

# under the microscope

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CMRI Scientist Dr Tracy Bryan

## Reversing the brain drain

**CMRI and Australian science have scored a coup in tempting Dr Tracy Bryan back from the flourishing and well-funded research environment of the United States.**

Dr Bryan, formerly a PhD student in Dr Roger Reddel's Cancer Research laboratory, has returned to set up the new Cell Biology Unit in the Institute.

She brings with her a wealth of experience and an already well-established international reputation.

"I am really excited to be back," says Dr Bryan. "It was definitely the chance to establish my own laboratory at CMRI that bought me back to Australia. It is a great environment in which to work".

# Director's desk



*Promoting  
a vision for  
Australian  
science in  
the 21st  
century.*

The Federal Election will be over by the time this appears. It has been interesting, to say the least, to hear the promises and watch the posturing in what has been an unusual electoral environment. For Australians the local issues are the key ones as there is little we or our political leaders can do to influence international events. Once again it is clear that major long-term issues and policies are not up for discussion. It would be too dangerous for any politician who wishes to retain the benefits of office to seriously promote important matters that could have strongly positive influences on Australia's future. "How are you going to pay for it?" is a question that always has the potential to create a burning sensation in the voter hip pocket. Perhaps, whoever wins the election will at some stage indulge in some statesmanship and promote a vision for Australia in the 21st century.

The research community is, of course, keenly interested in the education issues, widely discussed in a series of recent reports, including some from the major parties themselves, and which briefly appeared earlier in the campaign. We can only hope that whoever holds the political reins will implement some of the much needed reforms required to rejuvenate Australia's research performance. A great deal more than what have been hitherto political piecemeal, window dressing decisions, is essential if these reforms are to have realistic end results.

Professor Peter Rowe

## Motoring Forward

*A very generous donation by the Honda Foundation has given a boost to the capacity of the Muscle Development Unit to push forward their research into muscle weakness disorders.*

Honda Australia Pty Ltd established The Honda Foundation in 1992 to enable the company and its dealer network to contribute to the community and local affairs. Their donation of \$14,325 to CMRI for the purchase of a stereo-dissecting microscope and attached digital camera is very gratefully received.

The Muscle Development team has already made great headway in understanding childhood muscle

diseases through studying mice with similar mutations in their muscle genes. They are now entering a new phase to investigate potential new treatments.

The new microscope and camera will allow the scientists to remove, study and record the appearance of muscles affected by disease in the mice. They will also study muscle regeneration and record the effects of the new treatments.

"The laboratory has recently taken on more staff, so this new equipment will allow us to accommodate the working needs of the staff and really move their projects forward," says Dr Edna Hardeman.

## Monitoring for Children's Health

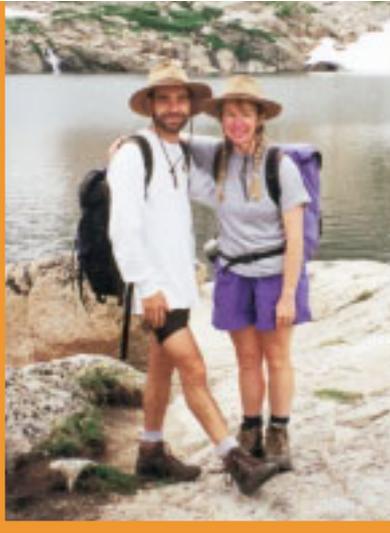
**Turning a business relationship into a healthy partnership is the key objective in a new initiative from Sydney based company, Media Monitors. They have very generously offered to donate their services to the Children's Medical Research Institute and its Jeans for Genes® fundraising campaign.**

CMRI has long used Media Monitors service for newspaper clippings to keep informed of media coverage of scientific and medical research findings, and of course for Jeans for Genes Day stories being filed around Australia. "Keeping track of our presence in the media is vitally important. We need to follow the response to Jeans for Genes Day, as community feedback is vital for us to build on that success," said Stephen Ryall, Community Relations Manager for CMRI. The media coverage also includes national and international science stories so that CMRI can keep abreast of issues and discoveries that may impact on their work.

Media Monitors also covers CMRI's own research achievements and its many fundraising events organised by over 50 committees and support groups. "The media provides a way for us to say thank you to all of our generous supporters and allow them to share in the sense of achievement in an Australian institution. Media Monitors' generosity is helping CMRI to make the most of that essential line of communication with the community," Ryall said.

John Croll, CEO of Media Monitors said they had looked at many charities for whom they provide a service. "We felt that we could make a difference for the CMRI. But rather than just give something away we also wanted something that our staff could have an affinity with, and could actively support and get involved with during the lead-up to Jeans for Genes Day. Most of our workforce have young families so medical research that aims to provide a healthier future for all children is obviously something that we all relate to at Media Monitors".

"We will be getting really involved in Jeans for Genes and hope to help out in any other way that we can. We also hope to build up a relationship with the scientists at CMRI by visiting and learning more about the research that they do," John Croll said.



**“Tracy’s possible return to CMRI has always been firmly in the back of our minds. We were delighted when, despite having acquired an American husband, she chose to return to Australia to pursue her studies on telomerase biology.” Professor Rowe**

## Reversing the brain drain

Educated at Gosford High School and Macquarie University in NSW, Tracy spent two years working in the laboratory of prominent cancer researcher Bert Vogelstein at the Johns Hopkins Hospital in Baltimore, USA, before returning to Australia to take up a PhD studentship in 1993. “I wanted to gain some experience in a research laboratory before committing myself to PhD studies,” says Tracy. “I was quickly inspired by Dr Vogelstein and became convinced of the direction I wanted my career to take.”

Tracy sought out a PhD studentship in Dr Reddel’s laboratory after meeting him at the Lorne Cancer Conference in 1992. “I was very impressed with the work his laboratory had been doing on cellular immortalisation,” she says.

She arrived at a time when Dr Reddel had become increasingly interested in investigating the role of telomeres in cancer. In the early 1990s the theory was gaining momentum that telomere shortening could act like a biological clock helping to tell a cell when its lifespan is up and that cancer cells may be able to re-lengthen their telomeres and so become “immortal”.

Tracy became the first in the laboratory to study the telomerase enzyme that synthesises new telomeres in cancer cells. She also made the groundbreaking discovery that some cancer cells could lengthen their telomeres without the help of telomerase, by a mechanism Tracy and Roger dubbed ALT.

Having made this great start to the laboratory’s now cutting edge research into telomere biology and the ALT mechanism (see Feb 2001 issue of *Under the Microscope* for more details), Tracy returned to the United States to the University of Colorado

in Boulder to join the laboratory of Dr Tom Cech, a 1989 Nobel prize winner and world leader in the field of telomere research.

Four and a half years later, and with a string of prestigious research papers to her name, Tracy is now back at CMRI, heading the new Cell Biology laboratory where she will continue her research into the telomerase enzyme and the molecules involved in ALT. These projects tie in neatly with the ongoing studies of telomere biology in the Cancer Research unit.

*“She is a really outstanding young researcher. Any research establishment in the world would have jumped at the chance of getting her.”*

**DR ROGER REDDEL**

“It is fantastic to have Tracy back at CMRI,” says Dr Roger Reddel. “It will be great to have someone in the Institute whose research is truly complementary to my group’s research and I am really looking forward to working with Tracy and her group over the coming years.”

So CMRI has helped to reverse the exodus of young Australian scientists to the United States and brought a bonus in the form of Tracy’s American husband. Dr Scott Cohen is an organic chemist and has obtained a position in the

Chemistry Department at Sydney University, where he will work on synthesising novel antibiotics.

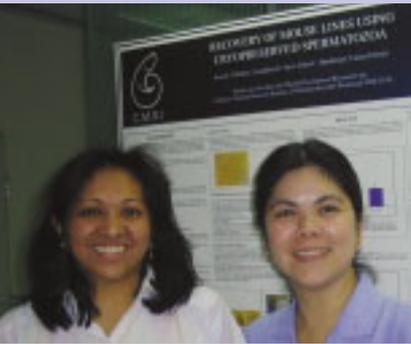
Tracy and Scott met in Dr Cech’s laboratory in the United States. They share a passion for bushwalking and three months ago tied the knot at the top of a spectacular mountain in Colorado. It was only the lure of this great position for Tracy at CMRI that managed to drag them away from the beautiful countryside surrounding Boulder. They have settled in Mt Kuring-Gai in Sydney’s north to be close to the bushwalking trails and are just waiting on the release of their dog, Buddy, from quarantine, before they really begin to feel at home.

*Pictured above Tracy Bryan and husband Scott in Colorado.*

## Stop Press...100% success for CMRI scientists in NH&MRC grant announcement

On October 31st the National Health and Medical Research Council announced its latest round of research funding and CMRI scientists have done incredibly well with Drs Patrick Tam (in collaboration with Dr Christodoulou at the Children’s Hospital Westmead), Edna Hardeman, Peter Jeffrey and

Roger Reddel all having their applications approved. The NH&MRC grants are highly competitive and success with these grants is a true measure of the high quality work that these laboratories are producing. *Congratulations to them all.*



## In from the cold

Congratulations to Irma Villafior of the CMRI Bioservices Unit and Josephine Joya of the Muscle Development Unit, who won 1st prize for Best Poster Presentation at the Conference of the Australian and New Zealand Society of Laboratory Animal Science (ANZLAS) held in Sydney in September. The prize of \$400 will go to towards research at CMRI.

The poster describes the recovery of important mouse strains using frozen sperm. The mice carry the same genes that cause some human diseases and are used as models to study the biology of these conditions. The mice can take years to produce so an archive of mouse strains must be kept to safeguard this work.

Collecting and storing sperm is a simple way to preserve the genetics of these mice, but the sperm of many strains of mice do not survive the thawing process. Irma and Josephine tested existing methods of sperm cryopreservation and have identified the best conditions needed to produce healthy mouse pups. Now the CMRI scientists are in demand from colleagues in other parts of Australia who wish to learn the technique.

## Turn Your Trash into Cash & help CMRI

The Cartridge Collection Company will collect your used printer cartridges and donate the proceeds to CMRI. Log on to [www.cartridgecollection.com.au/cmri](http://www.cartridgecollection.com.au/cmri) for more details.

# Highlights – The year at a glance

The latest Annual Report of the CMRI was released at the AGM on 22 October 2001. Here are some of the issues highlighted in the report:

- The Westmead Research Hub was established - an initiative of the State government which aims to bring an integrated approach to research between the CMRI, the Westmead Millenium Institute (WMI), and the research divisions of Westmead Hospital and The Children's Hospital Westmead (CHW). The Research Hub will also play a significant role in the proposed Australian Biohub – Westmead, a new biotechnology park.
- At the same time, the Boards of both the CMRI and CHW are working towards a strategic research alliance. In the words of Dr Frank Martin, President of CMRI: "With the seeds already sown, we hope that CMRI will form a strategic partnership with the Children's Hospital at Westmead. Together, we can do the finest paediatric research in the country, covering both basic and clinical research."

- Great progress has been made in all areas of CMRI's research programs with significant breakthroughs coming from our cancer group (Feb 2001 newsletter), the development of the mouse model for nemaline myopathy (May 2001 newsletter) and the gene therapy cancer vaccine (August 2000 newsletter).
- Funding of research at CMRI is looking very healthy with net donations for the year totalling \$5million. Less than one fifth of this went towards purchase of new equipment and the major portion going to swell the Capital Fund of Investments to \$53 million. Research expenditure totalled \$7.7million with monies coming in equal parts from interest on investments and research granting bodies.

An Annual Report is available to all our donors and friends. Please call us on (02) 9687 2800 if you would like a copy sent to you.

# Jeans for Genes®

The early results would indicate that this is going to be a very special Jeans for Genes® Day this year. Already we have banked \$3,385,324, which has passed our 1999 total, and over \$400,000 more than at the same time in 2000.

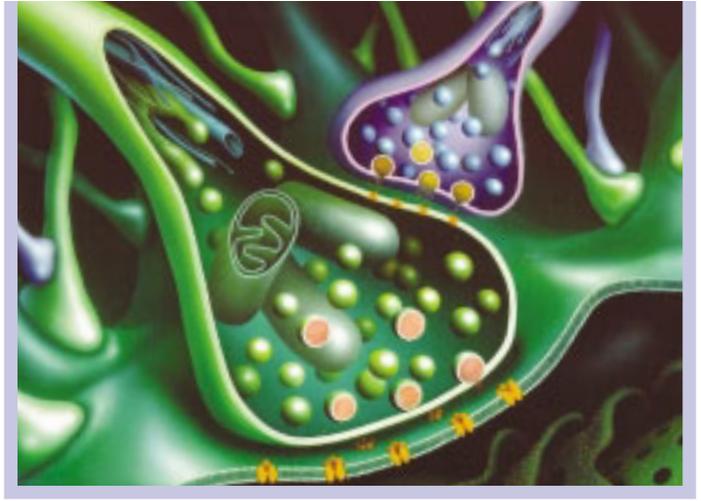
We are enormously proud of the incredible work of our Genies. The wonderful people from the Olympic Hotel in Preston, Melbourne raised \$1,900 in 2000 and \$9,000 in 2001! Ken Fountain rallied Astar staff in offices throughout Australia, from Darwin to Hobart, to raise over \$16,000 this year. We are really grateful to all our supporters, no matter what their final result!

Campaign Manager Lucy Milne would like to thank the Jeans for Genes® team who have worked so conscientiously this year – you would be proud of their commitment to our campaign. Plans are well underway for next year's campaign, and we look forward to meeting more of our Genies. Thank you for supporting CMRI and Jeans for Genes® again this year, and the team would like to wish you a very happy and healthy Christmas.

*Below: Some of Astar's top managers lost their hair in the heat of the Astar Jeans for Genes fundraising drive. Shown here is Astar's J4G coordinator Quality Development Team Manager Ken Fountain and Sales Manager Frank Godschan. Centre: Members of the Jeans for Genes campaign team at the 2001 Art Auction.*



The new mass spectrometer purchased by CMRI this year is already paying great dividends as Neuroscience researcher Dr Phil Robinson can attest to in his hunt for the missing proteins that help our brain cells communicate.



## Showing its worth in no time at all

The proteins were identified in a matter of months rather than years due to the mass spectrometer's ability to rapidly produce a profile of a single protein. "We can use the information generated by the Human Genome Project to identify the protein, and the gene that encodes it," says Dr Robinson. Phil, his PhD student Adam Brymora and their partner at the University of Sydney, Basil Roufogalis, published the research in the prestigious Journal of Biological Chemistry.

This work places two important missing pieces into the complex cell machinery that controls human brain cell communication. The proteins are part of a complex of eight proteins, called the "exocyst" that is involved in releasing neurotransmitters, the chemical currency of brain communication, by a process called exocytosis.

The eight exocyst proteins, essential for life in all organisms, had been identified in yeast, but until now only six proteins had been found in humans. By fishing for proteins that interact with another nerve protein, RalA, the team pulled out the missing components. Completing the exocyst set for human nerve communication will enable us to better understand learning and memory and find drugs to block the abnormal nerve communication that can cause disorders such as epilepsy.

*Pictured above: The newly discovered proteins control the release of neurotransmitters (contained in small balloons), which are released from the end of one nerve (shown above) to trigger a signal in its neighbour. (With permission of Mebio View Co. Ltd).*



## Prevention is better than cure...

And the key to prevention lies in research. It's as simple as that!

There are over 10,000 known genetic disorders. To correct these and many other disorders research is needed to find the causes.

Here is my gift:

\$100     \$75     \$50     \$25

Other \$

Please find enclosed my cheque

Please charge my credit card:

credit card number

cardholder's name

cardholder's signature

expiry date

name

address

postcode

telephone

Please send me:

- More information about CMRI
- Christmas catalogue
- Information on my nearest fundraising committee
- An annual report
- Information on how to make a bequest
- Please update your records for my contact details

All donations are tax deductible



### I would like to join the Automatic Credit Card Donor Program

Automatic Direct Debit Amount to be donated:

\$

Please complete the Credit Card Details at left.

Frequency: Monthly  Quarterly  Other

Commencement Date:

Please complete this coupon, enclose it with your donation in the envelope provided and mail to:

Children's Medical Research Institute  
 Locked Bag 23, Wentworthville NSW 2145 Australia  
 Tel 02 9687 2800 Fax 02 9893 9166

Thanks for your help.



*Clockwise from left: Generous friend and successful bidder at the Jeans for Genes Ball, Carmen Vella, with the beautiful artwork designed around 'Friends' star Jennifer Aniston's jeans; Founding members Lois Lamond (standing), Yvonne Hamilton (left) and Mary Crook (right) celebrating 40 years of the Griffith committee; Val Burrows cutting the Annual meeting of committees 40th anniversary cake and Naomi Stokes receiving her Volunteers Award from Brendan Nelson, MP.*



# Fun and Functions

## Dates for your Diary

### Hills committee

Christmas Fair and Morning Tea at Castle Hill House, Castle Hill. 28 November, 10.20am.

### Thumbelina

Christmas Cocktail Evening at Sunnyholt, Lindfield, NSW. 13th Dec, 6pm.

### Carols in the Park

Tamworth Bicentennial Park, 16 Dec, 7pm.

### Mudgee

Come and share "The Magic of Christmas" Mudgee Racecourse. Saturday 28 Dec, 6.30pm.

### Jazz in the Mountains

The Rotary Club of Beecroft has managed to secure beautiful 'Bisley' again for jazz, lunch and autumn scenery. Sunday 28 April 2002.

### Christmas Cards

CMRI Christmas cards are on sale at the Goodwill Charity Card shop, which has a new venue at Level 3, Sydney Mechanics School of Arts, 280 Pitt St (Nr Bathurst St).

For details on all events contact Jennifer Philps at CMRI on (02) 9687 2800.

## 40th Annual Meeting of Committees

This year was extra special as it was the Ruby Anniversary of the Annual meeting. As ever it was great to hear the reports of the committees' wonderful activities and successes. And scientists and committee members alike found the opportunity to meet and mingle an inspiration on both sides. Val Burrows, long-term patron of Committees and mother of CMRI, was on hand to cut the beautiful celebration cake.

## Jeans for Genes Star Supporters

Barb Weston from Ilford, NSW raised \$13,400 with a fantastic night of Fun and Games. Happy participants from the community got stuck in to the novelty events and bid enthusiastically in the auction for the many jean pockets signed by celebrities.

Among other events Kerrie Roe and helpers organised a splendid Art Auction in Penola in the beautiful Coonawarra wine-growing region of South Australia. The auction and raffle, with many fantastic prizes, raised \$22,000. Up for grabs were jeans painted by Adelaide pro-golfer Ian Baker Finch and internationally famous local artist Rossy Reeves, as well as the pre-loved jeans of local celebrities John Mossop and Daniel Clark.

## For Your Genes Only

The James Bond theme for this year's Jeans for Genes Ball was interpreted in many imaginative ways. Guests were entertained by Big Yard Big Band and Big Toy and plenty of Vodka Martinis, shaken not stirred – of course, were consumed! But the cause was not forgotten as the auction got underway for 'Friends' star Jennifer Aniston's jeans painted by Karen Atkins and a Wallabies rugby jersey signed by the team. Both items raised \$9,000 each. Many thanks to the Ball Committee for all their hard work in making the event such a success.

## Thumbelina

The Thumbelina Committee's stunning Genes on Broadway charity screening of "Top Hat" at the Cremorne Orpheum in August was a great event. And congratulations to Mrs Naomi Stokes of the Thumbelina committee for her selection in the Bradfield nominations for the International Year of Volunteers Awards Recognition program.

## Canobolas

The committee took a stall at the Australian National Field Days in Orange where visitors took a break from the agricultural exhibits for a welcome cup of tea and homemade biscuits. Dr Lisa Melton from CMRI was on hand to demonstrate laboratory DNA techniques and discuss the research of the Institute.

## Quirindi

Terry Underwood, author of 'The Middle of Nowhere', amused and delighted the audience at the Quirindi luncheon. The successful event raised \$14,000 for CMRI and included a photographic competition with Sydney Morning Herald senior photographer, Paul Matthews, judging the entries.

## Griffith

Congratulations to the Griffith Committee on 40 years of fundraising. A special luncheon was held at Michelines when memories and stories were retold by some of the original members and exciting new plans made for the coming year.