Alzheimer's Australia Research

2008
2009

Annual Report

Alzheimer's Australia Research Limited ABN 79 081 407 534

Annual Report 2008/2009

Contact Details

Street Address
Frewin Centre
Frewin Place
Scullin ACT 2614

Mailing Address
PO Box 4019
Hawker ACT 2614

Telephone
02 6254 4233

Facsimile
02 6278 7225

Email
aar@alzheimers.org.au

Information about Alzheimer's Australia Research Ltd. can be found on the Researchsection of the Alzheimer's Australia website
www.alzheimers.org.au

Acknowledgement of support

Alzheimer's Australia Research would like to thank the many individuals and organizations that support our research programs through donations, gifts and bequests.

In particular, Alzheimer's Australia Research would like to extend special thanks to the following entities:

Alzheimer's Australia Queensland
Alzheimer's Australia Victoria
The Aon Charitable Foundation
The Barbara Luree Parker Foundation Ltd
The Cheng Leung Qun Choi Foundation
Coastal Properties
Country Women's Association, Dandenong
Creative Memories Australia Pty Ltd
Dealer Solutions Pty Ltd
Dementia Collaborative Research Centre
Effective People
The Ganmain Golf Club Committee
Memory Lane Café
Reece Australia Ltd
Robert C Bulley Charitable Foundation
The Rosemary Foundation for Memory Support Inc.
The Sylvia & Charles Viertel Charitable Foundation
TIC (Reverse Logistics) Pty Ltd
Tidbinbilla Pioneers Association

Our payroll giving partners and their employees also receive our heartfelt thanks:

ANZ Banking Group Ltd Australia
Automatic Data Processing Inc. /Alcatel Lucent
Dunn & Bradstreet
Suzanne Gray
Travelex Ltd

We also would like to express our gratitude to the following individuals:

Mr Gavin Abbott
Mr Peter Bell
Ms Marilla Burgess
Mr Hu Davids
Mr Roger Keith Dearing and Family
Mr Noel Denovon
Miss Jessica Dunn
Mrs Ellen Easton
Mr David Everitt
Mrs Doris Fraser
Ms Susan Furness
Mr Frank Gasior
Mrs Mary Hook
Mr Robert Hyde
Ms Angela Keelan
Mr Roderick McNab
Mr Antonio Mico
Ms Anna Murphy and Family
Ms Natasha Norton
Ms Sue O'Neill
Mr Craig Partington
The Pavanto Family
Mr Rob Pyne
Mrs Joy Rae
Mr David Reckenberg
C. E. Roberts
Mr Rob Schweikert
Miss Pamerla Skapin
Mrs Kim Skinner
Mrs Enid Telford
The Estate of the Late Joan Edith Bowdler
The Estate of the Late Patricia Anne Hardiman
University of Sydney – Hunter Bequest
The Estate of the Late Beatrice Olive Pycroft

In addition to those mentioned above, we would also like to show our appreciation to the many other people who have donated to AAR, including through the Hazel Hawke Fund for generously supporting AAR's Dementia Research Grants Program.

Individuals

Ms Catie C Anderson
Ms Rubina Bito-on
Ms Libby Higgin
Mr & Mrs Toby & Simone Roxburgh

Corporations and Institutions

EBSCO Information Services
Hunt & Hunt
Macquarie Group Foundation Limited
Order of the Eastern Star Prahran Chapter No 89
Peter Richards Surveying
St Catherine's School, Waverley NSW

Alzheimer's Australia Research is grateful for the awareness activities of both Hazel Hawke and Sue Pieters-Hawke and their continuing support in advocating for people with dementia, their families and carers.

Alzheimer's Australia Research would also like to thank Neville and Denise Odell for continuing to donate all the profits from the sales of their publications "Bowl 'em Over" and "A Tad More Grass" to research.

Alzheimer's Australia Research would like to extend their thanks to Mr Tom Valenta, who had donated proceeds from his book "Remember me, Mrs V?" to research.

Front cover photographs ...

Finally, Alzheimer's Australia Research would like to thank Dinusha Fernando supporting the Board and the Panel and Michele Hawkins for her hard work in research communication during 2008-09.

If Matthew Flinders Had Wings

Richard Buxton, Managing Director of The Buxton Group, has generously pledged to donate the first $500,000 in proceeds from his new book to fund dementia research.

The 280 page coffee-table book, entitled *If Matthew Flinders Had Wings*, is a photographic reference and history about the discovery of the Australian coastline and how it looks today – 200 years on from the days of Matthew Flinders.

The book also tells the story of Richard's circumnavigations – first by air and then by sea – and features 572 of the 8000 photographs he took along the way.

Richard adopted the Alzheimer's cause when he saw the impact it had on his own family and on elderly Australians living in his luxury retirement apartment chain, Rylands.

The book was funded by the Epsilon Research Fund, a charitable foundation established by the Buxton family that directs profits to research institutions for exploration into the prevention of a variety of diseases.

If Matthew Flinders Had Wings is available through quality bookshops and direct order from the Epsilon Research Foundation and Alzheimer Australia for $69.95.

For further information or to order the book online visit http://www.epsilonresearch.com.au/ or contact the Epsilon Research Fund on 03 9644 7000.

Alzheimer's Australia Research thanks Richard for his significant pledge to support dementia research.

Contents

About AAR

Alzheimer's Australia Research (AAR) is the research arm of Alzheimer's Australia, established as a separate not-for-profit company to encourage and support Australian dementia research.

Why is Research Important?

Dementia research is crucial if we are to:

- reduce the number of people affected by dementia; and
- ensure that people with the condition have a better quality of life.

Most of our current knowledge of dementia has been discovered by researchers in the last 25 years. The next 25 years could yield significant progress in many areas of dementia research.

We must invest in dementia research now, to help reduce the present and future impact of the dementia epidemic in Australia. Latest figures predict that there will be over 1.1 million people with dementia by 2050. Australia has the potential and expertise to be a world leader in dementia research but this cannot happen at the current level of investment, which is well below 1% of the direct health cost of dementia. Greater investment in research may lead to the prevention or cure of dementia as well as improvements in dementia diagnosis, management and care.

The Role of AAR

AAR aims to support the research effort in Australia through directly funding research, advocating for increased research spending, distributing research information and publicising research findings.

Mission Statement

Our mission is to promote, disseminate, and fund research in Alzheimer's disease and related disorders causing dementia.

Research Grants

AAR actively encourages dementia-related research in Australia by providing annual grants in many areas of dementia research, including biomedical research and dementia care. Some AAR grants are allocated to specific research areas according to donor's requests, such as the pledge of the Jack & Ethel Goldin Foundation to help develop a cure for Alzheimer's disease.

Supporting New Researchers

A key priority is to support emerging Australian researchers to undertake dementia research. AAR provides new investigator grants, postgraduate research scholarships, postdoctoral fellowships and travel grants to new researchers on a competitive basis.

Research Collaborations

AAR welcomes research collaborations and partnerships to promote Australian dementia research. In this financial year, AAR has continued its partnership with the Dementia Collaborative Research Centres, part of the Dementia National Health Priority Initiative of the Australian Government, to provide joint research scholarships. In addition, AAR has continued its partnerships with the Jack & Ethel Goldin Foundation and the Sylvia and Charles Viertel Charitable Foundation.

Distributing Research Information

AAR works to increase the information available to consumers in order to further awareness of the importance of research and the quality of Australian dementia research, through initiatives such as the weekly Dementia News electronic newsletter and the Research section of the Alzheimer's Australia website. Providing the public with a reliable source of information about dementia research is a central role of AAR.

Promoting Australia Dementia Research

AAR and Alzheimer's Australia aims to increase the profile of dementia research in Australia through publications, fundraising activities, media events and Dementia Awareness Month.

Alzheimer's Australia Research Board of Directors

Professor Henry Brodaty AO, *Chairman*

Professor Henry Brodaty is Professor of Age Care Mental Health and Director of the Primary Dementia Collaborative Research Centre at the University of New South Wales. He is also the Director of Aged Care Psychiatry and Head of the Memory Disorders Clinic at the Prince of Wales Hospital. He has served on several New South Wales and Commonwealth committees related to ageing and dementia. He is a past chairman of Alzheimer's Disease International (ADI), representing 77 national Alzheimer Associations, and is also a past president of Alzheimer's Australia and Alzheimer's Australia (NSW).

Dr Alan McCutcheon, *Vice Chairman*

Dr McCutcheon works as a staff specialist in geriatric medicine at Fremantle Hospital and at Armadale Hospital in WA. In 1992, Dr McCutcheon was appointed as an inaugural member of the Guardianship and Administration Board of WA, whose functions were subsumed by the State Administrative Tribunal in 2005, and he is rostered regularly for Tribunal hearings in Perth to consider applications made regarding management of the personal and financial affairs of people with cognitive impairment. Dr McCutcheon is the Honorary Medical Director of Alzheimer's Australia (WA), a position he has held since 1988, and he was made a Life Member of the organisation in 1997.

Gordon Robinson, *Treasurer*

Gordon has a business background with over 30 years in the consumer goods industry, including Australian and overseas CEO positions in South America and Europe. Gordon has been associated with Alzheimer's Australia for the past 15 years as a former Victorian President and former National Vice President.

Glenn Rees, *Company Secretary*

Glenn has worked at senior levels in the British and Australian Public Services. In Britain he worked as a Private Secretary to senior Ministers in the Cabinet Office and in Economic Departments. In Australia since 1976, he has worked in program and policy areas including Prime Minister and Cabinet, Employment and Training, Aged Care, Disabilities, Housing and the Aboriginal and Torres Strait Islander Commission. He was the Chair of the Nursing Homes and Hostels Review in 1986 and was involved in implementing the first wave of aged care reforms. Glenn has been National Executive Director of Alzheimer's Australia for 8 years, and during this time dementia has been made a National Health Priority.

Professor John McKellar AM ED

Professor McKellar is currently the President of Alzheimer's Australia SA and is also a Director and Secretary of the Rosemary Foundation. Professor McKellar was awarded Member of the Order of Australia in the Queen's Birthday Honours list in 2008 for "Service to people with dementia, particularly Alzheimer's, and their carers through organisations that provide education, support services and funding for research".

Kaye Pritchard

Kaye's husband David was diagnosed with Fronto Temporal Dementia in 1998. Kaye is a past President of the Board of Alzheimer's Australia ACT and a current Board Member. Kaye also represented Alzheimer's ACT on the National Board of Alzheimer's Australia from 2001 to 2006. In October 2006, Kaye attended the Alzheimer's Disease International Conference in Berlin and co-presented a paper on carer support. Kaye is currently the consumer representative on the Coordinating Committee of the Dementia Collaborative Research Centres and is also a member of the Ministerial Dementia Advisory Committee. As a member of the Board of Alzheimer's Australia Research, Kaye has a keen interest in helping others to understand what it is like living with dementia.

David Scarlett

David is a lawyer and brings to the board a valuable legal background. He serves on the Research Ethics Committee of the Royal North Shore Hospital overseeing the ethical aspects of medical research. The insights he gains from this voluntary work equip him to contribute on other aspects of the work of the organisation. David has been a member of the Alzheimer's Australia NSW Board of Directors since 1998 and has held the position of Vice President (2000–2002), President (2002–2004), immediate Past President (2004–2005) and Director in 2006. David continues to represent AANSW on the Alzheimer's Australia Research Board.

Dr Robert Yeoh AM

Dr Yeoh is a General Practitioner with a special interest in dementia. He has been a member of the Board of Directors of Alzheimer's Australia NSW since 1994, holding positions as Vice President (1996–1998), President (1998–2000) and Immediate Past President (2001). Robert also held the position of National President of Alzheimer's Australia from 2000 to 2005. Dr Yeoh is a professional member of the Guardianship Tribunal and has been the NSW Delegate to Alzheimer's Australia (1995–2000) and Honorary Secretary of Alzheimer's Australia (1997–2000).

Associate Professor Marc Budge

Associate Professor Budge is the Head of the Geriatric Medicine Unit, ANU Medical School; Director of Geriatric Medicine, Aged Care and Rehabilitation Services, ACT Health; President of Alzheimer's Australia and Director of the Dementia Collaborative Research Centre number 2 (Prevention, Early Intervention and Risk Reduction). He was formerly a clinician and MRC-funded Senior Research Fellow in the multi-disciplinary Oxford Project to Investigate Memory and Ageing (OPTIMA) at the Radcliffe Infirmary (1996–2003, Oxford, UK). His role as a collaborating investigator to the NIH-funded Maine-Syracuse (USA) longitudinal study of cognition and ageing continues.

Medical and Scientific Panel

Alzheimer's Australia Research and Alzheimer's Australia have established a Scientific and Medical Panel chaired by Professor Henry Brodaty. The role of the panel is to advise on research priorities and on the latest developments in dementia research worldwide, as well as to assist in the assessment of grant applications. The panel members are:

Professor Henry Brodaty

Professor of Psychogeriatrics,
University of New South Wales

Associate Professor Kaarin Anstey

Director, Ageing Research Unit,
Centre for Mental Health Research,
Australian National University

Professor Lynn Chenoweth

Professor of Aged and Extended Care Nursing,
University of Technology Sydney

Dr Peter Dodd

Associate Professor, School of Molecular and Microbial Sciences, University of Queensland

Professor Leon Flicker

Professor of Geriatric Medicine,
University of Western Australia

Professor Colin Masters

Laureate Professor, Department of Pathology,
School of Medicine, University of Melbourne

Professor Rhonda Nay

Professor of Gerontic Nursing,
La Trobe University

Professor James Vickers

Head, Discipline of Pathology,
University of Tasmania

Chairman's Report

Like many other organisations, Alzheimer's Australia Research (AAR) has been affected by the global financial crisis, with many of AAR's investments decreasing in value during the past year and only just beginning to recover.

Nonetheless, the decision was made by the Board to continue to fund the annual research grants program at about the record levels achieved in recent years. Grants to the value of $405,000 have been offered this year in a wide range of research activity.

The grants have included four new investigator grants, two grants into dementia care, one travel grant to enable a researcher or clinician to go overseas to learn a new technique or network with international research teams, and three postdoctoral fellowships.

We received 50 applications this year, which is comparable to the number received last year (56 applications), despite there being fewer grants on offer this year (10 compared to 13 last year).

In total, the portfolio of grants funded during the year was worth $599,017.

During the year, we also evaluated the impact of the grants awarded in previous years to determine whether we are achieving the objective we have set ourselves of building new research capacity by supporting emerging researchers.

The answer is clearly 'yes', and in the next financial year we expect to publish a set of profiles of just some of the new investigators we have identified who received grants and have gone on to establish themselves as successful dementia researchers.

Building this capacity now is vital if Australia is to be well positioned as part of the international effort being made to identify effective therapeutic interventions in order to prevent or delay the onset of dementia.

The quality of the research being conducted by AAR grant recipients is evident by the fact that the results from several pilot studies funded by AAR have been instrumental in the researchers obtaining further funding from large bodies such as the National Health and Medical Research Council (NHMRC).

The outcomes achieved are a reflection of the hard work of the Scientific and Medical Panel. Their work over the years has been critical to ensuring the high quality of the grant applications approved. I should like to thank the current members of the panel – Professor Colin Masters, Professor James Vickers, Professor Kaarin Anstey, Professor Leon Flicker, Professor Lynn Chenoweth, Associate Professor Peter Dodd, and Professor Rhonda Nay.

Finally, I should like to thank Glenn Rees and Dinusha Fernando for the support they have given to the AAR Board and the Panel during the year.

Professor Henry Brodaty, Chairman

Company Secretary's Report

An important part of the work of Alzheimer's Australia Research is to build bridges with consumers and to create a research environment in which consumers are more engaged in dementia research.

With that objective in mind, Professor Henry Brodaty and I jointly chaired a meeting with consumers at the Primary Dementia Care Collaborative Research Centre in November 2008.

The outcome of the meeting was agreement that work should be done to explore the mechanisms by which consumers could be more involved in setting research priorities, be involved in research projects, and in disseminating the results of research.

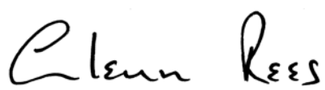
With support from a grant made by the J.O. & J.R. Wicking Trust, work has been done to identify the approaches being taken overseas and in Australia that could be adopted in respect of dementia research.

The objective is to develop a network that would provide the basis for an ongoing relationship between consumers and researchers to:

- develop and promote alliances between consumers and researchers
- achieve greater public involvement in guiding the direction of research
- encourage the evaluation of the effects of research on consumers, and
- promote the dissemination of research findings and advocate for their inclusion in clinical practice, nursing care, and social services.

A report on the outcome of the work done on the basis of a visit to the UK and discussions within Australia will be made to the Dementia Forum in September 2009. The report will present a way ahead that would enable a consumer research network to be established during 2010 and to build on the relationships Alzheimer's Australia and AAR already has with the three Dementia Collaborative Research Centres.

A lot of work has yet to be done in developing both the concept of the network and its underpinnings in terms of mentoring for consumers and promoting linkages between consumers and researchers. But an important start has been made, and we look forward to 2009–10 being a landmark in the promotion of consumer involvement in dementia research.



Glenn Rees, Company Secretary

2008/2009: A Year in Review

Alzheimer's Australia Research 2008/2009

Highlights

The year 2008/2009 has brought a number of highlights for AAR, including:

- Leveraging funding from the Sylvia and Charles Viertel Charitable Foundation by awarding joint postdoctoral fellowships that were cost-shared with the applicants' institutions. This enabled the funding to be driven further as well as ensuring the commitment of other organisations to dementia research.
- Primarily positive responses to a follow-up survey of former grant recipients in early 2009 (see below for details).
- The production of two publications to raise awareness of the work of AAR – a booklet containing the profiles of six AAR grant recipients and a revision of the AAR promotional brochure.

Follow-up Survey

In late 2008, AAR's Scientific and Medical Panel recommended that a follow-up survey be conducted of former grant recipients to investigate the impact of AAR's grants and to determine which areas of dementia research were poorly funded or consistently attracted high quality applications. In the following months we developed a questionnaire and decided to focus on surveying grant recipients who had completed their projects at least two years ago.

In early 2009, the follow-up survey was sent to 24 individuals who had received awards between 1999 and 2005 and 20 responses were returned (a response rate of 83.33%). See Table 1 for a list of the respondents and their original projects. These individuals were all recipients of research and travel grants as AAR awarded the bulk of its people support awards (i.e. postgraduate scholarships and postdoctoral fellowships) after 2005. The grants awarded ranged in value from just under $5,000 to $20,000.

Of the individuals surveyed, 40% (8/20) were not working in the dementia research field prior to obtaining their grant from AAR, and of these, 62.5% (5/8) were still working in the field after completing their AAR-funded project. In total, 70% (14/20) of all respondents were still working in the field. Several individuals mentioned the difficultly in obtaining further funding. Reasons given for not continuing in the field included: lack of funding, finishing a qualification (e.g. PhD) or moving to a job with less of a focus on dementia research.

The respondents mentioned a number of positive outcomes from receiving a grant from AAR, including the development of new course materials and pilot data which was instrumental in obtaining a larger grant from funding agencies such as the National Health and Medical Research Council (NHMRC). Some of the respondents who were surveyed later contributed profiles for one of the new AAR publications (see below).

Table 1: Respondents to the AAR Follow-up Survey and their original research project titles.

RESPONDENT NAME	YEAR OF GRANT	RESEARCH PROJECT TITLE
Suzanne Aberdeen	2002	A Review And Development of Leadership Objectives in Dementia and Aged Care Education
Glenda Bishop	2004	Differential effects of the secondary structure of Abeta on neuronal viability and synaptic integrity
Margaret Clark	2003	Homocysteine and cognitive decline in post-menopausal women
Stephen Roman Duma	2005 (x 2 grants)	1) A brain imaging study of the role of the pre-supplementary motor area in extrapyramidal motor slowing: A predictor of cognitive decline and dementia 2) Transcranial sonography (TCS) for the study of incident Lewy body disorders and dementia in older adults with motor slowing
Dr Gilles Guillemin	2004	The involvement of quinolinic acid and other tryptophan catabolites in the pathogenesis of Alzheimer's disease
Dr Julie Henry	2005	Emotion regulatory deficits in relation to Alzheimer's disease
Derek Kennedy (joint recipient with Elizabeth Irvine)	2000	Huntington's disease project
Glynda Kinsella	2005	Memory Group Intervention for Mild Cognitive Impairment
Clement Loy	2004	Clinical, imaging and pathological features of patients with frontotemporal dementia: The Queen Square cohort
Alexandra McCarthy	2001	The development of pain assessment and management skills in nurses caring for cognitively impaired aged people
Neil Nosworthy	2003	Cofilin-actin bundles and their relation to disease
Olivier Piguet and William Brooks	2002	Variable clinical presentations in Australian families with familial dementias.
Loretta Quinn	1999	Evaluating the effects of music therapy on speech deficits in hospitalised people with dementia
Associate Professor Cherry Russell	2005	Dying with dementia
Associate Professor Greg Savage	2005	Unirhinal Olfactory Identification Impairment and Neuropsychological Correlates in Mild Cognitive Impairment (presentation at International Neuropsychological Society Conference, Boston, February 2006)
Dr Carol Snellgrove	2000	Driving and dementia: A survey of GP attitudes, knowledge, and self-reported practices.
Karen Sullivan	2002	An investigation of factors influencing attitudes towards AD diagnosis in AD and non-AD adults and their significant others
Deborah Tew	2005	Characterisation of the wild-type and familial mutant forms of amyloid beta
Michael Valenzuela	1999	Neural Plasticity in Late Life: Recovery of cerebral N-Acetylaspartate (NAA) after Cognitive Memory Training
Dr Willem van Steenbrugge	2000	Language decline and the effects of first and second language difficulties on the screening of bilingual speakers with and without probable Alzheimer's Dementia.

Specific comments from respondents were:

"Was my first grant submission – successful! Was a major boost to [my] self confidence and cemented in my mind my decision to pursue dementia research as a career…"

"I do consider the receipt of the grant beneficial to my career, even though it has not yet helped me to get further funding. It has helped me in securing my position as a lecturer."

"I am very, very thankful to AAR for trusting me and supporting my project at the early stage. AAR is really important for junior scientists initiating innovative projects that would never be funded by governmental bodies."

"The funding I obtained may have helped me with the research I was doing at the time but also boosted my confidence to work on parallel projects. It was exactly the source of funding that I needed to start the research."

"We would like to express our gratitude to Alzheimer's Australia for supporting our research. The support was critical for our pilot study as it allowed us to complete the first wave of evaluation of our intervention, which was needed for our later successful application to NHMRC. We would not have been able to achieve this without the financial support of AAR. Thank you!"

"The team really appreciated the chance to conduct a study in this area and thank Alzheimer's Australia for that opportunity. The research we undertook with the grant highlighted some of the educational deficits of nurses working in this area. The knowledge we gained from the project has since been incorporated into our student teaching materials, so it was money well spent."

"[The grant] provided a valuable stepping stone towards obtaining additional research funding."

"I believe travel funds are particularly useful, as many other funding bodies do not provide them."

"…research funding is difficult to obtain, and this provided me with a start for a new project which would otherwise not be done."

New and Revised AAR Publications

In early August 2009, Richard Buxton, the Managing Director of the Buxton Group, launched his new book If Matthew Flinders Had Wings in Victoria. The book details his adventures circumventing Australia by both yacht and plane. Richard has generously pledged to donate the first $500,000 in proceeds to Alzheimer's Australia for research into Alzheimer's disease.

To make the most of this terrific opportunity, in early- and mid-2009, two publications were developed to promote the work of AAR. These publications were to be made available at the book launch in August as well having general usage for promotional purposes. The first publication is a short booklet containing profiles of six AAR grant recipients and the second is an updated version of the current AAR information brochure.

New Projects

New Investigator Grants

The AAR Dementia Research Grants were seeding grants for new researchers. Valued at up to $20,000, they were given for research in a dementia-relevant area, including both biological and psychosocial research areas.

2008 AAR Dementia Research Grant

Dr Lenka Munoz[1], Dr Alaina Ammit[1] & Dr Gilles Guillemin[2]

[1]**University of Sydney**, and [2]**University of New South Wales**

Integrating chemistry and biology in the search for new therapeutics for Alzheimer's disease.

Alzheimer's disease (AD) starts by misfolding of a certain protein, called amyloid-ß. The accumulated misfolded amyloid-ß protein causes brain inflammation, which ultimately leads to dementia. Although the link between inflammation and dementia development has been long known, little effort has been given to find a drug that would break this relationship.

The p38 mitogen-activated protein kinase (MAPK), a protein abundantly expressed in the human brain, has been identified as a central player in the brain inflammation. Unregulated, excessive activity of this protein results in processes that contribute to manifestation of Alzheimer's disease. Our drug discovery research aims to identify and develop compounds that via inhibition of the p38 MAP kinase slow down the progress of AD. In order to develop safe and efficacious compounds we are integrating medicinal chemistry with molecular biology. The early testing of novel compounds in biological systems allows fast identification of drugs that block the excessive activity of the p38 kinase. Ultimately, such drugs can stop the brain inflammation caused by amyloid-βand prevent the loss of memory, intellect, rationality and social skills, thus providing a hope for treatment of this alarmingly serious disease.

2008 AAR Dementia Research Grant

Dr Alex Sykes[1] & Dr Elizabeth Coulson[1]

[1]**Queensland Brain Institute**

The detection and inhibition of p75 neurotrophin receptor-mediated neurodegeneration.

Neurodegenerative diseases such as Alzheimer's disease (AD) are underpinned by the loss of nerve cells. One molecule known to cause the death of these nerve cells is $p75^{NTR}$. Furthermore, $p75^{NTR}$ has been implicated as one mechanism involved in AD progression. Although many reagents currently exist to identify $p75^{NTR}$ there are currently no tools that exist which can specifically detect the form of $p75^{NTR}$ that mediates cell death. Drs Sykes and Coulson have previously identified a form of $p75^{NTR}$ that is involved in nerve cell death in model systems. However, they have not been able to study this nerve death molecule in other systems due to a lack of specific reagents.

Drs Sykes and Coulson are aiming to develop a chemical reagent that can detect the form of $p75^{NTR}$ that is implicated in AD, as well as find a way to utilise these new reagents to prevent nerve cell death in an Alzheimer's disease model. This will allow for better understanding of the circumstances in which the $p75^{NTR}$ causes cell death, a crucial step in designing drugs that can treat neurodegenerative conditions involving $p75^{NTR}$, including AD.

2008 AAR Dementia Research Grant

Claire Thompson[1], Dr Julie Henry[1], Dr Adrienne Withall[1] & Professor Henry Brodaty[1]

[1]**University of New South Wales**

A longitudinal study of prospective memory in Mild Cognitive Impairment and dementia.

Prospective memory is our memory for future plans and intentions, such as remembering to keep an appointment, take medication, or turn off appliances. This type of memory is crucial for maintaining healthy and safe independent living. Some people are able to complete common memory tests, such as remembering words, but still forget things they plan to do. These problems are commonly reported in ageing, and can be distressing. In this research, Ms Thompson and her colleagues are examining prospective memory in ageing and dementia. Specifically, the researchers are examining whether prospective memory problems progress, and whether they are predictive of other changes in memory and thinking, by re-assessing people's prospective memory one year after an initial assessment. They will also assess whether assessments of prospective memory done in a clinic or laboratory reflect "real world" prospective memory performance.

2008 AAR Dementia Research Grant

Em (Jay) Hill[1, 2], Professor Ga (Tony) Broe[1], Dr Jeffrey Rowland[3] & Professor Lisa Jackson-pulver[1, 4]

[1]**Prince of Wales Medical Research Institute**, [2] **School of Public Health and Community Medicine, University of New South Wales**, [3]**Prince Charles Hospital**, and [4]**Muru Marri Indigenous Health Unit, School of Public Health and Community Medicine, University of New South Wales**

A pilot test of a modified RUDAS in an urban aboriginal population.

Cognitive screening tools help to identify if a person has a memory problem or has dementia. The majority of these screening tools have been developed for non-indigenous people. Few cognitive assessment tools have been tested or adapted for use with Australian Indigenous populations. Recent research has seen the development of the Kimberly Indigenous Cognitive Assessment (KICA) tool, which was designed specifically for use in remote Aboriginal communities. However, most Aboriginal and Torres Strait Islander people live in urban areas, and there are no specific cognitive assessments for them. Previous research has not examined if established cognitive screening tools fit the needs of urban Indigenous populations.

Jay Hill and his colleagues aim to fill this gap by testing an existing cognitive screening tool called the Rowland Universal Dementia Assessment Scale (RUDAS) in urban Aboriginal communities. The RUDAS will be trialled in the La Perouse community in Sydney and in Kempsey with the Durri community. The project has just started with the research team recruiting people to be participants in the pilot study. This pilot project is part of the NHMRC funded Koori Growing Old Well Study, which aims to answer key questions about Aboriginal health and ageing.

The Koori Growing Old Well Study: A Life Cycle Approach is a research project designed to address key questions about Aboriginal health and ageing

Hazel Hawke Research Grants in Dementia Care

The aim of these grants is to provide up to $20,000 for research into dementia care. Suitable projects might include research into carer support, best quality care practices, activities and non-pharmaceutical therapies for people with dementia, or any other aspect of dementia care research.

2008 Hazel Hawke Research Grant in Dementia Care

Professor Elizabeth Beattie[1], Professor Lynne Daniels[1] & Dr Elisabeth Isenring[1]

[1]**Queensland University of Technology**

Nutritional challenges for family caregivers and persons with dementia.

People with dementia often lose weight as part of the disease. They also have difficulty remembering to eat, concentrating on eating and finishing meals. Carers face challenges ensuring their relative is eating well and not losing weight, while remaining healthy themselves.

The research team is aiming to work with thirty pairs of carers and people with dementia (60 people) to identify these meal-time issues. To date nine pairs (18 people) have participated. Results of the study will help the researchers design better ways to assist carers and persons with dementia with good nutrition.

Two participants in the study, a person with dementia and their caregiver, being asked questions relating to nutrition by project director, Judy McCrow.

Project director, Judy McCrow taking anthropometric measurements of one of the research participants.

Travel Grants

AAR provides travel grants to assist new researchers to develop scientific presentation skills, learn about cutting-edge advances in international dementia research, showcase emerging Australian research, and build connections with the international scientific community. Travel project grants are valued at up to $10,000, while travel stipend grants are valued at up to $5,000.

2008 Rosemary Foundation Travel Stipend Grant

Pascalle Bosboom

University of Western Australia (UWA), Western Australia
Centre for Health and Ageing (WACHA)

The influence of cognitive decline on Quality of Life in people with Alzheimer's disease as rated by patients and by carers – the QoLCog study.

Most people agree that the term Quality of Life (QoL) includes the concept of whether your life meets your expectations. QoL has become a widely used term within both medical research and practice. The potential to 'measure' it has become apparent and is central to the evaluation of interventions in a range of settings. Improving a person's QoL is a fundamental goal for practitioners and service providers. As such, interest in the identification of factors which impact a person's QoL is extremely topical within academic and practice-based research.

The QoLCog study aims to improve understanding of the impact of cognitive problems, like forgetfulness, on QoL as experienced by people with dementia and by their carers. The QoLCog study also aims to increase our understanding whether worsening of cognitive problems over time (and other problems, such as carer stress, associated with Alzheimer's disease) has a negative impact on how QoL is experienced and rated by elderly people with dementia and by their carers. By improving our understanding of the factors that influence QoL in dementia we may be able to maintain or improve the long term health outcomes of people with Alzheimer's disease and their carers. The 2008 Rosemary Foundation Travel Stipend Grant allowed Ms Bosboom to attend the 19th IAGG World Congress of Gerontology and Geriatrics in Paris, France, where she presented the findings of the baseline study.

Postdoctoral Fellowships

The AAR Postdoctoral Fellowship in Dementia was offered to support a PhD graduate undertaking research in an area related to dementia. In 2008 this fellowship was valued at $90,000 per annum for two years.

2008 AAR Postdoctoral Fellowship in Dementia

Dr Cassandra Szoeke

University of Melbourne

Factors affecting cognition in healthy ageing women.

Dementia is an increasing cause of disability, illness and death within our ageing community. Current therapies are inadequate. The emerging therapies, even if successful, will be limited by both cost and side effect profiles. For this reason prevention strategies are required now more than ever to reduce the burden of disease in our community.

In this study we examine the potential strategies for prevention of dementia by addressing midlife cardiovascular risk factors and the role of hormones in cognitive decline. Studying healthy ageing in earlier life is important to pick up factors which may be targets for prevention of later life disease.

Initial findings indicate a trend for cholesterol to be associated with thinking and memory. In order to discover the importance of these results for the prevention of Alzheimer's disease (AD) the next stage of this work will combine the two internationally recognised Australian studies: the Melbourne Women's Midlife Health Project – Women's Health Ageing Project (MWMHP-WHAP) and the Australian Imaging, Biomarker & Lifestyle Flagship Study of Ageing (AIBL). This project will analyse the cholesterol profiles across both groups in order to look at the relationship of these to cognitive measures. Other measures such as weight and blood pressure will also be examined.

The Sylvia and Charles Viertel Foundation pledged $540,000 over three years to support doctoral and postdoctoral researchers conducting dementia-related research. In 2007, two Sylvia and Charles Viertel Postgraduate Research Scholarships were awarded to doctoral researchers and in 2008 four Viertel Foundation Postdoctoral Fellowships in Dementia were awarded to postdoctoral researchers. Below are details of the four successful applicants for the Sylvia and Charles Viertel Postdoctoral Fellowships in Dementia and their projects. Each fellowship was valued at $45,000 per annum for two years and was cost shared with the applicant's institution.

2008 Viertel Foundation Postdoctoral Fellowship in Dementia

Dr Laura Vella

University of Melbourne

Delineating the role of the GXXXG motif in Alzheimer's disease.

Alzheimer's disease (AD) is associated with a protein called the amyloid precursor protein (APP). The processing of APP plays a central role in the onset and progression of AD because when APP is processed, a toxic fragment known as the amyloid-beta peptide (Aβ can be formed. A number of these toxic fragments can accumulate in the brain resulting in AD.

While much is known about the production of Aβ many questions remain concerning the site of APP processing within human cells, the potential role of APP motifs in the modulation of protein processing and the normal cellular function of APP fragments. To this end, Dr Laura Vella and Associate Professor Roberto Cappai aim to investigate the cellular pathways implicated both in the normal processing of APP and in AD. The result of this research will provide evidence of a novel pathway in which APP is processed and trafficked within human cells with the aim of identifying a new target upon which to base future therapeutic strategies.

Dr Vella working in the laboratory.

2008 Viertel Foundation Postdoctoral Fellowship in Dementia

Dr Michelle Fodero-tavoletti

University of Melbourne

Characteriseation of Aß oligomers, for the early detection of Alzheimer's disease.

At present, conclusive diagnosis of Alzheimer's disease (AD) relies on the examination of a deceased brain during an autopsy. Current brain imaging techniques, such as positron emission tomography (PET), can identify AD pathology known as amyloid-beta peptide (Aß) plaques in people while they are still alive, however these plaques tend to appear during the later stages of the disease. The precursors of Aß plaques known as Aß oligomers, appear earlier and correlate with the progression of AD and hence would be ideal markers for diagnosing AD.

Dr Fodero-Tavoletti plans to study the ability of current imaging tools to visualise early AD pathology (Aß oligomers), in the hope that such information may prove useful in the future design of new imaging tools, that would specifically recognise Aß oligomers. It is hoped that these new imaging tools will assist in the early diagnosis of AD and in the monitoring of new therapies that would lead to the retardation or cure of AD.

2008 Viertel Foundation Postdoctoral Fellowship in Dementia

Dr David Elliott

Prince of Wales Medical Research Institute

Characterisation and biological activity of apoliopoprotein-E fragments in human brain.

Variation of the apolipoprotein-E (apoE) gene is the major genetic factor contributing to the risk of developing Alzheimer's disease (AD) late in life. However, the reason for this is currently unknown. Dr Elliott and his colleagues have discovered that a series of peptides are produced in the brain by the normal version of apoE, but not the high AD risk version. They are planning to characterise these peptides in greater depth and to determine if they are able to promote the survival of nerve cells in the brain. This knowledge will be vital, both for understanding the role of this genetic variant in AD, and for developing a treatment for this debilitating illness.

2008 Viertel Foundation Postdoctoral Fellowship in Dementia

Dr Melinda Martin-khan

University of Queensland

An accreditation and quality framework for dementia care in acute hospitals.

How can consumers (i.e. carers of people with dementia) and older people in general be confident that a hospital is prepared to provide suitable care for people with dementia? This is a source of considerable anxiety for carers. Similarly, hospital funders and administrators need to know that hospitals are delivering appropriate care to all of their patient groups, including frail older people and people with cognitive impairment, who will over time become a greater proportion of the hospital clientele.

Dr Martin-Khan is aiming to develop a system for measuring a hospital's 'readiness' to provide quality care for patients with dementia. This system will assist hospitals to identify ways in which they can not only improve their assessment and management of patients with dementia or delirium but also prepare a hospital environment that reduces potentially poor outcomes for this group of patients. The framework is focused on the environment and the policies and procedures which show a proactive approach to ensuring that the in-hospital stay for a patient with dementia is supported in the best possible way. Data collection is currently underway in acute care wards at ten hospitals in Queensland and Victoria. Site visits to each hospital are scheduled for later this year.

Postgraduate Scholarships

In 2006 and 2007, AAR was pleased to offer the Joint AAR/CRC Postgraduate Research Scholarship in Social Research and Dementia in partnership with the Dementia Collaborative Research Centre: Consumers, Carers and Social Research (DCRC – CCSR), based at the Queensland University of Technology. DCRC – CCSR is one of three dementia research centres established by the Australian Government as part of its Dementia National Health Priority Initiative. Ms Bianca Brijnath received this scholarship in 2007, however she requested only two years tenure to start from 2008.

2007 AAR Entirely Postgraduate Research Scholarship in Social Research and Dementia

Bianca Brijnath

Monash University

Understanding dementia care in India.

This project explores how people with age-related dementia are cared for and the barriers that are encountered in accessing support in urban India. Changes in demographics, migration, and patterns of family formation means that caring for older people with dementia will become a significant health and care issue in the sub-continent and globally, including among Indian immigrants in Australia.

Ms Brijnath's PhD investigates how families in India experience and provide care to a relative living with dementia. In 2008 she worked for 10 months with families caring for a relative with dementia, key service providers and the Alzheimer's and Related Disorder's Society of India (ARDSI). Her research examines local meanings of dementia causes and management from diagnosis to death; experiences of providing care; how stigma functions in everyday life; the support systems available and the barriers encountered by carers when accessing support. The study findings will be used to lobby the Indian Government, medical fraternity, media, and the general public for better services for people with dementia. The findings will also be disseminated to Australian state and federal governments and to consumer groups, on the basis that Australia's Indian immigrant community is both growing and ageing.

Above: Nurse Bindu and Sathy play caroms at Harmony Home – India's only dementia respite care centre in Guruvayoor, Kerala. Below:Nurse Preethi and Francis Manavalan chat at the Dementia Day Care Centre in Kochi, Kerala.

Nurses at St Stephen's Community Health Hospital, Delhi.

Raising awareness about Alzheimer's disease in Delhi's Aged Care Facilities.

Above: Raising awareness about Alzheimer's disease in Delhi's Schools. Below: Young women training to be home care attendants.

Ongoing Projects

New Investigator Grants

The AAR Dementia Research Grants were seeding grants for new researchers. Valued at up to $20,000, they were given for research in a dementia-relevant area, including both biological and psychosocial research areas.

2007 AAR Dementia Research Grant

Dr Bridget Ryburn[1], Dr Judy Tang[1], Dr Colleen Doyle[1] & Dr Yvonne Wells[1]

[1]**La Trobe University**

The impact of residential respite care on family carers and individuals with dementia.

Dr Ryburn, Dr Tang and colleagues are investigating the impact of residential respite on people with dementia and their carers. Of particular interest is the extent to which residential respite affects the mental state of people with dementia, especially their mood, behaviour, and thinking skills.

The researchers are interviewing people with dementia and their carers before, during and after the person with dementia goes into residential respite care. Preliminary results show that there are no significant changes in mood, behaviour and thinking skills when the person with dementia uses residential respite care. This is a promising result, as it may provide carers with a sense of relief knowing that the person with dementia is not adversely affected from using respite. This research will provide an understanding about the impact of residential respite on people living with dementia, which may have important implications for future developments in respite services.

2007 AAR Dementia Research Grant

Dr Yue Huang[1], Dr John Kwok[1], Professor Glenda Halliday[1] & Professor Shengdi Chen[2]

[1]**Prince of Wales Medical Research Institute and the University of New South Wales, and 2Shanghai Ruijin Hospital & Shanghai Jiao Tong University**

Characterising the phenotypes of a novel causative dementia gene.

Dr Huang summarised the research data obtained from the Prince of Wales Medical Research Institute (POWMRI) Tissue Research Centre (Prof. Glenda Halliday), Sydney older persons study (Dr. John Kwok and Prof. Antony Broe) and Shanghai older persons study (Prof. Shengdi Chen). She found that the type of the gene patients carried affected the severity of the disease course, and this phenomenon occurred consistently in both the Australian and Chinese cohorts. This research finding provides the potential for validation of clinical trial in patients with Alzheimer's disease (AD). Dr Huang presented these findings in seminars to the POWMRI and in the School of Clinical Science of the University of New South Wales. Her colleague in China is

going to summarise the data on the risk of developing AD associated with different types of the genes. Additionally, the identification of dementia in patients with causative mutations in this gene is underway in Shanghai Ruijin Hospital. Of further benefit is that greater collaboration between Chinese and Australian scientists on dementia research has been initiated by this funding support. In August 2009 an invited review on clinical cognitive scales written by Dr. Eneida Mioshi and Professor John Hodges from POWMRI was published in the Journal of Internal Medicine Concepts and Practice operated by Shanghai Jiao Tong University.. Also, in the near future an invited book chapter on Lewy body dementia written by Dr. Yue Huang and Professor Glenda Halliday will be published in the book of Advances in the Pathogenesis and Treatment of Neurodegenerative Diseases, edited by Professor Shengdi Chen.

Photo was taken when Dr. Yue Huang and Prof. Glenda Halliday visited Prof. Shengdi Chen in Shanghai August, 2008. From the right to the left: Dr. Yue Huang, Prof. Shengdi Chen, Dr. Julie Burn, Prof. Glenda Halliday, Dr. Jianfang Ma, and Dr. Jianqing Ding. Dr. Yue Huang's China visit was supported by the Australian Academic of Science and the Chinese Academic of Science for an academic exchange based on this project.

The Janssen-Cilag Research Grant for new researchers, offered in partnership with research-based pharmaceutical company Janssen-Cilag, was a seeding grant for new researchers, valued at up to $20,000.

2007 Janssen-Cilag Research Grant

Dr John Gehman[1], Professor Frances Separovic[1] & Anil K. Mehta[2]

[1]**University of Melbourne**, and [2]**Emory University**

Investigation of the cytotoxic structural determinants of AB peptide in Alzheimer's disease.

Dr Gehman and colleagues previously reported work that focused on measuring structural characteristics of the amyloid-beta protein fragment when it is associated with model lipid membranes. Another important aspect of the questions surrounding the pathological effects of the amyloid-beta fragment is the topology of the peptide with respect to the membrane bi-layer structure, which the researchers have begun to address following recent upgrades to the solid state NMR spectrometer.
The team has measured the distance between different enriched carbon positions within the protein fragment and the natural phosphorous on the membrane surface, while many more chemical enrichment schemes will be used to measure more distances and other structural characteristics.

Ultimately, even though they employ the same technology as MRI in a very different way, Dr Gehman expects to use all the measurements to calculate an "image" of the molecular-scale protein fragment with the membrane, akin to the MRI images that are so common in Alzheimer's research. This will assist in understanding the deleterious effects of amyloid-beta protein fragment in the disease.

The Ann Miller New Investigator Dementia Research Grant was made possible by a bequest. This was a seeding grant for new researchers, valued at up to $20,000 and available specifically for Victorian researchers.

2007 Ann Miller New Investigator Dementia Research Grant

Dr Shayne Bellingham[1] & Dr Andrew Hill[1]

[1]**University of Melbourne**

The role of exosomes in genetic signaling mechanisms and the implications in Alzheimer's disease pathogenesis.

Dr Bellingham of the University of Melbourne was awarded the Ann Miller New Investigator Dementia Research Grant for 2007. He is investigating the role of certain exosomes (vesicles secreted by mammalian cells) in the development of Alzheimer's disease (AD). The exosomes of interest have been implicated in the production of toxic amyloid-beta, a protein associated with AD. By communicating with other cells, exosomes may be able to transfer genetic information that instructs these cells to also produce toxic amyloid-beta. Dr Bellingham's current and ongoing work has identified a small group of genetic switches that he hopes may be responsible for toxic amyloid-beta production in exosomes secreted by cells with Alzheimer's pathology.

This research may lead to the development of therapeutic targets and clinical interventions to prevent amyloid-beta formation. Hopefully this will delay the progression of AD.

Hazel Hawke Research Grants in Dementia Care

The aim of these grants is to provide up to $20,000 for research into dementia care. Suitable projects might include research into carer support, best quality care practices, activities and therapies for people with dementia, or any other aspect of dementia care research.

2006 Hazel Hawke Research Grant in Dementia Care

Dr Jennifer Torr[1], Associate Professor Christine Bigby[2] & Dr Teresa Iacono[1]

[1]**Monash University**, and [2]**La Trobe University**

Alzheimer's disease and Down Syndrome: Pathways of care.

The life expectancy of people with Down syndrome (DS) is approaching 60 years. Up to 75% of people with DS will develop dementia of Alzheimer type (DAT). This project, between Monash and Latrobe Universities, aims to document the pathways of care of people with DS and DAT; changing care needs over twelve months; the demands on family and paid caregivers; and the reasons for transitions in care.

Twelve people with DS and DAT, and their carers, have been recruited. The participants are at different stages of dementia, from very early stage to late stage. They live in a range of settings that include family homes, group homes and aged care facilities. Initial interviews have been completed for all participants. The transitions in care are monitored every three months. Preliminary analysis indicates that there are no clear pathways to diagnosis and care, difficulties in accessing services and a lack of training of carers and clinicians.

2007 Hazel Hawke Research Grant in Dementia Care

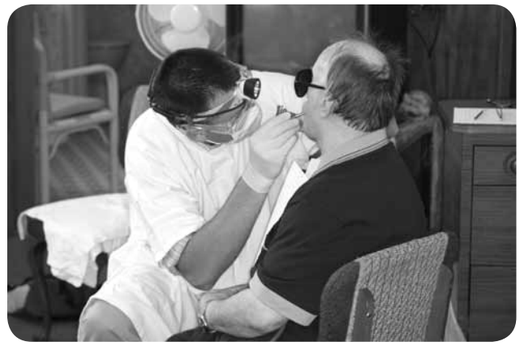
Dr Matthew Hopcraft[1] & Professor Mike Morgan[1]

[1]**University of Melbourne**

Evaluation of oral health care training for carers of nursing homes residents with dementia.

Residents of nursing homes, particularly those with dementia, often have difficulty obtaining dental care and have poor oral health. Many are dependent on carers to clean their teeth and dentures. However, staff in nursing homes are sometimes not well trained to do this task. The aim of this research project is to provide oral health education training to carers and nursing staff in aged care facilities, and to measure the impact on oral health.

Dental examinations to measure the oral health of nursing home residents and questionnaires to assess the knowledge of staff commenced in September 2008. These will be completed by July 2009, with more than 500 residents from 21 homes examined. Education and training has been provided to staff in some homes, and further dental examinations will be done over the next 12 months to look at the effects of the education and training on the oral health of the residents.



Dr Matthew Hopcraft performing a dental examination for a nursing home resident.

2006 Hazel Hawke Research Grant in Dementia Care

Dr Astrid Rogoz[1], Dr David Burke[2] & Ms Pearl Price[1]

[1]**Brain and Mind Research Institute, University of Sydney**, and [2]**St Vincent's Hospital**

Cognitive impairment in the elderly homeless.

The numbers of older people who are homeless are growing, and as a group they have special needs and problems. They are more likely to have multiple problems with their physical and mental health as well as memory problems, which makes it more difficult for an older homeless person to seek help and to access services. Because of their underlying problems, once homeless they are more likely to remain homeless and have their problems unrecognised and untreated.

The purpose of this study is to identify people who are old and homeless and to test them for any memory problems and find out more about their physical and mental health. People in the "intervention group" will receive help with any underlying problems.

Out of 171 older homeless people interviewed, 130 of them (76%) were found to have memory problems. The majority of older homeless people also suffer with mental illness (83%), various medical problems (79.5%) and almost half of them (48.5%) drank alcohol. Of the 171 elderly homeless people in this study, schizophrenia was reported by 42 (24.6%), depression by 111 (64.9%), and anxiety disorders by 57 (33.3%). It was observed that the provision of case management to this group of elderly homeless people has improved their level of functioning and assisted them in obtaining and maintaining stable accommodation.

Our preliminary findings demonstrate that there is a significant unmet need for old age psychiatry services amongst the elderly homeless population in the inner-city Sydney, as evidenced by the high rates of mental health problems and mental illness, and most strikingly by their very high rates of significant memory problems. The needs of this population would be best addressed by the formation of a dedicated multidisciplinary team of mental health professionals skilled in finding, screening, assessing and coordinating the management of the high rates of mental health problems, physical illness, and memory problems in the elderly homeless population.

Postgraduate Scholarships

AAR was able to offer the Hunter Postgraduate Research Scholarship into the Causes of Alzheimer's Disease in 2005, 2006, and 2007 due to a generous bequest from the estate of Mrs Wendie Hunter. The scholarship has supported three new researchers in completing their PhDs focusing on the causes of Alzheimer's disease.

2006 Hunter Postgraduate Research Scholarship into the Causes of Alzheimer's disease

Megan Steele

James Cook University (currently at the University of Western Sydney)

Investigation into the role of astrocytes in neuro-protection: When and why do astrocytes stop protecting neurons?

Astrocytes are star-shaped brain cells that are positioned between blood vessels and neurons (the cells that die in Alzheimer's disease). They play an important role in monitoring the exchange of a number of essential compounds between the blood and neurons. By monitoring the exchange of these compounds, and by changing some compounds into more neuron-friendly compounds, astrocytes are able to nourish and protect the neurons. Megan is investigating whether astrocytes that become stressed by inflammation and reactive oxygen species (ROS; molecules that can damage cell membranes, proteins and DNA) change their behaviour to a "self-protecting" state and neglect their neuro-supportive and neuro-protective functions. Her results suggest that moderately stressed astrocytes increase the release of glutathione (a natural antioxidant that protects cells against ROS), but that highly stressed astrocytes begin to decrease glutathione release, possibly decreasing neuron survival. Megan is also investigating whether stressed astrocytes affect neuron energy metabolism and cell signalling.

In 2006 and 2007, AAR was pleased to offer the Joint AAR/CRC Postgraduate Research Scholarship in Social Research and Dementia in partnership with the Dementia Collaborative Research Centre: Consumers, Carers and Social Research (DCRC – CCSR), based at the Queensland University of Technology. DCRC – CCSR is one of three Dementia Collaborative Research Centres (DCRC) established by the Australian Government as part of its Dementia National Health Priority Initiative. In 2007, AAR also offered the AAR Entirely Postgraduate Scholarship in Social Research and Dementia. Below are details of the successful applicants and their projects.

2006 Joint AAR/ CRC Postgraduate Research Scholarship in Social Research and Dementia

Patricia Shuter

Queensland University of Technology

Predictors of complicated grief and health outcomes of family caregivers of people with dementia following bereavement.

The first study in this research project, a scoping study, has been completed. This study highlighted the complexity of issues associated with care giving for a person with dementia. These results indicate that caregivers (spouses and adult children) of people with dementia are affected by a range of issues, which in different combinations may act as protective or risk factors in bereavement and grief outcomes. Some issues may be related to experiences prior to the death and others may be related to issues surrounding or following the death, all of which may be of equal importance in terms of health outcomes following bereavement.

The results of this study have been used to inform the selection of validated instruments for a larger quantitative prospective follow-up study based on the issues identified, to provide more conclusive results. To date 30 participants have been recruited for this second study, and a number of these participants have completed follow up surveys following the death of their relative with dementia. Data from these surveys will provide some preliminary results on the factors that impact on the carer and relative health outcomes following bereavement in this group.

2007 Joint AAR/ CRC Postgraduate Research Scholarship in Social Research and Dementia

Kathryn Nicholson

University of Melbourne

Dementia with Lewy Bodies: Evaluating carers' experiences.

Kathryn is exploring the experience of caring for a person with dementia with Lewy bodies in a qualitative study. For the study she recruited thirteen spousal carers of people with a confirmed diagnosis of dementia with Lewy bodies. Their experiences substantiate the anecdotal evidence that this is a poorly recognised and little understood disease in the

caring professions, and that it has no public profile. Thematic analysis of the interview data showed that the experience of caring is complex, challenging and is confused by perceptions of the nature of dementia and Parkinson's disease.

The carers in this study voiced a real need for targeted education for all. As carers, they would have welcomed specific education about dementia with Lewy bodies at the time of the patient's diagnosis. An aim of Kathryn's research is to raise the profile of dementia with Lewy bodies. To facilitate this she is developing the synthesis of her research findings as an audio-visual presentation.

2007 AAR Entirely Postgraduate Research Scholarship in Social Research and Dementia

Dr Fiona Millard

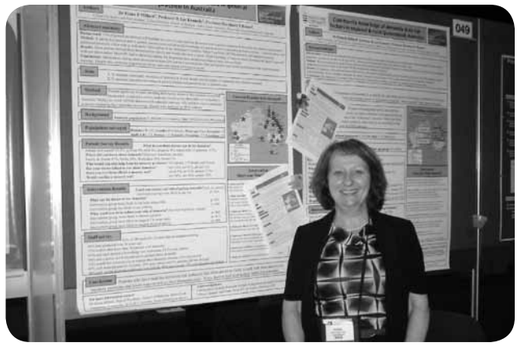
James Cook University

Dementia: GP diagnosis and management of dementia and raising awareness of dementia risk factors.

Most people consult their general practitioner (GP) for the diagnosis and management of dementia. This project tests ways of improving GP dementia diagnosis and measures GP and patient understanding of the disease.

Surveys show that many GPs feel inadequately trained to manage dementia cases. The project offers education and feedback from dementia cases to GPs throughout Australia, measuring whether this improves the diagnosis rate. Surveys show that patients wish to know if they have dementia, but few are currently offered memory tests. Distribution of the Alzheimer's Australia 'Mind Your Mind' dementia risk reduction summary was found to raise awareness of the importance of physical exercise in reducing dementia risk.

The preliminary findings have been presented at two national and four international conferences in the past year as well as published in the Australian Journal of Primary Health. An Eli Lilly research grant funds the delivery of educational workshops and an ICAD Travel Fellowship supported the presentation of the findings at the International Alzheimer's Conference in Vienna.



Dr Fiona Millard in front of her research poster at the International Conference on Alzheimer's Disease (ICAD) in Vienna.

The Sylvia and Charles Viertel Foundation pledged $540,000 over three years to support doctoral and postdoctoral researchers conducting dementia-related research. In 2007, two Sylvia and Charles Viertel Postgraduate Research Scholarships were awarded to doctoral researchers and in 2008 four Viertel Foundation Postdoctoral Fellowships in Dementia were awarded to postdoctoral researchers. Below are the details of the two successful applicants for the Sylvia and Charles Viertel Postgraduate Research Scholarships and their projects.

2007 Sylvia and Charles Viertel Postgraduate Research Scholarship in Dementia

Emile Werden

University of Melbourne

Arbitrary associative learning as a candidate cognitive endophenotype for sporadic Alzheimer's disease

To diagnose Alzheimer's disease (AD) at an early stage, physicians need to be able to identify which aspects of cognition are affected in the earliest phase of the disease process. One way to do this is to examine the cognitive performance of individuals at a greater risk of developing AD, than the general population.

Thus, the first aim of Emile's study is to examine whether a specific type of new learning, called arbitrary associative learning, is affected in healthy children of people with AD. Arbitrary associative learning refers to the ability to remember that two unrelated items belong together. This ability is known to be affected very early in AD.

The second aim of Emile's study is to examine whether arbitrary associative learning is influenced by a range of factors, including possession of a known genetic risk factor for late-onset AD, and which parent had late-onset AD (e.g., mother, father, or both). By examining the relationship between these factors and arbitrary associative learning in the children of people with AD, Emile may gain a greater understanding of the risk factors underlying sporadic AD.

Over the past six months, Emile has successfully defended his thesis proposal in front of the University of Melbourne PhD Committee, and is currently awaiting ethics approval to begin recruiting participants. Once approval has been granted, Emile can begin collecting data for his study. If deficits in arbitrary associative learning are found in the children of people with AD, this type of new learning, along with other cognitive and behavioural measures, may be used to screen for dementia in the elderly. Moreover, the results of this study may pave the way for future research to uncover the genetic basis of AD.

2007 Sylvia and Charles Viertel Postgraduate Research Scholarship in Dementia

Holly Yeatman

University of Melbourne and the Howard Florey Institute

The use of small molecule IRAP inhibitors for treating dementia in Alzheimer's disease.

Insulin regulated aminopeptidase (IRAP) is normally found in the neurons that store and transmit memory-related information in the brain. Small, drug-like compounds that inhibit the activity of IRAP have been shown to enhance memory in rodents and to reverse memory loss resulting from the administration of various drugs. Ms Yeatman is currently investigating whether drug-like IRAP inhibitors can alleviate symptoms in an animal model of Alzheimer's disease. Her recent studies have suggested that in the animal model IRAP is found in cells associated with inflammation in the brain, a process thought to contribute to disease progression. Continuation of these studies will reveal the potential for IRAP inhibitors in treatment of human disease.

Through the kind generosity of the George Hicks Foundation, Alzheimer's Australia Victoria and Alzheimer's Australia Research were pleased to offer the George Hicks Postgraduate Scholarship for Dementia Prevention and Risk Reduction Research in 2007. The aim of the scholarship is to support a PhD student who is enrolled in a Victorian University and who is undertaking research in an area relevant to the prevention and/or risk reduction of Alzheimer's disease or dementia.

The George Hicks Postgraduate Scholarship for Dementia Prevention and Risk Reduction Research (for Victorian researchers)

Pavithra Amadoruge

University of Melbourne

Metals and Memory: Metals and the NMDA receptor in Neurodegenerative Diseases.

In the Alzheimer's diseased brain an apparent imbalance in metal levels, particularly copper and zinc, is proposed to exist. As a result, compounds capable of affecting metal availability in the brain have been designed in a hope of ameliorating Alzheimer's disease (AD) pathology. Miss Amadoruge, utilising these compounds in mouse embryonic neurons, is investigating the effects that metals have on the expression and function of a brain protein known to control memory. She aims to determine whether restoration of the proposed metal imbalance in the brain is a possible therapeutic strategy in preventing the dementia associated with AD. She also hopes to elucidate some of the neuronal pathways involved in some abnormalities in the brain associated with AD and other neurodegenerative diseases. Pavithra Amadoruge, a biomedical science graduate from the University of Melbourne, is under the supervision of Associate Professor Kevin Barnham, Dr Anthony White and Associate Professor Andrew Hill.

Research into a Cure for Alzheimer's Disease Grant

The Jack & Ethel Goldin Foundation pledged $250,000 over three years for biomedical research that specifically focuses on developing a cure for Alzheimer's disease. Researchers from the NeuroRepair Group at the School of Medicine – Professor Adrian West, Professor James Vickers and Dr Roger Chung – were awarded the grant in 2006. Their project will run over three years. Below is a summary of progress to date.

2006 Research into a Cure for Alzheimer's Disease Grant Program

Professor Adrian West[1], Professor James Vickers[1] & Dr Roger Chung[1]

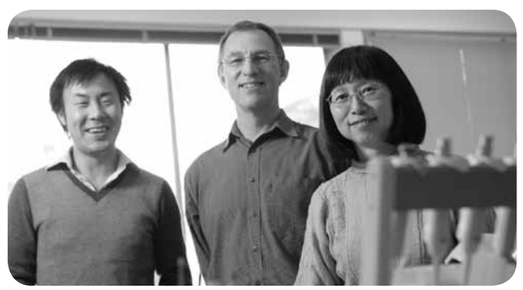
[1]**University of Tasmania**

Metallothionein-based therapeutic for Alzheimer's disease.

In the past 12 months, the Alzheimer's research team at the Menzies Research Institute has made an important breakthrough in understanding how metallothionein, the protein at the centre of their work, protects neurons against damage caused by amyloid-beta, the toxic molecule which accumulates in the brain of those with the disease. Amyloid-beta is found in a variety of different forms in the Alzheimer's brain, ranging from massive plaques to much smaller oligomer structures, and the relative toxicity, and the basis for toxicity of each form, is the subject of much research. The Menzies team have found that metallothionein can directly interact with amyloid-beta to reduce the production of the most toxic forms of the protein, while simultaneously protecting brain cells against damage.

In summary, the team has found that metallothionein, which binds zinc, is able to swap its metal ions with copper bound to amyloid-beta, producing a favourable structural change which is not damaging to neurons. This is significant since it is a direct interaction and has the capacity to i) prevent the formation of new toxic forms of amyloid-beta and ii) to reverse the formation of pre-existing toxic amyloid-beta. A pivotal discovery is that they have found that variants of metallothionein have different abilities to interact with amyloid-beta, including some synthetic analogues made by the group. This opens the way for developing clinically useful molecules based on metallothionein structure, which combine efficacy with favourable properties such as the ability to cross the blood-brain barrier. The team is also examining the effect of their panel of metallothioneins on brain plasticity, that is the ability of metallothionein to not just protect brain cells but to preserve cognitive processes such as memory.

From left to right: Dr Roger Chung, Professor Adrian West and Associate Professor Inn Chuah from the University of Tasmania.



Completed Projects

New Investigator Grants

The AAR Dementia Research Grants were seeding grants for new researchers. Valued at up to $20,000, they were given for research in a dementia-relevant area, including both biological and psychosocial research areas.

2007 AAR Dementia Research Grant

Dr Cindy Kersaitis[1], & Dr Jillian Kril[2]

[1]**University of Western Sydney**, and [2]**University of Sydney**

Immunoglobulins and inflammation in frontotemporal dementia.

This project looked at the inflammatory response in the brains of people with Frontotemporal Dementia (FTD). Dr Kersaitis and her colleagues examined the brains of 32 deceased people with FTD, which had been selected from regional brain donor programs in Sydney, Australia and Cambridge, UK. Each brain was categorised into one of four stages of disease severity, based on the extent of brain shrinkage. The number, type and extent of inflammatory cells in the brain were assessed. Immune responses were evaluated by examining the brains for the presence of immunoglobulin G (IgG), which is an antibody capable of stimulating inflammatory responses. Greater cell loss and inflammation was associated with the presence of IgG. This suggests that the inflammatory response may in part be a result of alterations in immune functions, and may contribute to the loss of neurons (nerve cells) in specific types of FTD. It is not clear what leads to the production of IgG in these brains, but the research team is conducting follow-up work in an attempt to better understand the mechanisms involved. The identification of an immune response in FTD may provide some direction for future studies of the mechanisms involved in FTD, and introduces the possibility that therapeutic interventions aimed at decreasing the immune response may be beneficial in slowing disease progression.

2007 AAR Dementia Research Grant

Dr Tanya Davison[1], Dr Catherine Hudgson[2], Professor Marita Mccabe[1] & Associate Professor Michael Bird[3]

[1]**Deakin University**, [2]**Eastern Health**, and [3]**Greater Southern Area Health Service**

Randomised controlled trial of an individualised psychosocial treatment approach for behavioural and psychological symptoms of dementia in residential aged care.

Nursing home residents with severe dementia present a challenge for care staff. Disturbed behaviours associated with dementia, such as hitting staff or other residents, wandering and screaming are particularly difficult for staff to manage. Dr Davison and her team looked at two different approaches to treat nursing home residents with severe dementia who were referred to a psychiatric service for specialist treatment. The traditional pharmacological approach was compared to a 'psychosocial approach' in which nurses, psychologists, and occupational therapists worked closely with nursing home staff to (i) change the ways that personal care was delivered; (ii) change the resident's physical or social environment; and (iii) help staff to communicate more effectively with the resident. Individual care plans to target the underlying causes of the behaviours of concern were developed for each resident.

Dr Davison's team followed sixty four nursing home residents who showed severe symptoms over six months of treatment. Thirty of the residents were treated with medication only and the other thirty four were treated with the psychosocial team-care approach as well as medication where necessary. The results suggested that the psychosocial approach was not beneficial in treating behavioural disturbance in this population of nursing home residents with severe cognitive impairment and serious medical problems. The researchers concluded that the psychosocial approach may be more appropriate for individuals without such high levels of impairment and illness. However, the psychosocial approach did reduce the reliance on high doses of medications, which can be associated with over-sedation and other concerning side effects.

2006 AAR Dementia Research Grant

Mr Grant Stuchbury[1] & Dr Gerald Münch[1]

[1]**James Cook University**

Prevention of Alzheimer's disease by synthetic and plant-derived antioxidants.

Clusters of amyloid-beta protein, surrounded by microglial cells (specialised immune cells), are commonly found in the brains of people with Alzheimer's disease (AD). Chronic inflammation mediated by these microglial cells in the brain is considered one of the major causes of the constant loss of neurons and neural connections associated with AD. Therefore, microglial cells provide a promising drug target for long-term prevention of the disease. Given the long and slow progression of AD, a preventative medicine may need to be administered for many years and has to be safe for long-term use. Although there are commercial anti-inflammatory medications available that may inhibit microglial cells, the side effects that come with prolonged use make them unsuitable for the long-term treatment of AD.

Using a novel, fluorescent neuron-based cellular model of AD, Grant and his colleagues have been researching complementary medicines, including plant derived compounds, which are available as over-the-counter medications and supplements and may provide protection for neurons against microglial-induced death. They have found that natural compounds provide greater protection of neurons than several commercially available anti-inflammatory medicines. Of the natural

compounds, Coenzyme Q10 (involved in cellular energy production), Apigenin (found in celery), and Diosmetin (a chemical closely related to Apigenin, found in citrus fruit) provided the greatest increase in neuron survival. These compounds are readily available and are not known to have dramatic side effects, which makes them ideal candidates for further studies in animal models of AD and, perhaps in the future, in human trials.

2006 AAR Dementia Research Grant

Dr Michael Bauer[1], Dr Les Fitzgerald[1] & Associate Professor Susan Koch[1]

[1]**La Trobe University**

Improving hospital discharge preparation and support for families of patients with dementia.

Family carers of people with dementia provide a significant amount of care following hospital discharge. The evidence indicates that when discharge planning takes into consideration the needs and expectations of the family carer, the risk for hospital readmission and the demands on the family member are decreased.

The study sought to:

- understand the family carers' experience of hospital discharge planning;
- understand how well the discharge plan for patients with a dementia met the needs of the family carer; and
- ascertain what improvements family carers thought could better assist the transition from hospital to residential, sub-acute, or home-based care.

Twenty five family carers of people with dementia were interviewed within two months of hospital discharge. Findings indicate that the hospital discharge planning processes frequently did not take into consideration the needs of the family carer of someone with dementia. Families were often unaware of the existence of a hospital discharge plan and they were not routinely consulted about post-discharge care needs. Obtaining information about post-discharge care requirements and the supports available was often difficult. The study made a number of recommendations to both the health care system and the practices of health professionals to further improve hospital discharge planning.

2007 AAR Dementia Research Grant

Dr Adrienne Withall[1], Associate Professor Brian Draper[1,2], Professor Henry Brodaty[1] & Ms Colleen Mckinnon[3]

[1]**University of New South Wales**, [2]**Prince of Wales Hospital**, and [3]**South Eastern Sydney Illawarra Health Service**

A pilot study to determine the prevalence of younger onset dementia in Sydney.

There is little worldwide data on the number of people with younger onset dementia (that is, people under 65 years of age at symptom onset). Dr Withall and her colleagues used case-finding surveys to quantify the prevalence of younger onset dementia in the Eastern Sydney area. Specialists, general practitioners, health professionals and teams, including community and residential care workers, were asked to identify younger person(s) with dementia who had been seen between June 2007 and May 2008. The response rate from health professionals was high; around 82%. A search was also conducted for admissions to the Prince of Wales Hospital over the preceding two years with an ICD code of dementia, and the two memory clinics in the catchment area were also searched. All cases and diagnoses were verified through a medical file review.

One hundred and thirty-six cases residing within the catchment area were identified. The rate of dementia was found to be around 1 in 800 Australians aged 45 to 64 years and 1 in 1500 Australians aged 30 to 64 years. The main diagnoses break down into alcohol-related dementia (22.0%); Alzheimer's disease (16%), unspecified/other dementia (15%); frontotemporal dementia (13%); and vascular dementia (10%). There was a range of diagnoses represented in the remainder of the group and these included mostly cases of dementia occurring secondary to another medical illness such as multiple sclerosis, Parkinson's disease, epilepsy, Huntington's disease, and HIV-related dementia. Importantly, alcohol-related dementia was either a main or secondary diagnosis for more than a quarter of the cases identified, and the people with this diagnosis accessed the health system in very diverse ways. The average age of onset for the group was 54.9 years (range 15-64) and the time from onset to diagnosis averaged 2.4 years (range 1-10 years). There were equal numbers of men and women diagnosed with younger onset dementia. These preliminary data highlight the range of diagnoses found under the umbrella term of younger onset dementia (about 35 in this study). They also identify the high rate of alcohol-related dementia. Importantly, these pilot rates allow for the preliminary planning of services for people with younger onset dementia and their families. Current work is examining the experiences of the person with dementia and their family through interviews that probe regarding the extent of burden, service use, and needs.

The Rosemary Foundation Loader Research Grant, offered in partnership with the Rosemary Foundation, was a seeding grant for new researchers, valued at up to $10,000.

2006 Rosemary Foundation Loader Research Grant

Dr Justin Yerbury[1] & Professor Mark Wilson[1]

[1]**University of Wollongong**

Do the effects of extracellular chaperones on Aβclearance and toxicity provide potential therapeutic targets?

A defining feature of Alzheimer's disease (AD) is the appearance of amyloid-beta plaques formed from the deposition of the amyloid-beta peptide throughout specific regions of the brain. The amyloid-beta peptide is a fragment of a much larger protein molecule and an increase in its abundance is thought to be associated with plaque formation and loss of brain cells. It is known that the amyloid-beta peptide is present in plaques in a form that resembles rope-like fibres called amyloid fibrils. These fibres are formed by the addition of hundreds of copies of the original

individual molecule fragments.

Dr Yerbury and co-workers have identified proteins, called extracellular chaperones, which are able to inhibit the formation of these rope-like amyloid fibrils. The researchers also found that spinal fluid from AD patients was unable to protect brain cells grown in the laboratory from the toxic effects of amyloid-beta peptide and was also unable to clear excess amyloid-beta from surrounding fluid. However, the protective effects of non-Alzheimer's disease spinal fluid were recovered by the addition of the extracellular chaperones into AD spinal fluid samples.

Since amyloid-beta accumulation and associated toxicity is thought to be the triggering event leading to AD pathology the results obtained from the current research suggest that it if it proved possible to increase the concentration of extracellular chaperones in the brain this may counter its accumulation and associated toxicity.

Hazel Hawke Research Grants in Dementia Care

The aim of these grants is to provide up to $20,000 for research into dementia care. Suitable projects might include research into carer support, best quality care practices, activities and therapies for people with dementia, or any other aspect of dementia care research.

2007 Hazel Hawke Research Grant in Dementia Care

Professor Megan-Jane Johnstone[1]
& Dr Olga Kanitsaki

[1]**Deakin University**

The use and misuse of Alzheimer's disease in the euthanasia/ physician assisted suicide debate.

This project, lead by Professor Megan-Jane Johnstone of Deakin University and Dr Olga Kanitsaki, AM, independent scholar, has investigated how Alzheimer's disease is 'used' in the news media, documentaries, films, public opinion polling, professional literature, official documents and other communication modes to shape what people think and understand about euthanasia and whether it should be legalised in Australia. The findings indicate that there is a growing 'Alzheimerisation' of the euthanasia debate, locally and internationally. At the forefront of this trend are outspoken medical practitioners, politicians, elder statesmen and moral philosophers who think that euthanasia of the 'demented elderly' should be a legitimate option.

The researchers suggest that underpinning this stance is the deeply unconscious fear that people generally have of their own inevitable mortality and the associated feelings of vulnerability, helplessness ('loss of control'), insignificance and uncertainty – all of which can be triggered just by mentioning Alzheimer's disease and dementia. The countervailing idea of euthanasia functions, paradoxically, as a 'terror management strategy' by bolstering in people an illusion of control, choice, dignity and 'a way out' (exit), especially when faced by the terrifying knowledge of their own inevitable future death and 'lack of control'. Although views on the subject remain deeply polarised, 'middle ground' positions are emerging, including: continuous palliative sedation in the last weeks of life, and 'trust havens' (end-of-life care units that offer both palliative care and euthanasia). Significantly, the option of palliative dementia care has been relatively neglected in the mainstream euthanasia debate, an oversight that needs urgent attention.

Travel Grants

AAR provides travel grants to assist new researchers to develop scientific presentation skills, learn about cutting-edge advances in international dementia research, showcase emerging Australian research, and build connections with the international scientific community. Travel project grants are valued at up to $10,000, while travel stipend grants are valued at up to $5,000.

2008 Rosemary Foundation Travel Stipend Grant

Dr Anne Poljak

University of New South Wales

Measurement of early diagnostic markers in plasma of patients with preclinical stages of Alzheimer's disease.

Early diagnosis of Alzheimer's disease (AD) could postpone the onset of symptoms and prolong quality of life for people with AD, by allowing for earlier intervention. There are currently no clinically acceptable diagnostic markers that use low-invasive tests, such as blood tests. The current work of Dr Poljak and her colleagues demonstrates that the measurement of amyloid-beta (Aβ peptide 1-42 may be of some value as an early diagnostic marker. This is because a reduction in blood levels of Aβ1-42 peptide is observed in both AD and in mild cognitive impairment, which is thought to be a preliminary stage of AD.

However, this approach on its own is unlikely to be sufficiently specific for AD. Additional markers indicative of early disease stages are required. In their current work this group is exploring plasma biomarkers using a type of methodology called proteomics. Proteomics involves measuring large numbers of proteins simultaneously, so that disease-specific changes can be discovered more rapidly. These changes can be correlated with brain anatomy and psychometric test scores to see which markers are most closely linked with the changes observed in the early stages of disease. A group of markers together may provide a much more specific test than a single marker alone. The 2008 Rosemary Foundation Travel Stipend Grant allowed Dr Poljak to attend the Alzheimer's Association's International Conference on Alzheimer's Disease in Chicago, USA, where she presented her findings. This nature of financial support is vitally important to allow the advancement of Australian research.

The University of New South Wales and Prince of Wales Neuroproteomics Group (from left to right): Dr Anne Poljak, Prof Perminder Sachdev, Ms Tharusha Jayasena, A/Prof George Smythe, Dr Fei Song.

2008 Rosemary Foundation Travel Stipend Grant

Dustin Proctor

University of Queensland

Understanding the role of NMDA receptors and associated scaffold proteins in the pathophysiology of Alzheimer's disease.

Alzheimer's disease (AD) is a progressive neurodegenerative disorder with limited treatment and no cure. AD is a complex disease thought to result from the dysfunction of many different pathways in the brain. One possible altered pathway may involve a particular receptor called the N-methyl D-aspartate (NMDA) receptor, which causes cells to die when it is over-stimulated. Indeed, NMDA receptor differences in the same sections of the brain affected by AD have been reported. The concentration and activity of NMDA receptors can be controlled by NMDA receptor adaptor proteins. The present study conducted by Mr Proctor and his colleagues of the University of Queensland investigated whether changes occurred to these adaptor proteins that could be responsible for the NMDA receptor differences observed in AD.

The group discovered that the levels of adaptor proteins were reduced in the same areas of the brain affected by the disease, and that the severity of loss correlated to the disease progression. They propose that the decline in adaptor proteins could be responsible for the corresponding loss of NMDA receptors. Importantly, drugs which block NMDA receptor activity directly often exhibit widespread side effects in humans and it is thought that novel pharmaceuticals targeting specific proteins downstream of the receptor could prevent the associated symptoms being experienced. Therefore, the adaptor proteins could prove to be potential novel targets for future therapeutic intervention. The Rosemary Foundation Travel Stipend Grant allowed Mr Proctor to attend the 9th International Conference on Alzheimer's and Parkinson's Diseases in Prague, Czech Republic, where he presented some of the preliminary findings.

Postgraduate Scholarships

AAR was able to offer the Hunter Postgraduate Research Scholarship into the Causes of Alzheimer's Disease in 2005, 2006, and 2007 due to a generous bequest from the estate of Mrs Wendie Hunter. The scholarship has supported three new researchers in completing their PhDs focusing on the causes of Alzheimer's disease.

2007 Hunter Postgraduate Research Scholarship into the Causes of Alzheimer's disease

Natasha Deters

University of Sydney

Pathophysiology of Alzheimer's disease.

The Alzheimer's disease brain is characterised by highly insoluble aggregates of the protein tau. In humans, the tau protein is highly abundant in the nerve cells of the brain where it plays a major role in the stabilisation of the nerve cell structure and function. The tau protein itself is regulated by a process called 'phosphorylation'. In Alzheimer's disease (AD) however, tau becomes excessively phosphorylated, a process known as 'hyperphosphorylation', with severe consequences for the stability and function of the nerve cells. Furthermore, hyperphosphorylated tau tends to aggregate into filaments, which then form microscopic structures called neurofibrillary tangles, one of the pathological hallmarks of AD.

Hyperphosphorylation of tau and the formation of neurofibrillary tangles can be reproduced in mice in the same brain areas as they are found in humans with AD. These mice have an impaired memory and behaviour. Ms Deters has been researching tau hyperphosphorylation to try to determine which areas of the tau protein become hyperphosphorylated in ageing mice. Also under investigation were the roles of oxidative stress (for example, from pesticides), and antioxidants (for example those found in green tea), in the formation of tau tangles. Ms Deters has found two areas of the tau protein in particular that were hyperphosphorylated in ageing mice and that correlated strongly with the formation of neurofibrillary tangles. In addition, these same two areas were found to be increasingly hyperphosphorylated when the mice were exposed to oxidative stress. Ms Deters has been able to publish her results in peer-reviewed scientific journals and her PhD thesis is currently under examination.

2009 Dementia Grants Program

The 2009 Dementia Grants Program offered a wide range of research grants, including new investigator grants, travel grants, grants in dementia care and postdoctoral fellowships. The Program was advertised in February 2009 and applications closed in late April 2009. After assessment by external expert reviewers, the successful applicants were chosen by the Scientific and Medical Panel and the AAR Board in August 2009.

The grants offered in the 2009 Dementia Grants Program are listed below.

2009 Dementia Grants Program

- Four AAR Dementia Research Grants for new researchers of $20,000 each.
- One Rosemary Foundation Travel Grant of $15,000.
- Two Hazel Hawke Research Grants in Dementia Care of $20,000.
- Three AAR Postdoctoral Fellowships in Dementia of $45,000 p/a (cost-shared with applicant's institution) for two years.

AAR Dementia Research Grants

The AAR Dementia Research Grants are seeding grants for new researchers, valued at up to $20,000, to be allocated for research in a dementia-relevant area. Grants are awarded for both biological and psychosocial research.

Rosemary Foundation Travel Grant

AAR and the Rosemary Foundation are offering a travel grant valued at $15,000 to enable an Australian researcher or clinician to travel overseas for a period of approximately one month, and to learn new techniques and/or network with well known international research teams at a hospital or university outside Australia.

Hazel Hawke Research Grant in Dementia Care

This grant provides up to $20,000 for research into dementia care. Suitable projects include research into carer support, best quality care practices, activities and therapies for people with dementia, or any other aspect of dementia care research.

AAR Postdoctoral Fellowship in Dementia

AAR is offering a postdoctoral fellowship valued at $45,000 per annum (matched by the applicant's institution) for two years, to support a PhD graduate undertaking research in an area related to dementia. Postdoctoral fellowships are awarded for both biological and psychosocial research.

Financial Report

Alzheimer's Australia Research Ltd.

ABN 79 081 407 534

Financial Report

For the year ended 30 June 2009

Financial information was extracted from the audited financial statements of Alzheimer's Australia Research Ltd., for the year ended 30 June 2009 and is included here for information purposes only.

A full copy of Financial Statements, including Notes to the Financial Statements and the Audit Opinions, can be obtained free of charge on request from:

Alzheimer's Australia Research Ltd., PO Box 4019, Hawker ACT 2614

INDEPENDENT AUDITORS REPORT
TO THE DIRECTORS OF ALZHEIMER'S AUSTRALIA RESEARCH LIMITED

WALTERTURNBULL
your extra asset

WalterTurnbull Building
44 Sydney Avenue
Barton ACT 2600
GPO Box 1955
Canberra ACT 2601
Tel 02 6247 6200
Fax 02 6257 6655
www.walturn.com.au
walterturnbull@walturn.com.a
WalterTurnbull
ABN 90 613 256 181

Report on the Financial Report

We have audited the accompanying financial report of the Alzheimer's Australia Research Limited (the company), which comprises the balance sheet as at 30 June 2009 and the income statement, statement of recognised income and expenditure and cash flow statement for the year ended on that date, a summary of significant accounting policies and other explanatory notes and the directors' declaration.

Directors' Responsibility for the Financial Report

The directors of the company are responsible for the preparation and fair presentation of the financial report in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the *Corporations Act 2001*. This responsibility includes establishing and maintaining internal control relevant to the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

The accompanying notes form part of this financial report.

INDEPENDENT AUDITORS REPORT
TO THE DIRECTORS OF ALZHEIMER'S AUSTRALIA RESEARCH LIMITED

Independence

In conducting our audit, we have complied with the independence requirements of the *Corporations Act 2001*. We confirm that the independence declaration required by the *Corporations Act 2001*, provided to the directors of the Alzheimer's Australia Research Limited on XX October 2009, would be in the same terms if provided to the directors as at the date of this auditor's report.

Auditor's Opinion

In our opinion, the financial report presents fairly, in all material respects, the financial position of Alzheimer's Australia Research Limited as of 30 June 2009, and its financial performance and cash flows for the year then ended in accordance with the *Corporations Act 2001* and the Australian Accounting Standards (including Australian Accounting Interpretations).

James Barrett, CA
Registered Company Auditor
WalterTurnbull
Dated: 28 October 2009
Canberra, ACT

The accompanying notes form part of this financial report.

ALZHEIMER'S AUSTRALIA RESEARCH LIMITED
ABN 79 081 407 534

DIRECTORS' DECLARATION

The directors of the company declare that:

1. The financial statements and notes, as set out on pages 6 to 23 are in accordance with the *Corporations Act 2001:*

   a. comply with Australian Accounting Standards; and
   b. give a true and fair view of the financial position as at 30 June 2009 and of the performance for the year ended on that date of the company;

2. In the directors' opinion there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

Sign C. E. Rees
Name Glenn Rees
Date 28th October 2009

Sign
Name MARC M. BUDGE
Date 28/10/09

The accompanying notes form part of this financial report.

ALZHEIMER'S AUSTRALIA RESEARCH LIMITED
ABN 79 081 407 534

BALANCE SHEET AS AT 30 JUNE 2009

	Note	2009 $	2008 $
ASSETS			
CURRENT ASSETS			
Cash and cash equivalents	4	794,839	823,420
Trade and other receivables	5	67,616	78,845
Prepayment		-	1,680
TOTAL CURRENT ASSETS		862,455	903,945
NON-CURRENT ASSETS			
Financial assets	6	782,088	919,284
TOTAL NON-CURRENT ASSETS		782,088	919,284
TOTAL ASSETS		1,644,543	1,823,229
LIABILITIES			
CURRENT LIABILITIES			
Trade and other payables	7	15,063	54,161
Other current liabilities	8	46,028	51,236
TOTAL CURRENT LIABILITIES		61,091	105,397
TOTAL LIABILITIES		61,091	105,397
NET ASSETS		1,583,452	1,717,832
EQUITY			
Retained Earnings		1,583,452	1,717,832
TOTAL EQUITY		1,583,452	1,717,832

The accompanying notes form part of this financial report.

ALZHEIMER'S AUSTRALIA RESEARCH LIMITED
ABN 79 081 407 534

INCOME STATEMENT FOR THE YEAR ENDED 30 JUNE 2009

	Note	2009 $	2008 $
Revenue	2	647,360	704,644
Employee benefits expense	3	(32,640)	(30,380)
Grants issued	3	(599,018)	(453,445)
Loss on Investment	3	(117,498)	(191,023)
Other expenses		(32,584)	(25,190)
(Loss)/Profit		(134,380)	4,606

The accompanying notes form part of this financial report.

If you would like to know more about Alzheimer's Australia Research or make a donation please visit the Alzheimer's Australia website at **www.alzheimers.org.au**

Alzheimer's Australia Research Ltd.
PO Box 4019 Hawker ACT 2614
Tel (02) 6254 4233
Fax (02) 6278 7225
aar@alzheimers.org.au

For more information about dementia or to learn about the services that Alzheimer's Australia provides in your State or Territory please visit the website www.alzheimers.org or call the National Dementia Helpline
1800 100 500

Alzheimer's Australia Research