

under the microscope

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Today's scientists for tomorrow's children

The Children's Medical Research Institute (CMRI) is an independent organisation committed to unlocking the mysteries of disease. Our scientists investigate conditions such as birth defects, cancer, and epilepsy. Our philosophy is that major advances in prevention and treatment come from research into the fundamental processes of life. Our work is made possible by our community of supporters and Jeans for Genes®.



**CHILDREN'S
MEDICAL
RESEARCH
INSTITUTE**

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Wear yours and give to the cause

Jeans for Genes Day, Friday August 6, 2010

Jeans for Genes Day, born and bred in Australia, has grown to become one of our most important national fundraising days. Your support is hugely valued by the scientists at Children's Medical Research Institute (CMRI), as they unravel the mysteries of childhood disease.

Wear your jeans proudly and donate a gold coin on Jeans for Genes Day, Friday August 6.

Chances are someone you know understands the burden of childhood illness, because one in 20 children is born with some kind of congenital abnormality or genetic disease.

CMRI scientists are investigating conditions such as cancer, epilepsy and birth defects with the aim of finding better treatments, and possibly cures for these conditions.

Taking part in Jeans for Genes Day is fun and easy – simply wear your jeans, make a donation or buy a badge, all in support of a great cause: helping today's scientists for tomorrow's children.

Director's desk



This newsletter features articles about progress being made here at Children's Medical Research Institute in understanding how nerve cells communicate with each other, and in understanding what makes cancer cells behave the way they do. In both cases, major discoveries resulted from long periods of hard, painstaking work culminating in sudden insights and ah-hah moments. Both sets of discoveries have received international recognition by our scientist colleagues. But what matters most of all is that this work has taken us closer to understanding, diagnosing, treating, maybe even preventing diseases that blight the lives of children, and the adults that they become.

I hope you enjoy these stories, because they belong to you, and to all of our supporters. The majority of the funding for our work is provided by our Genies and the tens of thousands of supporters of our Jeans for Genes campaign, by our wonderful fundraising committees in metropolitan and country areas (some celebrating this year an amazing half-century of commitment – and fun – raising money for the cause), by individual supporters and philanthropists, by companies and, most importantly, by our bequestors – the people who provide ongoing support for children's health research through including Children's Medical Research Institute in their Will. Thank you for being part of all of our work. The successes we are celebrating belong to you.

Professor Roger Reddel

Unexpected findings about Alzheimer's disease and bipolar disorder

A joint discovery by Children's Medical Research Institute (CMRI) scientists and their colleagues in Scotland has opened up a new molecular target for therapies for Alzheimer's disease and bipolar disorder. The new target – a protein called dynamin – is already a major focus of CMRI's research, with dynamin inhibitors currently undergoing early stage laboratory testing for their suitability as therapeutic drugs for epilepsy.

"This showcases the enormous potential of CMRI's research programs," said Professor Roger Reddel, CMRI Director. "Professor Robinson and his group at CMRI are studying dynamin and developing new epilepsy treatments, to help many children whose epilepsy is not controlled by existing treatments, and this research led to unexpected discoveries that may eventually help sufferers of bipolar disorder and Alzheimer's disease".

The CMRI researchers were part of a team led by Professor Mike Cousin at the University of Edinburgh, which found that a protein called GSK3 controls dynamin's functions in nerve terminals. Their work also revealed a surprising partnership between GSK3 and a previously discovered dynamin controller, cdk5.

GSK3 and cdk5 have previously been linked to bipolar disorder and Alzheimer's disease. Professor Cousin discovered that the GSK3/cdk5 partnership exerts control over the rate of nerve cell communication in situations when the nerve cells are highly stimulated – which occurs in mood disorders and the early stages of Alzheimer's.

A series of discoveries over the past 60 years, starting with the discovery by Australian psychiatrist and researcher John Cade that lithium is a useful treatment for bipolar disorder, has led to the realization that blocking the actions of GSK3 is an important strategy for the treatment of both bipolar disorder and Alzheimer's disease. But the reasons for this were unknown. "This discovery has helped put in place a key new piece of the puzzle," said CMRI's Professor Phil Robinson.

The CMRI/Edinburgh team revealed details of how these two proteins work together to control dynamin. "We have very sensitive mass spectrometers, which allowed us to discover that GSK3 acts a highly specific molecular switch for dynamin activity, but only after it has been given permission by cdk5 to do this," said Professor Robinson. "We haven't found a treatment or a cure, but we have found how one of the most important targets for the treatment of these conditions works, which opens up the possibility of designing much more effective treatments."



Professor Phil Robinson (pictured) and Professor Mike Cousin from the University of Edinburgh have discovered a three-protein partnership involved in controlling highly stimulated nerve cells

High accolade for CMRI Director

Roger Reddel, Lorimer Dods Professor and Director of Children's Medical Research Institute (CMRI) has been elected as a Fellow of the Australian Academy of Science, one of the highest accolades bestowed on scientists in Australia.

Professor Reddel is a leading authority on cell immortalisation, cancer-causing genes and tumour suppressor genes. In 1995, Reddel and Tracy Bryan, who was then his PhD student at CMRI, discovered Alternative Lengthening of Telomeres, or ALT, in human cells. They soon found that ALT is used by a substantial proportion of cancers, and the team has continued to investigate ALT in great detail, with the aim of developing new treatments for these cancers. Throughout this time, Roger and his team have received continuous, substantial support from Cancer Council NSW.

"Professor Reddel has made significant contributions that have shaped the directions of Australian and international science and contributed to the welfare of our nation," said Caroline Giddings, the Academy's spokesman. "Election to the Academy recognises Roger's outstanding achievements, seminal contribution to scientific knowledge in cancer biology and his exemplary contribution to the global scientific community," said Associate Professor Frank Martin, President of the CMRI Board of Directors.

Every time normal cells multiply, their chromosome ends (called telomeres) shorten slightly. Eventually the telomeres become so short that the cells stop any further proliferation. This is a very important, natural barrier against normal cells becoming cancerous. Cancer cells overcome this barrier by finding ways to prevent telomere shortening. For about 10-15% of all cancers, the cells use ALT to prevent telomere shortening, allowing them to become immortal and go on multiplying indefinitely.

"Research is very much a team effort. Everything we have achieved is due to the work of talented team members past and present, and due to CMRI's generous supporters, who provide the resources to make our work possible," said Professor Reddel.



Director of CMRI, Professor Roger Reddel, elected as a Fellow of the Australian Academy of Science

Funding for cancer test

Last year, Dr Jeremy Henson discovered an abnormal type of circular DNA, called a C-circle, found in approximately 15% of cancers, and developed a laboratory test to detect them. Thanks to a grant from the Cancer Institute NSW, Dr Henson now has funding to help develop his laboratory test into a blood test for clinical use, and conduct further investigations into C-circles.

As well as being a laboratory researcher, Dr Henson is a medical doctor who has looked after cancer patients in hospital. "The only way to really help cancer patients, both present and future, is to improve understanding and management through research. Cancer is usually a very traumatic diagnosis and the memory of these patients provides added urgency for my research," says Dr Henson.

C-circles are found in cancer cells that rely on ALT, a mechanism discovered by CMRI researchers Professor Roger Reddel and Associate Professor Tracy Bryan in 1995. "Approximately 15% of all cancers – including some of the most aggressive brain and bone cancers – rely on ALT, and new forms of treatment are urgently needed," said Professor Reddel, who is CMRI Director and Head of the Cancer Research Unit where Dr Henson is carrying out his research.

"A blood test that can be performed rapidly and easily, that could reveal to doctors whether the cancer relies on ALT, could make a difference in how those patients are treated," said Dr Henson. The grant also provides funding for Dr Henson to use his laboratory test to analyse the ALT mechanism in more detail and to use these insights into ALT to develop a new strategy for killing ALT-positive cancer cells.

Dr Henson with CMRI Director Professor Reddel – pleased to have received funding from Cancer Institute NSW to develop a blood test for some cancers. Photo courtesy of the Cancer Institute NSW



The ultimate gift

Medical research is very costly, but the rewards are beyond measure. As an independent organisation that receives very little direct government funding, we rely largely on the kind generosity of people like you to make our research possible.

A bequest is a donation provided to CMRI in your Will. Bequests left to us by our supporters make a huge and absolutely vital contribution to the funding of our research programs.

The institute receives about one-third of its funding from competitive grants. We have an enviable success rate that indicates our scientists are amongst the country's leading researchers.

The remaining two-thirds of our income is derived entirely from community support – either directly from donations, or indirectly from interest earned on donations that have been invested. Nearly half of the funds that CMRI has been able to invest over the past 50 years have come from gifts left in people's Wills.

A bequest left to CMRI – no matter how large or small – will generate essential resources long into the future and give our scientists the funds they need to carry out crucial research for decades to come.

In short, your bequest will help ensure the health of future generations of children.

For more information on providing a donation in your Will to CMRI, contact Stephen Ryall on 02 9678 2800 or sryall@cmri.org.au

Jeans for Genes®

Jeans for Genes Day – Friday August 6

Born and bred in Australia, Jeans for Genes Day has become one of our most important national fundraising days, raising over \$50m for research since its inception in 1994. This year we are asking you to “Wear Yours and Give to the Cause” on Jeans for Genes Day, Friday August 6. Become a Genie and get involved by: selling merchandise at work, registering your school, holding a Jeans for Genes event, or getting a group of mates together to be part of Teams for Genes. Simply register at www.jeansforgenes.org.au or contact us on 1800 GENIES (436 437).

Together we can make it happen.

Wear Yours and Volunteer for the Cause

Jeans for Genes is a perfect opportunity to get a team of friends, colleagues or school mates together for some fun and to support a great cause. Teams for Genes is a dynamic initiative whereby groups are allocated to a train station, shopping centre or public place on Jeans for Genes Day to sell merchandise to the public.

To get involved on August 6, choose a location convenient to you, register your team or yourself online and then turn up on the day. Volunteers can join us for a few hours or a whole day. Jeans for Genes staff will arrange the permits, merchandise and other materials. We also provide a briefing to our volunteers to ensure the experience is fun and easy.

For more information, please visit us online at www.jeansforgenes.org.au/volunteer

Jeans for Genes Denim Charity Dinner

When: Thursday July 22

Where: Doltone House, Darling Island Wharf, Sydney

Ticket Cost: \$240 per person

\$2,100 Table of 10

\$3,500 VIP table of 10 guests

Dress: Black Tie with a touch of Denim Bling

Theme: “Sophisticated Denim”

Gather a group of your colleagues, friends and/or family together and dazzle guests with your Sophisticated Denim to win a prize! Mingle with your favourite celebrity ambassador MC Chris Bath for an exciting night of fun and help us raise funds for children’s health.

View this year’s fabulous artworks online at www.jeansforgenes.org.au/charitydinner

This year the personally signed celebrity jean donors include: **Jimmy Barnes, Russell Crowe, Guy Pearce, Michael Clarke, Ricky Ponting, Gyton Grantley, Bart Cummings and many more.**

Jeans for Genes is very privileged to have the support of many International and Australian celebrities who donate their personally signed jeans to assist in raising funds for Children’s Medical Research Institute. Talented Australian artists volunteer their time and materials to create unique and valuable artworks, which are then framed and auctioned at the Denim Charity Dinner.

Contact Mary Donnelly on 02 9687 2800, or for more information visit www.jeansforgenes.org.au

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Groovy Gear

Look the part on Jeans for Genes Day in your Groovy Gear.

Available online at www.jeansforgenes.org.au/goshopping

Jeans for Genes Team Changes

The Jeans for Genes team welcomes back Julijana Trifunovic, National Campaign Manager, and Lynda Dave, Volunteer Manager following their maternity leave.

Sadly, we also farewell Christine McGee, Special Events Manager who has made a wonderful contribution to the campaign during the past four years. We wish her well in her new endeavours.

Jeans for Genes is a major fundraiser of the Children’s Medical Research Institute



Volunteers selling badges on Jeans for Genes Day 2009



Zoe Ventoura is a gene-uine supporter in this denim-style printed tee



Russell Crowe by Robyn Ross



Jeans for Genes is all about raising funds for research into children’s genetic conditions

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EVERY QUEST HAS A BEGINNING.

Jack, Sally and Shae from Saturday Disney in the 2010 Groovy Gear range



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Help us by becoming a Discovery Partner



Marcus

Yes, I would like to become a Discovery Partner with a monthly gift of:

\$15 \$25 \$40 My / Our choice of \$

I am unable to become a Discovery Partner at this time,
please find a gift towards your vital research of:

\$25 \$50 \$75 My / Our choice of \$

Please complete Section 1 or 2 and Section 3

1. CREDIT CARD PAYMENT

Please debit this card: Mastercard Visa Diners Amex

Credit Card Number:

Expiry Date: / Amex ID:

Name on Card:

Signature(s):

This authority to remain in force until further notice.

2. BANK ACCOUNT PAYMENT

Name of Financial Institution:

Account in the name of:

BSB Number:

Account Number:

DIRECT DEBIT REQUEST: By signing this document I/we authorise the Children's Medical Research Institute ABN 47 002 684 737 (Direct Debit User ID #), to debit my/our account as detailed in this schedule, through the Bulk Electronic Clearing System. I/we must pay the Debit User when due under the arrangement between us.

Signature(s):

Date: *This authority to remain in force until further notice.*

3. YOUR DETAILS

Name:

Address:

Suburb: State: Postcode:

Phone Number:

Email:

Date of Birth*:

*As part of current privacy legislation you are entitled to view all your personal information held by the Children's Medical Research Institute. We ask for your date of birth as verification of your identity, in the event of you wishing to access this information.

At CMRI we recognise the importance of your privacy and the safeguarding of your personal information. We are careful with all your details and we use them to contact you about issues we believe will be important to you. If you do not wish to receive any further mailings from CMRI please call us on 1800 436 437 or tick this box.

Please return this completed authorisation in the envelope provided or one addressed to:

CMRI, Reply Paid 71005, Wentworthville, NSW 2145

If you have any questions please do not
hesitate to call us on 1800 436 437,
or visit www.cmri.org.au



Thank you!

Young cancer researcher representing Australia at Nobel Laureate meeting

This July, almost 700 young researchers from over 60 countries will attend the Lindau Nobel Laureate Meeting 2010 in Germany. The annual meetings are a globally recognised forum for the transfer of knowledge between Nobel Laureates and young researchers.

Children's Medical Research Institute (CMRI) PhD student Zeenia Kaul was selected by the Council for Lindau Nobel Laureate Meetings as one of ten Australian representatives to attend the meeting in Germany. Zeenia's application was also endorsed by two important Australian research bodies: the Association of Australian Medical Research Institutes; and the National Committee for Medicine of the Australian Academy of Science.

"A chance to experience first-hand interactions with some of the greatest minds from all disciplines of scientific research, and learning from their successes and failures is an opportunity of a lifetime," said Zeenia.

Children's Medical Research Institute selects some of the finest PhD students from around Australia and indeed the world, to contribute to its vital research programs. "We have a highly competitive process for selecting our students, and have attracted some of the best and brightest," said Professor Reddel, Director of CMRI. Zeenia came from Japan to study at CMRI. For her work here, Zeenia has already received a Research Scholar Award from the Cancer Institute NSW, an Australian Postgraduate Award, the Judith Hyam Memorial Trust Fund for Cancer Research Scholarship, and several prizes and awards.



Zeenia's research is an important part of the Cancer Research Unit's efforts to understand the cellular and molecular processes underlying cancer, and to lay the foundations for developing new forms of cancer treatment. "The research done by our students is a very valuable component of CMRI's work," said Professor Reddel, "and they have made some of our most important discoveries."

Zeenia Kaul, PhD student at CMRI, has been selected to attend the Lindau Nobel Laureate Meeting in Germany



Committee Power

Gosford Committee – 50 years of fundraising on the Central Coast

A very happy group of supporters gathered at the Upper Deck Restaurant, Gosford to celebrate with past and present members of the Gosford Committee. CMRI Director, Professor Roger Reddel congratulated the Committee for the enormous contribution they have made to the work of CMRI. The numerous plaques on vital pieces of equipment throughout the Institute pay testament to some of their hard work. This year the Gene Therapy Research Unit will benefit from the purchase of a large ultra-low temperature freezer. Thank you Gosford.

Hills Committee – Mothers' Day Luncheon

Nearly 500 guests enjoyed a thoroughly entertaining Mothers' Day Luncheon, co-hosted by Tanny and John Mangos. Catriona Rowntree of "Getaway" fame brought along her mother Heather and sprightly grandmother Riria as well as baby son Andrew. Catriona regaled the enthralled guests with memories and anecdotes of her childhood and career.

FreeLife International supports CMRI

FreeLife International CEO and Founder Mr Ray Faltinsky presented a cheque for \$5,000 to CMRI as the chosen Australian charity for 2010. As part of the company's philanthropic initiative, GojiKids® was established so that a portion of the worldwide sales of FreeLife's products is returned to children in need across the globe.

Canberra Committee – Fashion show and Champagne luncheon

On the invitation of Mrs Edit Csaba, wife of His Excellency, the Ambassador of Hungary, the Canberra Committee held a highly successful fashion show and champagne luncheon at the beautiful Hungarian Embassy.

OUR SUPPORTERS

Trivett Classic's Qualifying Tournament

After all the torrential rain, the sun shone yet again, on the Riverside Oaks Golf Course for this annual event. Congratulations to BMW Trivett Parramatta and the golfers for their generous donation of \$5,800 to CMRI!

David Lawrence Fitness Centre, Thornlands QLD

David and Rebecca have a gym surrounded by trees and manicured lawns and in these idyllic surroundings they and their 80 clients raised \$8,500 for Jeans for Genes. An amazing group who take fitness seriously and also find philanthropy equally rewarding. Thank you to all.

Star Alliance Scholarship

Star Alliance, the world's leading airline network, has established an annual Star Alliance Scholarship in partnership with CMRI. The scholarship will provide a CMRI PhD student with a Star Alliance Round the World airfare to attend overseas conferences or events that further his/her education and training. Further details on the scholarship, along with the inaugural winner, will be announced in an upcoming edition of this newsletter. CMRI thanks Star Alliance for its generosity.



Clockwise from top left:

Gosford Committee members and supporters celebrating 50 years of fundraising;

David Vella presents a cheque for \$8,500 to CMRI's Jennifer Philips;

Heather, John Mangos with Andrew, Riria and Catriona Rowntree;

The longest serving members of the Gosford Committee: Secretary Margaret Davidson and Treasurer Helen McKenzie with President Alison Elms (centre);

Mrs Edit Csaba, daughter Greta and Marilyn Allen from the Canberra Committee.

Dates for your Diary

Bollywood Bazaar Ball – Mudgee Committee

Saturday 28 August 2010. A spectacular night of Bollywood fun – stalls, dancing and plenty of glitter, at the Australian Rural Education Centre, Mudgee. Contact Margaret Burns 02 6373 2236.

Spring Carnival Race Day Hills Committee

Saturday 18 September 2010. A wonderful day at Rosehill Racecourse with prizes galore, raffles and a fun day out for all. \$130 inclusive, contact Patti Payne 0418 867 784.

Trivia Night at 'Laurelbank' Willoughby – Thumbelina Committee

Saturday 23 October 2010 7 for 8pm. Trivia, games and prizes. Cost is \$25 BYO drinks and nibbles. Tea, coffee and cakes provided. Contact Michele Seckold 02 9498 7964.

Government House Luncheon – Canberra Committee

Wednesday 10 November 2010. An opportunity to lunch in the gardens of Government House, Canberra and browse the Christmas stalls. Contact Carolyn Forster 0418 284 788.

For the golfing enthusiast...

Tuesday 27 July 2010: Hills Committee, contact Patti Payne 0418 867 784. Wednesday 15 September: Port Hacking Committee, contact Jenny Degnan 0438 122 700. Thursday 16 September: Vaucluse Committee, contact Elsa Zavattaro 02 9313 6384.