



New research project to focus on proteins

MSRA has more good news following the success of the recent Australian genetics discoveries (see page 2). Another important co-funded project will go ahead with assistance from the Australian Research Council. This time the goal is to find the proteins that cause MS.

In each cell, the genetic code of DNA is constantly being converted into thousands of proteins which make the body work. While DNA is the building block of life, it is the proteins they prescribe that interact to create and maintain life. When genetic or protein defects occur, normal biology changes to cause diseases like MS.

Prof Shaun McColl from The University of Adelaide leads this MSRA Proteomics collaboration. The research will study an MS-like disease to understand in more detail the changes to the proteome during specific stages of the disease. "MS primarily affects the brain, and the limited human tissue available means we have to look at closely related models of the disease before we can test anything in people," said Prof McColl. However, while the initial emphasis will be on animal models of MS, human tissue will also be used.

Prof Claude Bernard from Monash University is working with Prof McColl on this study, and also emphasises the critical role played by human brain tissue from people with MS. "There is no doubt that identification of a set of proteins that are specifically linked to different stages and pathological processes in MS will provide insight into the disease, help evaluate the prognosis of patients with MS, guide their treatment and provide novel therapeutic approaches," says Prof Bernard.

"An important aspect of this type of research is trying to distinguish between cause and effect," says Prof McColl, "Our specific aim is to find the proteins that cause MS because it is these that offer diagnostic and therapeutic potential." This is an important objective because, in spite of the considerable research effort so far there are few effective treatments for MS.

"This is a natural step for MSRA to help researchers make important new discoveries that will translate into real outcomes for people with MS" says Mr Jeremy Wright, Executive Director of MSRA. ■



“ THIS TIME THE GOAL IS TO FIND THE PROTEINS THAT CAUSE MS ”

PROF SHAUN MCCOLL AND MR MARK CONDINA IN FRONT OF THE BRUKER MALDI-TOF/TOF MASS SPECTROMETER LOCATED IN THE ADELAIDE PROTEOMICS CENTRE THAT WILL BE USED TO IDENTIFY CHANGES IN PROTEINS IN MS.

MSRA Proteomics Collaboration includes:

- Prof Shaun McColl, The University of Adelaide (SA)
- Prof Claude Bernard, Monash University (VIC)
- Dr Bill Carroll, Sir Charles Gairdner Hospital (WA)
- Dr Judith Greer, The University of Queensland (QLD)
- Dr Peter Hoffmann, The University of Adelaide (SA)
- Prof Ian Smith, Monash University (VIC)

Double MS genetic discovery

News of the ANZgene consortium's discoveries sped around the country and the globe in June, when results were published in the journal *Nature Genetics*.

Prof Trevor Kilpatrick, Director of Neurosciences at The University of Melbourne and Dr Justin Rubio of Florey Neuroscience Institutes, were among 40 researchers from 11 institutions in Australia and New Zealand who helped to identify new genetic regions on chromosomes 12 and 20. "They were like a key in the door, leading us to where to look for MS susceptibility", said Prof Kilpatrick.

Dr David Booth, an ANZgene researcher at Westmead Millennium Institute, Sydney, who is investigating the functional significance of potential MS genes, said there are 17 specific genes in the relevant region on chromosome 12.

"At this stage the main contender for the 'susceptibility factor' of MS is the gene on chromosome 12 which activates Vitamin D," said Dr Booth.

Prof Jim Wiley, Chairman of the ANZgene consortium, said further interrogation of these genes through fine-mapping will identify the gene which affects Vitamin D metabolism.



PROF TREVOR KILPATRICK CHIEF INVESTIGATOR ANNOUNCING THE RESULTS AT A PRESS CONFERENCE
TOP: MEMBERS OF THE ANZGENE CONSORTIUM.



(L-R) JEREMY WRIGHT, DR JUSTIN RUBIO AND PROF TREVOR KILPATRICK.

ANZgene researchers will also fine-map other regions on chromosome 20 which appear to be involved with MS and other autoimmune diseases such as Type 1 diabetes, Rheumatoid Arthritis and Graves' Disease.

"If we can generate more knowledge about the region on chromosome 20, we will gain further insight into how this potential factor for susceptibility affects MS. And that might lead us to discover therapeutic opportunities other than Vitamin D," said Prof Wiley.

Jeremy Wright, Executive Director of MSRA, said "accelerating MS research is our goal and identifying susceptibility in individuals is core to that because it potentially leads to ways to prevent the disease or develop better ways to treat it"

The three-year study used DNA from the MSRA Gene Bank involving 1,618 people with MS and 3,413 people without MS.

Using a genome-wide association scan, researchers scanned the entire human genome in broad brushstrokes. They looked at genetic landmarks in the genome and then progressively narrowed down their search to individual genes.

MSRA is proud to have been involved with this study which, so far, has been a \$1.5 million project. "We are also very grateful for the contributions from the John T Reid Charitable Trusts, the Trish MS Research Foundation, individual donors and the Australian Research Council Linkage Grant – which all made the ANZgene study possible," said Mr Wright. ■

Research and measurement of muscles

A contracture is a disabling symptom of MS and other neurological diseases, yet today's treatments are not optimal and sometimes outright ineffective. But Dr Phu Hoang, an Australian researcher based at the Prince of Wales Medical Research Institute and The George Institute for International Health in Sydney, is working to change this.

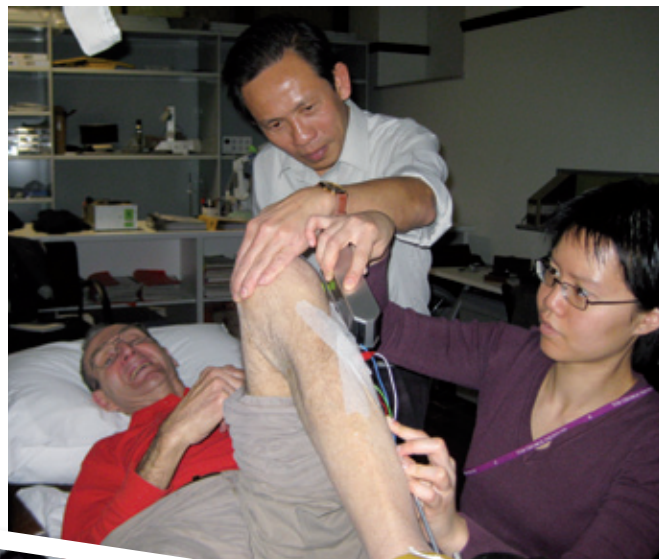
Being unable to fully move joints significantly affects daily activities, and often contractures in the arms and legs, if untreated, result in 'claw-like' hands and feet.

After receiving an MSRA Incubator Grant for PhD work last year, Dr Hoang has developed the first reliable method to measure changes in human muscle. Without reliable methods there was no way to scientifically research contractures and their treatment. Dr Hoang's newly developed method now allows the reconstruction of specific properties of a single human muscle.

"Previously, to measure or understand human muscles, a whole muscle group had to be studied," said Dr Hoang. "But now, with this method, we can observe an individual muscle."

"And when combined with ultrasonography this method allows us to specifically measure the properties of both muscles and tendons," said Dr Hoang.

His new measurement is being used and further developed overseas. These results have helped win a



DENNIS FURZE (PICTURED) IS WHEELCHAIR-BOUND AND LIVES WITH SOMETIMES PAINFUL ANKLE CONTRACTURES. HE HAS HAD MS FOR MORE THAN 20 YEARS. AS A PATIENT IN DR HOANG'S CLINICAL TRIAL, DENNIS IS PARTICIPATING IN A STUDY THAT AIMS TO INVESTIGATE MECHANISMS OF MUSCLE CONTRACTURE.

further Discovery Grant from the ARC to continue to develop the method and investigate the mechanisms of contractures for MS, spinal cord injury and stroke.

Results using Dr Hoang's method will be presented at the Australasian Biomechanics conference in Brisbane in November 2009.

"I'm looking to see if an appropriate exercise program can improve contracture in the ankles of people with MS," says Dr Hoang. "And if it does, then to determine where the effects occur – in the tendon or in the muscle or both. Our measuring method can help answer this question."

Visit www.mstrials.org.au for a list of other clinical trials in your state. ■

MSRA's 'Progress in MS Research' scientific conference and public lecture

Scientific conference – 15–16 October

MS researchers will present their research at the MSRA 'Progress in MS Research' scientific conference.

International guest speakers include:

- Dr May Han, Stanford University
 - Dr Sreeram Ramagopalan, University of Oxford
 - Dr Richard Burt, Northwestern University
 - Dr Diane Playford, the Institute of Neurology, London
- For further details or a registration form visit

www.msra.org.au ■

Public lecture – Saturday 17th October

International and Australian researchers will discuss:

- can genes predict if someone will develop MS?
- can stem cells treat or cure MS?
- can Vitamin D protect me from developing MS?
- are the new drugs safe and effective?

Venue: Royal Prince Alfred Hospital, Camperdown, NSW.

This is a FREE public lecture and open to people with MS, carers, supporters and the general public who are interested to learn more about the latest in MS research.

To secure your place at the public lecture please RSVP on 1300 356 467 or visit www.msra.org.au ■

MSRA Brain Bank

You can bank on us!



DR TERESA WONG,
PROJECT MANAGER
MSRA BRAIN BANK
WITH PROF SIMON
HAWKE, DIRECTOR
MSRA BRAIN BANK.

To achieve breakthroughs in MS research, we urgently need access to human tissue from people with MS, so we can examine the changes in the brain, spinal cord and optic nerves.

Just as organ donation is a gift of life to someone with organ failure, brain donation for scientific research is a gift that will lead to advances in the treatment, and possibly even prevention, of MS in the future.

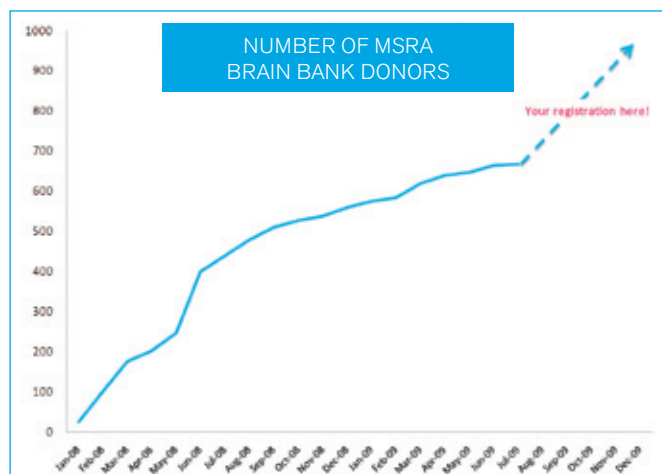
A successful brain donation requires a great deal of cooperation and coordination between the donor's family, doctors, funeral directors, mortuary staff and pathologists to ensure that the brain is retrieved within 24 hours of death. This process can be greatly facilitated if the person with MS and their next of kin pre-consents to brain donation.

We encourage everyone with MS in Australia, regardless of age, gender or disease stage, to register as an MSRA Brain Bank (MSRABB) donor so their tissue may be used whether they die from natural causes or prematurely.

To register as an MSRA Brain Bank donor, visit www.msbrainbank.org.au and complete the online registration form, or call 1300 672 265. There are no costs in becoming a brain donor, and you may withdraw your consent for brain donation at any time.

Help us reach our target of 1,000 donor registrations by the end of 2009. You can add MSRABB as your friend on Facebook, or join the group on www.facebook.com/msrabb

We would like to thank all MSRABB donors and their families for their support and assistance, and express our utmost appreciation for their valuable contribution to MS research.



People without MS can also donate their brain to science and MS research through the Using Our Brains program. Please visit www.braindonors.org or call (02) 9351 2410. Their tissue is similarly collected and processed, and can be used for comparison with MS brain tissue as well as other diseases such as Alzheimer's and schizophrenia.

Almost all scientific studies require both diseased and normal tissue. So even if you don't have MS, your brain can still help research into MS and other diseases.

Information seminars

MSRABB Director, Prof Simon Hawke, and Project Manager, Dr Teresa Wong, will be holding information seminars to explain the procedures for donor consent and tissue collection. Please contact your local MS Society for more details.

ACT: 17 September **QLD:** 8 October

NSW: 17 October **SA:** early November

WA: early November **VIC:** mid December

Have your details changed?

If you have changed your address or GP/neurologist, please notify us on 1300 672 265 or msrabrainbank@med.usyd.edu.au

People with MS inspire AFA



With the help of people with MS (PwMS) in each capital city during July, MSRA has received another \$20,000 from the Association of Financial Advisors (AFA) members – bringing total AFA sponsorship to date to \$250,000.



MSRA asked the PwMS in each capital city to tell their story to over 1,000 AFA members in total who attended the association's various annual professional development roadshow events.

The PwMS representatives included Kate Gild in Perth (see photo), Mark Taplin in Adelaide, Lynda Hanlon in Hobart, MS Ambassador Danny Potter in Melbourne, Perry Lopez in Sydney and MS Ambassador Natalie Walsh in Brisbane. They all presented their own stories with originality and passion for the cause.

MSRA's Executive Director, Jeremy Wright, was able to detail how the AFA donations have supported the development of the **MSRA Brain Bank** as well as research that has successfully produced MS markers in optic neuritis.

The AFA's foundation will continue their support to MS research later this year through fundraising initiatives at their annual conference.



F5m
Foundation 5 Million

1300 356 467
www.F5m.org.au

**F5m has raised
\$2,846,259**

F5m's global network

Partying for a purpose

Just before her 22nd birthday Jackie Richards (above left) was dealing with face paralysis, blurred vision and a subsequent diagnosis of MS. This year Jackie has taken positive action by hosting a fundraising event in Brisbane to help F5m find a cure. You are invited to join Jackie on her 23rd birthday for a buffet dinner and live entertainment. All money from raffles, auctions and donations on the night will come to F5m. Get involved for your chance to support a young and vibrant woman, and to win a signed and framed 2009 Broncos home jersey along with countless other items. See www.party-for-a-purpose.com or email partyforapurpose@cheerful.com

Hilde Brunnbauer (above right) is running a monster marathon to help beat a monster disease.

Since her sister, Sarah, was diagnosed with MS, Hilde has made two ambitious goals; running 42km alongside the famous Loch Ness, and at the same time helping MS researchers find a cure for her beloved sister. You can support Hilde and MS research by making a secure online donation at www.everydayhero.com.au/Hilds

Camino Santiago Sept 14

What would you do if your 18 year old daughter survived a major car accident only to then be diagnosed with MS?

For the Milan family it was a life-changing experience that set them on the pilgrim's path of the Camino de Santiago.



Mark and Trisha Milan with some fearless friends will tackle over 200kms in three days by bike to raise money for MS research. You can support Mark and Trisha on their Spanish quest by helping them reach their \$6,000 target by making a secure online donation at www.everydayhero.com.au/trisha_milan

Corporate show of strength

Corporate support is of immense value to F5m – and therefore research results.

Workplace giving and donations are popular ways for companies to help boost world knowledge about MS through F5m. Employees of Foxtel and XYZnetworks are among the steadiest supporters of F5m through their workplace giving contributions. Companies set up workplace giving so that employees can choose to donate direct (pre-tax) from their paypacket for their charity of choice. Many companies

encourage staff to donate by matching staff donations dollar-for-dollar – building their image and staff respect into the bargain.

F5m is also grateful for the generous support from Premier Media Group, The Media Store, Diageo, Domayne, Foxtel and XYZnetworks – for their support of 'Celebration for Bal' in July.

Cup wins could spin for MS

The race that stops the nation could be a runner for F5m. This November, why not make your Melbourne cup lunch an F5m event by either charging your guests or running the usual sweep but donating winnings to F5m?

Wrapping up

Thank you to all of our wonderful fundraisers!

- **Throw the Book at MS.** In June two literary trivia events and fifty book clubs nationally raised more than \$25,000. Enquiries to throw.the.book@hotmail.com
- **Celebration for Bal** raised more than \$50,000 in July at the Hilton Sydney, where it was attended by friends, family and colleagues celebrating the life of F5m founder Ian Ballard.

MSRA in the global arena

LONDON
JULY 2009

Research representatives from MS Societies around the world convened in London to discuss a strategic research direction for the MS International Federation (MSIF). The purpose of the meeting was to gain an overview of current global MS research activities, identify common priorities, and identify areas of future potential.

Dr Elizabeth McDonald, Medical Director, MS Australia – ACT/NSW/VIC, spoke on behalf of MSRA. "It was a privilege to represent Australia at this unique gathering to discuss potential ways that MSIF may increase global collaboration. There were many common research priorities that MSIF could address by facilitating networks, funding and infrastructure. MSRA priorities fitted well with the overall direction decided on as a result of this meeting."

MSRA's Executive Director Jeremy Wright said "I am excited with Australia's role in coordinated global initiatives to solve MS. Our invitation to join the MSIF discussion is recognition of the high impact Australian scientists have made on our understanding of MS."

Dr McDonald added: "Particular notice was taken of the development of MSRA as an independent organisation in Australia, effectively increasing the focus of MS research. This was seen as important for people with MS, the research community and funding sources. The MSRA workshops we instigate and the resulting tangible outcomes were acknowledged as an excellent way to engage researchers and leverage funding in a timely way."



DR ELIZABETH MCDONALD.

MSRA Partners

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- Macquarie Group Foundation
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www.msra.org.au
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