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## A royal seal of approval

The Children's Medical Research Institute was honoured with a visit from Her Majesty Queen Silvia of Sweden during the Swedish Royal visit to Australia in November. Queen Silvia is patron to a number of leading Swedish research facilities, and was thrilled to have the opportunity to learn more about Australian research.

Queen Silvia was welcomed to CMRI by Mrs Carolyn Forster, Vice President of the Board, and Company Secretary Mr Stephen Ryall. Queen Silvia also met Dr Patrick Tam, whose international reputation has been earned through his work in developmental biology. She toured the laboratories, chatted enthusiastically to the scientists and watched the exciting experiments in progress; including a first hand look at research on childhood genetic eye disorders.

To commemorate the occasion, CMRI was delighted to be able to present Queen Silvia with a unique gift – a specially designed gold and diamond brooch in the shape of the DNA helix made and donated by Nic Cerrone. Eight year old Jacqueline Facaris took great delight in presenting the gift to the Queen.



*Dr Samara Lewis of the Embryology Unit shows Queen Silvia her work*



*Cameron Cagnet welcomes Queen Silvia to CMRI*



# Director's desk



In comparison with a number of other Australian medical research institutes, the CMRI is a relatively small organisation. We have always prided ourselves in performing biomedical research of the highest quality and this is evidenced by the standing of our staff in the national and international scientific community. Due to our size, however, the loss of a particular Unit, as with the recent retirement of Dr Peter Jeffrey, impacts more significantly on the overall effectiveness of our operations which rely on collegial collaborations and cooperation.

Accordingly, the Institute is delighted to announce that Professor Antony Braithwaite, from the University of Otago NZ, has joined our staff and will be establishing his research group with the support of a major five year grant from the Cancer Institute NSW which was established by the Minister of Science and Medical Research, Hon. Frank Sartor. Dr Braithwaite is a distinguished cell biologist, who originally trained at the Australian National University. He has a particular interest in exploring the behaviour of cancer genes and has collaborated with Roger Reddel's Cancer Research Unit over many years.

The Cancer Institute NSW Program grants were established to attract major research talent to the State. There is no doubt that the existing talent and level of research support at the Institute was a strong influence on the success of our submission.

Professor Peter Rowe



Sir Norman and Lady Gregg with daughter Sheila

## A legacy of knowledge

Over the years CMRI has been fortunate enough to be the beneficiaries of some very generous people who in death bring new life to the Institute.

One such bequest led to the establishment of a new research Unit, others have led to scholarships to fund promising new scientists and many smaller bequests help maintain CMRI's ability to perform cutting edge research year after year.

Now, two incredibly generous bequests received this year will allow CMRI to further build on the critical mass of talent within the Institute and the gains in knowledge to benefit the health and lives of many young people to come.

### Lola Douglas

Ms Douglas lived for many years in Cremorne, NSW and died at the age of 92. She was the recipient of a large inheritance from both her father and her brother, Mr Douglas Douglas. Throughout her life she was very supportive of medical research and the promotion of child and adolescent health.

Ms Douglas's legacy will benefit young people via many avenues, as she has also donated to the Royal North Shore Hospital, Collaroy Surf Lifesaving Club, Telstra Child Flight and the Australian Academy of Science in addition to her kind bequest to the CMRI. Ms Douglas has bequeathed over \$1 million to CMRI which will enable the creation of the Lola Douglas Research Fellowship.

### Sheila Gregg

Ms Sheila Gregg, who sadly passed away earlier this year, aged 80, has left over \$2.5 million to the CMRI. Sheila was the daughter of Sir Norman Gregg, who was among the founding fathers of the CMRI. He became President of the Royal Alexandra Hospital for Children in Sydney, at the very time that the Children's Medical Research Foundation, as it was known then, was established. In this position he provided enormous support and encouragement for the new research facility and later provided a great deal of scientific stimulus to the paediatric research arena. Sir Norman Gregg is remembered for some of his most significant work – establishing the link between rubella infection during pregnancy and congenital birth defects, particularly cataracts.

As a result of Ms Gregg's kindness, the Sir Norman Gregg Research Fellowship will be established in the Eye Genetics group of CMRI's Embryology Unit. Head of Embryology Dr Patrick Tam said, "Sir Norman was a highly respected paediatric ophthalmologist and senior surgeon, we aim to continue his legacy in eye research by establishing this Fellowship in our Eye Genetics Group."

*Drafting a Will is something people often forget about but the generosity of both Lola and Sheila shows that it can have a big impact on the lives of many Australians. For more information about bequests or the work of the CMRI please contact Mr Stephen Ryall on 02 9687 2800. Your gift after life can help guarantee a healthier future for many generations of children through the work achieved at the CMRI.*

# Bridging the divide

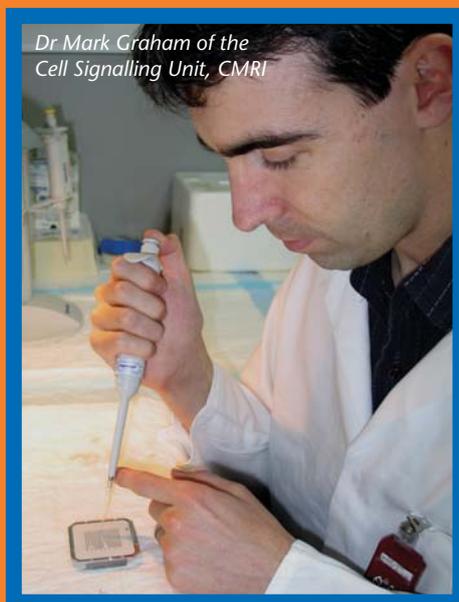
Written by Jena Shaw, Student, Graduate Diploma in Scientific Communication, ANU

Another building block in the understanding of how cells divide has recently been discovered. This information should lead to an increased understanding of the formation of certain types of cancer.

Scientists in the Cell Signalling Unit at CMRI have made a significant contribution to the international collaboration that included scientists from Australia, Germany and the United States headed by Dr Megan Fabbro of the Queensland Institute of Medical Research. November has seen the resulting breakthrough paper published in *Developmental Cell*, a premier scientific journal.

The human body needs to be constantly creating new cells to replace cells that have died and to help the body heal and grow. Cell division includes processes in which the information inside a cell is duplicated and the two halves of the cell separate to form two new cells. During cell division many proteins play crucial roles – not all fully understood by scientists.

Dr Fabbro discovered the new protein, Cep 55, but was unsure of its role in the division of cells. Thanks in large part to the help of CMRI



Dr Mark Graham of the Cell Signalling Unit, CMRI

scientists, Cep 55, now has a known role in the final stage of cell division. Without Cep 55, the material inside the cell replicates but is unable to separate into two individual cells, resulting in one cell with too much information.

CMRI houses one of the few mass spectrometers in Australia. The expertise of CMRI scientists Dr Mark Graham and Dr Phil Robinson in the use of the mass spectrometer helped to define the structure of the new protein and how it is activated during cell division. Dr Robinson said, “the team has discovered a new part of machinery that helps to explain the final stage of cell division when the bridge in between the two cells is finally broken.”

This new information on how cells correctly divide, will give scientists improved understanding of cancers that result from abnormal cell division.

“We need to have a full and complete parts list of what’s inside a cell before we can consider trying to repair any problems” said Dr Robinson.

## Grants to explore and discover

Congratulations are due to CMRI scientists following the recent announcement of the National Health and Medical Research Council Grants for 2006.

Dr Patrick Tam, Head of the Embryology Unit, was awarded nearly \$1.2 million in grants, the largest amount awarded in NSW. His project was highlighted in the NHMRC publicity as being amongst the most exciting work funded.

Dr Tam’s funding includes a five-year renewal of his Senior Principal Research Fellowship, the highest appointment that can be made by the NHMRC. His team was also awarded a project grant which will enable them to pursue a new line of research into the genes involved in head development. Dr Tam hopes the work will increase understanding of genetic conditions that lead to abnormalities of the jaw and face.

“This is one of the more blue-sky projects funded by the NHMRC in recent times,” says Dr Tam, “Our work on the PDGF-C gene that we recently linked to cleft lip and palate was a strong case in favour of pursuing this type of exploratory research. Sometimes looking at genes that have no obvious connection to a clinical condition can reveal unexpected insights into devastating human conditions,” says Dr Tam. “It is like finding the missing word that completes a sentence and has great potential to lead to new ways to prevent the occurrence of birth defects.”

Dr Phil Robinson, Head of the Cell Signalling Unit, and his collaborators, Garth Nicholson at the Anzac Institute in Sydney and Adam McCluskey of Medicinal Chemistry at the University of Newcastle were awarded a \$652,000 grant.

The grant will allow the team to pursue an exciting discovery of a gene that causes Charcot-Marie-Tooth Disease (CMT). CMT is a relatively common inherited neurological condition characterised by progressive degeneration of the muscles in the lower legs and arms, and loss of sensation in the limbs, fingers, and toes.

“About 50 different genes have been discovered that can cause CMT,” says Dr Robinson, “but just this year another gene was found to cause the condition – and this is a gene that we have a great deal of experience with – *dynamin 2*.”

Dr Robinson has spent over 25 years studying the *dynamin 1* and *dynamin 2* genes and their roles in the normal cross talk between nerve cells. But this is the first time the genes have been connected to a human disease. “This is very exciting and interesting for us to now be able to contribute to understanding Charcot-Marie-Tooth Disease,” said Dr Robinson.



Left to right:  
Chris Bath takes a turn with CMRI scientist Dr Phil Robinson;  
Modbury High School SRC President Talia Zellmer with Jennifer Philps;  
Scotch College Head Students, Imogen Phillips and Tom Hamilton, with Mr Steve Sparrow.

# JEANS FOR GENES UPDATE

To date we have received over \$3 million from Jeans for Genes Day 2005 with more funds still coming in (please send in your monies if you haven't already done so). Congratulations to all the schools, community groups, retailers and people everywhere for supporting the work of our researchers.

This year we were pleased to visit two wonderful schools in Adelaide, Modbury High and Scotch College, to say a big thank you for their contributions to Jeans for Genes Day.

## Pop it in your diary – Jeans for Genes Day 2006 – August 4.

### Dancing with the Star Scientists!

Channel 7 newsreader, Chris Bath has been a big hit on the number one Australian program Dancing with the Stars. She is also a big hit with CMRI as we were her chosen charity. Chris has been a long term supporter of CMRI and Jeans for Genes. For the past four years she has been the Master of Ceremonies at the Jeans for Genes Art Auction, has participated in numerous photoshoots and events and provided the voice-over on our information video.

Chris and the Channel 7 crew visited CMRI recently and spoke to Dr Phil Robinson about his latest work relating to epilepsy.

### Kids for Life come on board

After seeing a presentation of CMRI's work the Kids for Life committee unanimously agreed to support the Institute over the next 3 years. Already they have developed a cinema advertisement encouraging the community to support CMRI.

Kids for Life are currently organising a 'black tie with a touch of sparkle' themed Gala Ball which will be held at the Hordern Pavilion, Sydney, on 25 March 2006 (for more information visit [www.kidsforlife.org](http://www.kidsforlife.org)). Proceeds will go to CMRI and the Sydney Children's Hospital Intensive Care Unit. CMRI will use the funds to establish a Kids for Life Research Fellowship.



KIDS FOR LIFE



Dr Satomi Tanaka and Yasuka Yamaguchi

Developing germ cells can be seen in the 'O' on the front cover

# Developing sex cells play hide and seek

with Dr Patrick Tam at CMRI, have published their exciting findings in the prestigious journal Developmental Cell this month.

Dr Tanaka has discovered two new genes in mice, called *IFITM3* and *IFITM1*, that are key to a system of repulsion and attraction that allow germ cells to navigate through the developing embryo to reach their destination.

"Germ cells know their fate within the first days of an embryo's life," says Dr Tanaka, "but they then have to move away from their point of origin and hide out near the developing gut to await the development of the testis and ovary."

By hiding away at a time when their origin tissues are undergoing extensive remodelling to become specialised organs, the germ cells may be able to retain their special 'stem cell-like' qualities as blank slates that can contribute to the beginning of a whole new life.

Dr Tanaka tested his theory of attraction and repulsion by switching the genes on and off in embryonic mice growing in the laboratory dish. Together the *IFITM3* and *1* proteins allow the cells to be 'at home' amongst the origin cells. Switch *IFITM1* off and the cells are repelled and forced into hiding. Later, when *IFITM1* is switched back on, the cells can home in and take up residence in the testes and ovaries.

Most intriguing was Dr Tanaka's demonstration that the key that drives germ cell movement is the part of the protein that sits on the outside of the cell – like a visible passport that gives the cell permission to move between zones in the embryo. Swap the outer part of *IFITM3* for *1* and you swap the passport for a deportation order.

"This is an elegant demonstration of a very intricate navigation system that has never been shown for germ cell development before," said Dr Tam.

Groundbreaking work by CMRI's Embryology scientists has revealed some of the earliest events in the development of germ cells, the cells that give rise to eggs and sperm. The findings may shed light on the cause of some forms of infertility and opens up a new area of study in the field of germ cell development.

Dr Satomi Tanaka, a Research Fellow supported by the Japan Society for the Promotion of Science and Yasuka Yamaguchi, a PhD student of Nara Institute of Science and Technology, Japan, both working



# Committee Power



## COMMITTEES

### Quirindi Committee

Spring rains ensured the garden at 'Silsoe' provided a perfect back drop for the wonderful country luncheon. The marquee was filled to capacity and the stalls gave ample opportunity for gift purchases.

### Burbs Committee

The 'Burbs Committee's first major function 'The Ball in the 'Burbs' was a splendid success. So much so that with the dollar for dollar sponsorship from KIS Planning and its association with the AMP Foundation, the CMRI has been able to purchase the Gel Documentation System. Many thanks to KIS Planning and to the Committee for all their hard work!

### Thumbelina Committee

The sun shone, the stalls were tempting and the Jan Jolly fashions were beautifully paraded by the Committee making the annual fashion show at the Roseville Golf Club a real winner.

## OTHER SUPPORTERS

### Back to the Future Education

Husband and wife team Anthony and Felicity Tannous, have a real passion for helping children reach their full potential. They have three children and 65 nieces and nephews between them. Their business, Back to the Future Education, produces the MathsPOWER computer teaching tutor for students from pre-school to Year 12. And now they have made a wonderful donation to CMRI. Many thanks.

### St Ives Shopping Village

St Ives Shopping Village management were most generous in producing a 'Girls Night Out' fashion show in aid of CMRI. No detail was left out in making the evening an outstanding success, from the supper basket, to the professionally choreographed fashions and the farewell gift. Thanks to the Kuring-gai Committee for their assistance.

### Rotary Club of Strathfield

Thank you very much to the Club for the generous \$3000 cheque presented to CMRI from their Trivia Night.

### Ridler Family

After being successfully treated for a very rare tufted haemangioma Caitlin Ridler wanted to fundraise for the cancer research unit at CMRI. She did extremely well with help from dad Philip, who shaved his head for the cause. Caitlin and her family visited CMRI to present the cheque.

## Dates for your Diary

### Treasury of Crafts

Christmas Craft Fair, Don Moore Community Centre, Cnr North Rocks Rd and Farnell Rd, North Rocks. Fri 9 Dec, 3pm – 8.30pm and Sat 10 Dec, 9am – 3pm

### Tamworth Committee

Carols in the Park with appearances by Tamworth Pipe Band and a host of local artists. Sun 11 Dec, 7pm

Top to bottom:

Promina Research Fellow Dr Hilda Pickett (3rd from left, back row) with Stephen Ryall of CMRI and the ladies of the Northern Beaches Committee at the Annual Meeting of Committees at CMRI in August;

Sue Wilmott and Margie Wilmott of the Quirindi Committee laden with an enormous country ham;

Members of the Burbs Committee in back row, (l-r): Narelle Williams (President), Morag Burke (Treasurer), Roma Unwin, Natalie Taylor and Karen Seamons with Event Management

Students from Baulkham Hills TAFE who assisted in preparations for 'The Ball in the Burbs'. (Photo courtesy Jonah Photography);

Cancer fundraiser Caitlin Ridler visited CMRI to present a cheque with mum Fiona, little sister Holly and brother Ben;

'Girls Night Out' Fashion parade at St Ives Shopping Village;

Anthony and Felicity Tannous of Back to the Future Education present a big donation to CMRI's Lisa Melton (Photo courtesy Cumberland Newspapers).