diseases theme, was awarded the University of Tasmania Research Medal. Professor Jones' research group investigates musculoskeletal epidemiology, with a particular emphasis on fractures, osteoporosis and osteoarthritis. His work is integral to the high standing of the work that takes place within the Clinical Research Facility in the University's Medical Science Precinct.

## Research

Menzies researchers published a record 218 papers in 2014. Highlights from these included several in high impact journals such as *Nature*, the *Journal of the American College of Cardiology*, *Nature Genetics* and the *European Heart Journal*. You can read more about the many highlights from each research theme further on in this report. Menzies scientists were also busy in 2014 supervising the medical researchers of tomorrow. Eighteen HDR candidates began studying with Menzies in 2014 and 11 students completed their HDR studies. At the end of 2014, 72 students were enrolled. This success is replicated in the growing international student cohort, in particular through Chinese students who numbered 25 in 2014.

One of our signature studies at Menzies is the Childhood Determinants of Adult Health study, which is overseen by Professor Alison Venn. In 2014, with significant philanthropic support from Blundstone Australia Pty Ltd and the Tasmanian community, we rolled out the pilot phase of a third stage of this research, 30 years after the first collection of data from Australian school children. After another intensive effort to contact participants, clinics were run in Tasmania and Victoria to collect new data for this exciting new phase in a project that has its roots back before the Institute itself was established.

## Our community

We continue to enjoy a wonderful relationship with the Tasmanian community – in philanthropic support, research participation and our volunteer program. We value this relationship for many reasons, but it is particularly significant in a funding sense because Federal Government funding for medical research becomes more difficult to obtain every year. In 2014 we received competitive grant income of around \$11 million, and an additional \$2.8 million generously given through donations and bequests from organisations and individuals. It seems timely to remind people that every cent donated to Menzies for medical research is spent on medical research. In 2014 we are proud to say that we also reached the \$90 million target for the Medical Science 2 building.



There was a full house for the 2014 Menzies Debate on the topic "Should the Obesity Epidemic be Managed by Prevention or Cure?" Both before and after the debate the audience came down on the side of prevention. Photo: Alastair Bett.



2014 was an important year for the Childhood Determinants of Adult Health (CDAH) study. With the help of generous philanthropic support a pilot was conducted for the third phase of the research, which compares the health of participants today with data collected from the same participants 30 years ago. CDAH leader and Menzies Deputy Director Professor Alison Venn is pictured with members of the research team. Picture: Peter Mathew.

This fundraising campaign, the largest in the University's 125-year history, was dedicated to building and therefore kept separate from research fundraising. We were also proud to see the official opening of the \$1.9 million GE 1.5 Tesla Optima MR450w MRI scanner, which was installed in the Royal Hobart Hospital after being purchased from the MS2 funding.

We would like to acknowledge our other supporters and major donors – the Tasmanian Government, the Menzies Foundation and the many organisations that make a major contribution through fellowships and scholarships. These contributions are all part of a complex funding mix that enables the highly skilled and dedicated staff and students of Menzies to undertake research that will ultimately save and change lives.

**Mr Bruce Neill**  
Chairman

**Professor Tom Marwick**  
Director



Menzies Director Professor Tom Marwick during one of the signature events for the year, the Menzies Debate. In 2014 more than 4,000 people participated in events hosted by Menzies. Picture: Alastair Bett.

# Research highlights

For more than a quarter of a century the Menzies Institute for Medical Research has been making discoveries to improve the health of our community. Every year researchers at Menzies investigate the biggest health issues facing people in Tasmania and globally.

We continue to align our research structure within themes that address the burden of disease in our community. In 2014 Menzies researchers published 218 academic papers – a record achievement. This output continues our significant contribution to improving local and global health and wellbeing.

## Public Health and Primary Care

### **The long-term effects on vascular health of childhood exposure to parental smoking**

This study pooled data from the Menzies' Childhood Determinants of Adult Health study and a similar cohort in Finland, the Cardiovascular Risk in Young Finns Study. Follow-up of 3,776 children for up to 25 years showed that children exposed to their parents' smoking had poorer

vascular health in adulthood than their peers whose parents did not smoke. The study looked at whether parents' smoking behaviour was associated with the structure of carotid artery in adulthood, measured using non-invasive ultrasound. Published in the *European Heart Journal*.

### **Is workplace health promotion a good investment?**

Menzies is coming to the end of a five-year NHMRC-funded research program in partnership with the Tasmanian Government to evaluate the effectiveness of a workplace health promotion program for state service employees. This paper included a review of the world's literature on return on investment of workplace health programs, finding that the better the quality of the study, the lower the return on investment. The paper, published in *The American Journal of Health Promotion*, was accompanied by an editorial describing it as "the most extensive and well-conceived review conducted to date".

### **Blood lipids can predict the progression of disability in people with multiple sclerosis**

Growing evidence suggests that some "bad" fats – that are usually associated with poor cardiovascular health – are linked to the progression of MS. This study examined the fat profiles from blood samples of people with relapsing remitting MS. The samples were collected at six-monthly intervals over two-and-a-half years as part of the NHMRC-funded Tasmanian MS Longitudinal Study. The results showed the amounts of a number of different fats in the blood, including total cholesterol, were closely associated with disability level even when factors such as smoking, exercise, age and sex were taken into account. Published in *Multiple Sclerosis*.

### **Australian MS Longitudinal Study**

Menzies, through Associate Professor Ingrid van der Mei and Professor Bruce Taylor, has taken over the management of the Australian MS Longitudinal Study, a study with more than 3,500 active participants. The study has a practical purpose and aims to improve the lives of people with MS. The data is used for pure research as well as translational activities.



*MS Research Australia CEO Dr Matthew Miles and Menzies Principal Research Fellow and epidemiologist Associate Professor Ingrid van der Mei at an event to mark Menzies taking over the running of Australia's largest multiple sclerosis study in partnership with MS Research Australia. The Australian MS Longitudinal Study has been running for 13 years and has around 3000 active participants who are living with MS.*



Professor Graeme Jones (right), who leads the Musculoskeletal Health and Diseases research theme, receives the University of Tasmania Research Medal from the Vice-Chancellor, Professor Peter Rathjen. Photo: Fraser Johnston.

## Musculoskeletal Health and Diseases

### Knee fat and osteoarthritis

The infrapatellar fat pad is located close to the cartilage and bone surface under the kneepad. Research has found that the area of the infrapatellar fat pad was associated with reduced radiographic arthritis and pain, decreased knee cartilage defects and bone marrow lesions, and increased cartilage volume in older adults. In a follow-up study, we reported that infrapatellar fat pad area in women was associated with reduced risks of cartilage defects and pain, and reduced risk of cartilage loss over 2.6 years. Our results suggest that infrapatellar fat pad size appears to have a protective role for knee symptoms and structural damage in older adults. Published in *Arthritis Research & Therapy*.

### Vitamin D and joint pain

Bone and muscle pain are common in persons with severe vitamin D deficiency, but the relationship to joint pain is uncertain. This study demonstrated that moderate vitamin D deficiency was associated with new or worsening knee pain (and possibly hip pain) over five years in a group of older Tasmanian adults. This suggests that ensuring normal vitamin D levels may prevent or reduce worsening of knee or hip pain in elderly people. Published in *Annals of Rheumatic Diseases*.

### Obesity and arthritis

This research described the associations between overweight measures in childhood and knee pain, stiffness and dysfunction among adults 25 years later. We found that childhood overweight was associated with knee mechanical joint pain, stiffness and dysfunction among adult males. Most importantly, these associations were independent of adult overweight measures. Published in *Annals of Rheumatic Diseases*.

## Cardio-metabolic Health and Diseases

### **Blood pressure: deepening understanding of human physiology**

For many decades it has been believed that pressure wave travel within the large arteries plays a major role in driving abnormal blood pressure. However our research has debunked this theory and shown, for the first time in humans, that the dynamic function of the arterial system (rather than wave travel) was more important in determining an individual's underlying blood pressure. This finding supports a shift in fundamental understanding of blood pressure physiology. Published in *Arteriosclerosis, Thrombosis and Vascular Biology*.

### **A new measure of cardiac function**

This study sought to assemble evidence that global longitudinal strain (GLS) is an accurate marker in predicting cardiovascular outcomes, compared to the current standard measurement, ejection fraction (LVEF). All of the published evidence comparing GLS against LVEF was reviewed and 16 articles (involving more than 5,700 patients with heart failure, heart attack, heart valve disease and other conditions) were identified. GLS was found to be a stronger predictor of death than LVEF. Published in *Heart*.

### **Another danger from dietary salt**

Excess dietary salt has historically been associated with development of high blood pressure. The Menzies' diabetes research group has found that too much salt in the diet can also cause insulin resistance, the condition that precedes the development of type 2 diabetes. A diet high in salt can cause insulin resistance by reducing the ability of small blood vessels in skeletal muscle to function properly in response to the hormone insulin. Published in *Diabetologia*.

### **Blood Pressure Clinic**

In 2014 the cardio-metabolic group successfully launched the Menzies' high blood pressure clinic for difficult-to-manage blood pressure. This clinic gives the community, on referral from a GP, access to Menzies' expertise in blood pressure care. The goals of the clinic are to provide optimal care (to reduce cardiovascular risk), together with a plan for rapid return to general practice management. The clinic also provides a comprehensive research platform for greater understanding on the causes and consequences of high blood pressure.

## Cancer, Genetics and Immunology

### **Biobanking**

We remain committed to engaging the public in consultation in the way in which genetic research is conducted. A deliberative democracy consultation was undertaken in 2013 by a team from Menzies, the University's Centre for Law and Genetics and national and international collaborators. The outcomes of this research were published in the *Journal of Responsible Innovation* and the *Journal of Personalized Medicine*. They are informing the development of frameworks for conducting future genetic research.

### **Cancer**

In 2014 the Menzies School of Population Health, Northern Territory and the Menzies Institute for Medical Research were awarded \$1 million of competitive funding from the NHMRC to investigate the genetic contributors to vulvar cancer. We have recently undertaken whole genome analysis to identify how the genetic makeup of a population may increase risk of this cancer. Published in *Gynecologic Oncology*.

### **Eye Disease**

Menzies researchers are working to understand the genetic contributors to eye diseases, such as glaucoma. This work is conducted in collaboration with national and international experts in the field and researchers have identified a number of new genes that contribute to the development of glaucoma. Published in *Nature Genetics*.

### **Devil Facial Tumour Disease**

We are now much closer to understanding how we may be able to combat Tasmanian Devil Facial Tumour Disease by gaining a better understanding of the immune response to the tumour cells. Our work in this area has revealed that the immune response can be manipulated to increase normal defence processes against tumour cells. Published in *Frontiers of Immunology*.

### **Immune Function**

Our understanding of how the immune system contributes to disease development and progression is closely linked to our understanding of human disease. We have been working towards understanding the intricacies of how inflammation contributes to skin lesions during parasitic infection. Published in *Parasite Immunology*.



Associate Professor Kathryn Burdon was awarded the Menzies Best of the Best Award for an article published in *Nature Genetics* in 2014. Associate Professor Burdon is trying to disentangle the role that genes play in the development of eye diseases – in particular glaucoma, keratoconus and diabetic retinopathy. Photo: Peter Mathew.

## Neurodegenerative Diseases/Brain Injury

### **Making new brain cells and new connections**

We are working to harness and encourage the brain's innate capacity to respond to disease and injury through the generation of new brain cells or the development of new connections. Within this field, Dr Kaylene Young was awarded the inaugural Metcalf Prize from the National Stem Cell Foundation of Australia in 2014, in recognition of leadership in stem cell research.

### **Young Investigator**

Dr Catherine Blizzard was one of only two Australians selected for the internationally competitive 2014 Young Investigator Training Fellowship from the Federation of European Neuroscience Society (FENS). The fellowship included a fully supported placement at the University of Bologna in the lab of internationally renowned stem cell researcher Professor Laura Claza for two months and an invited presentation at the

8th FENS International Symposium of Neuroscience in Milan.

Dr Blizzard is now applying these techniques to her work with Associate Professor Tracey Dickson in understanding frontotemporal dementia and motor neurone disease.

### **Understanding the cause of Alzheimer's disease**

Our work in this area has allowed further insight into the mechanisms underlying Alzheimer's – particularly the amyloid precursor protein (APP), which is central to the disease's development. The work shows that the normal role of the APP protein is to stimulate neurogenesis or the creation of new brain stem cells. We are hoping that by understanding more about this process, ongoing studies will be able to harness this property in the fight against Alzheimer's and acquired brain injury. Published in the *Journal of Biological Chemistry*.

# Education and training

One of the key goals of Menzies is to attract high quality Australian and international research students, and train them to become future research leaders. Providing a stimulating and rewarding learning environment that is responsive to student needs has become an important focus of Menzies.

In 2014 we had a record number of students enrolled – 18 Higher Degree by Research (HDR) candidates began studying with Menzies in 2014 and 11 students completed their HDR studies. At the end of 2014, 72 students were enrolled. More PhD projects are on offer by application. More information is available at [www.menzies.utas.edu.au/PhD\\_projects](http://www.menzies.utas.edu.au/PhD_projects).

Five students were enrolled in the Menzies Undergraduate Research Opportunities Program (UROP) scheme, which is designed to give undergraduate students an early opportunity to gain some experience and insight into careers in biomedical research. UROP students undertake a project that is part of a research program at Menzies and are supervised by a research scientist in a mentoring role.

## Higher Degree by Research

There were 72 students undertaking postgraduate research studies in 2014. Congratulations to the 11 HDR students who graduated in 2014:

<b>Lila Landowski</b>	<b>Long Huynh</b>
<b>Suyin Chin</b>	<b>Edgar Dawkins</b>
<b>Rui Lin</b>	<b>Sonja Nikolic</b>
<b>Lucy Apps</b>	<b>Claire Dickson</b>
<b>Helena Ng</b>	<b>Terry Pinfeld</b>
<b>Katherine Southam</b>	

## Honours

There were 15 students undertaking Honours in 2014 and one part-time student finishing in mid-year 2014.

Congratulations to those who graduated in 2014.

## Training

Menzies provided an interactive course on research skills for advanced trainees on the weekend of October 4-5, 2014. The course was provided with assistance from Servier and introduced attendees to the skills needed to produce and publish a project.

Sessions included an introduction to clinical epidemiology, basic and advanced analysis (including the principles of modelling), clinical trials (including protocol documents and power calculations), systematic review and meta-analysis and health economics.

Presenters included Professors Tom Marwick and Mark Nelson (analysis, trials), Alison Venn (epidemiology), Tania Winzenberg (systematic reviews) and Andrew Palmer (health economics), and Associate Professor Leigh Blizzard (biostatistics). Numbers were capped at 25 and all positions in the course were taken.

## Teaching in China

In 2014 Menzies ran its first course for post-graduate students in China. The course, led by Professor Andrew Palmer, who directs the Health Economics Unit at Menzies, was held at Anhui Medical University (AMU). Professor Palmer's course on the health economics of diabetes prevention and treatment was supported by the International Diabetes Federation and attracted students from nine institutions throughout China. Academics from the University of Melbourne also contributed to the teaching.

The course introduced participants to the basic concepts of health economics, leading to practical hands-on exercises including deriving costs, health utilities and life tables in diabetes populations and building simulation models using decision analysis software.



*PhD student Rachel Climie supported Menzies through participation in community events such as Open Day and was also recognised for outstanding student research achievement.*



*Award-winning PhD student Lei Si with Professor René Rizzoli, the Scientific Advisory Board Chair of the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis.*

## Institute seminars

Institute seminars were held each week for most of 2014 and featured external guest researchers, Menzies researchers, and Faculty of Health researchers.

## Student recognition and outstanding achievements

**Rachel Climie** was the Exercise and Sports Science Australia winner of the Aspire Academy Young Investigator Award for Exercise Science & Health (out of 80 submitted abstracts). Ms Climie also won the Exercise and Sports Science Australia-European Congress of Sports Science exchange to visit and showcase work at the European Congress of Sports Science meeting in Amsterdam. Her work was selected from more than 200 abstracts to win this opportunity.

**Lei Si**, a PhD student from the Health Economics Research Unit at Menzies, was awarded the International Osteoporosis Foundation Young Investigator Award. His work was chosen from submissions from researchers and clinicians from more than 38 countries.

**Dr Martin Schultz** was awarded The Royal Society of Tasmania Annual Doctoral (PhD) Award.

## Global collaboration

International collaboration is a key part of Menzies' success, with researchers working within large consortia as well as through smaller networks and more individualised connections. In 2014 a record number of international PhD students were enrolled at Menzies.

### Furthering Collaboration with China

Menzies shares a scholarship program with Anhui Medical University (AMU) in Hefei, which involved 20 PhD students in 2014, and has a Memorandum of Understanding with Southern Medical University in Guangzhou. In 2014 Menzies ran its first course for post-graduate students in China.

### The International Childhood Cardiovascular Cohort (i3C) Consortium

The i3C Consortium was established by former Menzies Director Professor Terry Dwyer in 2002, initially with three cohorts (Australia, Finland and the USA). It has grown to include seven cohorts, with five from the USA.

It aims to pool data from similar studies around the world that have collected information on cardiovascular risk factors in childhood and have followed participants over several decades into adulthood. Menzies involvement is through the Childhood Determinants of Adult Health study (CDAH), which involves follow-up tests on school-age participants from a 1985 health survey. Being part of the consortium enables researchers to compare findings across countries and helps to overcome statistical problems associated with the small number of relatively young people with established heart disease in the individual studies.

In October 2014 Menzies hosted the annual meeting of the i3C Consortium and the Executive Committee meeting for i3C Cardiovascular Outcomes Study. New research findings were presented and new work planned. In late 2014 the i3C Consortium was awarded US \$13.3 million by the US National Heart, Lung and Blood Institute to investigate associations of childhood factors with adult cardiovascular disease events such as heart attack.



*Students and staff involved in Menzies' first course in China, which was held at Anhui Medical University and led by Professor Andrew Palmer (front row, third from left), who directs the Health Economics Unit at Menzies. The course on the Health Economics of Diabetes Prevention and Treatment was supported by the International Diabetes Federation and attracted students from nine institutions throughout China.*

### **Multiple Sclerosis Genetics**

Menzies is a key contributor to the ANZgene consortium, an investigator-led consortium across Australia and New Zealand that has been studying Multiple Sclerosis (MS) genetics since 2007. The consortium has published more than 30 papers and is actively aligned with the International Multiple Sclerosis Genetics Consortium (IMSGC). The international consortium is currently completing a manuscript describing the genetics of MS in over 80,000 participants including 2,000 directly sourced through Menzies. Recruitment of participants by the PREVANZ (Prevention of MS with vitamin D) Australia–New Zealand consortium began during 2013, with over \$3 million for its research being funded by MS Research Australia.

### **Prostate Cancer Genetics**

Menzies works collaboratively as a member of the PRACTICAL consortium (the Prostate Cancer Association Group to Investigate Cancer Associated Alterations in the Genome), which was established in September 2008. The aims of the consortium are to combine data from many studies to provide a reliable assessment of the risks associated with genes that may be related to prostate cancer, and to validate new findings. The consortium currently consists of 78 different study groups, incorporating sites in the European Union, Australia, China, Japan, India, Canada and the USA. This collaboration has generated access to samples from over 65,000 prostate cancer cases and 65,000 controls. Menzies researchers are co-authors on several published papers.

### **ASPREE (ASPIrin in Reducing Events in the Elderly)**

Menzies is a critical part of the ASPREE randomised controlled trial of aspirin, which is on track to recruit 19,000 people, 16,500 of them through Australian general practices, including 2,090 in Tasmania. This collaboration is through the Bermann Center in Minneapolis, USA, and other centres in San Antonio, Chicago and Pittsburgh. This study is investigating whether taking daily low-dose aspirin extends healthy active life in those aged over 70 years. ACES is a substudy within the ASPREE study, with the US group looking at cancer outcomes in those taking aspirin versus placebo.

### **International Glaucoma Genetics Consortium (IGGC)**

Menzies is part of the International Glaucoma Genetics Consortium (IGGC), which aims to identify genes contributing to glaucoma. In 2014 the consortium published two papers (in *Nature Genetics* and *Nature Communications*).

The consortium consists of members from Australia, North America, Asia and Europe and uses population-based studies to map genes for clinical traits that lead to glaucoma, and family and case control studies to look at how those genes influence glaucoma risk.

### **International Age Related Macular Degeneration Gene Consortium**

In 2014 this consortium completed a study looking at more than 50,000 individuals. It assessed common and rare variation in these people and identified multiple new genes for this disease. The work has been submitted for publication. The consortium includes multiple groups from Australia and all over the world and has assembled the largest collection of AMD cases ever studied.



*International collaboration at Menzies continues to grow, particularly with China. Students Ying Wang, Lei Si and Xingzhong Jin are pictured being photographed for media coverage of the 2014 visit to Hobart by the Chinese President, Xi Jinping.*

# Grants, fellowships and funding

## Major grants awarded in 2014 and to be administered by Menzies

### **Bariatric surgery in Tasmania: investigating health service use, costs, patient outcomes and policy options**

This is an NHMRC Partnership Grant totalling \$1.3 million over five years from 1 June 2014 to 31 May 2019 comprising \$644,027 from the NHMRC and an additional \$695,000 in-kind support from the Tasmanian Department of Health and Human Services (\$500,000) and Department of Premier and Cabinet (\$195,000). The Menzies' Chief Investigators are Professor Alison Venn, Professor Andrew Palmer, Professor Mark Nelson, Associate Professor Leigh Blizzard and Dr Amanda Neil.

### **Coronary Artery Calcium Score: Use to Guide Management of Hereditary Coronary Artery Disease (CAUGHT-CAD)**

This is an NHMRC Project Grant totalling \$2.6 million over five years from 1 January 2015 to 31 December 2019. The Menzies Chief Investigators are Professor Tom Marwick, Associate Professor Leigh Blizzard and Dr Amanda Neil.

### **Myelin remodelling: a novel form of neural plasticity**

This is an NHMRC Project Grant totalling \$586,000 over three years from 1 January 2015 to 31 December 2017. The Menzies Chief Investigator is Dr Kaylene Young.

### **Promoting active, healthy lifestyles among women at key life-stages**

Dr Verity Cleland was awarded this \$448,000 National Heart Foundation Future Leader Fellowship over four years.

### **Understanding cardiovascular disease across the life course**

Dr Seana Gall was awarded this \$448,000 National Heart Foundation Future Leader Fellowship over four years.

### **Tasmanian genetic research in inherited disease (TasGRID)**

Associate Professor Jo Dickinson, Associate Professor Kathryn Burdon and Dr Jac Charlesworth are Chief Investigators on this \$200,000 grant from the University of Tasmania's Deputy Vice-Chancellor (Research) Strategic Research Funding.



*The CEO of the Heart Foundation in Tasmania, Graeme Lynch, with National Heart Foundation Future Fellowship winners Dr Verity Cleland and Dr Seana Gall.*



*Dr Katherine Southam received her PhD in 2014 and was also awarded the Alzheimer's Australia Postdoctoral Fellowship.*



Freezing in the name of fundraising. It was mid-winter in Hobart but that didn't stop members of the Neurodegenerative Diseases/Brain Injury research theme participating in the Ice Bucket Challenge for Motor Neurone Disease.

**Investigate how the immune system is involved in the onset of dementia and the development of Alzheimer's disease**

Dr Katherine Southam was awarded the \$200,000 Alzheimer's Australia Postdoctoral Fellowship by the Alzheimer's Australia Dementia Research Foundation.

**Major grants awarded in 2014 and to be administered by other institutions**

**The Long-Term Latrobe Health Study – follow-up of the Hazelwood Coal Mine Fire**

Dr Fay Johnston is a Chief Investigator on this \$24 million award received from the Victorian Department of Health. The lead in this study is Monash University. A portion of this funding totalling \$4.8 million will flow to Tasmania over 10 years.

**Many other associations and charitable foundations awarded research funding to Menzies during 2014**

Arthritis Australia, Australian Research Council, Australasian Epidemiological Association, Brain Foundation, Cancer Council Tasmania, Diabetes Australia Research Trust, Morris Animal Foundation, Motor Neurone Disease Research Institute of Australia, Multiple Sclerosis Research Australia, Osteoarthritis Research Society International, Parkinson's Tasmania, Physiotherapy Research Foundation, Royal Australian College of General Practitioners, Royal Hobart Hospital Research Foundation, Select Foundation, Tasmanian Community Fund, Tasmanian Government, United States National Institutes of Health, Western Health.



*Menzies scientists who are working on finding a vaccine against Devil Facial Tumour Disease take blood for analysis from a devil near Launceston. Our research into DFTD is generously supported by the Save the Tasmanian Devil Appeal.*

## The following scholarships were offered in 2014, thanks to the generosity of our supporters

### Honours

Heart Foundation/ Menzies Institute for Medical Research Honours Scholarship (x4)

Helene Matterson Medical Research Scholarship

Morrell Family Trust Scholarship  
in Medical Research

Moonah Navy Club Honours Scholarship  
in Medical Research

Groom Kennedy Honours Scholarship  
in Medical Research

Diagnostic Services Honours Scholarship  
for Medical Research

Diabetes Tasmania/Select Foundation  
Elite Research Scholarship

Cancer Council Tasmania Evelyn Pedersen  
Honours Scholarship

Dr Eric Guiler Tasmania Devil Honours Scholarship

Medical Science Precinct Honours Scholarship (x2)  
– supported by donor funds

### PhD

Masonic Centenary Medical Research Foundation  
Elite Research Scholarship (x2)

Hobart Cancer Auxiliary PhD Top-Up Scholarship  
in Medical Research

Broadreach Elite Research Scholarship

Staples Australia / Konica Minolta  
Elite Research Scholarship

Farrell Foundation Elite Scholarship  
in Medical Research

Farrell Foundation Elite Scholarship  
in Cardiovascular Health & Diseases Research

Farrell Foundation Elite Scholarship  
in Musculoskeletal Research

Ashdown Family Elite Scholarship  
in Medical Research

Cuthbertson Family Scholarship  
for Cancer Research

Cancer Council Tasmania Evelyn Pedersen PhD Scholarship

Dr Eric Guiler Tasmania Devil PhD Scholarship

## Awards and recognition

**Dr Dan Norton**, former Menzies' Chair, was honoured in the 2014 Queen's Birthday Honours List for his outstanding service to the community. Dr Norton was made an Officer of the Order of Australia (AO).

**Professor Tom Marwick** became a foundation Fellow and Council member of the Australian Academy of Health and Medical Science. Professor Marwick was also selected as an Associate Editor of the *Journal of the American College of Cardiology*, the world's most widely read cardiology journal.

**Dr Kaylene Young** was one of two recipients in Australia of the inaugural Metcalf Prize for Leadership in Stem Cell Research, valued at \$50,000. The prize is awarded by the National Stem Cell Foundation of Australia.

**Professor Graeme Jones** was awarded the University of Tasmania Research Medal, which recognises staff who have made a major contribution to excellence in research and research training.

**Professor Ray Lowenthal** was inducted into the Australasian Leukaemia and Lymphoma Group Hall of Fame. He also received the Distinguished Service Award from the Tasmanian branch of the Australian Society for Medical Research.



The Prime Minister, Tony Abbott, with foundation members of the Australian Academy of Health and Medical Science, including Menzies Director Professor Tom Marwick (back row, third from left) and former Director Professor Simon Foote (back row, second from left).



## Dr Kaylene Young

Menzies neuroscientist Dr Kaylene Young believes she can persuade lazy stem cells in our brain to repair brain injuries and even treat diseases such as multiple sclerosis and Alzheimer's.

In 2014 Dr Young received an inaugural \$50,000 Metcalf Prize from the National Stem Cell Foundation of Australia in recognition of her leadership in stem cell research.

She and her colleagues have found neural stem cells and oligodendrocyte progenitor cells (OPCs)—which feed, protect and assist nerve cells—in the outer part of the brain most prone to damage, known as the cortex.

By understanding the behaviour and function of these cells, they one day hope to use them for treating nervous and brain disorders or damage.

“Our ultimate goal is to harness the regenerative capacity of these cells for the treatment of neurodegenerative diseases, mental health disorders and traumatic brain injury,” Dr Young said.

To assist in her work, the National Stem Cell Foundation of Australia awarded Dr Young (a National Health and Medical Research Council RD Wright Biomedical Research Fellow) one of two inaugural Donald Metcalf prizes each worth \$50,000.

The awards are named for Professor Donald Metcalf, AC, who transformed cancer treatment with his discoveries of critical molecules that tell stem cells to multiply and mature to boost the immune system.

Dr Graeme Blackman, OAM, the Chairman of the National Stem Cell Foundation of Australia, said the foundation was stunned by the quality of the applications for the Metcalf Prize. “Our inaugural winners stood out from a remarkable field of young research leaders. We can expect great things from Australian stem cell research in next few years.”

Dr Young grew up in Tasmania but won a scholarship to do a Science degree at Monash University in the mid-90s, just a few years after the discovery of neural stem cells made brain and nervous system repair seem far more possible. She did her PhD with Professor Perry Bartlett, one of the world leaders in neural stem cell research, at the Walter and Eliza Hall Institute in Melbourne before moving to the UK as a postdoctoral fellow at University College, London. She returned to Australia in 2011 to set up her own research group at Menzies.

Edited extract of an article produced by Science in Public Pty Ltd.

## Ten of the Best awards

The Menzies Ten of the Best awards encourage, recognise and reward outstanding performance of academic staff and students through publication in scholarly journals. The Professional Staff Award is given to acknowledge outstanding contribution within a given role. These staff and students were recognised in 2014.

### The Best of the Best:

**Associate Professor Kathryn Burdon** (Genetics Group) for “Common variants near ABCA1, AFAP1 and GMDS confer risk of primary open-angle glaucoma” published in *Nature Genetics*.

### Laboratory Category:

**Dr Claire Dickson** (Gell Group) for “Structure of the Hemoglobin-IsdH Complex Reveals the Molecular Basis of Iron Capture by *Staphylococcus aureus*” published in *The Journal of Biological Chemistry*.

**Dr Terry Pinfold** (Woods Group) for “Mouse Model of Devil Facial Tumour Disease Establishes That an Effective Immune Response Can be Generated Against the Cancer Cells” published in *Frontiers in Immunology*.

### Clinical Category:

**Professor Wojciech Kosmala** (Cardiovascular Imaging Group) for “Exercise Limitation Associated with Asymptomatic Left Ventricular Impairment. Analogy With Stage B Heart Failure” published in *Journal of the American College of Cardiology*.

**Ms Xia Wang** (Ding Group) for “Association between MRI-detected knee joint regional effusion-synovitis and structural changes in older adults: a cohort study” published in *Annals of the Rheumatic Diseases*.

**Mr Pan Feng** (Musculoskeletal Group) for “The offspring of people with a total knee replacement for severe primary knee osteoarthritis have a higher risk of worsening knee pain over 8 years” published in *Annals of the Rheumatic Diseases*.

### Population Health:

**Dr Seana Gall** (Cardiovascular Epidemiology Group) for “Exposure to parental smoking in childhood or adolescence is associated with increased carotid intima-media thickness in young adults: Evidence from the Cardiovascular Risk in Young Finns Study and the Childhood Determinants of Adult Health Study” published in the *European Heart Journal*.

**Professor Faming Pan** and **Dr Weiyu Han** (Ding Group) for “A longitudinal study of the association between infrapatellar fat pad maximal area and changes in knee symptoms and structure in older adults” published in *Annals of the Rheumatic Diseases*.

**Ms Siyan Baxter** (Palmer Group) for “The relationship between return on investment and quality of study methodology in workplace health promotion programs” published in *American Journal of Health Promotion*.

**Dr Kylie Smith** (Venn Group) for “Longitudinal associations between fish consumption and depression in young adults” published in the *American Journal of Epidemiology*.

### Professional Staff Award

**Mrs Larissa Bartlett**, Community Engagement Coordinator, for an outstanding contribution in this role.



Three Ten of the Best winners from the Musculoskeletal Health and Diseases theme: Pan Feng, Xia Wang and Wei Yu Han.



The Vice-Chancellor of the University of Tasmania, Professor Peter Rathjen, presents a Ten of the Best award to Dr Terry Pinfold.

# Community engagement and philanthropy

Each year the Tasmanian community continues its amazing support of Menzies through its engagement with the activities we host. In 2014 more than 4,000 people participated in our events.

In 2014, Menzies hosted more than 50 community engagement activities including public talks and Meet the Researcher events at the Medical Science Precinct, community group talks and tours, community expos and of course our two signature events – the Menzies Debate and the Art of Christmas. The Menzies Debate, on the topic “The Obesity Epidemic Should be Managed by Cure, Not Prevention”, attracted a full house of around 300 people and was also streamed via [livestream.com/UniversityofTasmania](http://livestream.com/UniversityofTasmania).

The Art of Christmas fundraising event was held on 4th December at the Medical Science Precinct and included an auction of works by Tasmanian Artists and wonderful art experiences, interactive art displays, sales of Christmas cards and entertainment. Over 170 people attended the event which raised more than \$30,000 for medical research.

In the interest of clear communication of our health messages, in 2014 Menzies developed its “Top Ten Tips for a Long and Healthy Life”. We settled on our Top Ten after a robust round of nominations and discussion among researchers from all themes. While all the tips are firmly grounded in the published scientific literature, our focus has been on making them realistic and accessible.



In August 2014 the family and friends of Brendan “Paddy” Dwyer organised ‘Pig in the Pub for Paddy’, a fundraiser to celebrate the life of Mr Dwyer, who had died of motor neurone disease earlier in the year. Menzies MND researchers joined Mr Dwyer’s family and friends in the New Sydney Hotel in Hobart for an afternoon of Irish music and socialising that raised \$12,000 for MND research. Associate Professor Tracey Dickson is pictured receiving a cheque from Brendan Dwyer’s friend Steven Bourke, who organised ‘Pig in a Pub for Paddy’, and members of Mr Dwyer’s family.

## Menzies Institute for Medical Research **TOP TEN TIPS** for a long and healthy life.



Build at least 30 minutes of exercise into your daily life.



Eat wisely, always include breakfast and watch portion sizes.



Do something intellectually stimulating every day.



Know the signs of poor mental health and act on them.



See your GP for regular screening and, where recommended, vaccinations.



Be active (and sun smart) outdoors.



Try to avoid breathing polluted air.



Limit alcohol.



Be safety conscious.



Start today.

2014 was also a very successful year for philanthropy at Menzies, demonstrated by an increase of almost 50% in donations on the previous year. In addition to this, Menzies confirmed that more than 160 Tasmanians are planning a gift to Menzies in their will, a very generous intention which will help secure the future of Menzies at a time when funding for medical research is increasingly difficult to obtain.

Of all of the people who generously supported our research in 2014, 323 donors gave to Menzies for the first time. In particular, the Tasmanian community supported the Childhood Determinants of Adult Health study, a national research project which in 2014 required \$330,000 for its phase three pilot study. This funding was secured through the significant philanthropic support of Blundstone Australia Pty Ltd and donations to the Winter Appeal. With the pilot being undertaken in late 2014, we are hopeful that the data collected will support Menzies researchers in attracting additional grants to undertake a full roll-out of this important study.

Other significant areas of support included donations towards scholarships and fellowships. In 2014 we secured six new Honours scholarships and one new PhD top-up scholarship, bringing us to 23 scholarships in total. We also secured one additional fellowship.

With philanthropy totalling 15% of the total income for Menzies in 2014, the support we receive from the Tasmanian community is absolutely vital to our success, and for that support we are truly thankful.



*Menzies PhD student Ricardo Fonseca with Simone Fraser, Barbara Cauvin and Institute Advancement Manager Teisha Archer at the Art of Christmas. Barbara Cauvin was one of 21 artists who generously supported Art of Christmas in 2014. It also attracted corporate support from Clemenger Tasmania, Mercury Walch, Staples, Henry Jones Art Hotel, Fullers Bookshop, Andrew Jones Travel, Arcorm Group, Rebecca Roth, Pickled Pear, Jessica Jean Chocolates and Cool Wine.*



*More than 170 people attended the Menzies Art of Christmas event, where work donated by high-profile Tasmanian artists was auctioned amid interactive art experiences.*



## Our quiet achievers

In 2014 Menzies nominated its volunteer team for a Hobart City Council Volunteer Recognition Award. Not surprisingly, they were successful. The award celebrates the valuable contribution that volunteers make to the Hobart community. Menzies' volunteers Lyn Wilkie and Pauline Paton are pictured accepting the award from then Lord Mayor of Hobart, Alderman Damon Thomas, at a reception at the Hobart Town Hall. In 2014 Menzies enjoyed the support of approximately 65 registered volunteers.

# Financial report

1 January to 31 December 2014	2013	2014
	\$	\$
<b>Income</b>		
Commonwealth Government Research Support	4,603,507	<b>4,170,358</b>
Teaching Income	480,515	<b>748,941</b>
Menzies Foundation	75,000	<b>75,000</b>
Commonwealth Government Research Grants	5,227,619	<b>6,559,230</b>
Tasmanian Government Grants	1,316,997	<b>1,625,609</b>
Other Contracts And Agreements	2,804,604	<b>3,001,419</b>
Donations	697,878	<b>1,141,392</b>
Bequests	2,170,484	<b>1,620,434</b>
Investment Income	1,173,936	<b>828,525</b>
Sales	384,877	<b>411,409</b>
Other Income	31,342	<b>168,021</b>
UTAS Contributions	167,572	<b>1,237,287</b>
	19,134,332	<b>21,587,625</b>
<b>Expenses</b>		
Salaries and On-Costs	9,269,979	<b>10,669,280</b>
Depreciation, Equipment and Infrastructure	1,609,710	<b>1,087,999</b>
Medical and Laboratory Materials	1,523,297	<b>1,663,028</b>
Travel and Training Related Costs	586,820	<b>602,057</b>
Scholarships	312,968	<b>577,685</b>
Research Sub-Contractors and Consultants	689,401	<b>588,438</b>
Other Expenses	570,381	<b>571,948</b>
	14,562,556	<b>15,760,435</b>
Surplus/(Deficit)	4,571,776	<b>5,827,190</b>

## Notes

### 1 Trust Funds

As at 31 December 2014 Menzies held Trust Funds valued at \$14,408,651. The capital amount of this trust was valued at \$10,994,780.

Interest distributions provide a source of research income for Menzies. The non-capital component of these trust funds is available for use in accordance with the benefactor's instructions.

The University Foundation manages a number of trusts on behalf of Menzies. As at 31 December 2014 the value of these trusts was \$749,099. Distributions are made by agreement between the University Foundation and Menzies in accordance with the benefactor's instructions.



*Dr Verity Cleland's work looks at strategies to promote active healthy lifestyles to women at key life stages, such as when they leave school and when they have children. Photo: Peter Mathew.*

# Board and Senior Management Team

## Menzies Board of Directors at December 31, 2014

Mr Bruce Neill (Chairman)

Professor Tom Marwick (ex-officio)

Mr Brian Doyle AM

Professor Denise Fassett (ex-officio)

Professor Paddy Nixon (ex-officio)

Mr John Ramsay

Professor Judith Whitmore AC

Professor Bob Williamson AO

## Menzies Senior Management Team at December 31, 2014

Professor Tom Marwick (Director)

Mr Mark Bennett (General Manager)

Professor Alison Venn (Deputy Director)

Professor Stephen Rattigan (Deputy Director)

Ms Teisha Archer

Associate Professor Jo Dickinson

Associate Professor Tracey Dickson

Professor Changhai Ding

Ms Miranda Harman

Professor Graeme Jones

Dr Michelle Keske

Associate Professor Kristy Sanderson

Associate Professor James Sharman

Dr David Steele

Professor Bruce Taylor



**Menzies Institute for Medical Research,  
University of Tasmania**

In October 2014, after approval from the University Council, the Menzies Research Institute Tasmania became the **Menzies Institute for Medical Research**. The new name describes the Institute's mission with greater accuracy and does not signal any change in direction.

Menzies was established by the University of Tasmania with support from the Menzies Foundation and the Tasmanian Government in 1988 and was initially called the Menzies Centre for Population Health Research.



If you would like more information about our research programs, collaborations or education opportunities please contact us.

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