



Predicting MS in children

Exciting new findings have recently been published by Dr Fabienne Brilot-Turville and Associate Professor Russell Dale, from the University of Sydney and the Children's Hospital at Westmead, in the largest ever follow-up study of Australian children after a first episode of demyelination.

Paediatric MS is considered uncommon, however, it is thought that up to 10% of people with MS either experience their first symptoms or receive a diagnosis in childhood. Demyelination in children can be caused by a number of different conditions, and only a small proportion may turn out to be MS. Therefore, being able to predict which children with demyelination

will develop MS, or another form of inflammatory brain disease is crucial to allow early treatment decisions.

Funded by MS Research Australia with the support of the Melbourne MS Angels and initial seed funding from the Trish MS Research Foundation, Dr Brilot-Turville and Associate Professor Dale followed 73 children in New South Wales after their first episode of demyelination. The aim was to study these children for as long as possible, on average around five years, to see how many of them would experience repeated demyelination and progress to a full diagnosis of MS. To date, 14% of the children in the study have been diagnosed with MS.

The researchers studied the immune systems of the children following their first episode of demyelination in order to identify differences in immune system molecules in children who go on to a diagnosis of MS, compared to those children who do not. This project provides a crucial step towards identifying those children who may benefit from early therapy to target their immune systems and prevent further disease progression.

Dr Brilot-Turville and colleagues have published new evidence in the prestigious journal *Neurology: Neuroimmunology & Neuroinflammation*. They assessed the levels of antibodies that are known to target components of the myelin sheath, in particular a protein known as myelin oligodendrocyte glycoprotein (MOG), within blood serum. Children with antibodies against MOG were much more likely to be diagnosed with MS within five years. However, the team also identified that a second subgroup of children with the highest levels of anti-MOG antibodies were not diagnosed with MS, but instead may represent a previously unreported form of demyelinating syndrome. In order to then explore the mechanisms by which the immune system could cause myelin damage, the team examined whether these anti-MOG antibodies were associated with structural changes in cells producing white matter in the brain, and found a loss of the normal skeleton supporting each cell's structure. These findings have exciting implications for our understanding of the molecules that may cause demyelination in the brain.

This project has achieved remarkable recognition, resulting in six publications so far. These studies are important both for early identification of those children who may be at risk of progressing to MS and predicting future prognosis after an initial episode of demyelination. ■



A word from our Chief Executive Officer

In this issue of the NEXT newsletter we provide updates on several research projects currently being funded. This includes Dr Ingrid van der Mei who has shown that adverse levels of 'bad' fats in the blood is closely linked to the disability progression in people with MS; Professor Karlheinz Peter is conducting ground-breaking work on the importance of platelets in contributing to the pathology and diagnosis of MS; and, both Dr Fabienne Brilot-Turville and Associate Professor Russell Dale, have been undertaking the largest follow-up study of Australian children after a first-episode of demyelination.

The MS Research Australia team are currently working on our MS Research Audit which will be highlighting some of the MS research outcome achievements over the last 10 years. We hope to launch this important research book at our 10 year anniversary event later in the year.

The month of May has been a buzz of activity and very positive media coverage for the Kiss Goodbye to MS campaign. I would like to thank the campaign Ambassadors who have really helped to spread the message and the amazing supporters who have accepted the challenge and already helped make the campaign a success. It is your support that is ensuring funds are being directed into MS research projects, which are working to find the cause and cure for MS.

Lastly I would like to introduce you to our Communications Manager as well as renowned MS research professionals who are joining the MS Research Australia Scientific Team. ■

Dr Matthew Miles

Communications Manager at MS Research Australia

Petricia Augustus has a Bachelor of Arts from Flinders University, with a double major in Psychology and History. Following her degree and a short internship at the Adelaide Advertiser, Patricia moved from Adelaide to Sydney to take up a marketing and communications role.

Petricia has since continued to broaden her experience by working in a variety of industries, including health care, complementary medicine, IT, fleet management and local government. Within these positions her responsibilities have included marketing, communications, market research, customer service and education. All of which has made Patricia an extremely versatile asset to the MS Research Australia team.

At MS Research Australia, Patricia coordinates the various communications and media programs including public relations, website, social media, brochures and newsletters. She also oversees the operations including IT systems, event logistics and office management.

'I have been working at MS Research Australia for the past six years and really enjoy my role. I have been privileged to meet and work with so many incredible people who are affected by MS, and it is them who inspire me to work harder,' said Patricia.

'Whilst working at MS Research Australia I have been able to introduce a number of new communication initiatives including our e-newsletter, our social

media platforms and work very closely with my research colleagues to ensure we translate important MS research findings and discoveries in a timely manner.'

'In a world where people want, and have access to information at their fingertips, from anywhere in the world, it is very satisfying to see the impact we have made via social media platforms. LinkedIn has been a great vehicle for us in many ways, including the recruitment of key staff. We also use Twitter and Instagram frequently for our Kiss Goodbye to MS campaign'.

'Not only do I feel privileged to work at MS Research Australia, I am proud that my children are able to witness the difference we are making through my involvement in the MS community, including supporting the impressive MS research that is happening around Australia'. ■



Petricia Augustus

VALE John Studdy, AM, BEc, FCA, 1929 – 2014

Australia's multiple sclerosis community was saddened recently to learn of the death of one of its great supporters and contributors, Mr John Studdy AM who died on 16 April 2014. Mr Studdy played a pivotal role in the development of MS

Research Australia and raising national public awareness of multiple sclerosis.

The Directors, staff, volunteers and everyone associated with MS Research Australia, join MS Australia and the state MS Societies in remembering and celebrating with gratitude a life of immense service, dedication, support and contribution to advancing the wellbeing of people living with MS and the search for a cure. ■



John Studdy AM



Professor William Carroll



Professor Simon Broadley



Associate Professor
Mark Slee



Associate Professor
Helmut Butzkueven

New MS Research Australia Scientific Team

As a direct result of the success of MS Research Australia's grant-making program, the research governance workload has significantly increased making it necessary to involve a number of additional key MS experts onto the MS Research Australia Scientific Team.

Professor William Carroll has chaired and guided the MS Research Australia Scientific Team over the last ten years and will continue to chair the **International Research Review Board**. This board determines the strategy that leverages Australia's strengths to best contribute to the global effort in MS research. He is also a director on the MS Research Australia Board and holds a significant position in the International Progressive MS Alliance on behalf of the Australian MS research community.

Professor Carroll is also the Vice President of the World Federation of Neurologists, and Clinical Professor of Neurology, Head of Department, Neurology and Neurophysiology at the Sir Charles Gairdner Hospital, Perth.

Professor Simon Broadley, Head of School, School of Medicine and Professor in Neurology, Griffith University, Gold Coast has accepted the honorary position of Chairman of the **Research Management Council** replacing Professor Carroll.

The Research Management Council is a multi-disciplinary team responsible for monitoring and reviewing research applications and recommending to the MS Research Australia Board on MS research grant allocations.

Professor Broadley has worked very closely with Professor Carroll over the last few years as the Vice Chair ensuring that there will be a very smooth transition.

Associate Professor Mark Slee joins the team as the Research Management Council **Incubator Grants** Chair and will work closely with Professor Broadley to ensure the Incubator Grants program runs smoothly.

Associate Professor Slee is the Regional Head of Neurology,

Southern Adelaide Health Network, Head of the MS Program at Flinders University and Medical Centre and Director of the Flinders University Medical Program, Adelaide.

Incubator grants provide seed funding for the early stages of new research efforts, with the aim of generating preliminary data needed to support future grant applications. Approximately six or more Incubator grants are awarded every year to the value of \$25,000 each.

Associate Professor Helmut Butzkueven joins the team as the **Progress in MS Research Scientific Conference** Convenor. He worked very closely with Professor Carroll on the 2013 Progress in MS Research Conference as the Conference Scientific Co-Convenor and brings a wealth of experience and connections in the international MS community.

Associate Professor Butzkueven, is joint Director of the Multiple Sclerosis Service at the Royal Melbourne Hospital and Director of the MS Service at Box Hill Hospital, Melbourne. He is an Associate Professor in the Department of Medicine, University of Melbourne and Deputy Director of the Melbourne Brain Centre at the Royal Melbourne Hospital.

The Progress in MS Research Conference is a biennial opportunity for Australian neurologists and researchers to come together, present their latest findings and form contacts for potential research collaborations. It is a well-regarded and important event on the Australian MS research calendar. The key operational, strategic and financial side of the conference is run by MS Research Australia staff.

MS Research Australia is extremely honoured that Professor Broadley, Associate Professor Slee and Associate Professor Butzkueven have accepted these important honorary positions on the MS Research Australia Scientific Team. Their combined wealth of knowledge and experience will be wonderful assets to MS Research Australia. ■

New MS Research Australia Research Management Council

Professor Simon Broadley – *Chair*
Associate Professor Mark Slee –
Incubator Grants Chair
Professor David Adams
Associate Professor Michael Barnett

Professor Alan Baxter
Dr Ben Emery
Dr Roger Garsia
Dr John Parratt
Dr David Nolan
Professor Pankaj Sah
Professor Bruce Taylor

Social and Applied Research Sub-Committee

Dr Elizabeth McDonald –
Chair
Dr Lindsay Vowels –
Vice Chair
Dr Jennifer McGinley



Roy and Carol Langsford OAM

Partner profile

The Trish MS Research Foundation is one of MS Research Australia's most important partners. Since our establishment ten years ago, the Trish MS Research Foundation has been unwavering in their support and commitment to MS Research Australia and our shared common goal of finding a cure for MS.

The Trish MS Research Foundation was established in 2000 by Roy and Carol Langsford OAM in honour of their beloved daughter Trish, who was diagnosed with MS in 1994 aged 23. Trish was an

elite sportswoman representing NSW and Australia in cricket. Trish had an aggressive and rapidly progressing form of MS and sadly her life was cut short at the young age of 30.

In pursuing their mission to find a cure and preventative strategies for MS and to ensure that no one else would have to go through the same experience as their daughter, the Trish MS Research Foundation sought to establish close links with MS Research Australia. They aimed for a collaborative approach to fundraising for MS research and to ensure that there was no duplication in research efforts.

To date, the Trish MS Research Foundation has raised over \$3 million and has become one of the most important private benefactors to MS research in Australia. For a foundation staffed entirely by unpaid volunteers, drawn from the Langsford's family and friends, this is an extraordinary feat.

In recognition of their services to people with MS, both Carol and Roy were awarded the John Studdy Award, the highest honour from MS Australia. In 2009 they also received an Australia Day honour (OAM).

'When we launched the Trish Foundation in December 2000, we felt that not enough funding was being put into research, particularly to find the cure or a preventative strategy for MS, and so consequently, down the track, when MS Research Australia was launched, we were absolutely thrilled, because obviously the common goal means that the cure will be part of a collaborative effort,' said Carol Langsford OAM.

Carol said, 'The robust grant review process of MS Research Australia ensures that only the strongest research projects are considered. MS Research Australia then presents us with funding opportunities which are reviewed by the Trish Foundation's Honorary Scientific Research Committee and approved by the Board'.

A lasting legacy to MS research

Leaving a bequest to MS Research Australia in your Will is a great way to make a lasting contribution towards a world free from multiple sclerosis. MS Research Australia supporter, Pearl Champion, explains why she has chosen to do this.

'When I was first diagnosed with MS in the early 1990s, I was a manager at the University of Melbourne Library, a bushwalker and a runner. Twelve months later I had to medically retire on my neurologist's advice. At that time there were no medications available for MS and the disease was left to take its natural course.'

'Ted (my partner) and I began donating to MS Research Australia with the hope to help prevent MS, slow its progress and minimise the severity of its ultimate impact. I had no expectation of this

having a direct impact on me'.

'Since then it has been very gratifying to witness the introduction of several disease modifying medications and also the progress that has been made in the understanding of symptoms and lifestyle, contributing to better day to day quality of life.'

'In 2000, I started using an injectable therapy and in 2011, I began a newly available monthly infusion treatment. I have thus already benefited significantly from MS research. None of this was possible when I was first diagnosed.'

Ted and I have met some fantastic MS researchers, and we were inspired by their enthusiasm, dedication and the progress that has been made in a relatively short time. So, in addition to making one-off donations to MS Research Australia, we have also chosen to leave a bequest in our Will. That

is, upon our death a share of our estate has been bequeathed to fund future MS research, continuing to make a difference long after we are gone', said Pearl.

Pearl has also pledged her brain and spinal cord tissue to the MS Research Australia Brain Bank for research. This will be invaluable for researchers who will be able to study brain and spinal cord tissue from MS subtypes and disease stages. 'I like to think that this is another way I can contribute to MS research even after I am gone. The aim is the same – find the cure and make MS go away!' said Pearl.

To learn more about leaving a bequest to MS Research Australia in your Will, please visit www.msra.org.au/bequest or call **1300 356 467**.

For further information on the MS Research Australia Brain Bank or to register your interest please visit www.msbrainbank.org.au ■

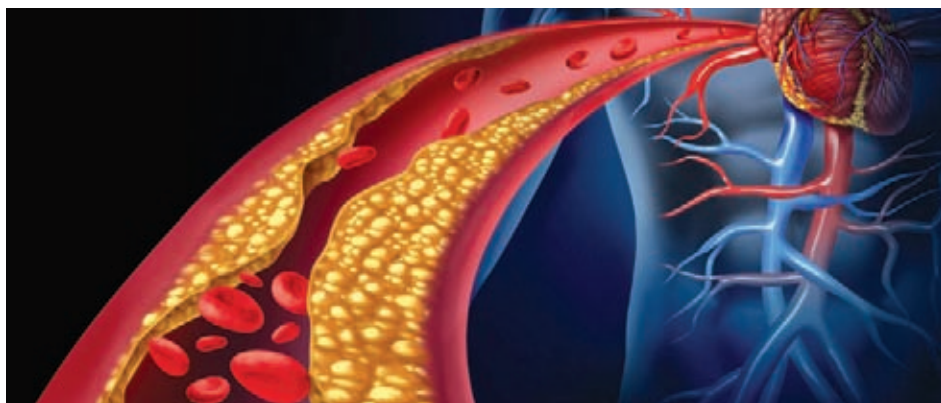
The Trish MS Research Foundation over the years has funded many research projects, of particular note is their recognition of the importance of partnering with others to provide foundation funding. This has enabled many projects and researchers to leverage further significant grants from larger funding bodies. Without the Trish Foundation's support, some may never have got off the ground.

For example, in 2006 the Trish Foundation provided funding for AusGene which has now become the ANZgene consortium, who have made a considerable contribution to researching the genetics of MS. In 2007 the Foundation underwrote and provided the initial funding to the MS Research Australia Brain Bank, which has become an invaluable resource for MS researchers in Australia.

MS Research Australia is extremely grateful to Carol and Roy Langsford and the Trish MS Research Foundation for their commitment to MS research. ■



Pearl Champion



Fat levels in blood influence disability progression in MS

New Australian research shows that adverse levels of 'bad' fats in the blood are closely linked to the level of disability in people with MS and the rate of disability progression.

This important finding suggests that simple lifestyle modifications, such as diet and exercise, may slow the rate of disability progression in MS because these changes will help to reduce the levels of 'bad' fats that are circulating in the body.

The researchers, led by Dr Ingrid van der Mei at the Menzies Research Institute Tasmania, have published their findings in two papers published in the *Multiple Sclerosis Journal* and the *Journal of the Neurological Sciences*.

Dr van der Mei received an MS Research Australia project grant in 2012 to investigate whether fats play a role in the risk of relapses in MS and disability progression.

Fats are an essential component of the brain and contribute to its repair and maintenance. There is now international evidence suggesting that some fats, such as particular types of cholesterol and triglycerides, usually associated with poor cardiovascular health, are associated with the onset and progression of MS.

In the current project, PhD student Mr Prudence Tettey, working with Dr van der Mei, has examined the fat profiles of 141 people with relapsing remitting MS, in blood samples that were collected every six months over a two and a half year period. This work is part of the National Health and Medical Research Council-funded Tasmanian MS Longitudinal Study. This study is a highly valuable long-term data resource with detailed information on relapses, disability, MRI scans, lifestyle, immune function, virology and genetics.

They found that the amounts of a number of different fats in the blood, including the high and low density lipoproteins (HDL and LDL), and triglycerides, were closely associated with disability level as measured by the Expanded Disability Status Score (EDSS). This association remained strong even when other potentially confounding factors such as smoking, exercise, age and sex were taken into account.

The yearly change in the disability level of each patient was also assessed in relation to fat levels over the period of the study. This indicated that a higher rate of disability progression was also associated with higher levels of total cholesterol (TC) relative to HDL levels (that is a higher TC/HDL ratio).

However, fat levels did not have any influence on the risk of experiencing a relapse for the people in the study and body mass index (a measure calculated from weight and height to determine obesity levels) was also not related to relapses.

This suggests that rather than influencing the inflammatory processes that underlie relapses in MS, the profile of fats in the blood may instead influence the ongoing degeneration of brain tissue that drives the progressive phase of the disease.

The researchers looked at the levels of physical activity and used time-lag modelling of the data, but could find no evidence for 'reverse causality' i.e. that a faster progression in disability leads to a higher body mass index (BMI) and higher fat levels in the blood.

The authors suggest that reducing fat levels in the blood, decreasing BMI into the healthy range, and increasing physical activity may significantly reduce the accumulation of disability for people with MS. They recommend that clinical studies are required to confirm the benefits of these types of interventions for slowing disability progression over time. ■



Professor Karlheinz Peter and Ashish Nair

Platelets could hold the key

Groundbreaking new work by a team of researchers in Melbourne is uncovering the importance of platelets in contributing to MS pathology and diagnosis.

This work is being undertaken by a team of experienced researchers led by Professor Karlheinz Peter from the Baker IDI Heart & Diabetes Institute and Monash University in Melbourne. Supported by an MS Research Australia Incubator Grant in 2013, additional funding was awarded via a MS Research Australia Postgraduate Scholarship to Mr

Ashish Nair, a talented young researcher supervised by Professor Peter.

Platelets are blood cells that are best known for contributing to blood clot formation. However, new research suggests that platelets also play a role in inflammation, and may be important in MS. In the later stages of MS, platelets have been found in the brain, but no studies have previously looked at whether platelets may be involved in the earliest stages of MS.

Using novel brain imaging techniques, Professor Peter, Mr Nair and their colleagues have confirmed the presence

of platelets in the brains of mice in an early stage of MS-like illness, and demonstrated that the platelets are located in close proximity to brain lesions. Importantly, they identified that platelets may be a useful diagnostic marker, because they are present in the brain before any symptoms become present. In addition, preliminary experiments have shown that mice with platelet depletion also show delayed onset of symptoms, suggesting that platelet levels may be closely related to the severity of MS symptoms.

Ultimately, this project has been working towards the development of a sensitive, accurate and easy method to track the progression of MS, particularly in the early stages when there are no clinical signs. This important project has very promising implications for the future identification and early diagnosis of MS. An early diagnosis of MS may allow treatments to be started earlier in the disease process and hopefully limit the development of lesions and their consequences.

Incubator grants are designed to launch innovative new lines of research and to this end, Professor Peter and his colleagues are now well placed to pursue this promising novel approach to improving earlier diagnosis of MS. They also plan to investigate how platelets contribute to MS pathology and whether they may be targeted with new treatments. ■

Recruiting phase III trial in secondary progressive MS with oral compound siponimod

A new clinical trial is underway for individuals who have secondary progressive multiple sclerosis (SPMS). The oral drug, siponimod, is an immune-modulating treatment designed to be a more selective sphingosine 1-phosphate (S1P) receptor modulator than Gilenya. Siponimod acts by retaining specific white blood cells (lymphocytes) in lymph nodes keeping them out of circulation and from getting into the central nervous system (CNS). This oral drug can also enter the central nervous system where it may have a direct anti-inflammatory and/or neurobiological effect. If effective at reducing compartmentalized CNS inflammation and/or other disease processes in SPMS, siponimod would represent the first oral treatment that targets the progressive component in SPMS.

The global Phase III trial named EXPAND is recruiting 1,530 SPMS patients in more than 30 countries to test the safety and efficacy of siponimod. About one-third of these participants (determined randomly, however neither the participant nor treating doctor will know which treatment is being received) will receive

placebo and two-thirds will receive siponimod for a duration of 23 to 42 months with a maximum of 60 months.

The primary outcome will look at the delay in confirmed disability progression as measured by the Expanded Disability Status Scale. This well established scale is based on the presence of certain symptoms in a typical neurological exam. Secondary outcomes include disease activity as observed on MRI scans, scales that measure mobility, relapse rates, adverse events and abnormalities on lab tests.

Five sites in Australia (three in Sydney and two in Melbourne) are involved in this Phase III trial and are actively looking for patients.

New therapies, that are effective in delaying disability progression in patients with SPMS, are an important unmet medical need. The EXPAND study will explore the potential of siponimod in SPMS and help advance the knowledge of SPMS pathophysiology.

For more details on this trial and other trials recruiting patients in Australia and New Zealand visit www.mstrials.org.au ■

Kiss Goodbye to MS 2014 – A huge success



Campaign launch MC, Channel Nine TV personality, Deborah Knight, with campaign Ambassadors – Jessica Rudd, well known author and blogger and Ellyse Perry, one of Australia's greatest sports stars.

Throughout May there were red kisses everywhere as fundraisers gathered for one purpose – to raise funds for MS research so we can 'Kiss Goodbye to MS'.

The campaign was officially launched by The Hon. John Ajaka, MP at NSW Parliament House surrounded by 245 friends, sponsors and supporters. Associate Professor Russell Dale, Paediatric Neurologist, Children's Hospital Westmead, inspired the audience with an overview of his research and he stressed that a cure is within reach - with the right amount of funding of course! And so the challenge was set, to raise over \$800,000 for MS research.

Fundraisers rose to the occasion – hosting Kiss Goodbye to MS lunches, dinners, gigs, morning teas and more! Several women opted to shave their heads, whilst some men donned red lippy and red nail polish for the cause. The partnership with Bunnings was another wonderful success with BBQs, cake stalls and awareness tables happening around the country on Mother's Day.

Social media was abuzz during the month with hundreds of photos shared through the 'Photo Every Day in May' challenge. The Kiss Goodbye to MS app also provided an innovative way to donate by contributing a 'kiss' which displayed on a world map.

We want to say a huge thank you to all involved in Kiss Goodbye to MS – we could not do it without you. Whether you are a fundraiser, a sponsor, a volunteer or a supporter, thank you.

We are looking forward to an even bigger and better 2015! ■



Social media helped raise awareness of Kiss Goodbye to MS

Upcoming Events

For more details on community fundraising events contact the Community fundraising team, on 1300 356 467. Details can also be found at www.f5mplus.org.au and www.kissgoodbyetoms.org

5-6 July	Gold Coast Marathon	Gold Coast	30 August	Coast2Coast MS Walk	UK
27 July	Run Melbourne	Melbourne	6-7 September	The Stampede	Brisbane
10 August	City 2 Surf	Sydney	7 September	Bridge To Brisbane	Brisbane
24 August	Pub To Pub	Sydney	13 September	Trish MS Ball	Sydney
25 August	Throw the Book at MS	Sydney	21 September	Sydney Running Festival	Sydney

Running for a cure

In the last few months Carlie, Eve, Amy, Libby, Renee, Amanda, Lisa, Natalie, Carissa, Katherine, Debra, Linda, Kirsten, Madeleine and Corrie, just to name a few, took up the challenge, put in some hard training and ran for F5m+ to fund MS Research.

Not everyone can participate in a marathon but if you are thinking about signing up to one of the many upcoming events (listed on page 7), we encourage you to make all your hard training and preparation worthwhile by registering to support MS research at the same time.

The Wattlelet family from Wyndham, Victoria have a passion for sports and after a close family member was diagnosed with MS they became inspired to put their collective effort into fundraising for MS research and committing to take part in the Melbourne Marathon in October.

You can join the Wattlelet family by fundraising for MS research in the Melbourne Marathon or one of the many other running events happening around Australia. Further information on the events can be found at www.f5mplus.org.au ■



Dr Simon Murray



Stanislaw Mitew

Myelin repair

In 2014, F5m+ as part of the MS Research Australia grant round, is proud to be supporting Dr Simon Murray and Mr Stanislaw Mitew, both from the University of Melbourne.

Dr Murray will be deepening our understanding of the brain-derived neurotrophic factor (BDNF), investigating its potential to promote myelin regrowth in MS. BDNF is known to enhance myelination during brain development, and his work will investigate the ability of BDNF to repair damaged myelin and restore the function of nerve cells in laboratory models of MS.

Mr Mitew will investigate the normal mechanisms for myelination that occur during brain development, and test whether the rate of myelination can be improved under normal conditions. This will then be compared to the situation under disease conditions in laboratory models of MS, aiming to test whether these mechanisms can be reactivated to enhance myelin repair. Reactivating myelin production may be an exciting new therapeutic approach to combat MS.

The community support that F5m+ receives from people who challenge themselves to participate in events across Australia or from their own fundraising efforts enables important research projects like these to be conducted. This year with your support \$220,000 was allocated to Dr Murray and Mr Mitew. Thank you, your efforts certainly do contribute towards top quality research. ■

Help us find a cure for MS

Donate (Donations over \$2 are tax deductible)

To support MS Research Australia's vital work I would like to:

- ☐ Learn more about leaving a bequest in my Will
- ☐ I have already made a bequest to MS Research Australia in my Will
- ☐ Make a monthly donation of : \$
- ☐ Make a one off donation of: \$

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Thank you for supporting MS Research Australia with your generous donation.

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