PROFESSOR INGRID SCHEFFER HAS TRANSFORMED OUR UNDERSTANDING OF EPILEPSY. TWENTY YEARS AGO IT WAS BLAMED ON INJURIES, TUMOURS – ANYTHING BUT GENES.

NOW, THANKS TO INGRID’S WORK, WE KNOW GENES PLAY A LARGE ROLE. IT’S OPENED THE WAY TO BETTER DIAGNOSIS, TREATMENT AND POTENTIAL CURES.

(CONTINUED PAGE 3)
MEMORIES OF THE FLOREY FLOW

Dear friends and colleagues,

As we reflect on the achievements of another scientific year, what a great opportunity we have to celebrate the great minds who have made the Florey what it is today.

Recently, Fred Mendelsohn, Geoff Treagar, Michael McKinley and Conrad Rabl visited our new home in Parkville to help us promote our growing list of Florey alumni (right). Speaking of great initiatives, I was very pleased by the overwhelming support for our Pedalling for Parkinson’s charm, Kieran Donlon, who rode from Cairns to Warrnambool in 25 days. After receiving a few bumps and bruises along the way, Kieran managed to raise more than $13,000 which will go towards Prof Mal Horne and his Parkinson’s research team. Well done Kieran, and thanks to everyone who supported this great cause.

In October we were delighted to welcome Prof David Atwell from the UK as our guest speaker for the 15th Kenneth Myer Lecture. His accessible talk left quite an impression on our audience. For those who missed it, it can be viewed on our website: florey.edu.au.

We look forward to next year’s lecture which can now confirm will be on Wednesday October 31 and will be delivered by a person with an international reputation for telling great yarns – more news soon.

This time of the year is always one of expectation as the NHMRC grant funding is announced. I am delighted to report that 2011 has been one of our most successful with a success rate of 47 per cent for project grants.

We also received further good news. Congratulations to Professor Ingrid Scheffer who is one of five international scientists to win the prestigious L’Oréal-UNESCO Women in Science Award for her ground-breaking research into epilepsy. And another coveted award, the Viertel Senior Medical Research Scholarship, which recognises Ingrid’s ground-breaking research into epilepsy.

Ingrid has been awarded the title of Laureate for the Asia-Pacific region and is the fifth Australian to receive the award.

Ingrid also holds a chair at the University of Melbourne as a paediatric neurologist and epileptologist at Austin Health and the Royal Children’s Hospital.

She has devoted the last 20 years to clinical research focused on epilepsy and has identified many new forms. Together with her molecular collaborators, she discovered multiple genes that cause seizures.

Each year, five outstanding women scientists globally are honoured by this international prize for the contributions they have made through their research, the strength of their commitment and their impact on society.

“This is a true honour,” Ingrid says. “I am thrilled to be recognised for my work in epilepsy as a clinician and scientist. Of course I could not have done this without the contributions of my patients and their families, my many collaborators worldwide and my research team.”

Ingrid’s clinical research has focused on the genetics and different types of epilepsies, and on novel antiepileptic therapies. For 20 years she has led the field of epilepsy genetics research, collaborating with colleagues to identify the first epilepsy gene and 13 of the 23 genes currently known.

Three of Ingrid’s papers have been cited more than 500 times and another 45 papers more than 50 times, leading to a combined total of nearly 9000 citations. In 2007 she was awarded the highest accolade in epilepsy research, the American Epilepsy Society Clinical Research Recognition Award.

Her expertise in defining epilepsy syndromes has led to her leadership role as Chair of the Commission for Classification of the Epilepsies by the International League Against Epilepsy.

Professor Ingrid Scheffer, a principal research fellow with the Florey, is one of five international scientists to win a prestigious award. The L’Oréal-UNESCO Women in Science Award recognises Ingrid’s ground-breaking research into epilepsy.

A recent visit to Parkville by four Florey luminaries has reinforced the value of the new Florey Alumni program.

Past director Professor Fred Mendelsohn, former laboratory manager Conrad Rabl, Professor Geoff Treagar and current lab head Professor Michael McKinley came together to help us invite past colleagues to make contact. After an hour-long catch-up, all agreed it should happen more often.

Past researchers, students, staff, board and committee members from the Howard Florey Institute, the Brain Research Institute and the National Stroke Research Institute are invited to join as we reflect on times past as well as anticipate the science to be achieved within the Florey’s magnificent new buildings.

Don’t forget, if you can dig up any old photographs or other memorabilia of your time with us, we would love to add your items to our archive. Similarly, if you know the whereabouts of past colleagues, please tell us so that we may contact them.

To reconnect with the Florey, please contact Astrid Sweres at astrid.sweres@florey.edu.au for your welcome pack.

Professor Fred Mendelsohn, Geoff Treagar, Michael McKinley and Conrad Rabl, the Florey’s laboratory manager for more than 30 years, catch up in the foyer of the new Florey building in Parkville.

Professor Ingrid Scheffer with one of her young patients

“Women in science face additional challenges juggling a career and family but if they are passionate about science, life can be incredibly rewarding.”

– Prof Scheffer

The Florey’s Director Professor Geoffrey Donnan said: “Ingrid is a totally committed scientist, striving to better understand these terrible conditions which can absolutely devastate lives. She is indeed a worthy recipient of this award.”

About UNESCO

Since its creation in 1945, UNESCO has pursued its mission of promoting science at the service of sustainable development and peace. It stresses policies and the reinforcement of capacities in science, technology and innovation, science education, sustainable management of freshwater and ocean and terrestrial resources, the protection of biodiversity and lastly climate change.

The Organisation also has an overarching objective to eliminate all forms of discrimination and to promote equality between men and women, especially in scientific research.

About the L’Oréal Foundation

The L’Oréal Foundation, created in 2007, is committed to social responsibility. It is the second-largest corporate foundation in France with a multi-annual budget of €40 million. Almost 2,000 high-level scientists from around the world were involved in the nomination of the candidates, who come from five continents.

To see and hear interviews on ABC TV and radio with Professor Scheffer, visit the Florey website at florey.edu.au
When Gwenda, her daughter Beth and son-in-law Ray visited the Florey to see how the research was carried out, they were all impressed by the organisation’s focus on accountability to donors. Their need for reassurance that the money would be spent exactly as they wanted was met by a full proposal with costings and a reporting schedule.

According to Beth: “We had looked at a number of not-for-profits to support, but we all felt that our money would be in safe hands with the Florey”. They were also impressed by the dedication of the scientists at their benches. “No one even looked up as we passed through,” said Ray in wonderment, “they were so engrossed in their work.”

The family was ultimately introduced to Professor Trevor Kilpatrick who leads the MS research team at the Florey, and Dr Holly Cate who researches the demyelination which is a hallmark of MS. The MS team strives to understand the cause of the disease and to develop better therapies to treat the condition. To achieve these aims, they focus on several areas, including the genetic determinants of MS, the potential of neuro-regenerative and regenerative medicine, and the development of bio-markers to aid diagnosis.

It was important to Gwenda to have a personal connection to the research. This was maintained as Dr. Cate provided written reports and informal biyearly presentations on research progress to Gwenda, Ray and Beth.

Gwenda Holloway sadly passed away in 2009 at 92 years of age, intellectually curious and alert to the end. Her legacy certainly lives on. Including her final bequest, this visionary lady and her family have donated nearly half a million dollars towards research into a disease that blights the lives of so many people in their prime. And until there is a cure for people like Ray, they intend to continue doing so.

Multiple sclerosis is a puzzle that has perplexed medical science since it was first described by the French neurologist Charcot in 1868. The disease affects the central nervous system and can, to varying degrees, interfere with the transmission of nerve impulses throughout the brain, spinal cord and optic nerves. MS has been the subject of intense, world-wide research, but its cause and cure remain elusive.

Recurring episodes of MS can cause scars to appear in the central nervous system as a result of the breakdown of myelin, the insulating material that covers nerve fibres. This can lead to impairment of motor, sensory and cognitive functions. An estimated 18,000 Australians have MS, and typically they are in the prime of life, just like Ray.

Gwenda’s son had managed her finances after the death of her husband, and he recommended that she should donate a large amount to one organisation and really make a difference, rather than dissipate the power of such a gift by distributing it too widely. Accordingly, Gwenda involved all her adult children in the search for the right organisation to partner with.

First of all, the family had to decide whether they would support MS patient services or research. Once they agreed that finding a cure was of greater importance to them, they asked a neurologist which Australian medical research organisation was doing the best work on MS. That led them to the Florey and to a relationship that would prove to be a most heart-warming connection between like-minded people.

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SET TO FADE: IS THE BRAIN DOOMED TO DEGENERATE?

Welcome to an exploration of the body’s most complex organ. Here, Professor Malcolm Horne, deputy director of the Florey, and Bradley Turner, one of our senior research officers, examine why our brains degenerate, and ask whether there is any chance of changing this.

Why does age make the brain so susceptible to degeneration?

Dementia is a fatal disorder and the third leading cause of death in Australia – it increases markedly with age and approximately one in 100 Australians suffers from it.

Organs such as the liver, gut and blood repair and renovate themselves by regularly replacing damaged or ageing cells. Each of these organs has a nidus where stem cells manufacture these replacements. But brain and muscle cells endure with very little replacement.

While the liver can be almost completely repaired, even when as much as 50 per cent is lost through injury or disease, there is only minimal repair of the brain following cell loss through damage or disease. Animals with simple nervous systems and reptiles have brains that can self-repair but it appears that mammals lost this ability at some point in their evolution.

We don’t know when or why this happened.

GOING, GONE

Brain cells can’t store their own energy but depend on being continuously supplied from blood and from their support cells, known as glia, which supply nutrients and other molecules needed for survival, and remove toxins. They act as the nerve cells’ private guardians.

Nerve cells have especially high energy demands, consuming about 20 per cent of the body’s oxygen requirement and 25 per cent of its sugar requirement, and brain cells die only a few minutes after blood supply fails.

Energy is needed to maintain a voltage across the membranes, which is necessary for producing the signals that pass between nerve cells. These connect to each other by long processes called axons or nerve fibres.

It’s worth remembering the axons going from brain to spinal cord or cord to muscle can be more than a metre long.

In nerve cells, as with all cells in the body, energy is also required for normal cellular functions. Cell organelles must be trafficked, cell parts repaired, renovated or extended, membranes repaired and synthesised.

Such processes demand the manufacture of proteins – DNA and RNA. In carrying out these tasks, molecules “wear out” and must be degraded and removed.

Also, a certain proportion of the newly-synthesised replacement proteins are defective and must be replaced.

CLEANING UP

Nerve cells can be thought of as miniature factories requiring resources and expending energy for their survival, while producing waste by-products.

They require careful cleaning and maintenance, otherwise there’s the potential for protein to build up as “junk” within the cell, reducing the efficiency of the cell and increasing energy demands.

A common feature of the ageing brain is the appearance of abnormal protein junk piles in nerve cells. Quite often these are harmless, but in some cases they are signatures for degenerative brain disorders such as Alzheimer’s disease, Parkinson’s disease and motor neurone disease.

The exact reasons why these sticky protein clumps form in the brain is not well understood but the junk piles most likely reflect waste build up in nerve cells.

When junk accumulates in cells from other organs, those cells are marked for demolition and replaced. This option is not available for the brain, placing it at increased risk of degeneration with increasing age.

There is a suspicion, but no clear proof, that lifestyles with ongoing need for research funding.

There’s also a suspicion that, in some diseases such as Parkinson’s, exposure to insecticides, which damage the work of Florey scientists and the need for a cure to be found for Parkinson’s disease. Over an eventful day in Canberra, Kieran and Florey staff met with 23 members of parliament and advisors, discussing our work and the ongoing need for research funding.

Cheers and whistles welcomed Kieran as he rode up to the Florey’s Parkville labs in an emotional return a few days later. Drs Clare Parish and Lachlan Thompson thanked Kieran for his brave ride and said they felt highly motivated to get back into the lab, inspired by Kieran’s efforts.

Kieran’s wife Julie lives with Parkinson’s and Kieran is her principal carer. The Florey thanks Julie for getting by without Kieran for a few weeks while he raised our profile across the country and brought in thousands of dollars to support the scientists working to find a cure. We also thank his mate and long-suffering roadie John Stafford, whose family has also been affected by Parkinson’s.

Kieran hopes to ride again next year – across the Nullabor. If you are interested in joining him and raising money to help find a cure for Parkinson’s disease, please contact Astrid Sweres at: astrid.sweres@florey.edu.au

KIERAN MAKES IT HOME

Professor Geoff Donnan welcomes Kieran as he arrives at the Florey’s Parkville labs.

Kieran Donlon has made it home after a marathon 4000km bike ride from Cairns to Warrnambool, fundraising for the Florey.

Kieran set out to raise money for our Parkinson’s research team but achieved so much more.

A morning tea in Kieran’s honour was held in Canberra’s Parliament House when he helped promote the work of Florey scientists and the need for a cure to be found for Parkinson’s disease. Over an eventful day in Canberra, Kieran and Florey staff met with 23 members of parliament and advisors, discussing our work and the ongoing need for research funding.

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TRUST IN THE FLOREY

The Florey and The Trust Company as Trustee for the Fred P. Archer Charitable Trust have joined together in a three-year initiative.

Fred P. Archer was born in 1890, the son of a drover. He served Australia in two World Wars becoming one of a famous band of “Coast Watchers” working behind enemy lines in the Pacific Islands in WWII. He moved to New Guinea in 1923 and stayed for 54 years. Fred supported the people of PNG and the Solomon Islands in business and philanthropically. Following his retirement he devoted himself to philanthropic work, largely supporting education in PNG and the islands. Shortly before his death in 1977, Fred formed his company into a charitable trust to be managed in perpetuity with dividends distributed each year to charities in PNG and Australia.

The partnership between the Florey and The Trust Company will deliver $375,000 to support two of the Florey’s important goals:

• Seed funding for the Women in Science program as we continue to fundraise to provide career development support for our female scientists
• Continued support for the annual Brain Fitness Challenge. The Trust Company will participate in the online competition and will offer financial support to help the Florey encourage positive ageing and brain health through this unique game.

Our work at the Florey is about the future – about improving the quality of life for everyone. The development of strong partnerships, such as this one, is vital to this future and we sincerely thank The Trust Company as Trustee for the Fred P. Archer Charitable Trust for its foresight.
THANK YOU TO THOSE WHO HAVE GENEROUSLY GIVEN TO THE FLOREY NEUROSCIENCE INSTITUTES BETWEEN SEPTEMBER AND NOVEMBER 2011. LISTED ARE THOSE WHO KINDLY GAVE $250 OR MORE.

Jim & Judy Allen • ANZ Trustees Limited • David Barkley • Walter Beale • Suzi Carp • Count Charitable Foundation • CWA Noble Park Branch • Katie Dansey • Ann De Paul • Matthew Donazzan • The Drummond Foundation • Sir Edward Dunlop Medical Research Foundation • Philip Goodman • Geoff and Helen Hanbury Foundation • Prof Andrea Hull AO • Anne Kantor • Lord Mayor’s Charitable Foundation • The Eirene Lucas Foundation • Kevin Luscombe AM • Scobie & Claire MacKinnon Trust • Bridget Mar • Elizabeth McLaren • Alexander McMillan • Judith Middlemass • Dame Elisabeth Murdoch AC DBE • The Myer Foundation • John & June Nixon-Smith • Sue O’Neill • Dorothy Pill • Sanders Charity Trust • Shepparton Strikers Hockey Club Inc • David Smith • Takako Subocz • Wendy Taylor • Trust Company Ltd • Victorian Private Geriatric Hospitals Ltd • Karin Wiley • Keith Williams • Harrison Young

IN MEMORIAM. We greatly appreciate all the gifts we have received in memory of loved ones. Those remembered here are: John Dansey, Hector de Paoli, Rodney Shaw, Harvey James Smith.

KEY DATES AND OTHER NEWS

MAY 2012

16-19 MAY

The congress will present the latest in international neuro-rehabilitation medicine including traumatic brain injury, multiple sclerosis, stroke, Parkinson’s disease, post-polio syndrome and neuro-oncology.

For more information visit www.dcconferences.com.au/wcnr2012

OCTOBER 2012

31 OCTOBER
16th Kenneth Myer Lecture

FLOREY WEBSITE

Visited the Florey website lately? Our prize-winning site provides information on our scientists, laboratories, latest news and other highlights.

Go to florey.edu.au

A MEANINGFUL GIFT...

Before you “shop til’ you drop”, let us take the stress away and help you share your goodwill with the people you love this season. You can support brain research at the Florey by making a charitable donation on behalf of a loved one. We can provide you with a Gift Certificate in their name. As other Florey supporters have found, a gift of this type is often appreciated as a profoundly meaningful gesture during a season of consumption. Think about it… but whatever you decide, let your gifts this festive season make a difference to the lives of others. Please contact Astrid Sweres on 03 8344 1629.

FEEDBACK

What would you like to read about in Brain Matters? We’re keen to know if we’re offering our Florey supporters an interesting magazine with the sort of information you like to read. Please contact Amanda Place on amanda.place@florey.edu.au or call +61 411 204 526.

For more information contact the Editor, Amanda Place: amanda.place@florey.edu.au +61 411 204 526 www.florey.edu.au

Find us on Twitter and Facebook at our website: florey.edu.au

Florey Neuroscience Institutes is the amalgamation of the Howard Florey Institute, the Brain Research Institute and the National Stroke Research Institute.

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