



LifeLab

FROM RESEARCH TO REALITY

No. 71 - Spring 2008

From the Director

The World Health Organisation predicts by the year 2020 mental health ailments, in particular depression, will be the second biggest health concern (behind heart disease) for western countries. This is in terms of either the years of potential life lost due to premature mortality or the years of productive life lost due to disability.

In response, QIMR is developing a new mental health research program which will be headed by Dr Michael Breakspear. Michael will join us early next year from the University of New South Wales' School of Psychiatry.

In other news, I congratulate all QIMR scientists who recently received National Health & Medical Research Council (NHMRC) grants. QIMR received the most funding of all the medical research institutes - a great testament to the quality of our scientists.

Among the new projects being funded will be a number of studies into: the genetics of cancer and addiction; developing new drugs and potential vaccines for malaria; and evaluating novel treatments for lymphoma and brain tumours.

We look forward to updating you on developments from these projects in future editions of LifeLab.

Lastly, on behalf of all staff at the Institute, I wish you a safe and happy holidays this summer.

Professor Michael Good AO
Director, QIMR

A snap-shot of 45 years of research excellence

Who would have thought that a 19 year old aspiring scientist in the 1960s would have pioneered the development of T-cell based adoptive immunotherapies for cancers caused by the Epstein-Barr virus (EBV)?

This month, the achievements of Professor Denis Moss will be celebrated by his colleagues for his contribution to science and medical research.

Denis (circled below) first came to QIMR in 1962 as a cadet under Dr Dorothy Sanders, a parasitologist working in Indigenous health. Working part-time and on weekends, he completed a Bachelor of Science in 1968, after which he commenced his work on EBV.

Denis heralded a new era of EBV research in the 1970s when his team reported that B-cells (a type of immune cell) were the primary host for the virus and that its ability to transform these cells depended on the individual person's immune system. (A virus transforms by

inserting its own DNA into the host cell to replicate itself).

This breakthrough discovery formed the foundation for scientists to understand the way EBV evades the immune system.

During the late-70s Denis teamed up with Alan Rickinson, a visiting scientist, leading to some groundbreaking research in the EBV field. One of these studies established that T-cells from individuals exposed to EBV could prevent transformation of their B-cells.

After completing his PhD in 1979, Denis was offered a year-long fellowship which allowed him to visit Professor Michael Anthony Epstein (who discovered EBV) in Bristol, UK. During his tenure in Professor Epstein's laboratory, Denis co-authored another major paper in the prestigious journal, *Nature*, providing the first hint of a potential target antigen for EBV-specific T-cells.

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(from front page)...

Establishing an independent group at QIMR upon his return, Denis continued his work on EBV immunology.

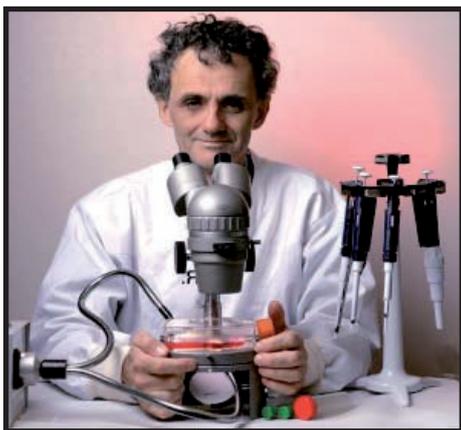
The 1990s saw the EBV group under Denis' leadership grow to become one of the most productive scientific teams in Australia and was awarded NHMRC program grants and consecutive National Institutes of Health grants over multiple years.

His role as a mentor for many young scientists at QIMR is also among one of his greatest professional achievements.

More recently, Denis has focused his efforts into translating EBV immunology to the clinical setting. He has pioneered an experimental new therapy for post-transplant lymphomas, which has now been extended to the other EBV-associated malignancies: nasopharyngeal carcinoma and Hodgkin's lymphoma.

Denis has also successfully tested a vaccine for glandular fever which has given important insights into potential vaccines against other EBV-associated diseases in the future.

Of Denis' outstanding contribution to Australian science, his colleagues have this to say, "He is simply the best."



QIMR spotlights careers in Indigenous health and science

Every year, QIMR conducts its annual Spotlighting Careers in Indigenous Health & Science Program as part of an effort to improve health outcomes for Indigenous Australians.

Associate Professor Gail Garvey, Head of QIMR's Indigenous Health Research Program, said encouraging Indigenous children to complete schooling and exposing non-Indigenous students to Indigenous culture is one way of achieving this aim.

"QIMR has developed a unique program for high school students from across Queensland that gives them a greater insight into what happens 'in the lab' and to learn more about Indigenous health," Gail said.

"The ultimate outcome for this program is for students to take up a career in science, medicine or one of the allied health fields with a focus on Indigenous health."

Conducted over five days, the program gives students a hands-on experience in QIMR laboratories (above picture) and provides the opportunity to visit local universities, attend seminars on Indigenous health, visit the

CSIRO and experience some Indigenous cultural activities.

The Spotlighting Careers in Indigenous Health & Science Program is conducted in collaboration with the Science & Technology Strategy Curriculum Division (Department of Education, Training and the Arts) and is kindly sponsored by Arthur Earle Youth Foundation and the Rio Tinto Aboriginal Fund.

"Over the years we have found this program assists students to develop more positive relationships with their teachers and peers," Gail added.

"We have also found that the interaction with 'real scientists' and Indigenous people working in this field has been invaluable to the students' learning."

Schools and businesses interested in becoming involved for 2009 should contact Gail on **07 3845 3586** or email Gail.Garvey@qimr.edu.au.



Study reveals factors of burden on dementia carers

A recent study revealed the factors determining carer burden lay not in the severity of dementia among sufferers, but instead on caregivers' feelings about themselves.

Scientists from QIMR and the University of Birmingham in the UK interviewed 74 primary carers of dementia sufferers, and discovered a caregiver's sense of role captivity - that is, a sense of feeling trapped in the role and being unable to pursue personal interests - as the greatest factor on carer burden.

Adverse life events such as death of friends or relatives

and work or money problems, increased carer burden as did a poor relationship between the caregiver and the dementia sufferer.

Finally, they found those who had a lower sense of confidence in their ability to provide care also contributed to burden.

Dr Corinne Lendon, Head of QIMR's Molecular Psychiatry Group said the team hopes to highlight areas for improving the well being of both dementia sufferers and their carers.

"We wanted to find out the relative contribution of major

factors that make caring for someone with dementia so hard on the well being of carers," Dr Lendon said.

"We hope that this study will lead to early intervention to help carers' challenges in order to reduce the burden of caring and where possible delay dementia sufferers' institutionalisation."

Dr Lendon and her colleagues suggested help could be in the form of a systematic approach that includes assessing carer needs early on at the time of diagnosis of dementia in the person they care for, providing training to boost confidence and competence, as well as enabling carers time to pursue activities outside the caring role.

"There is currently no cure for dementia and any treatments to lessen the symptoms are limited and short lived," added Dr Lendon.

"If we can equip caregivers with the skills, confidence and support they need to fulfil their roles, then we can not only improve the well being of both parties, but also help reduce the burden on the health system."



Dr Corinne Lendon (centre) with the Molecular Psychiatry team

All revved up for medical research

September 21 saw British classic car lovers gather at Tennyson in Brisbane for the annual RACQ Batteries All British Day.

Whether their tastes were for the finery of a distinguished Rolls-Royce or the compact intimacy of a fashionable Mini, visitors were enthralled by the sights, sounds and colours of the day.

The event has raised close to \$50,000 for QIMR over the past seven years due to the efforts of the All British Classic Car Club. Special thanks to Mr Albert Budworth.



Support medical research at QIMR

Community donations help QIMR by allowing the purchase of scientific equipment, funding new and innovative research as well as sustaining current projects.

To make a donation, simply fill in the form at the back of this newsletter and send to QIMR.

You can also donate by calling toll-free 1800 993 000 or online by visiting our website www.qimr.edu.au.

The bald facts of hair loss



Male-pattern baldness is the most common form of hair loss in men. It is characterised by a receding hairline or a growing bare patch on the top of the head.

It has been a long held belief that this form of hair loss is heritable through the maternal line. That is, if your mother's father experienced hair-loss you would be at higher risk of developing the condition.

However, a study conducted by scientists from QIMR and the Bonn and Düsseldorf Universities in Germany revealed a new hair-loss gene in a region on chromosome 20 that can be inherited from both parents.

Dr Dale Nyholt, from QIMR's Genetic Epidemiology Group said this newly discovered gene may now account for the similarity in cranial hair growth between father and son.

"We studied almost 1,500 German and Australian men and found a genetic variant which occurs more frequently in bald men than in control persons with a full head of hair," Dr Nyholt said.

"These results throw an interesting light on the inheritance of baldness in that, before this study, the only known risk gene lay on the X-chromosome and was thus inherited from the mother."

In addition to being among the most common natural conditions that make men self-conscious, recent studies indicate associations of pattern baldness with numerous disorders including benign prostate hyperplasia (enlarged prostate), clinical prostate cancer, coronary heart disease, obesity and hypertension. As a consequence, genes influencing common hair-loss may prove valuable in determining susceptibility to other, life-threatening disorders.

TALKS & TOURS

What has medical research done for you lately?

Let QIMR share information with you and your community group about current research projects and exciting developments.

We also conduct group tours of our laboratories so you can see first-hand the amazing research that our scientists are conducting.



To book a QIMR guest speaker or to organise a tour, telephone 07 3362 0397.

For donation enquiries and to receive future editions of LifeLab:

Ph 1800 993 000 | Fax 07 3362 0102 | E lifelab@qimr.edu.au

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