



The Secretary  
Senate Community Affairs References Committee  
Parliament House  
Canberra ACT 2600

Dear Sir/Madam

**SENATE COMMUNITY AFFAIRS REFERENCES COMMITTEE INQUIRY INTO  
GYNAECOLOGICAL HEALTH IN AUSTRALIA**

Since 1936, the NHMRC has been responsible for promoting the development and maintenance of public and individual health standards; encouraging debate on and setting standards for animal and human research ethics and health ethics issues; and managing the Government's commitment to fund health and medical research.

The NHMRC is currently established under the *National Health and Medical Research Council Act 1992*, and will become an independent agency under the health portfolio on 1 July 2006. In becoming a statutory agency, the NHMRC will continue to fulfil its four principal statutory obligations to:

1. Raise the standard of individual and public health throughout Australia;
2. Foster development of consistent health standards between the States and Territories;
3. Foster medical research and training and public health research and training throughout Australia; and
4. Foster consideration of ethical issues relating to health.

In response to the Senate Community Affairs References Committee inquiry into Gynaecological Cancer in Australia, I am pleased to provide the following comments relevant to the specific terms of reference of the Senate Inquiry, namely, (a) the level of national funding for research addressing gynaecological cancers; and (d) the extent to which the medical community needs to be educated on the risk factors, symptoms and treatment of gynaecological cancers.

**Level of Commonwealth funding for research addressing gynaecological cancers**

During the period 2000-2006, the NHMRC awarded the following grants in which a substantial proportion of the research funding was directed towards research into the causes, screening and treatment of gynaecological (cervical, endothelial and uterine) cancer and related malignant neoplasms.

| <b>Funding Type</b> | <b>No of Grants</b> | <b>Total amount of the funded grant</b> |
|---------------------|---------------------|---|
| Program Grants      | 3                   | \$14,018,503                            |
| Project Grants      | 51                  | \$20,695,736                            |
| Scholarships        | 16                  | \$976,585                               |
| Strategic awards    | 2                   | \$3,811,598                             |
| Career Awards       | 7                   | \$2,932,999                             |
| Training Awards     | 4                   | \$1,304,082                             |
| Fellowships         | 1                   | \$516,262                               |
| <b>TOTAL</b>        | <b>84</b>           | <b>\$44,255,765</b>                     |

A list of the successful grant recipients, their administering institutions, project title, the duration of funding and total amount of funding is outlined in the attached spreadsheet.

In addition to the above schemes, the NHMRC Enabling Grants assist Australian researchers to undertake high quality, world-class research by providing support for specific facilities and/or activities that will enhance the national health and medical research effort. The first and third rounds of the NHMRC Enabling Grants funding scheme are supporting special facilities, including carefully assembled, high quality DNA, cell, tissue and organ banks, specialised registers and databases, which are becoming an increasingly important tool in health and medical research.

Although the following Enabling Grants are not specifically directed to these cancers, they are essential tools which will potentially contribute to knowledge development and treatments of gynaecological cancer:

- The *Australian Ovarian Cancer Study: A multidisciplinary ovarian cancer resource for the genomic era* project at the University of Melbourne, was awarded \$1 million (over 5 years) under the Enabling Grants program, commencing in 2006. This study was established to address major translational questions in ovarian cancer and is now the largest study of its kind in the world.
- \$1,750,000 (over 5 years) to the Australasian Biospecimen Network-Oncology which will provide a structured national network to collect, process and disseminate tumour tissue; strategically target specific tumour types that can only be collected in substantial numbers through the formation of such a network; and provide infrastructure that can be contracted by clinical and translational researchers;
- \$1,900,000 (over 5 years) to a national population-based genetic epidemiology, biospecimen and bioinformatics resource which will integrate human medical research resources (including DNA) in Western Australia with the core WA Data Linkage System, with complementary initiatives in bioinformatics and biostatistics;
- \$1,550,000 (over 5 years) to the Kathleen Cuninghame Foundation Consortium for Research into Familial Breast Cancer (KConFab) for its research into Familial Breast Cancer that collects extensive clinical, genetic and epidemiological data on Australasian families with familial breast or breast and ovarian cancer;
- \$2 million (over 5 years) to the Ludwig Institute for Cancer Research to establish the Australian Proteomics Computational Facility, a single advanced computing cluster accessible to scientists at proteomics centres all over the country. This integrated approach to proteomics computing, and the sharing of databases, will put Australia at the forefront of the world's efforts to identify the proteins associated with the early detection of our major diseases.

**Extent to which the medical community needs to be educated on the risk factors, symptoms and treatment of gynaecological cancers**

A key function of the NHMRC is the development of a wide range of health advice for governments, health professionals and the general public. Under its legislation, the NHMRC has the authority to approve guidelines developed by other organisations. On such evidence-based guideline was developed by the NSW Cervical Screening Program namely *Screening to Prevent Cervical Cancer: Guidelines for the Management of Asymptomatic Women with Screen-Detected Abnormalities* (the Guidelines).

The objective of the Guidelines is to assist women and health professionals to achieve the best outcomes in the management of abnormal Pap test results. The Guidelines address the current state of cervical cancer in Australia, the natural history of the disease and terminology for cervical cytology, management of squamous abnormalities, glandular abnormalities and special clinical circumstances, and psychosocial, economic and implementation issues.

The Guidelines were developed by the NSW Cervical Screening Program to the standards set by the NHMRC. The NHMRC subsequently approved these externally developed guidelines under Section 14A of the *National Health and Medical Research Council Act 1992*. The development of these Guidelines involved widespread consultation with all relevant professional bodies and a wide range of clinicians and consumers. The target audience includes primary health care providers, general practitioners, cytopathologists, gynaecologists and gynaecological oncologists, as well as public health service administrators. These new Guidelines are a distillation of the very latest research and data, brought together by some of the leading experts in this field, both internationally and in Australia.

I trust this information will be of use to the Senate Inquiry. If you have any questions relating to this submission, please contact Mr Phil Callan, Principal Executive Officer, NHMRC on (02) 6217 9208.

Yours sincerely



Professor Warwick Anderson  
Chief Executive Officer

16 June 2006

## NHMRC funding for Gynaecological Cancer in Australia – 2000-2006<sup>1</sup>

### Program Grants (3)

| Researcher                 | Institution                              | Project Title   | Duration     | Total Funding       |
|----------------------------|--|---|--------------|---------------------|
| Prof David de Kretser      | Monash University                        | Control of reproductive processes                                   | 2000         | \$4,322,218         |
| Dr Georgia Chenevix-Trench | Queensland Institute of Medical Research | Towards an understanding of the genetic basis of breast and ovarian | 2003-2007    | \$4,284,405         |
| Prof Adele Green           | Queensland Institute of Medical Research | Towards cancer control: Population and molecular strategies         | 2002-2006    | \$5,411,880         |
|                            |  |   | <b>TOTAL</b> | <b>\$14,018,503</b> |

### Project Grants (51)

| Researcher              | Institution  | Project Title  | Duration  | Total Funding |
|-------------------------|--|--|-----------|---------------|
| Prof Francis J Bowden   | Australian National University                       | Screening for Chlamydia trachomatis with routine Pap smears in general practice: A randomised controlled trial | 2005-2007 | \$350,500     |
| A/Pr Roger J Daly       | Garvan Institute of Medical Research                 | Regulation of mitogenic signalling via the Gab2 docking protein  | 2003      | \$141,750     |
| Prof Judith M Lumley    | La Trobe University                                  | Perinatal outcomes following treatment for cervical dysplasia  | 2003-2004 | \$98,600      |
| A/Pr Michael A McGuckin | Mater Misericordiae Health Services Brisbane Limited | The muc1 epithelial mucin in breast and ovarian cancer   | 2000      | \$355,548     |
| A/Pr Martin Pera        | Monash University                                    | Regulation Of Human Multipotent Stem Cells By Membrane Bound And Soluble Factors                               | 2000-2001 | \$344,732     |
| A/Pr Peter AW Rogers    | Monash University                                    | Regulation of endometrial angiogenesis and lymphangiogenesis   | 2006-2008 | \$477,750     |
| A/Prof Peter AW Rogers  | Monash University                                    | New blood vessel growth in the human uterus  | 2000-2004 | \$744,219     |
| Dr Caroline E Gargett   | Monash University                                    | A study of cells responsible for growth of the human uterus  | 2004-2006 | \$409,575     |
| Dr Jillian M Shaw       | Monash University                                    | Development of ovarian cryopreservation and autografting procedures  | 2000      | \$264,367     |

| <b>Researcher</b>            | <b>Institution</b>                           | <b>Project Title</b>   | <b>Duration</b> | <b>Total Funding</b> |
|------------------------------|--|--|-----------------|----------------------|
| Prof David A Jans            | Monash University                            | Regulation of nuclear import of viral oncoproteins and transcription factors by protein-protein interactions             | 2001-2005       | \$650,383            |
| Prof Donald McNaughton       | Monash University                            | Infrared spectroscopic imaging in the diagnosis of cervical cancer   | 2003-2005       | \$291,600            |
| A/Pr Freddy Sitas            | NSW Cancer Council                           | The effect of exogenous hormones, smoking and HPV on the incidence of screen detected pre-invasive cervical cancer       | 2006-2010       | \$1,151,625          |
| Prof Mark S Baker            | Peter MacCallum Cancer Centre                | Understanding ovarian cancer metastasis  | 2000-2002       | \$166,725            |
| Prof Peter J Fuller          | Prince Henry's Institute of Medical Research | Identification of Key Genes in Cancer of the Ovary   | 2000-2002       | \$264,601            |
| A/Pr Andreas Suhrbier        | Queensland Institute of Medical Research     | A new function for a known enzyme inhibitor-implications for cancer  | 2004-2006       | \$463,500            |
| A/Pr Andreas Suhrbier        | Queensland Institute of Medical Research     | The human papilloma virus oncoprotein E7 degrades the retinoblastoma protein by enhancing calpain activity               | 2006-2008       | \$252,500            |
| Dr Amanda B Spurdle          | Queensland Institute of Medical Research     | Functional Evaluation of BRCA1 & BRCA2 Unclassified Sequence Variants and Identification of Critical Pathogenic Domains  | 2003-2005       | \$331,313            |
| Dr Amanda B Spurdle          | Queensland Institute of Medical Research     | Molecular Epidemiology of Endometrial Cancer   | 2005-2007       | \$1,473,480          |
| Dr Georgia A Chenevix-Trench | Queensland Institute of Medical Research     | Microarray-targeted candidate gene approach to finding ovarian cancer susceptibility genes                               | 2006-2008       | \$601,250            |
| Prof Judith Clements         | Queensland University of Technology          | Expression and functional studies on the novel ovarian-expressed serine protease, Kallikrein 4, in ovarian tumorigenesis | 2003-2005       | \$410,250            |
| Prof Judith Clements         | Queensland University of Technology          | Role of Kallikreins in ovarian cancer progression  | 2006-2008       | \$498,750            |
| Prof Richard Ivell           | University of Adelaide                       | Relaxin signalling in the endometrium and the regulation of early pregnancy  | 2005-2007       | \$466,125            |
| A/Pr Ian G Campbell          | University of Melbourne                      | Cloning of chromosome 22 tumour suppressor genes   | 2004-2006       | \$249,250            |
| A/Pr Ian G Campbell          | University of Melbourne                      | LOH in cancer associated stroma  | 2006-2008       | \$392,500            |
| A/Pr Ian G Campbell          | University of Melbourne                      | Genome-wide study of loss of heterozygosity using high density SNP arrays to identify breast cancer predisposition genes | 2006-2008       | \$531,250            |
| A/Pr Wayne A Phillips        | University of Melbourne                      | Phosphatidylinositol 3-kinase mutations associated with ovarian, colon and breast tumour                                 | 2004-2005       | \$154,000            |
| A/Pr Wayne A Phillips        | University of Melbourne                      | PI 3-kinase: a new player in human cancer  | 2006-2008       | \$542,750            |

| <b>Researcher</b>       | <b>Institution</b>            | <b>Project Title</b>   | <b>Duration</b> | <b>Total Funding</b> |
|-------------------------|-------------------------------|--|-----------------|----------------------|
| Dr Phillip K Darcy      | University of Melbourne       | Activation and expansion of gene-engineered killer T cells   | 2002            | \$115,660            |
| Dr Richard B Pearson    | University of Melbourne       | Biochemical analysis of Akt 3-specific signal transduction   | 2005-2007       | \$349,375            |
| Prof David DL Bowtell   | University of Melbourne       | Molecular Epidemiology of Ovarian Cancer: The Australian Ovarian Cancer Study National Clinical Follow-Up Core       | 2006-2010       | \$830,000            |
| Prof David DL Bowtell   | University of Melbourne       | Combined expression analysis and SNP-based measurement of copy number variation in ovarian cancer                    | 2006-2008       | \$432,500            |
| Prof Joseph F Sambrook  | University of Melbourne       | kConFaB - A Consortium for research on familial breast cancer  | 2000-2002       | \$1,624,711          |
| Prof Lenore H Manderson | University of Melbourne       | Social aspects and cultural meanings of gynaecological cancer diagnosis, treatment and adjustment of Victorian women | 2004-2005       | \$158,500            |
| Dr Bettina Meiser       | University of New South Wales | A randomised trial of a decision aid for women at increased risk for ovarian cancer                                  | 2002-2003       | \$115,110            |
| Prof Robyn Ward         | University of New South Wales | Germline epimutations of tumour suppressor genes in familial cancer  | 2005-2007       | \$502,500            |
| Dr Germain J Fernando   | University of Queensland      | How to induce a long lasting anti-tumour response  | 2000-2002       | \$242,567            |
| Dr Germain J Fernando   | University of Queensland      | Optimising immunity towards cancers by vaccination   | 2002-2004       | \$211,320            |
| Dr Graham R Leggatt     | University of Queensland      | CTL avidity as a determinant of the mature, antigen-specific immune repertoire                                       | 2000-2003       | \$241,528            |
| Dr Nigel AJ McMillan    | University of Queensland      | The role of the human papillomavirus in alpha-6 integrin activation and cell growth                                  | 2000-2001       | \$229,217            |
| Dr Nigel AJ McMillan    | University of Queensland      | NHPV and cervical carcinoma: Signalling and clinical responses to interferons  | 2002-2004       | \$534,480            |
| Dr Nigel AJ McMillan    | University of Queensland      | Treatment of virally-induced cancers by RNA Interference   | 2004-2006       | \$389,250            |
| Prof Ian H Frazer       | University of Queensland      | Determinants of effective immunotherapy for epithelial tumours   | 2000-2001       | \$344,432            |
| Prof Ian H Frazer       | University of Queensland      | How does papillomavirus regulate its late gene expression?   | 2000-2001       | \$237,350            |
| Prof Ian H Frazer       | University of Queensland      | Effective immunotherapy for HPV associated cervical cancer precursor lesions   | 2002-2004       | \$482,640            |

| <b>Researcher</b>       | <b>Institution</b>       | <b>Project Title</b>  | <b>Duration</b> | <b>Total Funding</b> |
|-------------------------|--------------------------|---|-----------------|----------------------|
| Prof Ian H Frazer       | University of Queensland | Immunoregulatory immune responses to a peripherally presented tumour antigen                                  | 2003-2005       | \$219,750            |
| Prof Robert W Tindle    | University of Queensland | Immunological consequences of epithelial expression of a viral oncoprotein associated with cervical carcinoma | 2000-2001       | \$192,069            |
| Prof Robert W Tindle    | University of Queensland | A cervical cancer vaccine for the out-bred human population   | 2001-2002       | \$214,697            |
| Prof Robert W Tindle    | University of Queensland | Overcoming immune response non-reactivity in cervical cancer  | 2001-2004       | \$212,037            |
| Prof Robert W Tindle    | University of Queensland | Improving the efficiency of DNA vaccines  | 2005-2006       | \$182,000            |
| A/Pr Christine L Clarke | University of Sydney     | Modulation of cytoskeletal structure by progesterone receptor isoforms  | 2002-2004       | \$337,650            |
| A/Pr Paul R Harnett     | University of Sydney     | Certain death in uncertain time: a qualitative study of the experience of advanced ovarian cancer             | 2006-2008       | \$217,500            |
|                         |                          |   | <b>TOTAL</b>    | <b>\$20,695,736</b>  |

### Scholarships (16)

| <b>Researcher</b>    | <b>Institution</b>                           | <b>Project Title</b>   | <b>Duration</b> | <b>Total Funding</b> |
|----------------------|--|--|-----------------|----------------------|
| Ms Fiona J Bruinsma  | La Trobe University                          | Perinatal outcomes following treatment for cervical dysplasia  | 2005-2008       | \$52,121             |
| Ms Kathryn A Morris  | La Trobe University                          | Cancer screening: Is there a coherent ethical framework?   | 2001-2004       | \$86,715             |
| Dr Simon Chu         | Prince Henry's Institute of Medical Research | Molecular pathogenesis of ovarian tumours  | 2000-2003       | \$66,376             |
| Dr Catherine M Olsen | Queensland Institute of Medical Research     | Anthropometric indices, physical activity and ovarian cancer: causation, diagnosis and survival                        | 2006-2008       | \$63,693             |
| Dr Stephen A Myers   | Queensland University of Technology          | Estrogen and progesterone regulation of tissue kallikrein gene expression in endometrial cancer cell lines             | 2000-2002       | \$56,627             |
| Dr Sally E Baron-Hay | Royal North Shore Hospital                   | The Role of the Insulin-like Growth factors and their Binding Proteins in the Pathogenesis of Ovarian Cancer           | 2001-2004       | \$55,941             |
| Miss Natalie Wray    | University of Melbourne                      | Gynaecological Cancers: A study of the attitudes and experiences of Australian-born and immigrant Middle Eastern women | 2001-2003       | \$47,805             |

| <b>Researcher</b>  | <b>Institution</b>            | <b>Project Title</b>   | <b>Duration</b> | <b>Total Funding</b> |
|--------------------|-------------------------------|--|-----------------|----------------------|
| Miss Natalie Wray  | University of Melbourne       | The attitudes and understandings of women with gynaecological cancer.  | 2002            | \$8,900              |
| Miss Wen Qiu       | University of Melbourne       | Cellular, molecular & genetic characterization of breast & ovarian cancer-associated fibroblasts (CAFs)                  | 2006-2009       | \$63,693             |
| Miss Chin-Yi Kan   | University of New South Wales | Investigating the regions/functions of HPV E6 proteins required for immortalisation of normal cells                      | 2005            | \$20,484             |
| A/Pr Sherry Wu     | University of Queensland      | Liposomal delivery of RNA inhibitory nucleotides for treatment of cervical cancer  | 2006-2008       | \$80,451             |
| Dr Jennifer Broom  | University of Queensland      | Optimising immunotherapy for chronic viral infection   | 2006-2008       | \$91,800             |
| Dr Elizabeth Davey | University of Sydney          | How the prevention of cervical cancer can be improved by new methods of screening and testing                            | 2004-2005       | \$51,897             |
| Dr Georgina E Hale | University of Sydney          | The natural history of the physiological, hormonal, endometrial and ovarian dynamics during the perimenopause: A 3-yr lo | 2001-2004       | \$98,103             |
| Dr Rohini Sharma   | University of Sydney          | Identification of novel molecular targets for antibody-directed therapy of ovarian cancer                                | 2004-2006       | \$89,517             |
| Mr Anthony Newall  | University of Sydney          | A model for evidence based introduction of a new vaccine to Australia - human papillomavirus vaccine                     | 2006-2007       | \$42,462             |
|                    |                               |  | <b>TOTAL</b>    | <b>\$976,585</b>     |

### **Strategic Awards (2)**

| <b>Researcher</b>      | <b>Institution</b>       | <b>Project Title</b>  | <b>Duration</b> | <b>Total Funding</b> |
|------------------------|--------------------------|---|-----------------|----------------------|
| Prof Joseph F Sambrook | University of Melbourne  | Kathleen Cuninghame Foundation Consortium for Research into Familial Breast Cancer  | 2003-2006       | \$3,195,990          |
| Prof Ian H Frazer      | University of Queensland | Study of HPV 6 L1 virus like particles as Therapeutic vaccine for genital warts and recurrent respiratory papillomatosis. | 2004-2008       | \$615,608            |
|                        |                          |   | <b>TOTAL</b>    | <b>\$3,811,598</b>   |



### Career Awards (7)

| Researcher                 | Institution                                  | Project Title       | Duration     | Total Funding      |
|----------------------------|--|---------------------|--------------|--------------------|
| A/Pr David Robertson       | Prince Henry's Institute of Medical Research | NHMRC Career Awards | 2001         | \$86,574           |
| A/Pr David Robertson       | Prince Henry's Institute of Medical Research | NHMRC Career Awards | 2002-2006    | \$683,000          |
| Dr David Whiteman          | Queensland Institute of Medical Research     | NHMRC Career Awards | 2004-2008    | \$590,250          |
| Dr Georgia Chenevix-Trench | Queensland Institute of Medical Research     | NHMRC Career Awards | 2002-2003    | \$235,000          |
| Prof Judith Clements       | Queensland University of Technology          | NHMRC Career Awards | 2006-2010    | \$701,250          |
| Prof Suzanne Garland       | University of Melbourne                      | NHMRC Career Awards | 2005-2009    | \$386,925          |
| Prof Simon Foote           | Walter and Eliza Hall Institute              | NHMRC Career Awards | 2003-2004    | \$250,000          |
|                            |  |                     | <b>TOTAL</b> | <b>\$2,932,999</b> |

### Training Awards (4)

| Researcher            | Institution                              | Project Title   | Duration     | Total Funding      |
|-----------------------|--|---|--------------|--------------------|
| Dr Penelope L Jeffery | Mater Medical Research Institute         | Cell surface mucins modulate epithelial cell growth and apoptosis of normal mucosal wound repair and epithelial cancers | 2005-2009    | \$264,000          |
| Dr Marguerite S Buzza | Monash University                        | Studies on the role of Testisin in fertility & cancer using knockout mice   | 2006-2010    | \$299,856          |
| Dr Rachel E Neale     | Queensland Institute of Medical Research | Smoking and Hormonally related cancers: Epidemiological Studies   | 2003-2007    | \$330,186          |
| Dr Susan M Shanley    | Sydney West Area Health Service          | Identification of putative tumour suppressor gene on chromosome 1p36 in breast and ovarian carcinomas                   | 2001-2006    | \$410,040          |
|                       |  |   | <b>TOTAL</b> | <b>\$1,304,082</b> |

## Fellowship (2)

| <b>Researcher</b>      | <b>Institution</b>       | <b>Project Title</b>   | <b>Duration</b> | <b>Total Funding</b> |
|------------------------|--------------------------|--|-----------------|----------------------|
| Dr Wenyi Gu            | University of Queensland | Sensitise cervical cancer cells to shRNA-mediated gene silence   | 2006-2009       | \$265,250            |
| Dr Kirsten J McCaffery | University of Sydney     | Women's understanding of cervical screening and human papillomavirus (HPV): development and evaluation of a decision aid | 2001-2004       | \$251,012            |
|                        |                          |  | <b>TOTAL</b>    | <b>\$516,262</b>     |

1. This information has been derived from the NHMRC's Performance Management Framework dataset, the Research Management Information System (RMIS) and the Grants Management System (GMS) databases. The search was conducted on 5 June 2006 on all NHMRC grant types except transitional block grants and equipment grants and used the keywords; cancer; oncology; carcino\*; tumor; tumour; neoplasm; cervical; epithelial; vaginal; vulval; reproductive cancer; uterine; and ovarian