

Brain Foundation 40th Anniversary

Welcome to the 40th Anniversary Edition of our newsletter – Brainwaves – and to the celebration of 40 years of the Brain Foundation.

This is a time for celebration, as the Brain Foundation is one of the longest surviving charities in Australia, and also for reflection on the origins of how the Brain Foundation was conceived.

The Australian Neurological Foundation – later to become the Brain Foundation – was the brainchild of a group of progressive neurologists and neurosurgeons in 1970. The inaugural meeting was held on 16th May, 1970 in Canberra, under the patronage of former Governor General

The Rt Hon Lord Casey of Berwick KG, GCMG, CH, DSO, MC, KStJ, PC. Directors of the new foundation were members of the Australian Association of Neurologists which was later to become the current day Australian and New Zealand Association of Neurologists (ANZAN). The founding directors were Professor Keith Bradley, Dr John Game, Dr Byron Kakulas, Prof James Lance, Dr Barrie Morley, Dr E. Graeme Robertson, Dr George Selby and Prof Sir Sydney Sunderland. The fundamental basis for the creation of the Brain Foundation was the lack of para- clinical scientists and scientific facilities conducting research into diseases and disorders that the

neurologists and neurosurgeons were treating every day. Treating patients whilst simultaneously endeavouring to conduct research required support. State surveys at the time revealed deficiencies in all existing facilities available for the progression of scientific knowledge and research into the causes of disease and techniques for the treatment of patients.

Delegates to the ANZAN Conference that was recently held at the MCG, received a special presentation by Professor Jim Lance AO CBE, a founding director, about the challenges and difficulties that have been met and overcome over the 40 years since inception.



From left: Prof Steven Davis, Prof Michael Halmagyi, Prof Matthew Kiernan and Prof Jim Lance.

Professor Lance is shown at left during his presentation with Professor Matthew Kiernan, Vice-President Medical of the Brain Foundation and chair of the scientific committee, Professor Michael Halmagyi the new president of the Brain Foundation and Professor Steve Davis the retiring president of ANZAN.

A more comprehensive history of the foundation is being undertaken by Professor Catherine Storey, a neurologist with an interest in history which led her to complete post-graduate studies in history and publish a History of Neurology in Australia. Her work for the Brain Foundation will be available later this year and excerpts will be published in our Summer edition of BRAINwaves newsletter.

Contact the Brain Foundation
PO Box 579, Crows Nest NSW 1585
Telephone: 02 9437 5967 or 1300 886 660
Fax: 02 9437 5978
Email: info@brainfoundation.org.au

Visit our websites www.brainfoundation.org.au and www.headacheaustralia.org.au

Headache and Migraine Awareness Week 2010

19-25 September

The emphasis this year will be upon the National Chronic Headache and Migraine Register.

If you are in this group please consider registering. All that is needed is a

contact Email or postal address. The Register has already been of help to two different headache research projects. We were able to advise those listed on the Register that there was a need for people from defined groups to participate, and the phone numbers to

contact in both cases. The researchers reported that they had adequate numbers for their projects. We are also able to keep those on the Register easily and readily informed about any new treatments that become available as was the case in March this year.

Vale Lady Sonia McMahon

It is with sadness that we report the passing of long standing Director, Lady Sonia McMahon.

Sonia was introduced to the New South Wales Committee of the Brain Foundation by Dr Kevin Bleasel and became a member in 1991. She was very active in all the fundraising events and joined the Board in 1997. As a director she was helpful and supportive and showed leadership by being a generous donor.

Lady McMahon is shown below at a recent Research Awards Ceremony with Phillip Isaccs AM to her left and Professor David Burke AO.



New Web Sites

We are proud to announce our new websites.

Our project consultant, Sue Waters has done an excellent job bringing together our requirements and information. Liaising with the Brisbane-based web development company Swanski and Hutch, has produced a quantum change in the appearance and functionality of the Brain Foundation and Headache Australia site.

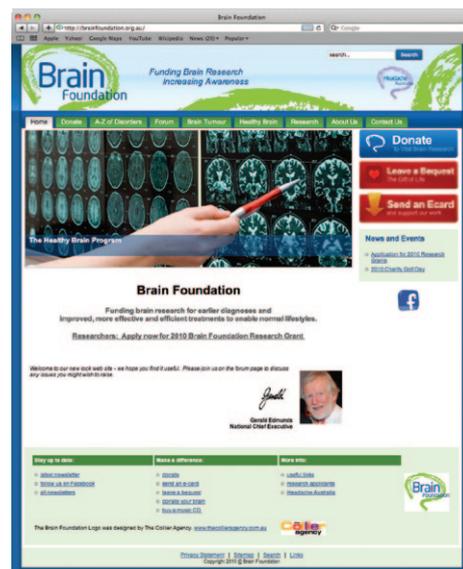
The Brain Foundation web site is now an information gateway to all neurological conditions.

Our new and improved website features contemporary visual effects to emphasize the nature of the work undertaken by the Brain Foundation. Our new sites have a modern appearance and we have a new logo courtesy of the pro-bono work by The Collier Agency. Our new website also features an "A to Z" section containing information about the prognosis for diseases and disorders and has links to all the associations, carer groups and the latest research for each.

A brochure, describing the site, will be widely distributed through the rooms of neurologists and neurosurgeons.

Note that the Brain Foundation's website address has changed to:

www.brainfoundation.org.au



Headache Australia site remains as: **www.headacheaustralia.org.au** and is linked to the Brain Foundation's site.

In both cases, if you do not have access to a computer, please call **1300 886 660** and we will find the information that you need and post it to you.

facebook Brain Foundation has launched a Facebook page. Please support us by becoming a fan, and help spread awareness about the Brain Foundation as your connection cascades amongst all your friends.

A New Partnership.

The Brain Foundation is pleased to announce that we have gained the support of Ray White Real Estate in Surfers Paradise.

With information about the Brain Foundation to be featured on the Ray White web site, we now have the opportunity to increase awareness

about the funding we provide for neuroscientific research each year. Ray White CEO, Andrew Bell, is well known on the Gold Coast for his support of Muscular Dystrophy. Holding an Annual Charity Ball, he has raised much needed funds over the last 15 years. We look forward to a successful partnership.

2010 Brain Foundation Research Grants

Applications are now being accepted for the 2010 research grants. The primary objective of the Brain Foundation is to attract and support projects with potential in the areas of neurological diseases, disorders and injuries to the brain and spine. The grants are funded by donations from you, our readers, corporate sponsors and bequests.

Research projects from around the nation are assessed by a committee of prominent neurologists and neurosurgeons. As a result, the selection protocols used by the Brain Foundation to assess applications have gained the support of the Commonwealth Government in the form of a co-contribution of up to 75% of the amount awarded to each

recipient. This is something to be considered when making a donation as it effectively turns each dollar donated into as much as \$1.75.

Applications for the 2010 grants will close on the 30th of June. Information about applying is on our new web site:

www.brainfoundation.org.au.

2008 Grant Recipients' Research Reports

Dr Stephen Reddel: Does pyridostigmine (Mestinon) make myasthenia gravis worse in the long term?

In 2008 the Brain Foundation kindly supported our project: Does pyridostigmine (Mestinon) make myasthenia gravis worse in the long term? The neuromuscular junction is the meeting point between the motor nerve, that carries signals from the brain and spine, and the muscles that provide the power for all movements. Nerves carry the signal using a modified form of an electrical current, although not like an electrical wire. However they signal from nerve to nerve or in this case from nerve to muscle using a chemical signal, not electricity. In myasthenia gravis, the immune system of the body unfortunately makes antibodies that attack the receptor of that chemical signal, which is found on the surface of the muscle. As a result the nerve signal is carried but not transmitted to the muscle, and an affected patient becomes weak, and may have difficulty breathing, swallowing or moving their eyes normally.

The first treatment introduced for this condition was physostigmine – a close relative called pyridostigmine is the form currently in use. The use was first published in the Lancet in 1934 by Dr Mary Walker. The clearly beneficial short term class effect certainly occurs: Dr Walker's film from 1935 is now available online: [HYPERLINK "http://www.youtube.com/watch?v=uRoRsmvkhTI"](http://www.youtube.com/watch?v=uRoRsmvkhTI) but this does not prove a long term benefit, although pyridostigmine remains the first line drug chronically used for myasthenia gravis worldwide. There are reasons that have emerged from our molecular understanding of myasthenia that suggest that in the long term these medications may have negative effects on the neuromuscular junction that our study seeks to answer.

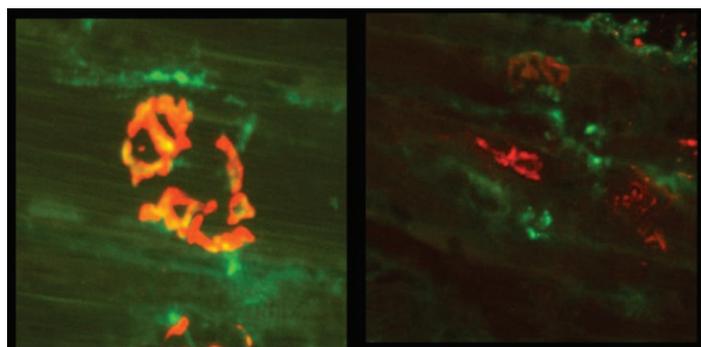
Our model of anti-MuSK antibody myasthenia in biological models has established that the number and area of the

chemical receptors (in red in these pictures) in the affected animals declines rapidly. Compare the normal synapse on the left and the affected synapse on the right:

The effect on this disease model when pyridostigmine is introduced is still being studied. Our data is still preliminary but despite this medication being a mainstay of treatment we have neither found a clear benefit nor a clear detriment from therapy. It may be that after a few days of therapy the short term benefit subsides, and further studies are ongoing. Note that this should not be interpreted as suggesting clinical therapy of any patient with this disease should be modified based on this data.

We are grateful for the support of the Brain Foundation for supporting projects such as this, where molecular science is applied to clinical neurological problems and hope that this unique support for practical funding of disorders of the brain and nervous system can continue to flourish.

Stephen Reddel, for the team including Marco Morsch, Rebecca Cole, Nazanin Ghazanfari, Jen Brockhausen, Shyuan Ngo and headed by Bill Phillips.



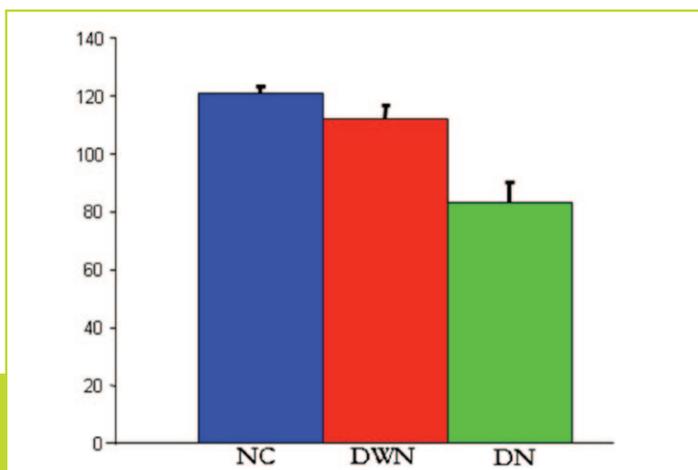
2008 Grant Recipients' Research Reports

Dr Arun Krishnan: Investigating the causes of diabetic neuropathy

Diabetes has reached epidemic proportions in Australia with almost ¼ of adult Australians manifesting signs of either diabetes or glucose intolerance.

Neuropathy occurs in almost 50% of diabetic patient and leads to weakness in the limbs and reduced sensation. Diabetic neuropathy is disabling and is associated with considerably reduced quality of life. At present there are no treatments for diabetic neuropathy, aside from optimising diabetic control. One of the major problems with developing new treatments is the inability to detect early signs of nerve damage. We have applied a novel technique, known as nerve excitability testing, to patients with diabetic neuropathy to assess whether there are changes that may be detectable in advance of severe nerve dysfunction. Our preliminary studies, funded through the Brain Foundation, have demonstrated changes in diabetic nerve dysfunction in patients who do not manifest any abnormality on routine testing methods. These changes mirror those that occur with more advanced neuropathy (fig. 1). The findings are important for the early diagnosis of neuropathy and raise the possibility that nerve excitability methods may be more sensitive in detecting minor nerve dysfunction in diabetic patients. These studies may also help direct future methods of treatment for this disabling condition.

Figure 1: Demonstrates the differences in nerve function between normal controls (NC), patients with severe neuropathy (DN) and diabetic patients who are not classified as having neuropathy by conventional measures (DWN). The results show that diabetic patients who are thought not to have neuropathy do nevertheless manifest abnormalities using our novel techniques. These patients are can be clearly separated from the normal control population.



Dr Corinna Van Den Heuvel: University of Adelaide

Assessment of the neuroprotective properties of the amyloid precursor protein (APP) following brain injury.

We were very fortunate to have received a grant from the Brain Foundation in 2008 to aid us in our investigations into traumatic brain injury (TBI). TBI causes more deaths in Australians under 45 years of age than any other cause and to date there is no therapy to ameliorate this injury. Interestingly, there is increased production within the brain of a normal cellular protein called the amyloid precursor protein (APP) following TBI. APP can be broken down to form either a toxic protein $A\beta$, which is associated with Alzheimer's disease the commonest cause of dementia, or a protective protein known as sAPP α . The different actions of these two breakdown products created a debate about whether the increase of APP seen following head injury was a beneficial or negative response. This instigated a collaboration between our group, with expertise in head injury, and Prof Roberto Cappai's group from the University of Melbourne, who are experts in APP biology, to explore this further. Our collaboration along with the Brain Foundation Grant has enabled us to conduct a vital novel pilot study exploring whether the APP is indeed protective following head injury. Our results from this study were the first to demonstrate that mice lacking APP have a worse outcome following head injury than mice that have normal levels of APP. Mice lacking APP exhibited significantly greater motor and learning deficits that were associated with an increase in neuronal cell death and an impaired repair response. This study was the first to show that APP is a protective protein following TBI, with this exciting research presented at the Australian Neuroscience Society Conference, submitted for publication within the Journal of Neurobiology of Disease and forming the basis of a \$500,000 NHMRC grant application. We are now in the process of determining the specific regions within APP which confer this neuroprotective activity, with the main aim of developing them into an agent for treating neurotrauma.

The Sir Charles Bright Scholarship

The Brain Foundation is pleased to continue their support of the Sir Charles Bright Scholarships.

CEO Gerald Edmunds was in Adelaide for the presentation of the scholarships in February and is shown below with the three recipients. From left, Lisa Ward, who is studying Certificate IV in Mental

Health at TAFE, Jane Gersch who is studying a Diploma in Counselling as an external student at Port Pirie TAFE and Clare Louise Treis, studying for a Bachelor of Fine Arts and Applied Design is having her first exhibition to be held at the Bruce Wilson Gallery in August.



Golf Day 27th September

This newsletter gives plenty of notice to all golfers to invite friends to participate in helping the Brain Foundation.

You will enjoy a pleasant morning's golf on the very interesting course at Pymble. Golf carts and balls are provided. The day begins with breakfast prior to an 8am shotgun start and finishes with lunch in the Club House, all included in the \$195 fee. Last year was the first Golf Day for many years and succeeded in raising over \$5000. Brain Foundation organiser, Val Gibson worked closely with Bullant Sports CEO Gary "Smokey" Dawson, pictured when he came to the Brain Foundation's Crows Nest Office to present the cheque.



Above: Gerald Edmunds, Val Gibson, Gary Dawson

Multiple Sclerosis (MS) Conference



Bayer Australia sponsored a weekend MS Symposium in Melbourne during March with a number of international speakers.

Organised by Senior Product Manager, Dr Mark Kepper, the topics were directed to both specialists and Multiple Sclerosis Nurses. The conference was extremely successful with a total of 240 delegates.

International guest speaker, Prof Heinz Wiendl, Dr Jeanette Lechner-Scott, Dr Mark Kepper, Gerald Edmunds and CEO of MS, Jeremy Wright.

Matthew Krel Memorial Concert



The scene above is from the Matthew Krel Memorial Concert held at the Sydney Town Hall in April.

Matthew was the Founding Conductor and Artistic Director of the SBS Radio and Television Youth Orchestra. It was in 1987 that he had the idea to create a youth orchestra where young musicians, in association with a broadcast organisation, could work and record in television and radio studios in addition to live, public performances. The drive and inspiration of Matthew Krel sustained the Orchestra for 20 years until his tragic death last year from a neural infection. The concert was the first step in launching a lasting memorial in his name. The Matthew Krel Orchestral Scholarship will identify and encourage talented young musicians from all parts of Australia. Patrons at the concert also contributed very generously to The Brain Foundation which was represented by the President, Professor Michael Halmagyi and his wife Sue and CEO, Gerald Edmunds.

Brisbane Zombie Walk

This event, now in its 3rd year, has been vigorously promoted by local Brisbane identities, Anthony Radaza and Cara Westworth. Held during October there will be more information on our websites and Facebook. Anthony has very kindly promoted this event to raise awareness about the Brain Foundation's community education and research programmes in a

younger group, as well as raising funds for the Brain Foundation. News about its success has spread and this year a group has formed to conduct a Zombie Walk in Surfers Paradise with the same aims emphasising the elements in the Brain Foundation's Healthy Brain project. There is interest in other cities that is in the preliminary stage.



City to surf: Heroes wanted

Entries are now open for the Sydney City to Surf Fun Run.

Last year, a number of runners very kindly nominated the Brain Foundation as their charity and a significant amount of money was raised. Alan Farrell, a Brain Foundation supporter and member of Southport Runners and Walkers, has been running every year since the first event and is expected to

complete his 40th, this year. If you are planning to run please nominate the Brain Foundation or set up a page with Everyday Hero or My Cause who both support the Brain Foundation.

Thanks,

In Memoriam

Diana Louise WINWOOD
Stephen Paul HOSFORD
Peter EDMONDS
Joyce WARD
Kevin Patrick CLEARY
Maria GEORGIU
John URQUHART
Justeen Gaye GASKELL
Kathleen LYALL McLEAN
Ronald Max WILLIAMS
David Ron WILLIAMS
Graeme STEVENSON
Ruth DAVIDSON
Emmanuel KOULOURIOTIS
Clinton COPPEL
Gayle Valmai WALTON
Jennifer COOPER
James WILLIAMSON
Gary MCLENNAN
Monica Maria JARRAD
Kees LINDEMAN
Alexander Buchan MARSHALL

In Celebration

Mr & Mrs A T PETERS

In Memoriam Concert

Matthew KREL

To make a donation, please complete this form and return it to the Brain Foundation using this reply paid envelope.

Name _____

State _____ Postcode _____

Telephone () _____

Mobile _____

Email _____

I would like further information about

Making a bequest Workplace giving

I would like to receive the bi-annual

BrainWAVES newsletter by Post Email

Please accept my tax deductible donation to the Brain Foundation:

\$200 \$100 \$50 Other _____

Regular donation:

I would like to make a regular donation to the Brain Foundation. Please debit my credit card for \$ _____ per month until I notify you.

Please find my cheque payable to Brain Foundation enclosed

OR Please debit my Mastercard | Visa | Amex

Card No. _____ / _____ / _____ / _____

Expiry Date: _____ / _____

Name on Card _____

Card holders signature _____

Thank you for supporting brain research through the Brain Foundation