



the *Australian Society* for *Medical Research*

Newsletter
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CONGRATULATIONS!

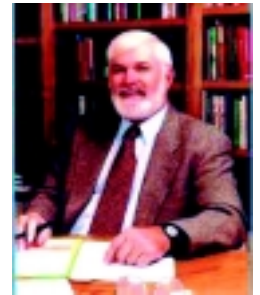
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Australian Scientists Prepare Bold New Initiative

An international perspective from Professor Ralph Bradshaw

Braced by a recent study that clearly demonstrates the contributions of biomedical research to health and the economy, the ASMR has issued a new call (Campaign 2003) for increased federal support for biomedical science. Several years ago (1999), in part due to a comprehensive NHMRC review commonly known as the "Wills Report", the Australian federal government embarked on a plan to double the size of the medical research budget with an infusion of \$614 million (AUD) over a five year period. This new call would add an additional \$1 billion (AUD) in the ensuing five year period (2005 to 2009) that would not only maintain the momentum begun in 1999 but also would move Australian science to new heights of accomplishment and return.



Professor Ralph Bradshaw

In terms of the current budget, this is a major request. Unquestionably it would be "building an investment in [their] future" as the campaign material says and the arguments in support are well reasoned and justified. But is it unrealistic? I don't think so. Stop for a minute and look at just the numbers: The first doubling will raise the NHMRC budget to \$400 million in 2004 (as compared with \$190 million in 1999), which will be about 1% of the federal health budget. The second doubling, with a staggered

Continued page 2

ASMR calls upon the Federal Government to commit to an additional \$1 billion to Australian health and medical research, phased in over the five years beyond 2004 - 2005.

- **Visit the ASMR Campaign Page**
www.asmr.org.au/Campaign/campaign.html
- **Contact your Federal MP**

ASMR's 2004-2005 Pre -Budget Submission to the Department of the Treasury may be viewed at

www.asmr.org.au/news/submissions

Invitation to members to attend the

Annual General Meeting

of

The Australian Society for
Medical Research

on

Sunday 23rd of November,
2003

at the

Stamford Grand Hotel, Glenelg,

Australian Scientists Prepare Bold New Initiative (cont.)

investment rate would bring the NHMRC budget to \$800 million in 2009. However, inflation and increased costs will sap the buying power of this number and it is unlikely that even this gain will bring the total spent on Australian health R&D to more than 0.5% of GDP. This can be compared to the US, UK and Denmark with present percentages of 0.7, 0.8 and 1.1. Thus, the new campaign, if achieved, will still leave Australia lagging behind countries with comparable standards of living and health care expectations. Viewed in this light, the campaign moves from the improbable to the essential.

And when one compares this to the return in knowledge and fiscal rewards, it is a colossal bargain. The ASMR make a compelling case (all Australians should read it with interest and attention) and their voice was heard in 1999. One can only hope that this will happen again. The Howard government distinguished itself with the first doubling - it can do so again, with the assuredness that even bigger dividends will result. It is unlikely to leave any more positive legacies than the betterment of the health of the Australian people. It would be nice if the US government would also consider a redux of their historic doubling of the NIH.

R.A. Bradshaw

Univ. of California, Irvine

Professor Ralph Bradshaw was president of the Federation of American Societies for Experimental Biology from 1995-96. During this time he was instrumental in lobbying efforts which secured the doubling in support for the NIH from the US Congress. Professor Bradshaw is well aware of funding issues affecting Australian health and medical research, serving as a member of the HMRSR Planning Committee. Professor Bradshaw was the ASMR Medallist in 1999.

ASMR Board of Directors

Election Results - Nine nominations were received to fill six vacancies occurring in November 2003.

Nominees -

Dr Alaina Ammit
Dr Lisa Butler
Dr Bronwyn Kingwell
A/Prof Mike McGuckin
Dr Janna Morrison
Dr Sandra Nicholson
Dr Moira O'Bryan
Dr Jacqueline Phillips
Dr Stephanie Williams

Elected by ballot for appointment or re-appointment for 2 years, effective from 23rd November 2003-

Dr Alaina Ammit (NSW)
Dr Lisa Butler (SA)
Dr Bronwyn Kingwell (Vic)
A/Prof Mike McGuckin (Qld)
Dr Moira O'Bryan (Vic)
Dr Jacqueline Phillips (WA)

Directors incumbent until Nov. 2004

Dr Rohan Baker (ACT)
Dr Maria Kavallaris (NSW)
A/Prof. L Khachigian (NSW)
A/Prof. Andrew Sinclair (Vic)
Dr Chris Semsarian (NSW)

Retiring November 23, 2003

Dr Moira Clay
Dr Anthony Armson
Dr Ricky Johnstone

Events

**Australian Neuroscience
Society
24th Annual Conference
Melbourne Convention
Centre**

27 - 30 Jan, 2004

email: ans@sallyjayconferences.com.au

**6th Australian and New
Zealand Zebrafish Workshop
Victor Harbour,
South Australia**

8 - 10 Feb, 2004

[www.cmgd.adelaide.edu.au/
conferences/index.html](http://www.cmgd.adelaide.edu.au/conferences/index.html)

“The Cycle of Life - From Cells to Systems”

**42nd ASMR National Scientific Conference
November 22-25, 2003**

A number of symposiums will expand on the theme
“The Cycle of Life: From Cells to Systems”.



Join us at the Stamford Grand, Glenelg SA

Further information: www.asmr.org.au/conferences

President's Report

Political Strategy

October 9 was a key milestone in the ASMR's campaign to ensure long term funding for health and medical research.

The day saw the launch of the ground breaking report "Exceptional Returns, the Value of Investing in Health R & D in Australia", prepared for ASMR by Access Economics. The Society also publicly launched a grass roots campaign "Building an Investment in Our Future" calling on Australian health and medical researchers to communicate the health outcomes of their research to their Federal Member of Parliament and the disastrous effects of not investing long term.

A key finding of the Exceptional Returns Report was that the returns from Australian health R & D are so extraordinarily high that the yields from investment in this vital enterprise have been exceptional, with every dollar spent on health R & D reaping at least \$5 in national economic benefit.

The report showed that despite the 1999 - 2004 budget increase, Australia remains at the lower end of the OECD spectrum for health and medical research expenditure and that public sector funding is actually declining by international standards. Coinciding with this has been an erosion of basic health R & D, which is an important underpinning for applied research and commercial development. The report highlighted that Australia's health system is at a critical cross roads - "In the coming decades, the effects of demographic ageing will place unprecedented demands on the Australian health system in particular in relation to chronic conditions of ageing such as dementia, arthritis, cardiovascular disease and cancer.

The projected direct and indirect costs of chronic illness are forecast to present a challenging burden whose greatest hope is new R & D discoveries". Economic modeling showed that future R & D gains will have potentially stunning impacts, for

example, health R & D that reduced cancer deaths by just 20% would be worth \$184 billion to Australians, more than the total forecast Commonwealth spending in the current fiscal year.

The launch of the Exceptional Returns Report generated excellent media interest with coverage on Channel 9 news and articles in The Age, Financial Review and Canberra Times. Every member of Federal Parliament and key state/territory politicians received a hard copy of the report on the day of the launch and there has been widespread interest in the report throughout the health sector and in political circles.

The grass roots campaign has also generated exceptional momentum. We have received considerable support for the campaign both within the sector and from key business champions. We are closely monitoring the campaign web page www.asmr.org.au/campaign/campaign.html. To date, there have been 1500+ hits on the web page. This is a truly outstanding response from Australian researchers and will be essential to the success of the campaign.

Our initial goal for the campaign is to secure a forward commitment for long term funding in the 2004 budget. Pre-budget submissions are due this week. Discussions over the coming weeks with the incoming Health Minister Tony Abbott and other key politicians will be the next steps in the strategy. The grass roots campaign will, however, continue until our goal of long term funding for health and medical research is achieved. I would urge you to spread the word among your colleagues - get them to send that email and set up a visit with their local MP.

I would like to acknowledge the financial supporters of the Exceptional Returns Report. The report received support from 18 organizations including pharmaceutical companies, universities and medical research institutes. This landmark project would not have been possible without this support and the wide range of supporters highlights that this report will indeed set Australia's



*Dr Moira Clay
ASMR President*

agenda over the next five years. A big thank you to Lynne Pezzullo and her team at Access Economics for their rigorous and independent economic analysis. Finally, sincere thanks to Anne Hayward (Investor Relations Strategies) who was the publicist for the launch and Cath West and Lexy Harris in the Executive Office who have coordinated both the launch and the campaign in their usual highly efficient way!

ASMR National Scientific Conference

We are now counting down to this years ASMR National Scientific Conference which will be held at the Stamford Grand in Adelaide from November 22-25. The meeting has the topical theme of "The Cycle of Life: From Cells to Systems". We have received record numbers of abstracts for the meeting and some excellent student prizes will be on offer. There is still time to register (<http://www.asmr-nsc.org.au>)!

The Hanson Symposium "Hormones in Cancer" and the one day symposium on "Organisation and Control of Movement", will be held in conjunction with the conference and the NHMRC will also be presenting a symposium on directions for the new triennium which will be of great interest to all!

*Dr Moira Clay
ASMR President*



Canberra launch for gr

“Exceptional Returns: The Value of Investing in Health R&D in Australia”

Professor Fiona Stanley, Australian of the Year, Chief Executive Officer of the Australian Research Alliance for Children and Youth and Director of the Telethon Institute for Child Health Research, launched the ASMR commissioned, Access Economics Report, “Exceptional Returns: The Value of Investing in Health R&D in Australia” at Parliament House in Canberra on October 9, 2003.



In a pre-recorded video presentation, Professor Stanley said -

“I think this report is essential. What it’s going to show is that this is an incredibly good investment for Australia, that in fact it is going to bring returns for the health of the nation, for our capacity to bring in R&D dollars from the commercialisation of research and that it is a very important part of our community activity, probably more important than any other investment that we make, well that’s a very powerful report to put out there”.

Dr Moira Clay, ASMR President, said

*“Health R&D has become one of this country’s most important industries and we have enormous opportunity. If the 19th century was about the industrial revolution, and the 20th century was about the communications revolution, the 21st century is about the healing revolution - and it will have a dramatic positive impact on society and the economy. **Australia must seize the opportunity”.***

Lynne Pezzullo, Senior Health Economist from Access Economics, said

“Our findings show that here, as in the US, investment in health R&D surpasses every other source of rising living standards in our time, with improvements in lifespan equivalent to 46% of final consumption expenditure over the forty year period considered”.

Dr David Vaux, Senior Principle Research Fellow, the Walter & Eliza Hall Institute, Fellow of the Australian Academy of Science and winner of the prestigious Victoria Prize for 2003, said at the Launch -

“The report from Access Economics commissioned by ASMR supports and re-emphasizes much of what was in the Wills report. A step has been made in the right direction but to keep up will need lots of steps. Big ones. Fast”.



“That report highlighted the key advantages of Australia as a major pharmaceutical centre, which included excellence in medical research infrastructure; high quality clinical research capability; innovative biotech companies; a highly skilled work force and a valuable source of new therapeutic medicines.” said the **Chief Executive of Medicines Australia, Mr Kieran Schneemann.**

From the Executive Summary -

“The past 40 years have witnessed an amazing epidemiological transition, riding on the technological wave. Our generation has benefited from standards of living never before experienced. In this country we now face a future full of promise and challenge for preventing and treating disease for ourselves and our children, by virtue of ethically applying recent dramatic advances in genetics, bioengineering, neuroscience and molecular and structural biology. The challenge is to translate the promise into the reality of new understanding, communication, collaboration and improved clinical outcomes.

This report has shown that every dollar invested in this challenge in Australia has historically been recouped as highly valued healthspan, even in the worst case scenario, and in most cases, many times over. The findings of this paper should change the way that Australian policy makers view health spending, in particular investments in health R&D. The conclusion for the future must be that Australian health R&D represents an exceptional investment, with exceptional returns”.

round-breaking Report



Excerpts from the Executive Summary

“Investment in health R&D surpasses every other source of rising living standards in our time. Our 8-year (11.5%) gain in life expectancy as well as improved wellness over 1960-99 were worth \$5.4 trillion to Australians - a figure more than 8 times larger than the entire national output last year. The gains associated with the prevention and treatment of cardiovascular disease alone totalled \$1.7 trillion.

Improvements in lifespan account for almost half of the actual gain in Australian living standards in the past 40 years (46% of consumption). Health R&D that further reduced cancer deaths by just 20% would be worth \$184bn to Australians, more than the entire annual Commonwealth spending budget.

While it is not always entirely possible to pin down cause and effect, the likely returns from health R&D are so extraordinarily high that the payoff from any strategic portfolio of investments is enormous. This paper estimates that half the historical gains in healthspan are attributable to global health R&D - as opposed to public health awareness, promotion and prevention programs and other factors. 2.5% - Australia's share of global R&D activity - is assumed attributable directly to Australian R&D. These assumptions lead to the conclusions that:

- * Historically, annual rates of return to Australian health R&D were up to \$5 for every \$1 spent on R&D.
- * Public sector returns were 72% for longevity and 62% for wellness, while private sector returns were 208% for longevity and 179% for wellness.
- * Returns to cardiovascular R&D were 8-fold, to respiratory R&D 6-fold and to digestive system R&D 5-fold.

These stunning results are comparable with similar findings for the US by eminent American economists from Yale, Harvard, Stanford, Columbia and Chicago Universities, whose methodologies have been utilised here.

However, in 2000-01, Australia spent only \$1.7bn on health R&D, 0.25% of GDP, low by OECD standards (0.15% to 1.1%). The public sector's share of financing and research activity fell over the 1990s by around 8%.

- * With the reduction of public finance, the share of basic health R&D also fell from 47% to 43% of the total. Basic health R&D is an important underpinning for applied research and commercial development.
- * The public sector's share of capital R&D investment also fell over the 1990s, further eroding the critical underpinnings of an optimal future Australian health R&D sector.

Initiatives flowing from the Wills Review have very recently stepped up Commonwealth investment in health R&D, in particular through the NHMRC. These welcome initiatives aim to make smarter health R&D investments primarily through enhanced collaboration and workforce measures. However, some key issues remain.

- * State, Territory and local governments need to match and stay in line with the Commonwealth effort.
- * Care needs to be taken that the erosion of basic research and of capital investment that accompanied the public sector decline of the 1990s are adequately reversed also.
- * Continued boosts to investment in health R&D relative to GDP are still warranted given Australia's poor ranking relative to other OECD countries.

Moreover, Australia has a comparative advantage in health R&D given our levels of discovery, publications, citations and other evaluative criteria relative to our size in the global market.

- * Australian discoveries save huge ongoing costs in the treatment of stomach ulcers, as well as reducing deaths from SIDS to one fifth of former levels, more cheaply and effectively treating bipolar disorder with lithium, and contributing to amazing reductions in cardiovascular and cancer mortality rates. Our eminent prize-winning health scientists include a major contributor to the founding of the global biotechnology industry.

In addition to the ‘good international citizen’ arguments, there are weighty economic reasons for enhancing our health R&D investment, in particular balance of payments and employment multiplier arguments, where Sweden is an important comparator. These benefits, and the positive and negative lessons we have learned in the past from both domestic and international experience, should outweigh any tendencies that might still remain to seek a poorly-conceived ‘free ride’ on our OECD colleagues’ research efforts”.

View the entire Exceptional Returns Report or the Executive Summary at <http://www.asmr.org.au/Campaign/campaign.html>

Gene Technology Update

The Federal budget provided a further two years funding for the operations of the Office of the Gene Technology Regulator (OGTR) and the budget papers included statements based on ASMR and other submissions that the biotechnology sector is not currently able to absorb full cost recovery. While welcome news, a new set of cost recovery proposals will now need to be developed.

July 21st saw that expiry of the 2 year period of deemed approvals and many organisations have had difficulties in meeting the requirements for renewal of accreditations, certification and licences. However, the OGTR staff worked tirelessly to assist all organisations in the transition to the new regulatory scheme.

The OGTR is undertaking a review of the Gene Technology Regulations. The OGTR has stated that it is aware that “there may be difficulties experienced by researchers in regard to the interpretation and compliance with some provisions within the Regulations. Furthermore, there may be scientific grounds for the re-classification of certain contained dealings”. The ASMR has provided a detailed submission on a number of issues suggesting amendments that would be consistent with the Act but would assist users to better comply with the Regulations. The full submission is available at www.asmr.org.au but the following issues were highlighted:

- The overarching principle behind each recommendation is to ensure the safety of people and the environment, but the aim of ASMR’s submission is to develop a substantially more effective system that appropriately reflects the relative risk for various dealings with GMOs. ASMR recommends that:
 - Dealings involving transgenic (and knock in) mice should be declared exempt.
 - Dealings involving approved host-vector systems and oncogenes should be declared exempt.
 - All host-vector systems using replication defective viral vectors can be used in tissue culture work (including human cells).
 - The delivery of genes to rodents using replication defective viral vectors should be an approved host vector system.
 - When a matter has been assessed by GTTAC and a clear recommendation made to the regulator, that this should be the basis of use of the Regulator’s discretionary powers.



Peter R Schofield

Why do transgenic mice require PC2 containment?

The original high profile transgenic mice expressed the growth hormone gene and were oversized leading to concerns about escape. The only basis of concern for these dealings is one of escape and this is fully covered by the use of either PC1 or PC2 facilities which require escape proof housing. With this condition, the anomaly of being able to clone and express a gene in approved host vector systems, and to create knockout mice under exempt classification but having to have NLRD approval to create the transgenic mice would be eliminated. Based on over 20 years of practical experience with transgenic mice there are no reported adverse effects which could impact the health and safety of people or the environment.

Ref: Palmiter RD, et al. (1982) Dramatic growth of mice that develop from eggs microinjected with metallothionein-growth hormone fusion genes. *Nature* 300:611-615.

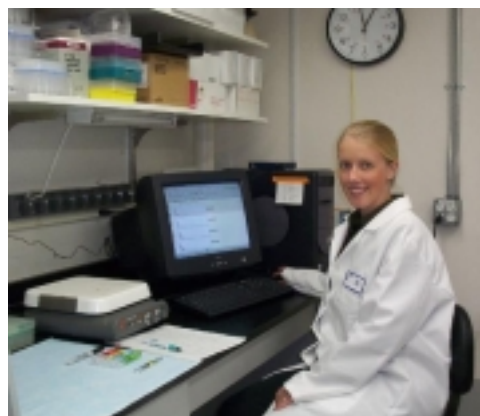
The original discovery of virally encoded DNA oncogenes was made by Harold Varmus and J Michael Bishop and resulted in the award of the 1989 Nobel Prize in Physiology or Medicine “for their discovery of the cellular origin of retroviral oncogenes”.

This work built on the earlier 1966 Nobel Prize in Physiology or Medicine awarded to Peyton Rous “for his discovery of tumour-inducing viruses”. While original concerns were that such oncogenes could be overtly dangerous, this has not been borne out by over 20 years of practical experience with oncogenes using approved host vector systems and PC2 containment.

ASMR Research Award Winner

Vanessa Murphy, winner of the 2002 ASMR Research Award reports on her three months at the Ferring Research Institute in San Diego, California.

From April to June 2003, I spent 12 weeks in California carrying out proteomics experiments as part of a collaboration between the Mothers and Babies Research Centre (Newcastle) and Ferring Research Institute in San Diego. Experiments were carried out under the supervision of Drs Pierre Riviere, Karen Akinsanya and Yung-Chih Wang. Protein profiling was performed using surface-enhanced laser desorption/ionisation time of flight (SELDI-TOF) mass spectrometry, a relatively new technology which combines solid phase chromatography, with on chip mass spectrometry. The aim of my studies was to profile proteins found in maternal plasma collected at 18 and 30 weeks of gestation, umbilical cord plasma collected at delivery and placental tissue, from pregnant women with and without asthma. The results of this work have built up a complex picture of the changes in plasma proteins which occur during pregnancy, and has highlighted a large number of differences in the expression of proteins between pregnant women with and without asthma. These findings will enable us to understand more about how the mother and fetus interact during pregnancy, as well as the effect of pregnancy itself on the progression of asthmatic disease in these women. This project has opened numerous doors for further investigation into the identity and function of these proteins which circulate in pregnant women. In addition, differences were identified in maternal plasma, cord plasma and placental protein expression which related to fetal gender. In light of our recent findings that the presence of a female fetus causes a mother's asthma to worsen during pregnancy, the discovery of these basic differences in male and female fetal proteins will further our understanding of the relationship between mother and fetus in pregnant women with asthma.



There were several advantages to this experience and I am extremely grateful to the ASMR for their financial support. I was able to work in an area of California which is booming in the Biotechnology business. Being part of a pharmaceutical company's research team enabled me to learn more about working in a commercial research environment which has allowed me to establish contacts with scientists from Ferring. In addition, I learnt an important new technique as part of my PhD. Proteomics will have an ever increasing role in medical research in the future and this experience has greatly strengthened my knowledge and skills in this area.

Vanessa Murphy

Congratulations Federation Fellows 2003

Prof. Hans Bacher: ANU.

Prof. Perry Bartlett: Uni. of Qld.

Prof. Marcela Bilek: Uni. of Sydney.

Prof. Kevin Burrage: Uni. of Qld.

Dr Calum Drummond: CSIRO
Molecular Science.

Dr William Ducker: University of
Melbourne.

Dr Roger Francey: CSIRO -
Atmospheric Research.

Prof. Andrew Holmes: Uni. of
Melbourne.

Prof. Martin Johnson: Uni. of Sydney.

Prof. Bruce Kemp: CSIRO Health
Sciences and Nutrition.

Prof. Max Lu: Uni. of Qld.

Prof. Barry Luther-Davies: ANU

Prof. Amanda Lynch: Monash
University.

Dr Richard Manchester: CSIRO

Prof. Thomas Maschmeyer:
University of Sydney.

Prof. Iain McCalman: ANU

Dr Anton Middelberg: Uni. of Qld.

Prof. Gerard Milburn: Uni. of
Queensland.

Prof. John Quiggin: Uni. of
Queensland.

Prof. Marilyn Renfree: University
of Melbourne.

Prof. Peter Robinson: University of
Sydney.

Prof. Jeffrey Shaw: University of
New South Wales.

A/Prof. Michelle Simmons:
University of New South Wales.

Dr Mark Tester: University of
Adelaide.

Further information from
<http://www.dest.gov.au/>

*The winner of the
ASMR Research Award
2003
will be announced at the
ASMR National
Scientific Conference*

*Stamford Grand,
Glenelg,
South Australia,
November 22-25, 2003*

www.asmr.org.au/conferences

ASMR Submissions 2001/03

- 2004-05 Pre-Budget Treasury Submission
- Gene Technology Regulations
- NSW Medical & Health Research Review Panel, R & D Policy Branch
- Standing Committee on State Development (NSW)
- Guidelines for Certification of Facilities/Physical Containment Requirements OGTR
- Nominations to National Research Priorities
- Office of the Gene Technology Regulator Review
- National Research Priorities Framework
- Pharmaceuticals Industry Action Agenda
- Protection of Human Genetic Information Issues Paper
- Human Stem Cells Research
- Human Reproductive Cloning and the Trans-Species Fertilisation Bill NSW
- External Review of the Child Health Research Institute SA
- Inquiry into matters arising from the Post Mortem and Anatomical Examination Practices of the Institute of Forensic Medicine (NSW)
- Review of the NSW Cancer Council Act

asmr.org.au/news/submissions

Science Prizes recognise outstanding achievement

- **Emeritus Professor Jacques Miller AC**
Walter and Eliza Hall Institute of Medical Research
Prime Minister's Prize for Science
- **Dr Christopher Helliwell**
CSIRO Plant Industry
Science Minister's Prize for Life Scientist of the Year
- **Dr Howard Wiseman**
School of Science, Griffith University
2003 Malcolm McIntosh Prize



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Dr Anthony Armson
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Dr Lisa Butler, Special Liaison Officer

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