

# under the microscope

2 Dr Jeffrey Retires

3 Rett Syndrome

4 Jeans for Genes

6 Committee Power

*Denim clad almost 1's: from left, Alana Hamlin, Kelsey Thompson, Will O'Brien, Mia Clark and Sophia Hester at Erina Baby Health Centre Mothers group get together to support Jeans for Genes Day (Photograph News Limited)*



## Star Studded Genies Australia Wide

**Australians all over the country showed their support for Jeans for Genes Day, on Friday August 5 by proudly wearing denim in support of the Children's Medical Research Institute.**

Since the first one in 1994, the Day has become part of the Australian culture with literally millions of people this year walking around in their jeans; whether it was on the farm, in the office, at school or behind the counter. One of the most notable areas was at the train stations in Sydney where thousands of commuters walked through the turnstiles and straight to our awaiting volunteer badge sellers to buy a badge. In total there were over 500 volunteers at stations and malls around Australia.

Then of course, there are the thousands of Star Studded Genies throughout the country who took charge to coordinate the fundraising amongst staff and/or students. Jeans for Genes would not exist if it were not for our loyal Genies. THANK YOU.



# A life in the brain

*An isolated cell sits in the darkness. It's received the call, its' destiny is to become a neuron, part of the brain – the mind – of a new life. Gradually the cell becomes aware of its' neighbours, millions of them, jostling for position, all receiving the signals that will allow them to surge forward and take up their place. Once in position the lonely cell begins to stretch out tentative tendrils, reaching out to make contact with its neighbours. The neuron gradually gains strength and sends out ever more complex and distant branches; now the cell is no longer alone, it is part of a vast network and the mind comes flickering into action. As that mind matures and grows, the neuron, and its neighbours, prune and remodel their connections, allowing new memories to form and the banks of knowledge to build and change.*

Back in 1957, a young student called Peter Jeffrey entered the hallowed halls of the University of Sydney. Unsure of his destiny, he threw himself into University life and jostled on the sports field, playing baseball and cricket. But soon he knew his calling. "I was seduced by biochemistry," says Dr Jeffrey, nearly 50 years on and now an expert in brain development, as he prepares for retirement and reflects on the branching paths that his career has taken.



Dr Jeffrey with some of his 'Angels' at a recent conference, left to right, Joanne Dunn, Jenny Meaney and Patricia Ruma-Haynes

"It was a really exciting time to be getting into science," says Dr Jeffrey, Head of CMRI's Developmental Neurobiology Unit, "Watson and Crick had only just revealed the structure of DNA, and we knew nothing yet about the genetic code. Protein chemistry was our major focus."

The pull of biochemistry lead the young Peter to a PhD at the University of New South Wales and then later as he stretched his scientific tendrils further, he took his first post-doctoral position at the University of Washington, USA. His passion for biochemistry grew, fuelled by input from supervisors who let him make his own mistakes, but guided him towards making the right connections. In Washington his mentors David and Barbara Brown taught him "to be meticulous in our experimental design."

Meticulous design means that when you get an unexpected result you know you've really got something interesting on your hands – the moment of serendipity that every scientist dreams of. This happened to Dr Jeffrey while at the University of Washington when he accidentally discovered an entirely new way to purify an enzyme involved in a genetic glycogen storage disease. "It meant we could accurately test enzyme activity in children with the disease." Now, 40 years on, Dr Jeffrey has the satisfaction of seeing the connections he made then contributing to a gene therapy treatment for the disease which is just going into clinical trials.

## Director's Desk

*I would like to express my deep appreciation to "PJ" for his massive contribution to the evolution of the Institute. His contributions to the life of the organisation – fundraising, overseeing the animal facility, advising and mentoring our students as the student supervisor – have not only been critical elements in the esprit de corps that exists but also to the quality of our science.*

*As Director I am already missing his wise council. He was an invaluable sounding board for ideas. Most importantly as a trusted friend for over 36 years, he has been an important part of my life.*

**Professor Peter Rowe**

In 1969, Dr Jeffrey returned to Australia to take up a teaching and research position at Monash University in Melbourne. This was also the beginning of a new branch of his research career in to the biochemistry and development of the brain, and a molecule called Thy-1.

"My interest in biochemistry lead me to start looking at the molecules that are found on the branches of neurons and the points of contact between neurons," said Dr Jeffrey.

In 1985, CMRI received a large bequest from Elaine Pope that enabled the establishment of a new laboratory. Dr Jeffrey jumped at the chance to Head the new Unit and return to Sydney. Here he made use of the new DNA techniques to focus on finding genes that control the growth and maturation of neurons. This lead to his team revealing the crucial role that doublecortin plays in guiding the movement of neurons into position in the layers of the brain. When the doublecortin gene is damaged in people it can lead to a severe form of mental retardation known as lissencephaly.

"The work on doublecortin has been particularly satisfying because it has been fascinating basic biology that has lead to deeper understanding of a devastating human condition," reflects Dr Jeffrey.

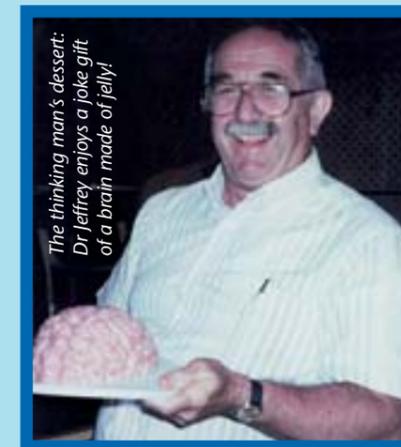


Dr Jeffrey in the laboratory circa 1985

But Dr Jeffrey's influence on the scientific world extends much further than his own personal achievements. His many students, including 30 PhD students, have taken up their own positions within the world-wide network of scientists. They have taken with them the wisdom and scientific culture that he instilled in them and now make their own contributions to the growth of biological knowledge.

One former student that Dr Jeffrey is particularly proud of is Dr Anthony Hannan. Dr Hannan, now at the Howard Florey Institute in Melbourne, recently won the Australian Museum Eureka Prize for Inspiring Science as well as the People's Choice Eureka Award.

"Teaching has been one of my greatest joys," says Dr Jeffrey, "to be able to watch the growth in confidence of a student is hugely satisfying."



One constant theme from staff past and present, is that 'PJ' as he is affectionately known, has never been seen as a 'boss', but always a friend and mentor with a great sense of fun. He has shared the joys and trials of his staff's lives, particularly of his longest serving 'Angels', Ornella Tolhurst and Jenny Meaney who have been with Dr Jeffrey for 17 and 14 years respectively.

Would he take the same path if he could do it all over again? "I would love to be 35 now," says Dr Jeffrey. "There is an exciting time ahead as this explosion of genetic knowledge that we have seen in the last few decades is translated into making real improvements in the quality of life of people with genetic conditions."

We at CMRI will sorely miss you and your team PJ, but the banks of knowledge you have built will contribute far into the future.



Rett syndrome research team Prof. John Christodoulou (Children's Hospital Westmead), Dr Greg Pelka and Dr Patrick Tam (CMRI)

Rett syndrome patients; Asha Boltwood and Rebecca Lillis with left to right Bree and Leita Boltwood and Janelle Lillis on a recent visit to CMRI

## Scene is set to Beat Rett

Scientists studying Rett Syndrome, a serious genetic brain disorder, have found that inheriting the faulty gene from the father, rather than the mother, can influence the severity of the disease. These findings, from teams at the Children's Medical Research Institute and Western Sydney Genetics program at The Children's Hospital Westmead may pave the way to improving genetic screening and potential treatment programs.

Rett Syndrome is the second most common form of severe mental retardation in females, affecting one in 10,000 births. It is a devastating condition characterised by progressive loss of speech and movement and the development of mental retardation at a very young age.

Recent work by this team of clinicians and scientists, led by Dr Patrick Tam at CMRI and Prof John Christodoulou at the Children's Hospital Westmead, has revealed that inheriting the faulty gene, known as *MECP2*, from either the dad or the mum has a significant impact on how severe the disease might become. This finding, which is now shown more clearly in an animal model study, gives weight to the theory of genetic imprinting – that the role of a gene and therefore health and characteristics of a child, depends on whether the gene is inherited from the mother or father.

By studying Rett Syndrome in mice, CMRI post-doctoral scientist Dr Greg Pelka, discovered that the *Mecp2* gene is critically important for movement, balance and learning; the very skills that are lost in girls affected by Rett Syndrome. Dr Pelka says, "This finding has provided the best indication to date about the role of the *Mecp2* gene in learning and cognitive ability."

In related work, The Children's Hospital at Westmead and CMRI teams, in collaboration with researchers in Adelaide and the UK, have discovered a second gene, *CDKL5*, which can cause features similar to Rett Syndrome and may also cause epilepsy and autism.

Professor Christodoulou explains, "Like *MECP2*, little is known about how *CDKL5* affects brain development and function, so these discoveries have opened up great opportunities to begin to unravel these complex processes."

The team hope these findings will lead to a greater understanding of mental retardation, epilepsy and autism and with more research, will pave the way to the development of targeted new therapies.

A further boost to this fantastic collaborative effort is the news that the ongoing Rett Syndrome research has received support from Ian Thorpe's Fountain for youth and the USA based Rett Syndrome Research Foundation.

*Seen in the 'O' on the front cover is the beautiful convoluted structure of the cerebellum, a part of the brain involved in controlling movement (Photo by Greg Pelka)*

# Star Studded Genies...

## Stars in their Jeans: Exhibition and Art Auction

The Arthouse Hotel in Sydney once again exhibited the fabulous painted celebrity jeans before they were auctioned at Sydney Town Hall on 21 July. The Sydney Town Hall was transformed into an 'Oscar style' extravaganza with red carpet, search lights and a room filled with fairy lights and stars. Everyone was a 'star' on the night . . . the volunteers, the attendees, the auction item donors, the stars who donated their jeans and the talented artists.

Fabulous entertainment was provided by Jeff Duff and his band, and the Brent St Dancers who also modelled denim outfits designed by finalists in the Do It With Denim competition.

Our special guest for the evening was Yvette Duncan, host of the new network Ten program 'Stooged', who spoke about the life and death of her step sister Katrina who had cystic fibrosis.

2UE's radio host, Ray Hadley OAM, once again kindly donated his auctioneer's skills to help raise over \$100,000. Chris Bath, the Master of Ceremonies, kept the night running smoothly and introduced John Bevins, CMRI Board Member, who spoke about the importance of research, ending his speech with this very important message, "I won't ask you to donate tonight like your life depends on it, but rather, like the lives of children all over Australia, all over the world, for generations to come, depend on it."

## Thank You

Jeans for Genes would like to thank the following official retail partners for their wonderful support this year: BIG W, Just Jeans, jeans west, Westpac, Best & Less, Gloria Jean's Coffees, Myer, The Warehouse, Terry White Chemist, Harvey Norman, Franklins, Lowes, Spend-Less Shoes, Rebel Sport, Industrie, Toys R Us, HCF, Banjo's Bakehouse, Bayswiss, Harris Scarfe, Domayne, Sizzler, General Pants, Charlie Brown, Levi's, Pharmacy Guild of Australia, Babies Galore and Glue store.

## Do it with Denim

Now in its second year, Do it with Denim exceeded all expectations. Over 280 fashion design students from around the country entered the competition which inspired students to create a fabulous denim garment in the 'Star-studded Genies' theme. The winner, Mai Ae Song from KvB Institute of Technology, designed a fabulous white, hand dyed dress made from 27 pairs of jeans. Her inspiration was Audrey Hepburn in My Fair Lady. Jeans west the major sponsor, was proud to present Mi Ae the prize of a trip to Melbourne to attend Mercedes fashion week, staying at the Duxton Hotel; the prize also included a Bernina sewing machine, a Guess watch, Innox products and gift vouchers from jeans west, Jeremyville and Shop Til You Drop magazine.

## House of Blues

Cool homeware retailer Domayne was rapt in blue! For three weeks visitors to the innovative concept store in Alexandria could lounge around in an entire space committed to denim design. The House of Blues was filled with funky pieces to be sold or auctioned, including a blanket box, stylish sofa and superb dining chairs - all made from designer jeans. Wil Traval from Channel 7's All Saints who was an ambassador for Jeans for Genes this year was the special guest at the opening event. Domayne has been an on-going supporter and it was great to work together on this unique and very successful event.

## CMRI Committee Stars

### Ku-ring-gai Committee

Over 250 ladies were entertained by the Australian lingerie company 'Intimo' at a splendid luncheon at Roseville Golf Club. Congratulations on a great event.

### Scone Committee

The small and generous Scone community got involved with a jeans painting and decorating competition and auction. A delicious lunch was provided by the Scone Committee.

## After the day . . .

**Please remember to send in your monies as soon as possible. If you have any queries you can call us on 1800 677 260.**

Generous supporters of the Jeans for Genes Art Auction

The Leading Hotels of the World



## STOPPRESS

Special thank you . . . jeans west have broken all Jeans for Genes retail records this year by raising over \$188,000 through sale of badges, a celebrity jeans auction on their website and donating \$5 for every pair of jeans sold in the week leading up to Jeans for Genes Day. Now that's generosity!



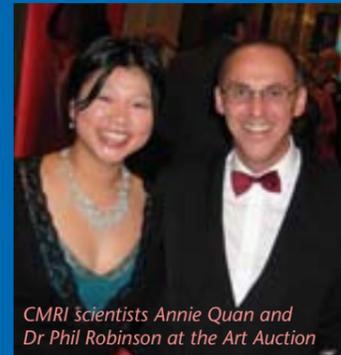
Star-studded Art Auction Dinner Table



Ravenswood School for Girls Genies with CMRI's Lisa Melton



Brooke Shield's jeans by Alizah Maryanka and Swarovski



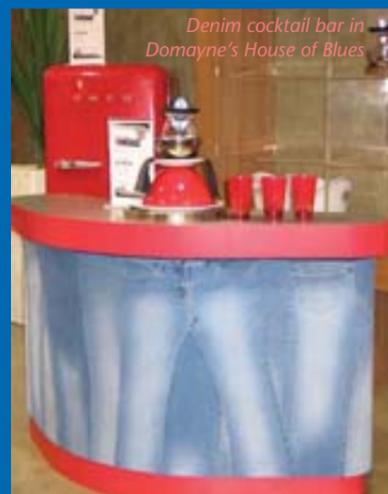
CMRI scientists Annie Quan and Dr Phil Robinson at the Art Auction



Volunteers from Scots College at Circular Quay on the Day



Ku-ring-gai Committee Luncheon guests 'creative jeans' winners



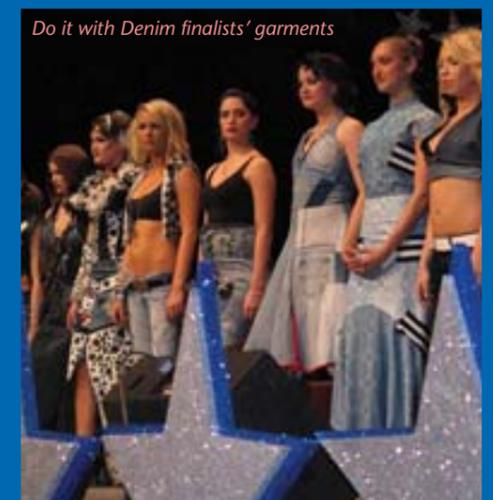
Denim cocktail bar in Domayne's House of Blues



Jane Fonda's jeans painted by Yvonne Sherring-Howard



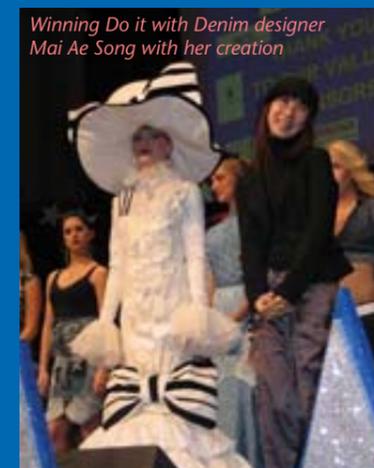
Michelle Walsh and Montana at the Arthouse Hotel



Do it with Denim finalists' garments



Spotlight's 'CPR for Jeans' fundraiser



Winning Do it with Denim designer Mai Ae Song with her creation



Dr Hilda Pickett

## Best of British

A life long passion for biology and a love of travelling have brought British scientist Dr Hilda Pickett to Sydney's sunny shores and CMRI's cancer research will be the richer for her arrival.

Dr Pickett is the new Promina Research Fellow in the Cancer Research Unit. The position is funded by large insurance group Promina whose representatives made their second visit to CMRI in July.

Dr Pickett has joined the Cancer Research team to study the process of cellular immortalization through the activation of telomere maintenance mechanisms.

In most normal cells, telomeres, the protective caps on the ends of chromosomes, get shorter as the cells multiply. Eventually, they become so short that the cells must stop multiplying, providing a natural barrier to cancer. Around 85% of tumours bypass this problem and keep their telomeres long by using an enzyme called telomerase, and most of the rest use a different mechanism, known as alternative lengthening of telomeres or ALT.

Clues as to how these two mechanisms are switched on and sustained in cancer cells will lead to a better understanding of tumour cell biology and ultimately advances in cancer treatment.

Dr Pickett is well qualified to slot into the Unit's research programmes. She completed her PhD at Leicester University, UK, in the laboratory of Professor Sir Alec Jeffreys, the inventor of DNA fingerprinting. There she worked on telomere biology and contributed to a paper in the prestigious journal Nature Genetics on the instability of telomeres in cells that use the ALT mechanism. Dr Pickett also worked on the bladder cancer tumour suppressor gene DBC1 at the Cancer Research UK Unit in Leeds.

"Dr Pickett has extensive knowledge of telomere biology and excellent skills in the molecular biology techniques that will be an advantage for her work here," said Dr Reddel, Cancer Research Unit Head. "She was very highly regarded by her colleagues in the UK, so it's great that she has chosen to join the team here."

Dr Pickett has been interested in science from an early age. "I love working in the lab and it's even better when it's in such a good institute as CMRI."

## Science in the City

In the lead up to National Science Week (13-21 August), CMRI took part in the fun and fascinating Expo on all things scientific at the Australian Museum. With exhibits ranging from vision to engineering, natural history to gene technology Science in the City is designed to enthral and excite school students and show them the science behind everyday life. CMRI's stand was a popular spot, with students having a go at separating and analysing DNA samples and viewing brains under the microscope. For the first time this year Science in the City included a Twilight Science event to open up the fascinations of science for adults too.

CMRI's Lisa Melton and a keen science student get up close with some DNA



## Dates for your Diary

### Thumbelina Committee

Quiz night at 'Laurel Bank', Penshurst St, Willoughby. Saturday 8 October, 7.30pm. Contact Michelle 02 9412 1162

Annual Fashion Parade and Luncheon, Roseville Golf Club, Links Rd. Wednesday 21 September, 12 noon. Contact Rebecca 02 9416 9431

### Gerringong Committee

Annual Quilt Show at Town Hall. Friday 4 – Sunday 6 November. Contact Margaret Weir 02 4234 1239

### Wagga Wagga

Annual Christmas Fair in the grounds of the Murrumbidgee Turf Club. Friday 4 and Saturday 5 November. For further information contact Gail Crozier on 02 6926 4169

### Canberra Committee

Annual Country Luncheon at 'Woodstock' via Uriarra. 16 November. Contact Carolyn on 0418 284 788



## Committee Power

### Many ways to support CMRI

CMRI have worked closely with stationary manufacturer Fred Hosking Pty Ltd for several decades as suppliers of some of our Christmas card range. This includes our long-running and well loved CMRI logo card. Now they have extended their support by donating a percentage of the sales of two special cards from their corporate range to CMRI. Many thanks and we look forward to their ongoing support for 2005.

### Blackheath Golf Club

Many thanks to Blackheath Ladies Golf Club for once again supporting CMRI with their Charity Day. In just the last four years they have raised over \$7,000 for CMRI.

### Beecroft Committee

A tempting morning tea was bathed in sunshine and camellias to the delight of the many guests at a garden party held at the lovely home of Vanessa Denny.

### Thumbelina Committee

What a wonderful birthday present for Thumbelina's President Naomi Stokes who turned 90 on 7 June! The Grand Raffle for 2005 and The Taste of Britain dinner were great successes. A thrilled Elizabeth Capelin was winner of a trip for two to London. The Committee would like to thank all the companies who generously supported them with prizes; Johnnie Walker, Crabtree and Evelyn, Liptons, Plymouth Gin plus many more and a special thank you to Creative Gourmet for sponsoring the airline tickets.

### Drive for Charity

Once again, CMRI was selected as one of the charities to benefit from the Drive for Charity Day on 31 May, when all the tolls collected from Sydney's M4, Eastern Distributor and M5 Interlink Roads are donated to charity. Many thanks to Sydney drivers and Interlink roads for an extremely generous cheque for over \$100,000.

### Strathfield Committee

Guests at the Annual Luncheon held at Parliament House enjoyed an inspiring talk from Jeff Gambin. Jeff told the story of the changes in his life from restaurateur to providing meals for the poor and homeless with his Just Enough Faith enterprise.

### Trivett Classic BMW Parramatta

On a magnificent autumn day Trivett Classic BMW Parramatta hosted their golf day at the testing but glorious Riverside Oaks Golf Club. Many thanks to Mike Munro and his team for organising such a splendid day which raised \$8300 for CMRI.

### Qantas

Qantas cabin crew and staff have presented CMRI with a wonderful cheque for \$5000 after willingly making donations instead of exchanging Christmas presents. Many thanks to all at Qantas.

### Porsche Picnic Day

A lovely day out was enjoyed by everyone at the annual picnic day organized by Trivett Classic for loyal customers. This year their country drive took them to Wandin Valley Estate in the Hunter Valley, NSW. An excited Chris and Jill Boswell were the lucky winners of a Porsche 'Driving Experience' weekend on the Gold Coast in the raffle that raised over \$3000 for CMRI.

### Fond farewell

It is with great sadness that the CMRI farewells two very special ladies who passed away recently. Mrs Marjorie Palser was a staunch and long time member of the Strathfield Committee. Mrs Maureen Tudehope, a source of inspiration to all of us, who so generously opened up her home 'Fenton' (former home of Sir Lorimer Dods) for many CMRI fundraising events.



Pictured from left to right:

Strathfield Committee president, Nita Trollope, with Alina and Jeff Gambin (guest speaker) and The Honourable George Souris MP;

CMRI Science Communicator Erin Stalenberg with raffle winners Chris and Jill Boswell at the Porsche Picnic Day;

At the Beecroft Committee morning tea, viewing an exquisite display of jewellery by D'Jule are Fiona Wiltshire with daughters Olivia and Genevieve. Standing behind is Vanessa Denny;

Susan Smart, Fundraising Sales Manager at Fred Hosking Pty Ltd presents a generous cheque to CMRI's Jennifer Philps;

At Thumbelina's Best of British Dinner, back row, left to right: Margaret Sawyer, Jennifer Philps, Judy Atfield, Rebecca Connolly, Lesley Pitts and Ozzie Pitts. Left to right, front row, Mr Tim Holmes British Consul General, Naomi Stokes, Carin Holmes and Rod Atfield (Treasurer, CMRI Board).

