Cover photo: Professor Christine Winterbourn (Pathology, University of Otago, Christchurch) was awarded New Zealand's top science honour in 2011, the Royal Society of New Zealand’s Rutherford Medal.
FROM THE PRO-VICE-CHANCELLOR

Tēnā koutou kātoa. Welcome to the 2011-2012 Research Report for the Division of Health Sciences, University of Otago. The Division has an enviable reputation for research excellence and innovation, and we are proud to showcase our many and varied achievements in this report.

The past two years have been both a challenging and an exciting period for the Division. They have been particularly difficult years for colleagues on our Christchurch campus. The disruptions caused by the Canterbury earthquakes have been severe, but our staff and students have shown enormous resilience and tenacity and have continued to excel on all levels despite the difficulties. As a testament to this, Professor Christine Winterbourn from the Christchurch campus was awarded New Zealand’s highest science honour in 2011, the Royal Society’s Rutherford Medal. We congratulate Christine and wish all our Christchurch staff and students the very best in their journey to full recovery.

2011-2012 was also a period of significant growth and achievement for the Division. Once again our staff secured the lion’s share of funding from New Zealand’s major funders in the health and science sectors including the Health Research Council, and the Marsden fund. This funding supports the Division’s ground-breaking research which underpins many advances in health policy and practice and the understanding of health and disease, both here in New Zealand, and globally.

Our staff are leaders in the fields of cancer genetics, mental health, neuroscience, infectious disease, public health, Māori health, cardiovascular disease, life course research, and oral health. The depth and breadth of research expertise in the Division means that research informs our teaching across all aspects of health professional training. Our students are taught by academics and clinicians who are at the forefront of new knowledge, and who are closely integrated into the health workforce.

In this manner, we believe we are laying the foundations for the next generation of health research leaders in New Zealand.

I am sure that no matter what your area of expertise, you will find much of interest in these pages, and I encourage you to contact us if you would like to know more.

Professor Peter Crampton
Pro-Vice-Chancellor
Division of Health Sciences
University of Otago
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Professor Allan Herbison of the Centre for Neuroendocrinology was the recipient of the University of Otago’s 2011 Distinguished Research Medal.
EXECUTIVE SUMMARY

• The Division of Health Sciences is a research intensive Division with the highest overall annual research income within the University.

• The Division incorporates three campuses (Dunedin, Christchurch and Wellington) and comprises the following Schools and Faculties:

  Faculty of Dentistry
  Faculty of Medicine
    Otago School of Medical Sciences
    Dunedin School of Medicine
  University of Otago, Christchurch
  University of Otago, Wellington
  School of Pharmacy
  School of Physiotherapy
  Bioethics Centre

• The University of Otago has established fourteen Research Centres and fifteen Research Themes for which the University is pre-eminent and to which it gives particular recognition and support. Researchers within the Division of Health Sciences are leaders of nine of the Research Centres and nine of the Research Themes.

• All Schools and Faculties have a strong research focus as evidenced by their successes in securing external income ($130 million in 2011-12), their high numbers of postgraduate students (approaching 1300 in 2012), their quality research outputs, and the many and varied honours and scholarships awarded to their staff and students.

• The Division strongly encourages and supports the dissemination and commercialisation of research results.

• The Division boasts extensive research support services including state-of-the-art research facilities and equipment, training opportunities, and staff expertise.

• The Division operates a Research Committee which is responsible for the dissemination of postdoctoral fellowships and funding as well as having a mentoring role for researchers. Research in the Division is further supported by the University’s Research and Enterprise Office which is the point of liaison between researchers and funding bodies.
NOTES ON HOW THESE DATA ARE PRESENTED

This report contains information on the research activities of the Division of Health Sciences at the University of Otago, for the period 2011-2012.

The data contained within the report have been sourced from the University of Otago’s Research and Enterprise Database, and from departments and departmental websites. Every attempt has been made to ensure that this report is as complete and as accurate as possible, but given the diversity of activities and interests within the Division, there may be omissions or inaccuracies for which we apologise.

Things to note:

• Research contracts have been attributed to the home department of the principal investigator. Where there were multiple principal investigators on a given contract it is acknowledged that this will duplicate the listing of a small number of contracts in this report.

• In a number of cases contracts straddled departments and it is unfortunate that this report is unable to give credit to co-investigators who, while not listed here, did nevertheless contribute to securing funding.

• This report lists details of external grants that were awarded in 2011 and 2012. A significant number of grants awarded prior to 2011 were also active throughout some, or all, of this period. Information about these earlier grants is available in earlier reports: www.otago.ac.nz/healthsciences/research/reports/index.html

• Publications have been listed under the department of each author and co-author, meaning that some publications will be listed more than once.

ADDITIONAL SOURCES OF RESEARCH RELATED INFORMATION

The Division of Health Sciences research website:
www.otago.ac.nz/healthsciences/research/index.html

Research Office, University of Otago, Christchurch:
www.otago.ac.nz/christchurch/research/researchoffice/

Research Office, University of Otago, Wellington:
www.otago.ac.nz/wellington/research/researchoffice/index.html

Health Research South, Dunedin School of Medicine
http://dnmeds.otago.ac.nz/research

Research and Enterprise Office, University of Otago:
www.otago.ac.nz/research/index.html
# THE DIVISION AT A GLANCE

## STAFF AND STUDENT INFORMATION

<table>
<thead>
<tr>
<th>Equivalent Full-time Students*</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Total</td>
<td>5,761</td>
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<td>Undergraduate</td>
<td>4,524</td>
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<tr>
<td>Postgraduate</td>
<td>1,237</td>
<td>1,287</td>
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<tr>
<td>PhD</td>
<td>418</td>
<td>424</td>
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<tr>
<td>Masters (Research)</td>
<td>139</td>
<td>163</td>
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<table>
<thead>
<tr>
<th>Full-time Equivalent Staff</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Academic and Research Only Staff</td>
<td>826</td>
<td>812</td>
</tr>
<tr>
<td>General Staff</td>
<td>691</td>
<td>669</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff Head Counts</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic and Research Only Staff</td>
<td>1,105</td>
<td>1,112</td>
</tr>
<tr>
<td>General Staff</td>
<td>813</td>
<td>797</td>
</tr>
</tbody>
</table>

* Includes Summer School

## EXTERNAL RESEARCH CONTRACT INCOME IN $MILLION PER ANNUM

![Chart showing external research contract income from 2006 to 2012]
FUNDING SOURCES 2011–2012

RESEARCH OUTPUTS

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Journal Articles</td>
<td>1194</td>
<td>1263</td>
<td>1348</td>
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<tr>
<td>All Publications</td>
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<td>2806</td>
<td>3179</td>
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UNIVERSITY OF OTAGO SCHOLARSHIPS AWARDED

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012*</th>
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<tr>
<td>PhD Scholarship</td>
<td>66</td>
<td>65</td>
<td>90</td>
<td>95</td>
<td>72</td>
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<tr>
<td>Masters Award</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>30</td>
<td>15</td>
</tr>
</tbody>
</table>

*The decrease in number of scholarships awarded in 2012 reflects a decrease in the total number of scholarships awarded across the University.
HEADCOUNT OF PhD/DClinDent AND MASTERS BY RESEARCH* STUDENTS

*Casters by Research includes only Masters degrees where students undertake a significant research project and write a research thesis

CANTERBURY EARTHQUAKES

The 10,000 or so earthquakes that have struck the Canterbury region since September 2010 have caused huge disruption to the lives of all Cantabrians, including staff and students from our University of Otago, Christchurch campus. The University’s main 10-level building adjacent to the Christchurch hospital suffered substantial damage and was deemed uninhabitable. Dislodged research teams were taken in and housed by neighbouring institutions, while others found makeshift space in a rented warehouse and many others worked from home.

Despite the disruptions and stressors staff and students continued to excel. Staff successfully delivered a full medical curriculum and maintained world class standards in research. A highlight was Professor Christine Winterbourn’s receipt of New Zealand’s highest science honour in 2011, the Royal Society’s Rutherford Medal. Christchurch medical students averaged the same marks as their Dunedin and Wellington counterparts – an incredible achievement given the trying circumstances they were working under.

As this Report was being compiled, staff and students were moving back into their earthquake-strengthened main building - almost a full two years after it was closed. This happened just in time for their 40 Year Anniversary celebrations. The Division would like to thank all of our Christchurch staff and students for their amazing resilience and accomplishments over the past two years. We wish them all the very best for the road ahead.
RESEARCH HIGHLIGHTS 2011-2012

RESEARCH PERFORMANCE INDICATORS

- **External Research Contract Income**: The Division's external research contract income was $68 million in 2011 and $63 million in 2012.

- **Research Outputs**: Our researchers published extensively with 3179 research outputs in 2011 and 3188 in 2012.

- **Health Research Council Funding Success**: The University of Otago received more Health Research Council of New Zealand funding than any other institution in both 2011 and 2012. Divisional researchers received approximately 37% of the total funds allocated in the 2011 round and 41% in the 2012 round. One new Programme and two Programme extensions were awarded in 2012 and one new Programme and three extensions in 2011, all of which were awarded to researchers within the Division.

- **Marsden Funding Success**: Once again the University of Otago was awarded the greatest percentage of the total national Marsden pool in both 2011 and 2012.

- **MBIE Funding**: In 2012, the University of Otago was awarded significant funding from the Ministry of Business Innovation and Employment's newly introduced Science Investment Scheme, with the Division securing approximately $12.6 million of the $27.6 million awarded to the University.

- The Division published 16 papers in prestigious *Nature* journals in 2011-2012.

- **Professorial Appointments**: Twelve professors were either newly appointed or promoted within the Division in each of 2011 and 2012.

AWARDS AND ACCOLADES

- **Rutherford Medal**: Professor Christine Winterbourn (University of Otago, Christchurch) was awarded New Zealand’s top science honour, the Royal Society of New Zealand’s 2011 Rutherford Medal. This was the second year in a row that one of our staff was awarded this medal and Professor Winterbourn is the first woman to win this award.

New Zealand's top science prize the Rutherford medal was awarded to Professor Christine Winterbourn (University of Otago, Christchurch) in 2011.
- **Liley Medal**
  Associate Professor Chris Pemberton (University of Otago, Christchurch) was the recipient of the 2011 Liley Medal from the Health Research Council of New Zealand.

- **Royal Society Fellowships**
  Professor Gerald Tannock (Microbiology and Immunology) was elected to a Fellowship of the Royal Society of New Zealand in 2011. Three staff members received this honour in 2012: Professor Brett Delahunt (University of Otago, Wellington), Professor Frank Griffin (Microbiology and Immunology) and Professor Tony Kettle (University of Otago, Christchurch).

- **New Zealand Honours**
  *Companion of the New Zealand Order of Merit (CNZM)*
  Professor Warren Tate (Biochemistry) for services to science
  Professor Christine Winterbourn (University of Otago, Christchurch) for services to science

  *Officer of the New Zealand Order of Merit (ONZM)*
  Professor Michael Ardagh (University of Otago, Christchurch) for services to emergency medicine
  A/P David Lamb (University of Otago, Wellington) for services to health
  Professor Jean-Claude Theis (Dunedin School of Medicine) for services to medicine

  *Member of the New Zealand Order of Merit (MNZM)*
  Professor John Carter (University of Otago, Wellington) for services to medicine

- **James Cook Fellowships**
  Professor Greg Cook (Microbiology and Immunology) and Professor Lisa Matisoo-Smith (Anatomy) received prestigious James Cook Research Fellowships from the Royal Society of New Zealand in 2011 and 2012, respectively.
- **Rutherford Discovery Fellowships**
  A number of staff were awarded Rutherford Discovery Fellowships from the Royal Society of New Zealand. In 2012: Dr Peter Mace (Biochemistry) and Dr Tim Woodfield (Orthopaedics and Musculoskeletal Medicine, UOC). In 2011: Dr Peter Fineran (Microbiology and Immunology) and Dr Wayne Patrick (Biochemistry).

- **Distinguished Research Medal**
  In 2011, the University of Otago awarded its Distinguished Research Medal to Professor Allan Herbison of the Department of Physiology.

- **Rowheath Trust Award and Carl Smith Medal**
  Professor Lisa Stamp (Medicine UOC) was awarded the 2012 University of Otago’s Rowheath Trust Award and Carl Smith Medal. In 2011, Associate Professor Richard Troughton (Medicine UOC) received this award. This medal provides recognition for outstanding research performance by Early Career Staff.

- **University of Otago Early Career Awards:**
  All four University of Otago Early Career Awards went to Divisional researchers in 2012: Drs Sian Halcrow, Michael Knapp and Andrew Clarkson (all from the Department of Anatomy) and Associate Professor Haxby Aabort (Dunedin School of Medicine). In 2011, Dr Clare Strachan (Pharmacy), Dr Peter Fineran (Microbiology and Immunology) and Dr Shieak Tzeng (University of Otago, Wellington) received the awards.

- **Prime Minister’s Supreme Tertiary Teaching Award**
  Dr Rhiannon Braund from the School of Pharmacy received the Prime Minister’s Supreme Award for Tertiary Teaching Excellence in 2012.

- **L’Oreal For Women in Science Fellowship**
  Dr Suetonia Palmer (Medicine, University of Otago Christchurch) became the first New Zealander to win a L’Oreal For Women in Science Fellowship. This was awarded for achievements in improving the treatment of people with chronic kidney disease.
Harkness Fellowship
In 2011, Dr Sarah Derrett (Department of Preventive and Social Medicine) was a recipient of the Commonwealth Fund’s Harkness Fellowship in Health Care Policy and Practice.

Professor Greg Cook (Microbiology and Immunology) had a bacterium named after him in 2011. *Amphibacillus cookii* was so named by one of Professor Cook’s international colleagues to acknowledge his contributions to the microbiology and bioenergetics of extremophilic bacteria.

RESEARCH OUTCOMES

A child’s self-control predicts future health
The Dunedin Multidisciplinary Health and Development Study has revealed that young children’s self-control skills, such as conscientiousness, self-discipline and perseverance, predict their health, wealth and criminal history in later life, regardless of IQ or social background. The findings suggest that even small improvements in self-control for children and adolescents could yield important reductions in healthcare costs, welfare dependency and crime to the nation.

Trends in cancer survival and inequalities
The HRC funded Cancer Trends study based in the Department of Public Health, University of Otago, Wellington has shown that cancer survival is increasing in New Zealand but inequalities in survival remain between ethnic groups. The death rate among those diagnosed with cancer has reduced on average by 26% every decade since 1991. However, differences in survival rates between Māori and non-Māori have not decreased over time. A major current challenge for the health sector is how to promote even greater gains in survival for Māori so that the gaps close. This research will assist policy makers and health planners to accurately determine what future interventions will provide the highest benefit for the health dollar and, thus, better patient survival.

Encouraging news for heart patients
A study by the Christchurch Heart Institute has shown for the first time that inheriting gene variants that increase the risk of developing heart disease does not necessarily mean an individual is going to have a reduced life expectancy if he or she suffers a heart attack. However, those that carried the gene variants tended to develop heart disease at a younger age. The group is now undertaking a new project called the ‘The Family Heart Study’ examining specific genetic risk factors that contribute to early coronary heart disease in New Zealand – a crucial study given that heart disease is the leading cause of death in this country.

Cancer and the PAX8 gene
Professor Mike Eccles from the Dunedin School of Medicine has shown that PAX genes - members of a small family of genes that play important roles in embryonic development – also allow cancer cells to grow and divide in adult tissues. The use of molecular techniques to ‘silence’ the PAX8 gene in cancer cells halted cell division, leading to a state of senescence, and ultimately, cell death. The findings suggest that PAX8 could be a good target for the development of future cancer therapies.
Breastfeeding protects against asthma

A comprehensive six year study by the Departments of Paediatrics at the University of Otago in Christchurch and Wellington has shown that breastfeeding has a clear protective affect against children developing asthma or wheezing up to six years of age. Prior to the publication of these findings in 2011, there had been much debate over this issue in the literature. New Zealand has the second highest prevalence of asthma in the world, so these findings have significant health care implications.

Immunising against pneumococcal disease

Professor Philip Hill, Director of the University’s Centre for International Health has found that vaccinating young children in Africa against pneumococcus may help protect entire communities from the deadly infections this bacterium can cause. Randomised controlled trials involving 21 villages in Gambia showed that vaccinations in young children resulted in reduced nasal carriage of the bacterium under investigation, not only in vaccinated children, but also in older children and adults. Each year pneumococcal disease kills an estimated 800,000 children under five so this finding could be of immense benefit to third world nations.

Newborn infection study

Professor Brian Darlow and colleagues from the University of Otago, Christchurch have played a vital role in a world wide study investigating the usefulness of immune globulin treatment for infants with infections. Earlier research had suggested that immune globulin treatment reduced deaths, but the new study involving almost 3500 babies in nine countries has shown that this is not the case. Immune globulin is an expensive product derived from human blood with each treatment costing more then $1000. This finding has the potential to save the New Zealand health system $200,000 per annum on unnecessary treatments.

Reduced rates of campylobacter infection

Rates of campylobacter infection in New Zealand dropped by half following the introduction of nationwide interventions to reduce campylobacter contamination of fresh chicken meat. The tighter regulations were introduced in response to research carried out by Professor Michael Baker and colleagues from the Department of Public Health, University of Otago, Wellington. These researchers confirmed the link between contaminated chicken and the high rate of campylobacteriosis in this country, leading to savings of an estimated $60 million annually in productivity and health care costs.
Working towards new anti-inflammatory drugs
Professor Tony Kettle from the University of Otago, Christchurch has been working on the development of safe and effective drugs that target chlorine bleach, a toxic chemical produced during inflammation in many diseases. The research has been carried out in collaboration with the pharmaceutical company AstraZeneca. The successful development of new drugs to combat the painful condition of inflammation would benefit those suffering from conditions such as rheumatoid arthritis, cystic fibrosis and emphysema.

Silicone dressings for skin reactions following radiation therapy
Eighty per cent of women undergoing radiation therapy for breast cancer experience skin reactions as a result of the treatment. Clinical trials led by Dr Patries Herst from the University of Otago, Wellington have found that silicone-based Mepilex Lite dressings are more effective at decreasing painful skin reactions following radiation therapy than conventional treatments. It is hoped that these dressings will become part of a standard skin care regimen in radiation therapy departments throughout New Zealand in the near future.

EVENTS

Divisional Research Forum
The Division runs an annual Research Forum to showcase the cutting edge research being undertaken within its Schools. In 2011, the theme was ‘Innovation through Collaboration’ and in 2012 it was ‘Health Matters: Research Excellence at Otago. Over 100 researchers and students attend the Forum in any given year.

National Health Research Roadshows
The Division has been working with the University of Auckland to increase the profile of health research in New Zealand by running a series of roadshows at Parliament and in provincial centres. Roadshows highlighting cancer research were held at Parliament, Tauranga and Nelson in 2012. Future roadshows will feature women’s and children’s health and heart disease.

International Cancer Symposium
The University of Otago, Wellington hosted the inaugural International Cancer Symposium in February 2011. The week long Symposium attracted over 80 speakers from the USA, the United Kingdom, Australia and New Zealand including a number of staff from the renowned Mayo Clinic in the USA. Sessions covered lung, haematologic and gastrointestinal cancers, melanoma, palliative/end of life care, scientific advances and the controversial role of tobacco control in cancer prevention.

Queenstown Research Week
Divisional researchers were once again heavily involved in the organisation of the 2011 and 2012 Queenstown Research Week. They had major input into the Medical Sciences Congress, the Australasian Winter Conference on Brain Research and a number of the Queenstown Molecular Biology Satellite Meetings including QMB Genetics and QMB Cancer Biology. Queenstown Research week is one of the largest annual conferences in New Zealand with over 700 delegates attending.
APPOINTMENTS

~ A leading Belgian neurosurgeon and brain researcher, Professor Dirk De Ridder, was appointed as the inaugural Neurological Foundation Professor of Neurosurgery within the Department of Surgical Sciences DSM in 2012. Professor De Ridder will spend half of his time as a neurosurgeon at Dunedin Hospital and the other half undertaking research and teaching. Mr Reuben Johnson was also recruited to the department as a Senior Lecturer and a consultant at Dunedin Hospital. The two appointments are an invaluable addition to the Division’s existing body of world-leading researchers working in the neurosciences.

~ In 2011, Professor John Crump was appointed as the McKinlay Professor of Global Health within the Centre for International Health, Department of Preventive and Social Medicine. Professor Crump has a distinguished international reputation for his work on infectious diseases in Africa, where he headed a research centre in Tanzania in collaboration with Duke University and where he also served as a medical epidemiologist with the CDC.

Professor John Crump was appointed as the McKinlay Professor of Global Health within the Centre for International Health in 2011.

~ Professor John McMillan was appointed in 2012 as the new Director of the Bioethics Centre. Professor McMillan’s research interests are prioritising health care, research ethics, the philosophy and ethics of mental health, and methodology in applied ethics. Prior to this appointment he was an Associate Professor in Ethics, Law and Professionalism at the Flinders School of Medicine in Australia.
EQUIPMENT AND FACILITIES

- **PC3 Facility**
  The Division installed a PC3 laboratory on the roof of the Microbiology and Immunology building in 2011. The facility represents a significant advance as it now enables researchers to work directly on important human disease causing infections and pathogens. It will facilitate work in virology, tuberculosis, and other pathogens being studied throughout the University.

- **Cryo-Transmission Electron Microscope**
  The Department of Anatomy has purchased a new cryo-transmission electron microscope with electron tomography capability. It will be installed in the Otago Centre for Electron Microscopy mid-2013. The new microscope is a JEOL JEM-2200FS cryo-transmission electron microscope, costing just over $2 million. The purchase represents a significant leap forward in ultrastructural capability within the Division.

SCHOLARSHIPS AND FELLOWSHIPS

- The Division hosts a number of very successful Summer Research Scholarship programmes - 233 students undertook summer research projects within the Division in 2011/12 and 214 in the summer of 2012/13.

- The Division awarded nine Career Development Postdoctoral Fellowships during 2011/12. These Fellowships are intended to support outstanding graduates to gain further experience in their chosen fields and to establish themselves as independent researchers.

- **William Evans Fellowships**
  The Division hosted ten international researchers on William Evans Fellowships during 2011-12.
COMMERCIALISATION AND ENGAGEMENT WITH INDUSTRY

The Division actively promotes staff participation in applied research and encourages entrepreneurial activity. In 2011, an Associate Dean Commercialisation, Professor Ian Tucker from the School of Pharmacy, was appointed to lead Divisional activities in this area.

Since his appointment, Professor Tucker has facilitated a clarification of the University’s promotion criteria, so that successful delivery in the commercialisation space is now explicitly rewarded in promotion rounds. In addition, he is working closely with Otago Innovation and the University’s Research and Enterprise Office to provide training and mentorship for those staff interested in engaging with industry or commercialising their research findings.

During 2011-12, eight international patents arising from Divisional research were filed in the areas of heart disease, neuroscience, fertility, and wound healing among others.

Staff have also been very successful at attracting applied funding from the Ministry of Business Innovation and Employment (MBIE), including over $12.6 million in programme and smart ideas funding during 2011-12. A number of staff have been the primary research agents on MBIE’s Technology Transfer Vouchers, which are awarded directly to companies to work with Universities on their innovation and business ideas.

Dr Greg Walker from the School of Pharmacy won the University of Otago’s 2012 Innovation Proof of Concept Award for his invention of a prototype medical device which tackles the problem of serious complications of post-surgery bleeding. In 2011, Dr Don Schwass from the School of Dentistry and Dr Carla Meledandri (Chemistry) won the award for their research into the development of silver nanoparticle-based materials for treating dental caries.

Dr Don Schwass (Dentistry) and Dr Carla Meledandri (Chemistry) were the 2011 recipients of the Otago Proof of Concept Award.
RESEARCH CENTRES AND THEMES

Research Centres and Themes are areas of research and/or collaborative groups of researchers in which the University of Otago is pre-eminent and to which it gives particular recognition and support. Researchers within the Division of Health Sciences are leaders of a significant number of the University’s Research Themes and Centres. These are detailed below.

RESEARCH CENTRES

CENTRE FOR NEUROENDOCRINOLOGY
Director: Professor Allan Herbison, Department of Physiology, OSMS
Website: www.otago.ac.nz/neuroendocrinology

The Centre for Neuroendocrinology (CNE) is a world-leading research centre for understanding how the brain controls hormone levels in the blood and how these hormones act back to influence brain function. It has more than 70 members and nine principal investigators; four from the Department of Anatomy; four from the Department of Physiology and one from Obstetrics and Gynaecology, University of Otago, Christchurch. The centre represents the largest cluster of neuroendocrinology researchers in the Southern Hemisphere.

CNE research leads the world in understanding the brain control of reproduction, ranging from fertility to pregnancy to lactation. Research programmes also examine neuroendocrine stress responses and the brain control of fluid balance. A wide range of cutting-edge neuroscience methodologies are utilised, ranging from molecular biology and transgenics to electrophysiological, morphological, cell imaging and \textit{in vivo} approaches.

CENTRE FOR TRANSLATIONAL CANCER RESEARCH
Director: Professor Parry Guilford, Department of Biochemistry, OSMS
Website: www.ctcr.otago.ac.nz

The Centre for Translational Cancer Research (CTCR) combines major University of Otago research groups in cancer genetics and cancer immunology with leading oncologists and surgeons. It currently consists of over 20 senior scientists and clinicians from the University who cover most fundamental and clinical areas of cancer research. The Centre’s mission is to support and conduct cancer research with an emphasis on studies that can be expected to improve cancer treatment in a relatively short timeframe. CTCR projects range from drug development to immunotherapy and include diagnostic test design and personalised medicine. The latter includes the development of simple tests that can be used to select the best chemotherapy treatment for individual patients and other tests that predict an individual’s prognosis and the risk of treatment side-effects.

CHRISTCHURCH HEART INSTITUTE
Director: Professor Mark Richards, Department of Medicine, University of Otago, Christchurch
Website: www.otago.ac.nz/christchurch/research/cardioendocrine

The Christchurch Heart Institute (formerly the Christchurch Cardioendocrine Research Centre) is New Zealand’s pre-eminent cardiovascular research centre. The Institute is at the international forefront of cutting edge advances in the diagnosis, prediction and treatment of serious cardiovascular disease; from bench to bedside to community. The Centre’s focus has been the exploration of diagnostic, prognostic and therapeutic innovation in common and dangerous cardiovascular diseases including acute coronary syndromes, heart failure and hypertension. The institute is best known for its longstanding leadership in the field of cardiovascular neurohormonal control. One example of its world-leading work is the development of a blood test to diagnose and monitor heart failure. This test now saves the lives of hundreds of thousands of people each year.

EDGAR NATIONAL CENTRE FOR DIABETES AND OBESITY RESEARCH
Directors: Professor Jim Mann, Associate Professor Rachael Taylor, Department of Medicine, DSM
Website: www.otago.ac.nz/diabetes

The Edgar National Centre for Diabetes and Obesity Research (ENCDO) aims to find effective solutions for two major national health problems that are also global health challenges; obesity and diabetes. ENCODR’S purpose is to promote collaborative cutting edge research both nationally and internationally and involves a range of disciplines, including nutrition, epidemiology, Māori health, biostatistics, public health, paediatrics, microbiology, genetics and biochemistry. Projects range from investigation of genetic profiling which might enable the identification of individuals more likely to benefit from interventions, to exploration of how policy and food marketing shape our behaviour, to the public health and economic impact of different innovative approaches to manage weight and diabetes risk at all stages of life from birth to the elderly.
GENETICS OTAGO
Director: Associate Professor Peter Dearden, Biochemistry, OSMS
Website: www.otago.ac.nz/genetics

Genetics Otago aims to connect with the public, media and policy makers to improve the understanding of genetics: to provide a hub where genetics is demystified; where user-friendly information, teaching resources and comments from world-class geneticists can be easily accessed, all the while supporting its members’ collaborative research projects. The Centre’s multi-disciplinary platform of research is enormous, ranging across sciences, health sciences, humanities, law and ethics. Key areas of strength are human disease; developmental, microbial, and evolutionary genetics; law; epigenetics; anthropology; conservation; environment; applied genetics in animal and plant breeding; and bioinformatics. With more than 180 active members across multiple disciplines, Genetics Otago’s core strength is primarily based within the University but also includes members from AgResearch (Invermay) and commercial genetics-based companies in New Zealand.

NATIONAL CENTRE FOR LIFECOURSE RESEARCH
Directors: Professor Richie Poulton, Dunedin Multidisciplinary Health and Development Research Unit, DSM; Professor David Fergusson, Christchurch Health and Development Study, University of Otago, Christchurch
Website: www.lifecourse.ac.nz

The National Centre for Lifecourse Research (NCLR) conducts and applies high-quality lifecourse research that informs policy and practice to improve the lives of New Zealanders. Headquartered at the University of Otago, the NCLR is an umbrella for research collaborations between six of New Zealand’s eight universities and one Crown Research Institute. Internal partners include the Dunedin Multidisciplinary Health and Development Research Unit; the Christchurch Health and Development Study; and the Centre for Research on Children and Families. External partners include research groups from AUT, Victoria, Massey, Waikato, and Auckland universities and Environmental Science & Research (ESR), Christchurch. The partners have a long history of conducting lifecourse research of two main types: (i) etiological-developmental research aimed at informing policy and practice (e.g. New Zealand’s two international renowned longitudinal studies); and (ii) intervention research, including running and evaluating new interventions in the community.

NEW ZEALAND CENTRE FOR SUSTAINABLE CITIES
Director: Professor Philippa Howden-Chapman, Department of Public Health, University of Otago, Wellington
Website: http://sustainablecities.org.nz

The New Zealand Centre for Sustainable Cities is an inter-disciplinary research centre dedicated to providing the research base for innovative system solutions to the economic, social, environmental and cultural development of our cities. The health and well-being of most of our population (87% of New Zealanders live in cities) is reliant on developing environments that take into account the connections between housing, transport, energy, urban form, health and governance and other issues. Centre partners include Auckland, Massey, Victoria, and Canterbury Universities and NIWA. The Centre aims to work in local, regional and national partnerships to develop the tools to promote well-being and health through smarter economic development, safer and more sustainable housing, transport and energy systems, and enhanced urban design.

SIR JOHN WALSH RESEARCH INSTITUTE FOR ORAL HEALTH
Director: Professor Jules Kieser, Faculty of Dentistry
Website: http://dentistry.otago.ac.nz/research/sjwri

The Sir John Walsh Research Institute advances research and increases knowledge for the improvement of oral health in New Zealand. Its four innovative, future-focused, inter-connected research programmes cover the spectrum of oral health research from the molecular level through biological systems to the health of populations. These programmes are: Biomechanics and Oral Implantology; Dental Epidemiology and Public Health; Molecular Microbiology; and Oral Molecular and Immunopathology. The Institute is part of New Zealand’s only Faculty of Dentistry and its members have well-established productive collaborations across the University and with other institutions in New Zealand and world-wide. Among its research objectives is the development of clinical research that translates discoveries into measurable health improvements, and to maintain fundamental research that underpins teaching.
WEBSTER CENTRE FOR INFECTIOUS DISEASES
Director: Professor Kurt Krause, Department of Biochemistry, OSMS
Website: http://webstercentre.otago.ac.nz

The Webster Centre for Infectious Disease works to bring New Zealand scientists together to address important problems in infectious diseases in New Zealand. Based in Dunedin, the Centre has engaged more than 60 experts in both human and animal diseases from four universities and key Crown Research Institutes, including AgResearch, ESR and IRL. Previously focused on molecular-based projects, the Centre has now expanded its mission to include clinical and population health research as part of its core activities. As a result, the Centre now includes leaders in basic, clinical and epidemiological research. Among the many aspects of infectious diseases that the Centre investigates are bacterial drug resistance and evolution, antimicrobial design, viral pathogenesis, genetics of disease susceptibility, vaccine design, immunology and host susceptibility, diagnostics and clinical infectious diseases, and public health.

BRAIN HEALTH RESEARCH CENTRE
Director: Professor Cliff Abraham, Department of Psychology
Website: www.otago.ac.nz/bhrc

Although the Brain Health Research Centre (BHRC) is not led by a member of the Division of Health Sciences, Divisional staff have significant input into the Centre. The BHRC encompasses over 40 different research groups and clinicians dedicated to producing cutting edge international research into the workings of the brain. Translating neuroscience discoveries into real treatments for those suffering from neurological disorders is a top priority for the BHRC. Researchers and clinicians are involved with all stages of research on the brain from puzzling out the basic mechanisms of how the brain works to finding treatments that harness the brain's restorative potential, and testing of innovative therapies. Using a broad range of expertise, staff are working toward a better understanding of neurological disorders including Alzheimer's and Parkinson's diseases, stroke, epilepsy, tinnitus and motor neuron disease.

RESEARCH THEMES

ARTHRITIS RESEARCH THEME
Director: Professor Lisa Stamp, Department of Medicine, University of Otago, Christchurch
Website: www.otago.ac.nz/christchurch/research/arthritis

The arthritis research theme is a multidisciplinary group of researchers with an interest in arthritis research. Doctors treating patients with arthritis face a number of clinical challenges. These include:

• identifying patients at risk of developing arthritis
• determining which people with arthritis are likely to have more severe disease and future disability
• individualising treatment and medication to provide the best options for arthritis patients.

The aims of the Arthritis Research Theme are to strengthen research into arthritis within the University of Otago by encouraging laboratory and clinical research into the many different forms of this condition, and to increase the profile of arthritis and arthritis research within New Zealand.

ASPIRE 2025: RESEARCH FOR A TOBACCO FREE AOTEAROA
Director: Professor Richard Edwards, Department of Public Health, University of Otago, Wellington
Website: http://aspire2025.org.nz

Aspire 2025 is a partnership between major New Zealand research groups carrying out research to help achieve the Government’s goal of a tobacco-free Aotearoa by 2025. It brings together leading tobacco-free researchers and health service groups in New Zealand and strengthens existing collaborations. Areas of research encompass all the main aspects of tobacco control activity including smoking cessation support, policy and regulatory research, smoking among young people, smokefree communications, Máori health and tobacco use, Pasifika tobacco use, and research capacity development. Theme members make use of a translational approach which links the findings from clinical trials, experimental and observational studies, qualitative approaches with end-users of research, to ensure work contributes directly to reductions in smoking prevalence.
COMPARATIVE AND CROSS CULTURAL STUDIES
**Directors:** Associate Professor Jing Bao-Nie, Bioethics Centre; Dr Jacob Edmond, Department of English; Associate Professor Takashi Shogimen, Department of History and Art History
**Website:** [www.otago.ac.nz/research/centres/otago033698.html](http://www.otago.ac.nz/research/centres/otago033698.html)

The research theme will develop innovative cross-disciplinary approaches to comparative and cross-cultural studies, and offer an institutional nest to conduct and promote cutting-edge interdisciplinary research in the area. It aims to position the University of Otago as an international leader in comparative and cross-cultural studies.

Our current age of globalisation is distinguished by the scale and frequency of its interactions among different cultures. Today countries such as New Zealand and universities such as Otago must respond to increasingly diverse cultural perspectives, including in its approaches to research. This Theme responds to that need. The central goal is to search for innovative methodological and theoretical approaches to cross-cultural and comparative studies. A group of Otago staff members and postgraduate students and leading international scholars in disciplines including anthropology, music, literature, history, art history and theory, philosophy, psychology, theatre studies, medicine, bioethics and other academic discipline will collaborate in this exploration.

FORMULATION AND DELIVERY OF BIOACTIVES
**Director:** Professor Ian Tucker, School of Pharmacy

Bioactive materials such as drugs, vaccine antigens, pesticides and nutrients cannot be administered in pure form but must be incorporated into biocompatible formulations which maintain the stability of the bioactive material and deliver it in a suitable way to achieve optimal beneficial effects while minimising unwanted side effects. Thus, the science of formulation and drug delivery has human, veterinary and agricultural applications. It combines physical chemistry, biology and materials science to investigate physico-chemical properties of bioactives, excipients and formulations and behaviours of bioactives and formulations in the biological environment in order to develop an underpinning science.

This science is the basis for design and manufacture of delivery systems with predictable behaviours. Work includes: chemical and physical stability of drugs; pharmaceutics of the solid state; colloidal systems for delivery of drugs and antigens; absorption of bioactives across biological membranes. These projects have fundamental, applied and developmental aspects.

FULL CIRCLE: MĀORI AND PACIFIC GENETICS OF HEALTH
**Director:** Associate Professor Tony Merriman, Department of Biochemistry, OSMS

The sequencing of the human genome in 2001 initiated a decade of rapid advance in understanding the impact of genetic variation in the human genome on human disease. This, and the advent of new ‘next generation sequencing’ technologies that enable identification of all variation in individual genomes, ensures that genetic approaches to human diseases will continue to be prominent in health research.

Conducting Māori- and Pacific-focused research requires consultation and on-going engagement with specific communities and organisations. All aspects of research from initiating and conducting the research through to dissemination and translation of the results must be undertaken in a manner consistent with cultural values and protocols. This represents unique challenges. Appropriate processes need to be put in place to enable genomic scientists to fulfill obligations to Māori and Pacific communities, and to assist their engagement with these communities. The growth of Māori and Pacific capability in genetics is required.

The focus of this theme is on the strengthening of research with Māori and Pacific communities (in New Zealand and the South Pacific) on the genetics of health.

GUT HEALTH NETWORK
**Director:** Associate Professor Michael Schultz, Medicine, DSM
**Website:** [www.guthealthnetwork.com](http://www.guthealthnetwork.com)

Recent research has suggested that the interaction of the bowel microflora with the intestinal immune system on a specific genetic background plays a much more significant role in disease than previously anticipated. Many diseases have their origin in the gut, not only inflammatory bowel diseases, but also certain rheumatological disorders, diabetes, obesity and potentially many others.

The Gut Health Network is an initiative of the University of Otago and brings together national and international experts from various fields and disciplines to collaboratively work on these health issues. Basic scientists in genetics, immunology, microbiology and physiology have teamed up with gastroenterologists, paediatricians, rheumatologists and surgeons in a truly bench to bedside approach.
HEALTH OF VETERANS, SERVING PERSONNEL AND THEIR FAMILIES
Director: Associate Professor David McBride, Department of Preventive and Social Medicine, DSM
Website: www.otago.ac.nz/veteranshealth

The theme is dedicated to producing high quality, interdisciplinary research focused on the health status and needs of veterans, serving personnel, and their families. It is the result of a joint effort between the New Zealand Ministry of Defence and the University of Otago.

The aim of the theme is to explore future ideas with the broadest possible grouping of researchers within the University, initially around the interface between civilian and military health, and post-conflict re-integration of service people back into their communities and families. In the longer term the theme intends to use the evolving platform of research activities to develop an argument for Government funding as the ANZAC centenary approaches.

Many significant anniversaries will occur in the period 2014-18, including the 100th Anniversary of the Battle of the Somme. The Australian National Commission for the ANZAC Centenary has recommended an Anzac Centre for the Study of Peace, Conflict and War. The research theme intends to engage with this centre.

THE KIDNEY IN HEALTH AND DISEASE
Director: Professor Rob Walker, Department of Medicine, DSM
Website: http://kidney.otago.ac.nz/

The vision of this theme is to expand the collaborative network for kidney research, linking an understanding of the molecular and cellular physiology of kidney function to the clinical application of therapies that prevent kidney injury or the progression of kidney disease. This knowledge will lead to more focused interventions that will reduce the rapidly increasing incidence of chronic kidney disease and the need for renal replacement therapy (dialysis and transplantation).

This theme involves researchers from the University’s medical schools in Christchurch and Dunedin and from departments in the wider University. Strong links have been established between the researchers and nephrology colleagues at District Health Boards throughout New Zealand, as well as with other research institutions nationally and internationally. The theme is now one of the leading renal research consortiums in the Southern Hemisphere.

OTAGO INTERNATIONAL HEALTH RESEARCH NETWORK
Directors: Professor Philip Hill and Professor John Crump, Department of Preventive and Social Medicine, DSM
Website: http://dnmeds.otago.ac.nz/departments/psm/research/international_hlth/network

The Otago International Health Research Network, which is hosted by the Centre for International Health, fosters and builds on collaborative links across the University to contribute to the understanding and improvement of health in under-resourced countries. The Network includes approximately 50 researchers and their students across the four divisions of the University. These researchers are conducting research across the world and are involved with major international health bodies such as WHO, CDC Atlanta and the Gates Foundation.

The major research goals of the Network are to:

- foster increased collaboration between researchers already doing health-related research in developing countries
- monitor international health funding opportunities
- facilitate the interaction between staff at the University of Otago and international health researchers from other countries by hosting pre-eminent international health researchers at the university for seminars and symposia
- identify new ways to develop the international health collaborations across the university

OXYGEN THEME
Director: Professor Tony Kettle: Department of Pathology, University of Otago, Christchurch
Website: www.otago.ac.nz/christchurch/research/freeradical

Free radicals are molecules that contain an unpaired electron. They are very reactive chemicals and are being made all the time inside our bodies via reactions with oxygen. Free radicals can cause damage, and we have antioxidants that provide protection. However, free radicals also play important roles in health, helping to fight infection and transmit signals.

Our mission is to discover what free radicals do inside the body, and how this knowledge can be used to measure and treat human diseases. Members of the theme are drawn from at least seven different departments, spread across three campuses, and include biochemists, clinicians and nutritionists. Our research is focused on diseases of both childhood and ageing, and antioxidants in health. It has potential applications to cancer, heart disease, arthritis, neurodegenerative diseases, cystic fibrosis, inflammatory bowel disease and infectious diseases.
RANGAHAU HAUROA MĀORI – MĀORI HEALTH RESEARCH

The Division has a strong focus on Māori health research, with dedicated Māori health research centres on all three campuses. Areas of research include mental health, heart disease, health inequalities, indigenous health workforce issues, Māori women’s and children’s health, oral health, gout, diabetes, and indigenous health in the medical curriculum.

Over the past two years the success of the Division’s Māori Health Workforce Development Unit has led to an increase in the number of Māori entering into the University of Otago's health sciences professional and degree programmes. The unit also provides support for successful degree completion and academic excellence, building the capability for these students to proceed into the professions and to undertake postgraduate study and research.

TE RŌPŪ RANGAHAU HAUROA MĀORI O NGĀI TAHU – NGĀI TAHU MĀORI HEALTH RESEARCH CENTRE

Dunedin School of Medicine
Website: www.otago.ac.nz/dsm/ngaitahu

The Ngai Tahu Māori Health Research Unit is a partnership between Te Runanga o Ngai Tahu and the Dunedin School of Medicine of the University of Otago. The Unit collects, collates, interprets and publishes information, data and statistics on Māori health issues - an essential part of Māori health development. The research focuses for the Unit are: hauora rangatahi (young people’s health); hauora wahine (Māori women’s health) and oranga niho (dental health).

The Unit has collaborative research projects with the Injury Prevention Research Unit and The Christchurch Health and Development Study. The Unit also assists other research groups with aspects of Māori health research that may be part of their respective projects.

A research highlight during 2011–12 was a project aimed at improving the oral health of Māori children by trialling an intervention in early childhood. This study was funded by an HRC grant of $2 million to Professor John Broughton who directs the Ngāi Tahu Māori Health Research Centre.

MĀORI AND INDIGENOUS HEALTH INSTITUTE (MIHI)

University of Otago, Christchurch
Website: www.otago.ac.nz/christchurch/research/mihi

MIHI has had extensive experience in researching within Māori communities. The Institute conducts research that assists with an understanding of Māori health and works to develop strategies that promote Māori health gain. MIHI also has significant input into the medical curriculum. The Institute’s recent research activities include:

Educating for Equity
The MIHI teaching team have been piloting a number of different approaches to teaching Māori health content within the current teaching curriculum. This work has received funding from the Health Research Council.

Hauora Manawa/Heart Health: the Community Heart Study
An important ongoing study is the Māori Community Heart Study. This is a collaborative study with the Christchurch Cardiometabolic Research Group and is investigating the full range of cardiac risk factors for Māori within two community settings. The project is also identifying objective markers (biochemical and cardiac imaging) for monitoring cardiovascular disease risk in Māori, and will document the implementation of treatment programmes, interventions, barriers to care and outcomes for study participants.

Application of Meihana Model to Clinical Practice
This Ministry of Health funded project trialled the application of the Meihana Model to Clinical Practice within both a mental health setting and a Māori health provider setting. It explored how cultural confidence and clinical expertise can be fused to produce better clinical outcomes for Māori patients.

The place of indigenous health within a medical curriculum
This project formed the basis of a PhD project exploring the UOC site, and how indigenous health is placed and valued within the undergraduate medical curriculum. It involved interviews with students, staff, systemic stakeholders, Māori community stakeholders and Māori patients. It also explored indigenous health curriculum within five other medical schools (both nationally and internationally).
Te Rōpū Rangahau Hauora a Eru Pōmare strives to create a Kaupapa Māori space committed to improving Māori health outcomes and eliminating inequalities through quality science and ongoing theoretical development. It takes a rights-based approach consistent with the Treaty of Waitangi, and is engaged with community through a spectrum of influence from community development, policy advocacy, research dissemination and Māori health.

Recent research projects include:

- BreastScreen Aotearoa Māori Monitoring
- Educating for Equity (E4E)
- E Hine – reducing barriers to care for pregnant Māori women under 20 years and their infants
- Mauri Mahi, Mauri Ora – long term health effects of redundancy and unemployment
- Oranga Waha – oral health research priorities for Māori
- Prisoner Health
- Racism as a determinant of health
- Rural Māori Health
- Seclusion of Māori in adult mental health services
- Unequal Impact: Māori and non-Māori cancer statistics
- Unequal Treatment – the role of health services
- Wahine Hauora – inequalities in uterine cancer

During 2011-12, two staff members received project funding from the HRC:

Associate Professor Beverley Lawton (Primary Health Care and General Practice). Diabetes: The impact of maternal care disparities on Māori mothers and infants. $1.192 million.

Dr Tristram Ingham (Medicine). Whiti Te Ra: The contribution of housing conditions to bronchiolitis disparities. $1.157 million.
SCHOOLS AND DEPARTMENTS

BIOETHICS CENTRE

Director of Centre: Professor John McMillan
Email: john.mcmillan@otago.ac.nz
Website: www.bioethics.otago.ac.nz

The wide range of research projects and activities of the Centre aims to examine the conventional and novel moral dilemmas arising from medical research, clinical settings, and advances brought about by life sciences and biotechnologies. Effort is focused on exploring previously rarely-chartered areas and innovative conceptual and methodological approaches. The Centre is committed to active engagements with social and public policy issues at local, national and international levels.

MAJOR AREAS OF RESEARCH STRENGTH

Neuroethics
The overlap between neuroscience and ethics creates problems involving neuroimaging and information use, moral aspects of personhood and brain changes that explain behaviour or affect a person’s identity, and the ethical importance of consciousness.

Reproductive ethics
Ethical considerations in the use of reproductive technologies, and ethical issues arising from social policy in the area of reproduction: IVF, surrogacy, pre-implantation genetic diagnosis, one-child policy in China.

Philosophy and mental health
Is there any such thing as mental disorder? If there is, what kind of thing is it? If coercion can sometimes be justified in psychiatry, what are the circumstances? Exploring the conceptual status of psychotic hallucinations and delusions, and whether psychiatry should be replaced by cognitive neuroscience.

Philosophy of medicine
The relationship between biomedical science and clinical practice, and whether diseases be regarded realistically, pragmatically or as social constructs. The status of complementary and alternative medicine. What role should evidence-based medicine have in medical decision making?

End of life
When should a human life be allowed to end, can a patient request aid in dying, is euthanasia permissible, are there states of living that are worse than death? Should it always be a patient’s choice as to how and when his or her death occurs?

Cross-cultural ethics
Māori perspectives on genetic biotechnologies and health care, the nature of indigenous knowledge, medical ethics in China, Confucian and Daoist perspectives on bioethics, Chinese voices on abortion, the ideology and ethics of China’s birth control program, the ethics of population engineering in the east and west, Japan’s wartime medical atrocities and international aftermath, the search for a transcultural bioethics.

EXTERNAL GRANTS AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
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<tr>
<td>2012</td>
<td>A/P Jing-Bao Nie</td>
<td>Patient-physician trust and mistrust in China</td>
<td>Harvard China Fund</td>
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* GST exclusive

POSTGRADUATE STUDENTS

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<tr>
<td>Masters†</td>
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† thesis or dissertation students only

AWARDS AND HONOURS

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<th>Year</th>
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<th>Award</th>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Simon Walker</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
</tbody>
</table>
FACULTY OF DENTISTRY

SIR JOHN WALSH RESEARCH INSTITUTE

Director: Professor Jules Kieser
Email: jules.kieser@otago.ac.nz
Website: http://dentistry.otago.ac.nz/research/sjwri/index.html

The Sir John Walsh Research Institute (SJWRI) within the Faculty of Dentistry provides a focus for dental research within the University and also within New Zealand. Research carried out in the Institute underpins the teaching of dentistry, its clinical practice, and the identification of oral health related problems. The Institute draws together the research strengths within the three departments within the Faculty and groups these into five major research themes:

- Biomechanics and oral implantology
- Dental epidemiology and public health
- Education research
- Molecular microbiology
- Oral molecular and immunopathology

The SJWRI hosts a large number of postgraduate students undertaking the following qualifications:

<table>
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<th>Qualification</th>
<th>Total Head Count</th>
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<tr>
<td>Masters†</td>
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</table>

† thesis or dissertation students only

DEPARTMENT OF ORAL DIAGNOSTIC AND SURGICAL SCIENCES

Head of Department: Professor Robert Love
Email: robert.love@otago.ac.nz
Website: http://dentistry.otago.ac.nz/departments/odss.html

The Department of Oral Diagnostic and Surgical Sciences is organised into the disciplines of Oral and Maxillofacial Surgery, Oral Medicine, Oral Radiography, Oral Pathology, Special Needs Dentistry, Clinical Pharmacology and Sedation, and General Dental Practice. The main areas of research in the department are:

- oral diseases and healing with particular interest in human and experimental epithelial hyperplasia, preneoplasia and neoplasia (that may lead to oral cancers)
- endodontic microbiology and the molecular mechanisms involved in bacterial invasion of dentine
- the development of endodontic medicinal agents for root canal disinfection and their effects on bacteria and tissues culture
- clinical research in endodontics, dental implantology, oral and maxillofacial surgery, trauma, and prosthodontics.

MAJOR AREAS OF RESEARCH STRENGTH

Endodontic microbiology

The study and practice of endodontics is aimed at preventing and treating pulp and periapical disease. An understanding of the mechanisms of bacterial invasion of dentine and the root canal system is central to these aims. Bacterial infection of dentine has been recognised for over a century, but only recently has this research group identified the mechanisms involved in colonisation. This should lead to novel prophylactic and control treatments. Endodontic microbiological research has focused on the effect of nutritional stress on bacterial invasion of dentine, and identified that colonisation of dentinal tubules is dependent on an ideal nutritional environment, with nutritionally stressed bacterial cells losing their ability to invade.

Oral and maxillofacial surgery

The discipline of Oral and Maxillofacial Surgery has a strong clinical research focus and is involved with collaborative research within the department, Faculty and externally. Particular areas of research interest include epidemiological studies of maxillofacial injuries, oral and maxillofacial pathology and general practitioner experiences in dealing with maxillofacial trauma. Clinical trials involving patients are also part of a wider research focus and current studies continue to progress which include third molar surgery, post-operative analgesics and dental implantology. A series of evidence based systematic reviews of selected aspects of maxillofacial trauma management is being developed. Expertise in ballistic and war injuries to the maxillofacial region has grown in the department leading to a device being patented in the period.

Associate Professor Darryl Tong of the Faculty of Dentistry is an oral and maxillofacial surgeon and a member of the military, a combination that has enabled him to develop expertise in the area of ballistic and war injuries to the face.
Oral pathology
Research interests in oral pathology involve immunohistochemical and PCR studies looking at the expression of various inflammatory processes in oral inflammatory lesions (e.g. periapical pathology, mucosal lichen planus) and oral malignancy (squamous cell carcinoma) in order to better understand the pathological processes involved. Investigation of expression of putative odontogenic-specific markers in odontogenic tumours and cysts is another research thread. We have recently begun a collaborative study with other groups within the University exploring the use of saliva as a diagnostic medium for the detection of human papilloma viruses. Epidemiological studies on pathology of the soft and hard tissues of the oral cavity and related structures show that the prevalence and distribution of oral pathological lesions in the New Zealand population is comparable to similar developed countries. A new focus on the linkages between oral health and autoimmune disease is being developed.

EXTERNAL GRANTS >$10,000 AWARDED 2011-2012

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<td>2012</td>
<td>Prof Alison Rich</td>
<td>Do multifaceted admission processes predict performance of students in two Australasian dental programmes?</td>
<td>Undergraduate Medicine and Health Sciences Test (UMAT) Board</td>
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<td>The role of Candida albicans in the clinicopathological behaviour of potentially malignant oral disorders</td>
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<td>Endoplasmic reticulum stress and unfolded protein response in the pathogenesis of oral squamous cell carcinoma</td>
<td>New Zealand Dental Association Research Foundation</td>
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<td>2012</td>
<td>Prof Alison Rich</td>
<td>How does submersion in a seawater environment affect the retrieval of useful DNA from teeth?</td>
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<td>2012</td>
<td>Prof Alison Rich</td>
<td>Characterization of Th17 cells in oral mucosal lichen planus using immunohistochemistry, immunofluorescence and real-time reverse transcriptase polymerase chain reaction</td>
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* GST exclusive

COMMERCIAL CONTRACTS

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Total 4,000

POSTGRADUATE STUDENTS

See the section on the SJWRI above for details of postgraduate student numbers.

AWARDS AND HONOURS

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<th>Year</th>
<th>Recipient</th>
<th>Award</th>
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<tbody>
<tr>
<td>2011</td>
<td>Professor Alison Rich</td>
<td>Researcher of the Year Award, Sir John Walsh Research Institute, University of Otago</td>
</tr>
</tbody>
</table>
Research undertaken within the Department of Oral Rehabilitation covers a diverse range of topics related to dental education research, clinical cariology, endodontics, biomaterials, prosthodontics and dental technology. More specifically, research is directed at the prevention and treatment of dental disease, the repair and replacement of teeth and their associate structures affected by disease, trauma or wear, the restoration of form, function and appearance, mechanical testing and computer modelling of the behaviour of dental tissues and biomaterials.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Oral biomechanics and biomaterials**

Investigations focus on a range of mechanically mediated responses of dental materials and biological tissues, ranging from the influence of mechanical forces on the stresses developed in the mandible to the stresses and failure mechanics of restorations. This research has significant bearing on the design longevity and anticipated failure of implant-supported structures. Major inroads have been made into the understanding of the stresses developed in craniofacial structures as a consequence of biting forces. The use of CT-based images and computer modelling has enabled researchers to predict the mechanics of failure of complex dental restorative systems. This will lead to a more rational design and selection of materials for tooth restorations.

**Oral implantology**

Clinical and laboratory-based research relating to implant dentures and single-tooth implants is conducted. The aim is to improve the oral health-related quality of life of the ageing population. The Department’s evidence-based treatment approach of reducing the delay between oral implant placement and loading with the prosthesis is internationally recognised. Current research aims to identify and quantify the pre-load stress developed on the peri-implant bone and prosthetic framework as a result of misfit using a recently developed mandible replica.

**Oral public health**

There is a growing research focus in this area with an emphasis on caries prevention.

**EXTERNAL GRANTS > $10,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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</tr>
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<tbody>
<tr>
<td>2011</td>
<td>Dr Lyndie Foster</td>
<td>A novel approach to caries management in New Zealand children</td>
<td>Health Research Council of New Zealand</td>
<td>146,826</td>
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<tr>
<td>2011</td>
<td>Dr Lyndie Foster</td>
<td>A novel approach to caries management in children by resin infiltration</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>54,587</td>
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<td>2011</td>
<td>Dr Lihong He</td>
<td>Development of multispectral imaging based dental diagnostic devices</td>
<td>Maurice and Phyllis Paykel Trust</td>
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* GST exclusive

**COMMERCIAL CONTRACTS**

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<tr>
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<tr>
<td></td>
<td>DMG Dental Materials Gesellschaft</td>
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</table>

**POSTGRADUATE STUDENTS**

See the section on the SJWRI above for details of postgraduate student numbers.
DEPARTMENT OF ORAL SCIENCES

Head of Department: Professor Richard Cannon.
Email: richard.cannon@otago.ac.nz
Website: http://dentistry.otago.ac.nz/departments/oralsciences.html

Research conducted within the Department includes molecular microbiology, oral immunology, oral biology, dental anthropology, tissue regeneration, craniofacial growth, implantology, clinical dentistry, public health dentistry and education research.

MAJOR AREAS OF RESEARCH STRENGTH

Dental epidemiology and public health
The Dental Epidemiology and Public Health Group investigates the oral health of populations, with particular attention given to the natural history of dental disease and health through childhood, adolescence and adulthood. Collaborations with two world-renowned projects are ongoing - the Dunedin Multidisciplinary Health and Development Study (a prospective observational study of a cohort of New Zealanders born in 1972-73) and the South Australian Dental Longitudinal Study (a prospective observational study of a cohort of older South Australians).

Forensic dentistry
Areas of research interest include: the biomechanics of wounding; marine decomposition; and bite marks and personal identification. A key recent project has involved the bacteriological fingerprinting of bite marks, where the unique streptococcal bacteria transferred by a bite may be used to identify offenders in sex crimes or child abuse. Another project of note is the development of various models which reliably replicate blunt trauma impact events. An interdivisional research project has been launched which is aimed at the admissibility of expert forensic evidence. The team consists of dental researchers and others from the Faculty of Law, the School of Pharmacy, and the Dunedin School of Medicine.

Molecular microbiology
This research aims to study the microorganisms responsible for a range of oral diseases, to understand how the diseases are caused, and to devise strategies to prevent them. Investigations are underway into how periodontal bacteria acquire the haem they require for growth, as preventing this access may help prevent periodontal disease, and how bacteria colonise and invade dentinal tubules, which can lead to endodontic infections. DNA sequencing technology is being used to analyse the ‘metagenome’ associated with oral health and periodontal disease. Additional major areas of research include microbial adhesion and oral fungi that cause mucosal and systemic infections, antifungal drug resistance and antifungal drug discovery.

Oral immunopathology
The main objective of this group is to explore the cellular and molecular basis of oral diseases, so as to improve their diagnosis and treatment. Three major themes include: (i) periodontal diseases, (ii) oral mucosal disease including oral squamous cell carcinoma, and (iii) tissue regeneration through the use of induced pluripotent stem cells. In terms of periodontal disease the focus is on using the peripheral blood and salivary transcriptomes in the determination of susceptibility, the use of metagenomics to determine the oral microbiota and epigenetics to determine the influence of environmental factors such as smoking. The relationship with systemic diseases is also being investigated, as are the immunopathological mechanisms underpinning oral mucosal disease. In collaboration with the University of Queensland, the group is conducting a five-year longitudinal clinical study on the relationship between periodontal and cardiovascular diseases. This study has attracted over $3 million in funding in recent years.
## EXTERNAL GRANTS > $10,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
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<td>2011</td>
<td>Prof Murray Thomson</td>
<td>A research project to improve oral health self-care outcomes for at-risk adults</td>
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<td>2011</td>
<td>Alison Meldrum</td>
<td>The interaction styles of dental therapists in the Southern District Health Board area: Do their interaction styles change if they are trained in the Motivational Interviewing Approach?</td>
<td>New Zealand Dental Association Research Foundation</td>
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<td>2012</td>
<td>Dr Nicholas Heng</td>
<td>Oral bacterial profiling of children before and after comprehensive restorative treatment for severe early childhood caries</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>23,477</td>
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<td>2011</td>
<td>A/P Mary Cullinan</td>
<td>Bisphosphonate related osteonecrosis of the jaw (BRONJ) and the role of osteoblasts</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>22,211</td>
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<tr>
<td>2011</td>
<td>Prof Richard Cannon</td>
<td>Pilot study for anti fungal drug discovery</td>
<td>Otago Innovation Limited</td>
<td>17,052</td>
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<td>2011</td>
<td>A/P Warwick Duncan</td>
<td>Electrospun cottonwool-like nanocomposites for alveolar ridge preservation: An experimental study in sheep</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>15,000</td>
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<td>2011</td>
<td>Prof Mauro Farella</td>
<td>Continuous measurement of salivary pH using a novel indwelling wireless intraoral pH telemetry</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>15,000</td>
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<td>2012</td>
<td>A/P Warwick Duncan</td>
<td>UMF manuka honey as a subgingival delivery device in the treatment of chronic periodontitis</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>15,000</td>
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<td>2011</td>
<td>Dr Dawn Coates</td>
<td>VEGF-A, RHOB and BMP-2 gene expression regulation in bisphosphonate treated human gingival fibroblasts</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>14,982</td>
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<td>2011</td>
<td>Prof Richard Cannon</td>
<td>Image analysis for dental research</td>
<td>New Zealand Dental Association Research Foundation</td>
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<td>2012</td>
<td>A/P Warwick Duncan</td>
<td>Could surface modification of titanium-zirconium alloy by anodisation improve osseointegration?</td>
<td>Wishbone Trust</td>
<td>14,560</td>
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<td>2012</td>
<td>Dr Trudy Milne</td>
<td>DNA methylation status of osteogenic and angiogenic genes in gingival tissues of smokers and non-smokers</td>
<td>New Zealand Dental Association Research Foundation</td>
<td>14,028</td>
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<tr>
<td>2011</td>
<td>Dr Dawn Coates</td>
<td>Bisphosphonate related osteonecrosis of the jaw (BRONJ) and the role of osteoblasts</td>
<td>New Zealand Lottery Grants Board</td>
<td>13,467</td>
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<td>2011</td>
<td>Prof Richard Cannon</td>
<td>Assessment of anti fungal compounds for target interaction and being efflux pump substrates</td>
<td>Otago Innovation Limited</td>
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* GST exclusive
COMMERCIAL CONTRACTS

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<td>CBG Health Research Limited</td>
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<td>DENTSPLY Australia Pty Ltd</td>
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<td>Downie Stewart</td>
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<td>Ministry of Health</td>
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<td></td>
<td>Southern Implants (Pty) Ltd (South Africa)</td>
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<td></td>
<td>University of Canterbury</td>
</tr>
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<td></td>
<td>University of Zurich</td>
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<td>Total 377,635</td>
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</table>

POSTGRADUATE STUDENTS

See above for details of postgraduate student numbers.

AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Dr Masakazu Niimi</td>
<td>Poster prize, 18th Congress, International Society for Human and Animal Mycology, Berlin, Germany</td>
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<td>2012</td>
<td>Darnell Kennedy</td>
<td>First Place, Education Sector, Australian Police Journal Awards (PhD student)</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Richard Cannon</td>
<td>Alan Docking Science Award, Australia/New Zealand Division of the International Association for Dental Research</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Bernadette Drummond</td>
<td>Honorary Fellowship, Royal Australasian College of Dental Surgeons</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Richard Cannon</td>
<td>Sir John Walsh Research Award, Sir John Walsh Research Institute, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Mary Cullinan</td>
<td>Student Research Mentor Award, Sir John Walsh Research Institute, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Warwick Duncan</td>
<td>Clinical Research Award, Sir John Walsh Research Institute, University of Otago</td>
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<tr>
<td>2011</td>
<td>Dr Ann Holmes</td>
<td>Student Research Support Award, Sir John Walsh Research Institute, University of Otago</td>
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<tr>
<td>2011</td>
<td>Dr Kate Morgaine</td>
<td>Student Research Mentor Award, Sir John Walsh Research Institute, University of Otago</td>
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<tr>
<td>2011</td>
<td>Dr Kyoko Niimi</td>
<td>Basic Science Research Award, Sir John Walsh Research Institute, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>Grace Lee</td>
<td>First prize in the Hatton Poster Awards at the International Association for Dental Research General Session, San Diego (BDS student)</td>
</tr>
</tbody>
</table>
Research activity within the Department of Anatomy covers a wide range of topics including: neuroscience, reproductive biology, developmental biology, clinical and functional anatomy, biological anthropology, and cell biology.

The Department boasts a number of first-rate research facilities including gene sequencers, light microscopy facilities (including a laser capture micro-dissection system and a Zeiss inverted microscope), X-ray and ultrasound, dedicated image analysis suites, a plastination laboratory, and an extensive human skeletal remains collection. The Department also houses the Otago Centres for Electron Microscopy and Confocal Microscopy.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Neuroscience**

The Neuroscience Research Group embraces a number of different research strengths in the Department, including neuroendocrinology, basal ganglia research and research into sexual differentiation.

Neuroendocrine research focuses on the functions of the hormone prolactin, and in particular, the role of prolactin in the neuroendocrine and neurobiological adaptations of the maternal brain. Specific interests include the control of appetite and body weight during pregnancy and obesity, plasticity in oxytocin neurons during late pregnancy and lactation, and the role of prolactin in changes in mood and behaviour in the post partum period.

Dysfunction of the basal ganglia contributes to disorders such as Parkinson’s disease, Huntington’s disease, attention-deficit hyperactivity disorder (ADHD) and schizophrenia. The Basal Ganglia Research Group is particularly interested in the functioning of the input and output pathways of the basal ganglia, and how they are involved in learning and movement. A better understanding of the normal functioning of cells in the basal ganglia will pave the way to better treatments for its associated disorders.

Men and women are differentially affected by most neurological diseases. Males are more likely to develop ADHD and motor neuron disease whereas anorexia nervosa is associated more with females. Researchers interested in sexual differentiation have found that a hormone active in the development of the sex organs in the male embryo, Mullerian inhibiting substance (MIS), is also present in the brain, creating a sex difference there too. MIS produces subtle differences in both the size and number of motor neurons between the two sexes, potentially explaining why men are more susceptible to motor neuron disease than females. Ongoing research will investigate how MIS also regulates other parts of the brain. It is hoped that this research could, in time, contribute to more effective treatments for some neurological disorders.

**Clinical and functional anatomy**

Particular emphasis is placed on anatomical research that is relevant to surgical/orthopaedic and physiotherapy practice, as well as biomaterials and tissue engineering. Current areas of research include: the clinical anatomy of vascular structures including intracranial venous drainage; deep fasciae; the musculoskeletal system; and the head and neck region including forensic facial approximation; iatrogenic nerve injury; dysphagia; and development and biological characterisation of biomaterials. A variety of techniques are utilised including: gross dissection, microdissection, epoxy sheet plastination, corrosion casting, imaging techniques such as ultrasound and magnetic resonance, protein analytical techniques, cell culture, in vivo (small and large animal surgery), histology, microCT, and immunohistochemistry. Some of this expertise is utilised to provide R&D services to NZ wool, food/ingredient, and biotechnology industries.

**Reproduction, development and genomics**

Research in this area focuses on both human and animal reproduction, often with strong ties with the neuroendocrinologists of the Neuroscience Research Group. Current major themes include: work on sperm function and male fertility; poly-cystic ovarian syndrome; prostate diseases, particularly prostate cancer. This group also has an active programme in animal development and genomics, often with a strong comparative element. Current major projects in these areas include: investigations into the evolution of developmental pathways in vertebrates; work on mammalian development, particularly early embryonic development and sexual development; and sex determination in fishes. Much of the latter research is powered by the latest developments in genomic sciences, including a variety of next generation technologies such as RNA-seq and Chip seq.

**Biological anthropology**

A particular area of research interest is the biological anthropology of prehistoric populations in Southeast Asia and the Pacific. This research uses skeletal remains from archaeological excavations as the primary source of data. An additional research focus is using ancient and modern DNA techniques to address questions of human migrations and interactions. This includes identifying the origins of Pacific peoples and their commensal plants and animals in order to better understand the settlement, history and prehistory of the Pacific and New Zealand.
The Department of Anatomy is a research-intensive department and has a number of other research strengths including: alcohol and brain development; medical education; molecular embryology; development of bone graft substitutes and composite surgical appliances; and molecular mechanisms of learning and memory.

External Grants > $40,000 Awarded 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Prof David Grattan</td>
<td>Signalling pathways involved in the control of glucose metabolism</td>
<td>Health Research Council of New Zealand (subcontract)</td>
<td>1,786,895</td>
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<tr>
<td>2012</td>
<td>Prof Dave Grattan</td>
<td>Mechanism of hormone entry across the blood-brain-barrier</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>847,826</td>
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<tr>
<td>2012</td>
<td>A/P Greg Anderson</td>
<td>Overcoming anxiety: the neuroendocrine strategy of new mothers</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>847,826</td>
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<td>2012</td>
<td>Dr Nancy Beavan</td>
<td>“Living in the shadow of Angkor”: Responses and strategies of upland social groups to polity demise in the late-to post-Angkor period</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>626,087</td>
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<tr>
<td>2012</td>
<td>Dr Patrice Rosengrave</td>
<td>How do males adjust their sperm quality in response to social cues?</td>
<td>Royal Society of New Zealand – Marsden Fast Start</td>
<td>300,000</td>
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<tr>
<td>2011</td>
<td>Dr Sheri Johnson</td>
<td>Are old males still good males and can females tell the difference?</td>
<td>Royal Society of New Zealand – Marsden Fast Start</td>
<td>300,000</td>
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<td>2011</td>
<td>Dr Ann Horsburgh</td>
<td>Inventing cattle: A genetic study of cattle domestication through next generation sequencing</td>
<td>Royal Society of New Zealand – Marsden Fast Start</td>
<td>299,983</td>
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<td>2011</td>
<td>Dr Christine Jasoni</td>
<td>NRCGD: Interventions in developmental programming</td>
<td>TEC (subcontract)</td>
<td>278,873</td>
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<td>2011</td>
<td>Dr Kathie Overeem</td>
<td>An examination of microRNA expression abnormalities as a result of maternal immune activation: A search for epigenetic abnormalities associated with increased risk for schizophrenia development</td>
<td>Neurological Foundation of New Zealand</td>
<td>190,352</td>
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<tr>
<td>2011</td>
<td>Dr Elspeth Gold</td>
<td>Does activin C modulate reproductive tumor development in inhibin mice?</td>
<td>Monash University (subcontract)</td>
<td>153,814</td>
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<tr>
<td>2011</td>
<td>Prof Lisa Matisoo-Smith</td>
<td>Allan Wilson Centre – Variation – Linking the past and present – ancient DNA</td>
<td>TEC (subcontract)</td>
<td>140,244</td>
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<td>2012</td>
<td>Dr Joanna Williams</td>
<td>MicroRNA regulated in dentate gyrus granule cells following LTP induction in vivo</td>
<td>Neurological Foundation of New Zealand</td>
<td>107,754</td>
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<tr>
<td>2012</td>
<td>Prof Neil Gemmell</td>
<td>Allan Wilson Centre: The Tuatara genome project strategic initiative</td>
<td>TEC (subcontract)</td>
<td>105,000</td>
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<td>2012</td>
<td>Prof Neil Gemmell</td>
<td>Allan Wilson Centre – PhD Scholarship Feral Pigs – a Replicated Experiment in Evolution</td>
<td>Massey University</td>
<td>105,000</td>
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<td>2012</td>
<td>Dr Christine Jasoni</td>
<td>NRCGD: Uncovering molecular changes in the fetal brain that can explain how maternal obesity elevates offspring obesity risk</td>
<td>NRCGD (subcontract)</td>
<td>104,279</td>
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<td>Prof Neil Gemmell</td>
<td>Allan Wilson Centre: The Tuatara Genome Project Strategic Initiative</td>
<td>TEC (subcontract)</td>
<td>102,000</td>
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</table>
2012  A/P John Reynolds  Modulating interhemispheric inhibition to improve functional recovery after stroke  Neurological Foundation of New Zealand  84,000

2011  Dr Kathie Overeem  An examination of circulating microRNA as biomarkers for schizophrenia  New Zealand Lottery Grants Board  83,000

2012  Prof Neil Gemmell  Allan Wilson Centre: Theme 1 Genomics and Biomatics; Theme 2 Biodiversity and Human Impacts 2013  TEC (subcontract)  59,960

2011  Prof Neil Gemmell  Allan Wilson Centre: Genomics and biomatics 2012  TEC (subcontract)  58,710

2012  Prof Lisa Matisoo-Smith  Allan Wilson Centre: Theme 3 Human impact and wellbeing in NZ and the Pacific 2013  TEC (subcontract)  57,894

2011  Prof Lisa Matisoo-Smith  Allan Wilson Centre: Genomics and biomatics 2012  TEC (subcontract)  57,102

2011  Dr Christine Jasoni  Maternal obesity alters fetal brain circuitry development  New Zealand Lottery Grants Board  49,500

2012  A/P Greg Anderson  Neuroendocrine mechanisms linking insulin and infertility  HS and JC Anderson Charitable Trust  43,478

* GST exclusive

COMMERCIAL CONTRACTS

<table>
<thead>
<tr>
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<th>Organisation</th>
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<tr>
<td>2011-12</td>
<td>Agricultural and Marketing Research and Development Trust</td>
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<td>Department of Conservation</td>
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<td>F Hoffman-La Roche Ltd</td>
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<td>Industrial Research Ltd</td>
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<td>Physiotherapy New Zealand</td>
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<td>Vitaco Health (NZ) Limited</td>
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Total  618,807

POSTGRADUATE STUDENTS

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<td>PhD</td>
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<tr>
<td>Masters†</td>
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† thesis or dissertation students only

AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Professor Lisa Matisoo-Smith</td>
<td>James Cook Research Fellowship, Royal Society of New Zealand</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Michael Knapp</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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<tr>
<td>2012</td>
<td>Dr Siân Halcrow</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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<td>2012</td>
<td>Dr Andrew Clarkson</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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<td>2012</td>
<td>Professor Mark Stringer</td>
<td>American Academy of Pediatrics Award, Stephen L Gans Distinguished Overseas Lectureship, New Orleans, USA</td>
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<tr>
<td>Year</td>
<td>Name</td>
<td>Award Description</td>
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<tr>
<td>2012</td>
<td>Professor Mark Stringer</td>
<td>Best Teacher; OUSA Teaching Excellence Award</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Elspeth Gold</td>
<td>Excellence in Postgraduate Supervision, Otago School of Medical Sciences Annual Awards</td>
</tr>
<tr>
<td>2012</td>
<td>Ms Carol Dunstone</td>
<td>Distinguished Research Support Award, Otago School of Medical Sciences Annual Awards</td>
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<tr>
<td>2012</td>
<td>Professor Jean Fleming</td>
<td>Life Membership, New Zealand International Science Festival</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Michael Knapp</td>
<td>Emerging Research Award, Queenstown Molecular Biology conference</td>
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<tr>
<td>2012</td>
<td>Dr Megan Wilson</td>
<td>Life Technologies Award, Queenstown Molecular Biology conference</td>
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<td>2012</td>
<td>Darnelle Kennedy</td>
<td>First Place Education Sector, Australian Police Journal Awards</td>
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<tr>
<td>2012</td>
<td>Laura Boddington</td>
<td>Miller Scholarship, Neurological Foundation of New Zealand</td>
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<tr>
<td>2012</td>
<td>Ali Mirjalili (PhD student)</td>
<td>Prize for best oral presentation, Annual Meeting of New Zealand Association of General Surgeons</td>
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<tr>
<td>2012</td>
<td>Ali Mirjalili (PhD student)</td>
<td>Prize for best oral presentation, Head and Neck Surgery Conference, Wellington</td>
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<td>2012</td>
<td>Stephanie Shkrum (PhD student)</td>
<td>First prize, student podium presentation, Australasian Society for Human Biology 26th Annual Conference Vanuatu</td>
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<tr>
<td>2012</td>
<td>Christina Stantis (PhD student)</td>
<td>Best student podium prize, Otago International Health Research network Annual Conference</td>
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<td>2012</td>
<td>Tessa Sanders (PhD student)</td>
<td>Best PhD student speaker prize, Gravida Annual Science symposium</td>
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<tr>
<td>2012</td>
<td>Joon Kim (PGDipSci)</td>
<td>Best Student Presentation Award, New Zealand Society for Endocrinology</td>
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<td>2012</td>
<td>Papillon Gustafson BSc(Hons)</td>
<td>First Prize, OMSRS pre-doctoral presentations</td>
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<tr>
<td>2011</td>
<td>Professor Dave Grattan</td>
<td>Distinguished Researcher of the Year; Otago School of Medical Sciences Annual Awards</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Jean Fleming</td>
<td>Companion of the Royal Society of New Zealand</td>
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<tr>
<td>2011</td>
<td>Professor Mark Stringer</td>
<td>Distinguished Academic Teacher; Otago School of Medical Sciences Annual Awards</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Mark Stringer</td>
<td>Best Teacher; OUSA Teaching Excellence Award</td>
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<tr>
<td>2011</td>
<td>A/V Greg Anderson</td>
<td>Health Science Postgraduate Supervisor of the Year; University of Otago and OUSA Supervisor of the Year Awards</td>
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<tr>
<td>2011</td>
<td>Dr Amy Osborne</td>
<td>Exceptional PhD Thesis, University of Otago</td>
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<tr>
<td>2011</td>
<td>Joanne Gillum</td>
<td>Research Support Staff Award, Otago School of Medical Sciences Annual Awards</td>
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<tr>
<td>2011</td>
<td>Jason Woon (PhD student)</td>
<td>Best Student Presentation, 8th Annual ANZACA Conference</td>
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<tr>
<td>2011</td>
<td>Ali Mirjalili (PhD student)</td>
<td>First Place Poster Prize, New Zealand Association of Surgeons General Meeting</td>
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</tbody>
</table>
Research in the Department is largely concerned with fundamental processes associated with a number of significant biomedical and biological problems: heart disease; cancer; diabetes, rheumatoid arthritis and gout; memory and neurological disease; pathogenic viruses, micro-organisms and fungi; flowering, senescence, photosynthesis, nitrogen utilisation in plants and symbiosis; genomics, genetics and embryo development; cold adaptation; eukaryotic retroelements; developmental biology; body weight and cell signalling; molecular evolution; apoptosis; and biodiversity. Extensive use is made of bioinformatics, next-generation sequencing, microarray technology structural biology and proteomics tools. The Otago Genomics Facility, the Centre for Protein Research and the X-ray facility for protein structure determination are all located within the Department. Departmental staff are involved in New Zealand Genomics Ltd, a new entity supplying national infrastructure for fast through-put sequencing.

MAJOR AREAS OF RESEARCH STRENGTH

Cancer genetics
The Centre for Translational Cancer Research is the hub for cancer genetics research within the department. Staff undertake research with an emphasis on studies that can be expected to improve cancer treatment in a relatively short timeframe. Projects range from drug development to immunotherapy and include diagnostic test design and personalised medicine. The latter includes the development of simple tests that can be used to select the best chemotherapy treatment for individual patients and other tests that predict an individual’s prognosis and the risk of treatment side-effects.

Website: www.ctcr.otago.ac.nz

Functional genomics, gene expression and proteomics
The era of automated DNA sequencing and genome databases (genomics) has arrived and with it have come new methods for identifying particular genes and their protein products (proteomics). It is the expression of a set of genes in a particular cell type which defines the function of that cell. The pattern of gene expression can change, for example during development, or as a result of mutation or disease, so that analysis of altered expression profiles provides fundamental information on basic biological processes. Understanding how such changes come about requires knowledge of factors that control gene expression as well as the functions of the individual protein products. Assigning function to an unknown protein depends on knowing its precise composition and 3-dimensional structure, as well as its interaction partner. Functional proteomics leads in turn to a deeper understanding of physiological processes.

Infectious disease
There is a worldwide resurgence in infectious diseases which pose a threat to our population and to our native and domestic animals. Researchers are seeking to develop diagnostics, antimicrobials and vaccines to address important problems caused by such diseases. The molecular structures of proteins inside infectious viruses and microbes are being probed to seek out weaknesses that can be exploited. New drugs to combat these diseases can then be designed. Specific disease targets are tuberculosis, HIV/AIDS, streptococcal disease, poxviruses, Candida and MRSA. Research in this area has been bolstered by the establishment of a high-flux protein crystallography laboratory in the Department. Many staff are members of the Webster Centre for Infectious Diseases.

Autoimmune disease
Research focuses on the underlying genetics of gout and rheumatoid arthritis, two common forms of autoimmune diseases. Large databases of DNA obtained from sufferers of autoimmune diseases are being used to identify causative genes. Researchers have confirmed that the gene PTPN22 is one of the factors that causes rheumatoid arthritis, only the second gene in the past 25 years to be universally accepted as a causative factor. The group has also developed microarray technology which has allowed a genome-wide scan to simultaneously test all genes for association with rheumatoid arthritis. This technology is being applied to other chronic conditions in order to uncover their pathogenesis, including abdominal aortic aneurysm, schizophrenia, gout and inflammatory bowel disease.

OTHER RESEARCH
The Department of Biochemistry is a research-intensive department and has a number of other areas of research strength including: bioinformatics, bacterial molecular biology; evolution and development; plant biochemistry; proteomics; and heart disease. Many of these project areas are funded by the HRC, MBIE or Marsden grants.
### EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
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<td>Dr-Wayne Patrick</td>
<td>New Insights into old problems: Evolution of protein folds, protein functions and streamlined genomes</td>
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<td>2012</td>
<td>Dr Anita Dunbier</td>
<td>Hormonal regulation of immune cells: Does anti-hormone therapy inadvertently fuel cancer?</td>
<td>Royal Society of New Zealand – Marsden Fast Start</td>
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<td>2011</td>
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<td>Plastic genomes: does genome structure facilitate phenotypic plasticity?</td>
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<td>Dr Anne von Zychlinski-Kleffmann</td>
<td>New biomarkers and molecular signatures to estimate an Lp(a)-related CVD-risk by comparing and quantifying the Lp(a)-proteome from CVD and healthy subjects.</td>
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<td>PomBase – a model organism database for the major model organism fission yeast</td>
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<td>Activation of latent HIV by cyclic analogues of Tat</td>
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<td>Lysosomal function in childhood neurodegenerative disease</td>
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<td>Prof Iain Lamont</td>
<td>Antibiotic resistance mechanisms of Pseudomonas aeruginosa in cystic fibrosis</td>
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<td>2011</td>
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<td>2011</td>
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<td>2011</td>
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<td>2011</td>
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Total: 2,079,616
POSTGRADUATE STUDENTS

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<td>Masters†</td>
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† thesis or dissertation students only

AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Peter Mace</td>
<td>Rutherford Discovery Fellowship, Royal Society of New Zealand</td>
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<tr>
<td>2012</td>
<td>Nicole Neverman (PhD student)</td>
<td>Miller PhD Scholarship, Neurological Foundation of New Zealand</td>
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<tr>
<td>2012</td>
<td>Jared Fudge (MSc student)</td>
<td>Best Student Poster Prize, New Zealand Society of Plant Biologists conference</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Gemma Dickson</td>
<td>Exceptional PhD Thesis, University of Otago</td>
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<tr>
<td>2012</td>
<td>Dr Simon Jackson</td>
<td>Exceptional PhD Thesis, University of Otago</td>
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<tr>
<td>2012</td>
<td>Dr Brie Sorrenson</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Warren Tate</td>
<td>Companion of the New Zealand Order of Merit for services to science</td>
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<tr>
<td>2011</td>
<td>Dr Anita Dunbier</td>
<td>Sir Charles Hercus Fellowship, Health Research Council of New Zealand</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Catherine Day</td>
<td>Distinguished Researcher of the Year Award, Otago School of Medical Sciences</td>
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<tr>
<td>2011</td>
<td>Dr Wayne Patrick</td>
<td>Rutherford Discovery Fellowship, Royal Society of New Zealand</td>
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<tr>
<td>2011</td>
<td>Professor Warren Tate</td>
<td>Excellence in Postgraduate Supervision Award, Otago School of Medical Sciences</td>
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<td>2011</td>
<td>Tony Zaharic</td>
<td>Sustained Excellence in Tertiary Teaching Award, Tertiary Teaching Excellence Awards, Ako Aotearoa</td>
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<td>2011</td>
<td>Tony Zaharic</td>
<td>University of Otago Teaching Excellence Award</td>
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<td>2011</td>
<td>Sharleen Rae (PhD student)</td>
<td>First Prize Student Poster Competition, Health Sciences Research Forum</td>
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<td>2012</td>
<td>Nicole Neverman (PhD student)</td>
<td>Student Poster Award, 13th International Conference on Neuronal Ceroid Lipofuscinoses, London</td>
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</table>
The main research interests of staff in the Department of Microbiology and Immunology lie in the areas of agricultural microbiology, biotechnology, clinical microbiology and infectious diseases, food-borne pathogens, microbial genetics, immunology, bacteriophage molecular biology, innate immunity and vaccine technology. Research is carried out in the following key areas: antibiotic resistance in bacteria, clostridial genetics, dendritic cells and their function, environmental microbiology and bioremediation, insect viruses and the biological control of insect pests, intestinal microflora, milk products, mycobacterial diseases of animals, microbial genomics, nitrogen fixing bacteria and improving plant growth, streptococci and the biological control of streptococcal diseases, vaccine development and delivery systems, viruses and viral vaccines.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Viral technologies**
A principal goal of virus research is to characterise virus to host interactions. Many viruses are a threat because they express a plethora of factors that subvert, suppress and generally manipulate human defences against infection. Viral factors that have been discovered and characterised include a set of chemokine binding proteins, a cytokine, a new class of vascular endothelial growth factor, a potent apoptosis inhibitor, a cell cycle regulator and a family of proteins that exploit the cell’s ubiquitination machinery. These viral factors target critical elements of our defences, and their analysis gives important new insights into both viral pathogenesis and our own physiological processes. There is also the opportunity to exploit these novel viral factors as new therapeutics in the treatment of pathologies quite removed from virus infection, for example, non-healing wounds and inflammatory disorders.

**Immunology**
An understanding of the immune response underpins studies of infectious and autoimmune diseases. Cures for these diseases, as well as cancer and asthma, require knowledge of the immune response and how it can be manipulated. Research focuses on the development of vaccines against cancer and infectious diseases such as Chlamydia, Johne’s Disease and tuberculosis. A major theme is the study of the cells and the molecules involved in antigen presentation during immune responses to allogeneic transplants. Research also seeks to understand the immunology of autoimmune inflammatory diseases and the role of the immune system in asthma and other allergies.

**Disease in animals**
Research in the Disease Research Laboratory (DRL) targets immunity to mycobacterial infections in domestic livestock (sheep and deer) and wildlife (Cape buffalo). All facets of immunity to infection including improved diagnosis, vaccination and selection for heritable resistance are studied. Diagnostic tests developed by the Laboratory are used extensively for immune profiling of Mycobacterial diseases in ruminants. The main diseases being studied are Tuberculosis (TB) which is caused by *Mycobacterium bovis* and Johne’s disease (JD) which is caused by *Mycobacterium paratuberculosis*.

**Gastrointestinal microbiology**
Complex communities of bacteria inhabit the bowels of animals and have important influences on health and disease. These communities are referred to as the gut microbiota. Research projects include the microbiology of inflammatory bowel diseases, the use of a unique colony of Lactobacillus-free mice in investigating the molecular foundations of gut autochthony using lactobacilli as model bacteria, engineering bowel communities by dietary manipulation, and the impact of bifidobacterial species on the activation of human dendritic cells with respect to atopic diseases.

**Bacterial physiology**
Research in this area focuses on how bacteria function under different environments. The membrane proteins and signaling pathways involved in this adaptation and how they control the physiological response of a particular bacterium to environmental signals is a major theme. These studies utilise modern technologies (e.g. proteomics, transcriptomics, molecular biology and structural biology) to address important questions in bacterial adaptation to the environment.
### EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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<tr>
<td>2011</td>
<td>Dr Peter Fineran</td>
<td>How do bacterial “adaptive immune systems” protect microbial cells against viral infection?</td>
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<td>2011</td>
<td>Prof Greg Cook</td>
<td>Molecular approaches to TB persistence and pathogenesis</td>
<td>Health Research Council of NZ (subcontract)</td>
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<td>2011</td>
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<td>Interactive metabolomics of macrophages and <em>Mycobacterium tuberculosis</em></td>
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<td>University of Aarhus</td>
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<td>Multifunctional roles of a norovirus protein</td>
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<td>2012</td>
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<td>A/P Alex McLellan</td>
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<td>Dr Joanna Kirman</td>
<td>Do central memory-like CD4+ cells protect against tuberculosis?</td>
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<td>Inflammatory Bowel Disease: An EU-NZ integrated approach for characterizing its molecular multifactorial mechanisms</td>
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<td>Dr Ros Kemp</td>
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<td>2012</td>
<td>Dr Ros Kemp</td>
<td>Do we need gut-specific T cells to kill gut-specific tumours?</td>
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<td>2012</td>
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<td>Histone deacetylases: A family of human proteins that regulate influenza virus pathogenesis</td>
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* GST exclusive

### COMMERCIAL CONTRACTS

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† thesis or dissertation students only

AWARDS AND HONOURS

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<th>Year</th>
<th>Recipient</th>
<th>Award</th>
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<tr>
<td>2012</td>
<td>Professor Frank Griffin</td>
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<td>2012</td>
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<td>Distinguished Speaker Award, 57th Annual Scientific Meeting, New Zealand Microbiological Society</td>
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<td>Dr Heather Brooks</td>
<td>Best Lecturer Award, OUMSA Teaching Excellence Awards</td>
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<td>Andrew Highton (PhD student)</td>
<td>Otago Medical Society Poster Prize</td>
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<td>Professor Sandy Smith Memorial Scholarship</td>
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<td>2012</td>
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<td>Marbrook Research Technician Award, New Zealand Branch Meeting of the Australasian Society of Immunology</td>
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<td>2011</td>
<td>Dr Peter Fineran</td>
<td>Rutherford Discovery Fellowship, Royal Society of New Zealand</td>
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<tr>
<td>2011</td>
<td>Dr Peter Fineran</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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<tr>
<td>2011</td>
<td>Dr Julie Weaver</td>
<td>Distinguished Teaching Fellow, Otago School of Medical Sciences Annual Awards</td>
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<td>2011</td>
<td>Dr Heather Brooks</td>
<td>Best Lecturer Award, OUMSA Teaching Excellence Awards</td>
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<td>Chris Rodgers</td>
<td>Distinguished Research Support Staff Award, Otago School of Medical Sciences Annual Awards</td>
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<tr>
<td>2011</td>
<td>Charlotte Wilson (PhD student)</td>
<td>Professor Sandy Smith Memorial Scholarship</td>
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<td>Ron Dy (PhD student)</td>
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<td>Clare Burn</td>
<td>Student Speaker Award, Otago Medical School Research Society</td>
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<tr>
<td>2011</td>
<td>Estelle Baker (PhD student)</td>
<td>Best Research Presentation, Otago School of Medical Sciences PhD Colloquium</td>
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<tr>
<td>2011</td>
<td>Corinna Richter (PhD student)</td>
<td>Poster Prize, Biointeractions Satellite Meeting</td>
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</table>
The Department of Pharmacology and Toxicology engages in high quality, internationally-recognised research focused on the following themes: cellular and molecular neuropharmacology, neurodegeneration, neuroprotection and neurotoxicology; cardiovascular signalling and cardioprotection; cancer drug development, drug metabolism, drug treatment of chronic pain, and vestibular pharmacology. State-of-the-art technologies, including in vivo disease models, are used to undertake integrative, cellular and molecular investigations aimed at understanding animal and human pathophysiology, and to delineate targets for novel drugs.

MAJOR AREAS OF RESEARCH STRENGTH

Vestibular and auditory research
Members of the Vestibular and Auditory Research Group are interested in the functional deficits observed in the CNS following damage to the inner ear. These deficits include balance disorders, loss of gaze holding ability, disruption of hearing including tinnitus, and of surprise to many people, cognitive dysfunction. Questions relating to these disorders are pursued in a human testing facility within the Department.

Cancer drug development
Research focuses on the development of novel treatments for cancer. This includes using medicinal chemistry to design novel glutathione peroxide mimics and nitric oxide donors, which can be used to treat a variety of cancers. Synthetic chemistry is also used to design novel drugs to specifically target triple negative breast cancer, a highly aggressive form of breast cancer. Nanotechnology and tumor homing peptides are then used to specifically deliver the drug to the tumor.

Drug treatment of chronic pain
Chronic pain is often caused by damage to the central nervous system, and can be very difficult to treat. Recent research has shown that this ‘neuropathic pain’ can be caused by inflammation within the central nervous system. The Department investigates the mechanisms underlying this process and how to alter them with new drugs, aiming to develop new and improved treatments for chronic pain.

Cardio-renal protection
This research area encompasses three main themes. The first is pre-transplant renal graft conditioning, which examines the reno-vascular protective value of novel gaseous agents as transplant perfusion adjuncts. The second is renal denervation, which is a fast developing clinical field into which the department has provided strong scientific evidence into the therapeutic mechanism of action in renal disease. Lastly, the department also investigates cardioprotection in status epilepticus, which determines the effectiveness of pharmacological intervention during prolonged seizure.

EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
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<td>2012</td>
<td>Dr Ivan Sammut</td>
<td>New adjuncts for transplant solutions</td>
<td>Ministry of Business, Innovation and Employment</td>
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<td>2011</td>
<td>Dr Sebastien Taurin</td>
<td>Effect of raloxifene on estrogen receptor negative breast cancer tumour growth</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Prof Paul Smith</td>
<td>Novel GABAB receptor agonists for the treatment of chronic tinnitus</td>
<td>Neurological Foundation of New Zealand</td>
<td>132,306</td>
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<td>2011</td>
<td>Dr Yiwen Zheng</td>
<td>Therapeutic window of L-baclofen for noise-induced chronic tinnitus in rats and GABAB receptor-mediated mechanisms</td>
<td>Neurological Foundation of New Zealand</td>
<td>123,203</td>
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<td>2011</td>
<td>Prof Paul Smith</td>
<td>Role of inflammation in tinnitus and the therapeutic potential of a selective COX-1 inhibitor in tinnitus treatment</td>
<td>New Zealand Guardian Trust Company Ltd</td>
<td>70,000</td>
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<td>2012</td>
<td>Prof Paul Smith</td>
<td>Vestibular system, cognition and vegetative regulations</td>
<td>Royal Society of New Zealand</td>
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<td>2011</td>
<td>Dr John Ashton</td>
<td>Microscope - TB-Nikon-1104c</td>
<td>New Zealand Lottery Grants Board</td>
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* GST exclusive
COMMERCIAL CONTRACTS

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POSTGRADUATE STUDENTS

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† thesis or dissertation students only

AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
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<tr>
<td>2012</td>
<td>A/P Steve Kerr</td>
<td>Top Postgraduate Supervisor; OUSA University of Otago Supervisor of the Year Awards</td>
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<td>2012</td>
<td>Simran Magoo</td>
<td>Winner of the Fred Fastier Oral Prize, ASCEPT NZ</td>
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<tr>
<td>2011</td>
<td>Jack Rivers</td>
<td>Peoples' Choice Award, Australasian Three Minute Thesis Competition</td>
</tr>
<tr>
<td></td>
<td>(PhD student)</td>
<td></td>
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<tr>
<td>2011</td>
<td>Jack Rivers</td>
<td>Winner; Three Minute Thesis Competition, University of Otago</td>
</tr>
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<td></td>
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<td>2011</td>
<td>Dr Ian Winburn</td>
<td>Exceptional PhD Thesis, University of Otago</td>
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<tr>
<td>2011</td>
<td>Babasheb Yadav</td>
<td>Student Poster Prize, Queenstown Molecular Biology Meeting</td>
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<td></td>
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<td>2011</td>
<td>Yimin Yao</td>
<td>Bullivant Oral Prize, Physiological Society of New Zealand</td>
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<td></td>
<td>(PhD student)</td>
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</tbody>
</table>
The Department of Physiology is engaged in high quality, internationally recognised physiological research focused on the three major themes of cardiovascular and respiratory physiology, cellular and molecular neuroscience, and membrane and ion transport.

Members of the Department use state-of-the-art technologies, including transgenic mouse models, synchrotron radiation, and single molecule detection in living cells, to undertake integrative, cellular and molecular investigations aimed at understanding animal and human physiology.

MAJOR AREAS OF RESEARCH STRENGTH

Neuroendocrine control of reproduction
Fertility is declining in western societies, including New Zealand. Major research being undertaken in the Department through the Centre for Neuroendocrinology is focused on understanding the ways in which the brain controls reproduction, including the onset of puberty, ovulation, birth and lactation. Recent research has shown that a newly-discovered protein that is essential for puberty, kisspeptin, also plays a critical role in the control of ovulation by mediating estrogen’s actions in the adult brain – a finding that may offer hope to the infertile. On-going work aims to determine how dysfunction of the brain circuits that regulate fertility might lead to polycystic ovarian syndrome, the leading cause of infertility in women. Other current research focuses on whether kisspeptin and another protein, prolactin, might be involved in preterm labour.

Website: www.neuroendocrinology.otago.ac.nz

Neurological disorders and the control of movement
Neurological disorders are an increasing health problem, particularly in an aging population. Unfortunately, many of these disorders, including those that impair movement and restrict mobility, are common, often poorly treated and get progressively worse over time. As a result they create a significant health burden for patients and carers alike. Research in the Department aims to address these problems by exploring the brain circuits and signals that initiate and refine movement and how these signals are transmitted via the spinal cord and muscles to engage movement. Recent research has identified how even a mild miss-timing of the signals from a brain region called the cerebellum causes significant loss of fine movement control. The ultimate aim is to identify therapeutic targets, approaches and devices for the early and better treatment of Parkinson’s disease, ataxia (lack of coordination), sarcopenia (age-related muscle weakness), spinal injury, multiple sclerosis, epilepsy and Alzheimer’s disease.

Membrane and ion transport
This theme centres around investigations into the mechanisms and regulation of solute and water movement across cell membranes and resultant pathologies. Current areas of interest include the regulation of epithelial ion channels and transporters by binding proteins, solutes and pharmacological agents; epithelial fluid and electrolyte transport in the intestine and the interaction of bacteria with the intestine; the role of calcium transport proteins in intracellular calcium signalling; and the control of sodium, potassium, urate and water handling by the kidney.

Cardiovascular and respiratory physiology
Research is conducted into cardiovascular and respiratory control and disease processes such as atherosclerosis, heart failure, obesity, pulmonary hypertension, renal failure, rheumatoid arthritis and systemic hypertension. Specific areas of interest include: neural control of the heart and vasculature of the lungs, kidneys and skeletal muscle; inflammation; exercise and fatigue. Recent investigations have demonstrated that control of the cardiovascular system by the nervous system adversely changes in heart failure and pulmonary hypertension; and that the hormone ghrelin has protective effects after a heart attack.

EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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<td>2012</td>
<td>Prof Allan Herbison</td>
<td>Neural control of fertility</td>
<td>Health Research Council of NZ</td>
<td>4,844,983</td>
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<td>2012</td>
<td>Prof Brian Hyland</td>
<td>Restoring thalamocortical activity to treat Parkinson’s disease symptoms</td>
<td>Health Research Council of NZ</td>
<td>1,166,489</td>
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<td>2011</td>
<td>Prof Allan Herbison</td>
<td>Understanding kisspeptin neurons</td>
<td>Health Research Council of NZ</td>
<td>1,002,385</td>
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<tr>
<td>2012</td>
<td>Prof Allan Herbison</td>
<td>Recording the electrical activity of GnRH neurons in vivo</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>847,826</td>
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2011 Dr Istvan Abraham  ANGELS as a potential treatment for Alzheimer's disease  Health Research Council of NZ  782,886
2011 Dr Rebecca Campbell  Understanding the neuroendocrine abnormalities of polycystic ovarian syndrome  Health Research Council of NZ  650,736
2011 A/P Fiona McDonald  The structure and function of COMMD protein complexes  Royal Society of New Zealand (subcontract)  240,257
2011 Dr Istvan Abraham  Live cell single molecule imaging of estrogen-induced neuroprotective mechanisms on cholinergic neurons  Neurological Foundation of New Zealand  205,721
2011 Prof Brian Hyland  Effect of ghrelin on activity of neurons in the brain reward system and on their response to food-reward predicting cues in normal and Parkinson's disease model rats  Neurological Foundation of New Zealand  168,219
2011 Dr Ruth Empson  Health Research Microscope  New Zealand Lottery Grants Board  150,000
2011 Dr Andrew Bahn  Identification of drug uptake transporters and their regulation in prostate cancer cells via miRNAs  Prostate Cancer Foundation of New Zealand  104,559
2011 Dr Sam Lucas  Brain blood flow and sleep apnoea  New Zealand Lottery Grants Board  56,348

* GST exclusive

POSTGRADUATE STUDENTS

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† thesis or dissertation students only

AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Jenny Clarkson</td>
<td>First Prize, Otago Medical School Research Society Staff Speaker Awards</td>
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<tr>
<td>2012</td>
<td>Manesh Deo (BMedSc Hons student)</td>
<td>Heart Theme Student Poster Prize, MedSci Congress, Queenstown</td>
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<tr>
<td>2012</td>
<td>Su Han (PhD student)</td>
<td>Otago Medical School Research Society PhD Oral Presentation Prize</td>
</tr>
<tr>
<td>2012</td>
<td>Malinda Tantrirgama (PhD student)</td>
<td>Goddard Student Poster Prize, Australasian Winter Conference on Brain Research</td>
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<tr>
<td>2012</td>
<td>Aye Thaung</td>
<td>Mary Bullivant Prize, Physiological Society of New Zealand</td>
</tr>
<tr>
<td>2012</td>
<td>Mahsa Moaddab (PhD student)</td>
<td>Journal of Neuroendocrinology Student Poster Presentation Prize, Medical Sciences Congress</td>
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<tr>
<td>2012</td>
<td>A/P Grant Butt</td>
<td>Distinguished Academic Teacher, Otago School of Medical Sciences Awards</td>
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<tr>
<td>2012</td>
<td>Dianne Galvin</td>
<td>Distinguished Research Support Award, Otago School of Medical Sciences Awards</td>
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2011 Professor Allan Herbison  Distinguished Research Medal, University of Otago
2011 Professor Allan Herbison  Triennial Medal, Physiological Society of New Zealand
2011 Professor Allan Herbison  Excellence in Postgraduate Supervision, Otago School of Medical Sciences Awards
2011 Professor Brian Hyland  Best Paper Award, Otago School of Medical Sciences Awards
2011 Yeri Kim  Freemasons University Scholarship
(BBioMedSc Hons student)
2011 Dr Karl Iremonger  Postdoctoral Research Speaker Award, Otago Medical School Research Society
2011 Dr Sam Lucas  Fellow Award, 17th International Hypoxia Symposia
2011 A/P Fiona McDonald  Fulbright New Zealand Senior Scholar Award
2011 Rachel Cheong  John Hubbard Memorial Prize, Queenstown Research Week
(PhD student)
2011 Dr Victoria Scott  Young Investigator Award, World Congress of Neurohypophysial Hormones
2011 Dr Daryl Schwenke  Emerging Researcher of the Year, Otago School of Medical Sciences
2011 Malinda Tantirigama  Student Poster Prize, Division of Health Sciences Research Forum
(PhD student)
2011 Malinda Tantirigama  Otago School of Medical Sciences Student Prize for oral presentation at the PhD Colloquium
(PhD student)
2011 Su Young Han  Poster Presentation Prize, World Congress on Neurohypophysial Hormones
(PhD student)
2011 Su Young Han  Best Student Poster Presentation, Physiological Society of New Zealand, Queenstown Research Week
(PhD student)
2011 Rob Porteous  Research Support Staff Award, Otago School of Medical Sciences
2011 Dr Carissa Murrell  Exceptional PhD Thesis, University of Otago
2011 Nairn Smith  Sustained Research Support Staff Award, Otago School of Medical Sciences
2011 Dr Kajsa Igelstrom  Exceptional PhD Thesis, University of Otago
2011 Dr Kajsa Igelstrom  Goddard Student Oral Prize, Australasian Winter Conference on Brain Research
DUNEDIN SCHOOL OF MEDICINE

DEPARTMENT OF GENERAL PRACTICE AND RURAL HEALTH

Head of Department: Associate Professor Chrys Jaye
Email: chrystal.jaye@otago.ac.nz
Website: www.otago.ac.nz/dsm/gp

The Department runs an extensive programme of research in general practice, rural health, medical education, primary healthcare, respiratory medicine, patient safety and medical anthropology. We have strong links to the Best Practice Advocacy Centre (BPAC) and an ongoing programme of collaborative research based on the large health databases managed by BPAC.

MAJOR AREAS OF RESEARCH STRENGTH

General practice research
This is a broad research theme that encompasses clinical and professional topics within the discipline of general practice. Examples of specific areas of research include: childhood obesity; immunisation; doctor/patient relationships; diabetes; health care fees and charges; and pharmaco vigilance.

Rural medicine
Research incorporates issues of rural practice and service provision and includes: the role of the rural hospital generalist and in particular the interface with base hospital specialists; student attitudes to rural practice; rural hospital services; and rural hospital cardiology including pre hospital fibrinolysis and management of acute coronary syndromes in the rural setting.

Medical education
This is a major theme with teaching staff actively conducting research into teaching and learning at undergraduate and postgraduate levels. Areas of research interest include: the hidden curriculum in medical education; communities of clinical practice; socialisation in medical training; distance learning; professionalism in medicine; evaluation of medical courses and curricula; education and vocational training for rural hospital generalists; and reflective practice.

EXTERNAL GRANTS >$5,000 AWARDED IN 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
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<tbody>
<tr>
<td>2011</td>
<td>Prof Susan Dovey</td>
<td>Patient safety in New Zealand general practices: Records review study</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>Dr Katharine Wallis</td>
<td>Regulating for patient safety in primary care</td>
<td>Emily Johnston Scholarship</td>
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<td>2011</td>
<td>Dr Garry Nixon</td>
<td>Provision of cardiac exercise tolerance testing in rural areas</td>
<td>Rural Innovation Fund</td>
<td>50,000</td>
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<td>2011</td>
<td>Patricia Boyd</td>
<td>How is decision making by whanau altered when the birth plan is repeat caesarean section</td>
<td>Health Research Council of NZ</td>
<td>12,406</td>
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<td>2011</td>
<td>Dr Jim Ross</td>
<td>Lifetime health diaries</td>
<td>Royal NZ College of General Practitioners</td>
<td>5,000</td>
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<td>2011</td>
<td>Dr Jim Ross</td>
<td>COM-HEART. Community Oriented Mental Health: Engagement, Action, Research and Training</td>
<td>Royal NZ College of General Practitioners</td>
<td>5,000</td>
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<td>2011</td>
<td>Prof Susan Dovey</td>
<td>Community-based primary healthcare networking grants for collaboration with McMaster University</td>
<td>Health Research Council of NZ</td>
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* GST exclusive

POSTGRADUATE STUDENTS

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† thesis or dissertation students only
## AWARDS AND HONOURS

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<th>Year</th>
<th>Recipient</th>
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<tr>
<td>2012</td>
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<td>2012</td>
<td>Prof Murray Tilyard</td>
<td>Award for excellence in General Practice research, University of Otago</td>
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<td>2012</td>
<td>Patricia Boyd</td>
<td>Māori Health Research Masters Scholarship, Health Research Council of New Zealand</td>
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<tr>
<td>2011</td>
<td>Dr Garry Nixon</td>
<td>Pat Farry Award for research excellence in rural health research, University of Otago</td>
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<td>2011</td>
<td>Dr Katharine Wallis</td>
<td>Claude McCarthy Fellowship</td>
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<tr>
<td>2011</td>
<td>Dr Katharine Wallis</td>
<td>Emily Johnston Scholarship for Research in the Science and Art of Medicine</td>
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<td>2011</td>
<td>Dr Lik Loh</td>
<td>Clinical Research Fellowship, Dunedin School of Medicine</td>
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</tbody>
</table>
Collaborative research projects link the Department with others in the Division, as well as other universities in New Zealand and around the world. Areas of particular research strength include: kidney, rheumatic, cardiac and gastroenterological diseases, endocrinology, diabetes, ophthalmology, older person’s health, sport and exercise medicine, cancer, and respiratory illnesses.

MAJOR AREAS OF RESEARCH STRENGTH

Diabetes research
The Edgar National Centre for Diabetes and Obesity Research (ENCDOR) houses New Zealand’s foremost diabetes research team, involving a range of disciplines, including nutrition, epidemiology, health services research, Māori health, biostatistics, public health and social marketing. Research aims to reduce the incidence of diabetes and its complications by finding new ways to prevent and manage the disease. Studies attempt to address the problem of diabetes and obesity by education, support and the promotion of healthy lifestyles in both children and adults.

Website: www.otago.ac.nz/diabetes

Respiratory disease
The causes, treatment and prevention of asthma are the central foci of The Otago Respiratory Research Group. Key studies have revealed that not all asthmatics suffer from the same type of inflammation and not all will respond to commonly used inhaled steroid treatment. Studies are being undertaken to identify alternative forms of treatment for this group. The group had previously revealed that long-term cannabis smoking is likely to produce similar adverse effects to tobacco smoking (chronic bronchitis, emphysema and lung cancer), and that obesity can worsen the impact and severity of asthma.

Kidney disease
Members of this group are dedicated to investigating innovative ways to prevent and treat kidney disease. The group’s expertise ranges from molecular and cellular-level investigations of kidney function, to applying therapies to prevent kidney injury or the progression of kidney disease. Efforts are underway to find new markers for early acute renal failure so it can be treated before irreversible damage or death occurs. Current research projects include: effects of lithium on renal function, therapeutic targets of polycystic kidney disease, dietary induced obesity and metabolic syndrome, clinical renal trials, renal function and high performance exercise, and progression of renal disease.

Website: http://kidney.otago.ac.nz

Rheumatology
Major interest centres on the pathogenic pathways of rheumatoid arthritis. This research is attempting to determine the relationships of this classification to clinical outcomes, pathophysiologic pathways and treatment responses. The genetics of rheumatoid arthritis and gout is another area of strong research focus. A key project is “Genetics of Gout in Aotearoa” which is part of a $3.4m HRC programme grant led by Associate Professor Tony Merriman (Biochemistry, OSMS). Other areas of interest include ankylosing spondylitis, correlates of fatigue in chronic arthritis and scleroderma. With regard to the latter, researchers in the department contribute to EUSTAR - an international collaborative project to study the natural history of scleroderma.

Gut health
Recent research has suggested that the interaction of the bowel microflora with the intestinal immune system on a specific genetic background plays a much more significant role in disease than previously anticipated. Many diseases have their origin in the gut, not only inflammatory bowel diseases, but also certain rheumatological disorders, diabetes, obesity and potentially many others. Researchers in the department have set up the Gut Health Network to bring together national and international experts from various fields and disciplines to collaboratively work on these health issues.

Website: www.guthealthnetwork.com

Glaucoma
Glaucoma is the number one cause of preventable blindness in New Zealand. The Otago Glaucoma Surgery Outcome Study is based in the department and is the world’s longest ongoing follow-up study into surgery for glaucoma. Approximately 1400 patients have been followed to determine outcomes following implant surgery or trabeculectomies at Dunedin Hospital since 1976. The electronic database of operations in the Otago Glaucoma Surgery Outcome Study now provides data for studies aimed at defining the long-term results of glaucoma drainage surgery.

Cardiology
Research in the Cardiology Research Unit involves contributing to multi-centre trials including trials of new devices for coronary angioplasty and clinical trials of new drugs for management of heart attacks, cholesterol levels and arrhythmia. Local research includes assessment of biomarkers as predictors of coronary stent re-stenosis after implantation. The unit is also performing a prospective study in patients with aortic valve disease evaluating what genes might be important in the development of narrowed heart valves in older persons.
Oncology

The Oncology Research Group is a predominantly clinical trials-focused group with a portfolio comprising of collaborative, investigator-led, and commercial trial activity. Recent projects include: the Recharge Study, investigating the use of ice-cream containing lactoferrin in order to reduce chemotherapy associated diarrhea; the CapTox Study, investigating genomic predictors of chemotherapy toxicity; and the BRACKIT study, examining predictors of melanoma recurrence from matched primary lesions and sentinel lymph nodes. The HRC-funded PIPER study is also underway and is the largest study of treatment and outcomes of colorectal cancer ever undertaken in New Zealand.

Neurology

The Neurology Research Group is involved in research into vestibular disorders, neurodegenerative diseases (including Alzheimer’s and Parkinson’s disease), and augmented reality rehabilitation, multiple sclerosis (ADVANCE/ATTAIN and PrevANZ studies), medical education research, transcranial magnetic stimulation and the role of cilia in nerve regeneration.

EXTERNAL GRANTS > $20,000 AWARDED IN 2011-2012

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<th>Project Title</th>
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<td>2012</td>
<td>A/P Rachael Taylor</td>
<td>Prevention of Overweight in Infancy (POI): Follow-up to 5 years</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>A/P Patrick Manning</td>
<td>Does cabergoline prevent weight regain in people with obesity?</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Prof Jim Man</td>
<td>Diabetes Research</td>
<td>Foundation Trust University of Otago</td>
<td>163,358</td>
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<td>2012</td>
<td>A/P Rachael Taylor</td>
<td>Diabetes Research</td>
<td>Karitane Products Society Ltd</td>
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<td>2012</td>
<td>A/P Rachael Taylor</td>
<td>BLISS: is a Baby-led approach to feeding a suitable alternative?</td>
<td>New Zealand Lottery Grants Board</td>
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<td>Dr Chris Baldi</td>
<td>Will treating the sympathetic nervous system prevent diabetic heart disease</td>
<td>HS and JC Anderson Charitable Trust</td>
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<td>2012</td>
<td>A/P Tony Poole</td>
<td>Changes in primary cilia length and function modulate the pathogenesis of osteoarthritis in response to lithium</td>
<td>Queen Mary, University of London</td>
<td>54,387</td>
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<td>2012</td>
<td>Prof Tony Molteno</td>
<td>Glaucoma Surgery Outcomes Study</td>
<td>Healthcare Otago Charitable Trust</td>
<td>38,844</td>
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<tr>
<td>2012</td>
<td>Prof John Highton</td>
<td>Identification of subtypes of Rheumatoid Arthritis through joint and serologic characterisation</td>
<td>Otago Medical Research Foundation</td>
<td>34,970</td>
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<td>2011</td>
<td>Prof Robin Taylor</td>
<td>Vitamin D supplementation in the management of chronic asthma</td>
<td>Healthcare Otago Charitable Trust</td>
<td>29,944</td>
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<tr>
<td>2011</td>
<td>Dr Kirstin Coppell</td>
<td>The epidemiology of obesity related liver damage and hyperuricaemia in the NZ adult population – Results from the 2008/2009 NZ Adult Nutrition Survey</td>
<td>Otago Medical Research Foundation</td>
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<td>Dr Chris Baldi</td>
<td>Myocardial sympathetic responsiveness in type 2 diabetes</td>
<td>Healthcare Otago Charitable Trust</td>
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<td>2012</td>
<td>A/P Michael Schultz</td>
<td>Translational research into the overlap of epithelial pathomechanisms of autoimmune diseases</td>
<td>HS and JC Anderson Charitable Trust</td>
<td>24,472</td>
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<td>2011</td>
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<td>Investigation in inflammation and permeability of the bowel in patients with spondyloarthritis</td>
<td>Healthcare Otago Charitable Trust</td>
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* GST exclusive
### COMMERCIAL CONTRACTS

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| 2011-12       | Auckland UniServices Ltd  
Australasian Gastro-Intestinal Trials Group  
Dana-Farber Cancer Institute  
Gastrointestinal Cancer Institute (NZ)  
University of Queensland |

**Total** 299,215

### POSTGRADUATE STUDENTS

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† thesis or dissertation students only

### AWARDS AND HONOURS

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<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
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<tr>
<td>2012</td>
<td>A/P Rachael Taylor</td>
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<tr>
<td>2012</td>
<td>Dr Kirsten Coppell</td>
<td>Health Research Excellence Publication Award</td>
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<td>2012</td>
<td>Professor Jim Mann</td>
<td>Himsworth Award, European Association for the Study of Diabetes</td>
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<td>2011</td>
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<td>Honorary Doctorate, North West University, South Africa</td>
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<td>2011</td>
<td>Dr Chris Jackson</td>
<td>Freemasons Oncology Fellowship</td>
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<td>2011</td>
<td>Dr Kirsten Coppell</td>
<td>Research Publication Award, Dunedin School of Medicine and the Southern District Health Board Health Research Excellence Awards</td>
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<tr>
<td>2011</td>
<td>Dr Simon Stebbings</td>
<td>Tom Highton Award, New Zealand Rheumatology Association</td>
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</table>
The department has a strong research culture with the major themes being cancer, developmental biology and molecular pathology. Much of the research is multidisciplinary in approach, is clinically relevant, and involves collaboration with clinical and scientific colleagues in other Departments within the School, University or elsewhere in New Zealand, as well as international links.

The Department houses a number of research groups: the Cell Transformation Group (PI: Braithwaite), Epigenetics and Cancer (Morison), the Developmental Genetics and Pathology Group (Eccles), the Chromosome Structure and Development Group (Horsfield), the Molecular Genetics Laboratory (Markie), the Immune Therapeutics group (Young), and the Molecular Pathology Group (Fitches).

MAJOR AREAS OF RESEARCH STRENGTH

Cancer research
A major research theme in the Department is cancer research. The over-arching interest of the department is the identification, characterisation and functional analysis of genes that contribute to the development of cancer. This includes genes responsible for rare inherited predispositions to cancer, as well as genes that are defective in the more common sporadic forms of cancer. There is a strong focus on identifying suitable ‘markers’ for cancer diagnosis. These markers are useful in screening large populations, in detecting patients with cancer at an early stage, and in monitoring patients after treatment for recurrence. In addition, there is a focus on developing new therapies for treating cancer. Cancers that are being studied include colorectal, breast, and brain cancer, melanoma, leukaemia, lymphoma and myelodysplastic syndrome. A particular emphasis is also placed on the function of specific cancer genes, such as TP53, TES, MYCN, and YB-1 and in cancer vaccine development.

Developmental genetics
Several research groups have a strong interest in developmental genetics. Research currently includes:

• Developmental biology of the kidney and urinary tract, and associated diseases.
• Cell survival and developmental mechanisms in cancer and identification of therapeutic targets for cancer treatment.
• The use of developmental models to determine the regulation and function of genes involved in both development and disease including: RAD21/MYCN, cell growth and breast cancer; PAX genes, embryonic development and cancer; TES, blood development and leukaemia; polycystic kidney disease genes; cohesin proteins and Cornelia de Lange syndrome.

Chromosome structure and epigenetics
The architecture of normal chromosome during the cell cycle, and the modification of genes by epigenetic marks can also contribute to changes gene expression, animal development and cancer. Foci of research include: exploring the functions of the chromosomal glue, cohesin, in its switching of gene activity; the role of epigenetic modification in the development and function of the placenta; epigenetic silencing as a mechanism of leukaemia gene silencing and as a marker for cancer.

Zebrafish as a model of human disease
Groups both within and the outside the Department make extensive use of the Otago Zebrafish Facility that is directed by Dr Julia Horsfield. Since there is high conservation of developmental genes throughout evolution, zebrafish provide an amenable vertebrate animal model. Zebrafish are being used to determine the function of cohesin, testin, YB-1 and many other proteins important in developmental disorders and cancer.

Genetics of human disease
Several of the Department’s researchers have expertise in the discovery of the genetic contribution to human disease, such as genetic influences on bipolar disorder, gene mutations in polycystic disease, mutations in congenital malformation syndromes, and mutations in familial and acquired cancer.
### EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

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<td>2011</td>
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<td>Royal Society of New Zealand – Marsden</td>
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<td>2011</td>
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<td>The p53 tumour suppressor and its nemesis – does a p53 isoform promote cancer through an inflammatory pathway?</td>
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<td>Targeting the oestrogen-cohesin pathway in breast cancer</td>
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<td>2012</td>
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<td>How a p53 isoform causes hyperplasia and cancer</td>
<td>Genesis Oncology Trust</td>
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<td>The role of p53 isoforms in the promotion of tumour invasion, angiogenesis and metastases</td>
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<td>Immune therapies for Cancer – Flow Cytometer</td>
<td>Freemasons New Zealand</td>
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<td>Targeting childhood leukaemia through the TESTIN pathway</td>
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<td>Early cancer genesis: Telomere mechanisms and markers</td>
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* GST exclusive

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**Total** 30,940
### POSTGRADUATE STUDENTS

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### AWARDS AND HONOURS

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<tr>
<td>2011</td>
<td>Dr Sarah Young</td>
<td>Freemasons Oncology Fellowship</td>
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</table>
The Department of Preventive and Social Medicine constitutes one of the leading centres for public health research in Australasia. There are a number of major research groups within the Department including: the Injury Prevention Research Unit (IPRU), the Dunedin Multidisciplinary Health and Development Research Unit (DMHDRU), the Hugh Adam Cancer Epidemiology Unit (HACEU), the Ngāi Tahu Māori Health Research Unit, the AIDS Epidemiology Group, the Cancer Society Social and Behavioural Research Unit (SBRU), the Centre for International Health, and the Centre for Health Systems. The New Zealand Pharmacovigilance Centre (NZPC), and the National Poisons Centre (NPC) are also housed in the Department.

MAJOR AREAS OF RESEARCH STRENGTH

Life course research
The Dunedin Multidisciplinary Health and Development Research Unit (DMHDRU) conducts the Dunedin longitudinal study, one of the most detailed studies of human health and development ever undertaken. A multidisciplinary, longitudinal study of 1,037 babies born in Dunedin during 1972/73, the Study members have been followed up since birth, at age three, then every two years to age 15, and at ages 18, 21, 26, and 32. Age 38 assessments were undertaken in 2010. For each follow-up phase, the Study members are brought to the Dunedin Unit where they undergo numerous assessments and measures of their health and development. The main research focus is human development over the life course. Other studies run by DMHDRU include those of the parents of the original Study Members (Family Health History Study), parenting behaviours of Study Members (Parenting Study), and the 15-year-old children of Study Members (Dunedin Next Generation Study). The research will provide ground-breaking information across three generations of New Zealand families. Knowledge gleaned from the Study has influenced family, child and public health policies and practice nationally and internationally.

The DMHDRU is also a founding partner in the National Centre for Life Course Research (http://www.lifecourse.ac.nz)
Website: http://dunedinstudy.otago.ac.nz

Injury prevention
The Injury Prevention Research Unit (IPRU) undertakes research that will contribute to reducing the incidence, severity, and consequences of injury in New Zealand. Research areas include unintentional and intentional injury, outcomes of injury, and injury prevention. Studies may be based on settings where injury occurs, such as in transport, sport and recreation and work, or on groups within the population who are at risk, such as children, young people, or older people. Injury surveillance, examination of cross cutting issues such as alcohol misuse, and the consequences of injury both disability and rehabilitation are also examined.
Website: https://blogs.otago.ac.nz/ipru

Cancer
The Department has significant expertise in cancer research, with two research Centres dedicated to this field: the Hugh Adam Cancer Epidemiology Unit (HACEU) and the Cancer Society Social and Behavioural Research Unit (SBRU).

The focus of cancer epidemiology research of the department is the HACEU. The Unit is involved in several national and international studies of the prevention, causes, impact, burden and consequences of cancer as well as assessments of cancer incidence, mortality and survival in New Zealand. Recent research includes a nationwide study of prostate cancer, a national study of bowel cancer, and an investigation into the delay in the diagnosis of cancer in Pacific Island men.

The SBRU is the focus of research into social and behavioural aspects of cancer. To date, it has worked mainly in the priority areas identified for the primary prevention of cancer in New Zealand, that is tobacco control, healthy physical activity and nutrition, and ultraviolet radiation exposure. Studies also focus on the psycho-social-spiritual aspects of cancer and cancer control and health promotion.
Website: http://www.otago.ac.nz/sbrcg

International health
The Centre for International Health is based in the Department. The Centre aims to make a significant contribution to the understanding, development and well-being of individuals and populations in developing countries. Research projects and collaborations are underway with other institutes in the Gambia, Indonesia, Samoa and Cambodia.
Website: http://dnmeds.otago.ac.nz/departments/psm/research/international_hlth
Hauora Māori
Rangahau hauora Māori (Māori health research) is an important part of the research portfolio of the Department. The goal of the Ngāi Tahu Māori Health Research Unit is to contribute to the body of knowledge on Māori health that will lead to positive health outcomes for Māori and their whānau. The Unit collects, collates, interprets and publishes information, data and statistics on Māori health issues. The major research focuses for the Unit are: hauora rangatahi (young people’s health); hauora wahine (Māori women’s health); Māori and mental health, oranga niho (dental health) and Māori and injury prevention.

AIDS epidemiology
The AIDS Epidemiology Group has been responsible for national surveillance of AIDS and HIV infection in New Zealand since 1989. The aims of the Group are to monitor the epidemic of HIV/AIDS in New Zealand through ongoing surveillance; to develop, and when appropriate to apply, new methods of monitoring and evaluation; and to contribute to the wider knowledge of HIV infection and AIDS.

Website: http://dnmeds.otago.ac.nz/departments/psm/research/aids

Health systems
The Centre for Health Systems facilitates and promotes research into health system improvement at the University of Otago, and across the local and national health systems, as well as internationally. The Centre’s associates come from a range of University of Otago departments including those spanning our three campuses in Dunedin, Christchurch and Wellington, as well as the School of Business. It works closely with the Southern DHB and has links with a range of national and international research groups including the Commonwealth Fund, Boston University Health Policy Institute, and London School of Economics (Health and Social Care).

Website: http://dnmeds.otago.ac.nz/departments/psm/research/healthsystems

OTHER RESEARCH
The Department of Preventive and Social Medicine is a research-intensive department and has a number of other areas of research strength including: poisons research; pharmacovigilance; environmental health; epidemiology of infectious diseases; health policy and economics; occupational health; and alcohol-related harm.

EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

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<tr>
<th>Year</th>
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<th>Project Title</th>
<th>Funder</th>
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<tr>
<td>2012</td>
<td>Prof Richie Poulton</td>
<td>The Dunedin Multidisciplinary Study of Aging and Risk for Chronic Disease</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Prof Peter Herbison</td>
<td>Advanced meta-analysis</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>Prof Richie Poulton</td>
<td>NZVCC Graduate Longitudinal Study</td>
<td>NZ Vice-Chancellors’ Committee</td>
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<td>2011</td>
<td>Prof Anthony Reeder</td>
<td>CSNZ Social and Behavioural Research Unit – core funding</td>
<td>Cancer Society of New Zealand</td>
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<td>2011</td>
<td>A/P Brain Cox</td>
<td>Comparative effectiveness research: one-off sigmoidoscopy or iFOBT screening</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Dr Moana Theodore</td>
<td>Te Maramatanga: How education positively affects Māori health over time</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>Prof John Broughton</td>
<td>Oranga niho me nga tangata whaiora</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>A/P David McBride</td>
<td>Mapua Epidemiological Study</td>
<td>Health Research Council of NZ</td>
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<td>A/P Kypros Kypri</td>
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<td>Health Research Council of NZ</td>
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<td>Dr Ayesha Verrall</td>
<td>Tuberculosis and innate immunity: understanding early clearance of infection</td>
<td>Health Research Council of NZ</td>
<td>232,000</td>
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<td>2012</td>
<td>Prof Robin Gauld</td>
<td>Evaluating BSMC on the West Coast</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>A/P David McBride</td>
<td>Occupational health of front line workers in Christchurch</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>A/P Nigel Dickson</td>
<td>HIV risks among African communities in New Zealand</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>A/P Nigel Dickson</td>
<td>HIV Risks and Concerns among African Communities in New Zealand</td>
<td>Health Research Council of NZ</td>
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<td>Dr Mary Jane Sneyd</td>
<td>Risk factor heterogeneity for melanoma subtypes: a case-only study</td>
<td>New Zealand Lottery Grants Board</td>
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<td>Prof Philip Hill</td>
<td>A phase IV effectiveness study of pneumococcal conjugate vaccine in the Gambia</td>
<td>Bill and Melinda Gates Foundation (subcontract)</td>
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<td>Dr Shyamala Nada-Raja</td>
<td>Internet-based intervention to improve mental health outcomes for abused women</td>
<td>Health Research Council of NZ (subcontract)</td>
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<td>Whanau Ora: Māori Household Wellbeing Regional and Cohort Study</td>
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<td>Well Dunedin Health Trust</td>
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<td>2012</td>
<td>Prof Jennie Connor</td>
<td>Alcohol and other risks--National Tertiary Student Survey 2013</td>
<td>Health Promotion Agency</td>
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* GST exclusive

**Commercial Contracts**

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<td>Cancer Society of New Zealand Inc</td>
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<td>Central Regions Technical Advisory Services Ltd</td>
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<td>City Forests Ltd</td>
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<td>Delta Utilities Services Limited</td>
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<td>Dow Chemical Company</td>
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**Total** 8,201,178
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<td>2012</td>
<td>Professor Sir David Skegg</td>
<td>Elected President of the Royal Society of New Zealand</td>
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<tr>
<td>2012</td>
<td>Professor John Crump</td>
<td>Bailey K. Ashford Medal, American Society of Tropical Medicine and Hygiene</td>
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<tr>
<td>2012</td>
<td>Dr Rebecca Brookland</td>
<td>Career Development Postdoctoral Fellowship, Division of Health Sciences</td>
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<tr>
<td>2011</td>
<td>A/P Sheila Williams</td>
<td>Health Research Excellence Award, Dunedin School of Medicine and Southern District Health Annual Awards</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Sarah Derrett</td>
<td>The Commonwealth Fund (USA) New Zealand Harkness Fellow in Health Care Policy and Practice</td>
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</tbody>
</table>
The Department of Psychological Medicine consists of the two main units of Clinical Psychiatry and Behavioural Science. Both units are involved in a variety of areas of clinically relevant research, with the main themes being mental health epidemiology, public health, and psychopharmacology. Specific research areas include self-harm and suicide, primary care interventions, communication and consultation skills, cognitive processes, behavioural aspects of physical health, pain, child abuse, exploration of developmentally appropriate techniques for gathering information from children, clinical audit, creation of evidence-based reviews, psychopharmacology and development of novel therapeutics.

In 2010, Professor Paul Glue was a co-investigator on a $2.4 million dollar grant from FRST to assess the effect of Mullerian Inhibitory Substance on frailty, and in 2012 he was co-investigator on a $970K grant from HRC on Advanced Meta-analysis.

**EXTERNAL GRANTS > $5,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Date</th>
<th>PI</th>
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<th>Funder</th>
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<tr>
<td>2011</td>
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<td>The association of mental disorders with subsequent physical condition onsets</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Dr Tess Patterson</td>
<td>Sexual development in male adolescents: typical and atypical factors and relationship to sexual offending, problematic sexual behaviour, and mental health and wellbeing</td>
<td>James Hume Bequest Fund</td>
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<td>2011</td>
<td>Prof Paul Glue</td>
<td>Rapid acting antidepressant treatment for depressed patients with cancer in palliative care</td>
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<td>2012</td>
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<td>2011</td>
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<td>Mood, emotional reactivity and cholinergic tone in health volunteers</td>
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* GST exclusive

**POSTGRADUATE STUDENTS**

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† thesis or dissertation students only

**AWARDS AND HONOURS**

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<thead>
<tr>
<th>Year</th>
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<th>Award</th>
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<tbody>
<tr>
<td>2012</td>
<td>A/P Kate Scott</td>
<td>Research Publication Award, Dunedin School of Medicine and Southern District Health Annual Awards</td>
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</table>
The Department of Surgical Sciences aims to excel in clinical teaching and training, the linking of basic science with clinical research and the development of the discipline in New Zealand and internationally. The Department has three major research units: The Vascular Research Group, the Colorectal Translational Research Group, and the Otago Clinical Audit and Outcomes Research Group.

MAJOR AREAS OF RESEARCH STRENGTH

Vascular disease
The Vascular Research Group undertakes research in the fields of vascular biology, genetics and physiology. The group has a wide range of basic science and clinical skills, including molecular biology (genomics, transcriptomics and proteomics), immunohistopathology, cell culture and vascular physiology (ultrasonography). The group's primary research interests are:

- The genetic basis of different forms of vascular disease including abdominal aortic aneurysm, coronary artery disease, lower limb arterial disease, stroke and varicose veins.
- Determining the early processes in the formation of atherosclerosis.
- The identification of circulating markers of vascular susceptibility and/or post-interventional outcome.
- Determining the pathophysiology of venous disease.

The Vascular Research Group is currently funded by the Health Research Council of New Zealand and is a leading member of the Vascular Research Consortium of New Zealand (www.vrcnz.org), which aims to support collaborative vascular networks nationally.

Website: www.otago.ac.nz/dsm-surgery/research/vascular/index.html

Colorectal cancer
The Colorectal Translational Research Group was formed in 2010 to co-ordinate and strengthen existing strands of research into colorectal cancer and to promote the translation of laboratory discoveries into the clinical environment. It consists of a collaboration of researchers combining expertise from a broad range of disciplines, including surgery, medical oncology, molecular biology, bioinformatics, immunology and experimental biology. One of the Group’s core strengths is its clinical base; from which it procures tissue samples linked to clinical outcome data for laboratory-based research, and recruits patients into clinical trials.

The main research areas are:

- Genetic and epigenetic factors in colorectal cancer
- Prognostic tests for colorectal cancer
- Immune response to colorectal cancer
- Immunotherapy for colorectal cancer
- Immune mechanisms in Crohn’s disease

Since its inception in 2010, the Group has procured funding to pursue its strategic goals, has extended its tissue bank and clinical database, and is initiating several new clinical trials: investigating the role of vitamin D in colorectal cancer and the management of acute appendicitis.

Website: www.otago.ac.nz/dsm-surgery/research/colorectal-translational-research-group/index.html

Clinical audit and outcomes research
The Otago Clinical Audit and Outcomes Research Group promotes the development of clinical audit within the surgical profession and develops systems for evaluating longer term outcomes in clinical practice. The Unit has produced significant research focusing on the process of surgical audit including risk stratification in outcome assessment. A key example of the Unit’s activities is the development of a successful national system for audit for vascular surgery. Data on 55,000+ patients is available in the audit database to assist peer-review, to answer enquiries from clinical management, to determine surgical workloads, to monitor training of registrars and to evaluate overall surgical performance.

Website: www.otago.ac.nz/ouaudit/

Musculoskeletal outcomes research
The Centre for Musculoskeletal Outcomes Research aims to conduct and disseminate research addressing decision-making and outcomes for patients with musculoskeletal disorders. The centre is a multidisciplinary community of researchers and clinicians, policy makers and educators dedicated to improving patient health outcomes. This is done through translational research aimed at optimising clinical practice; from laboratory research through to clinical trials and health services research. Research interests include orthopaedic pathobiology and biomechanics, clinical diagnostic test and outcome measure evaluation, occupational and public health issues, clinical epidemiology, economic evaluations and health resource allocation issues affecting primary and secondary care settings.

Website: http://cmor.otago.ac.nz/
EXTERNAL GRANTS > $20,000 AWARDED IN 2011-2012

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<tr>
<td>2012</td>
<td>Prof Andre van Rij</td>
<td>Convergence in surgeons’ clinical judgments of priority</td>
<td>Research Trust of Victoria University Wellington</td>
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<td>2012</td>
<td>A/P Haxby Abbott</td>
<td>Enhancing the effectiveness of physiotherapy for individuals with knee osteoarthritis</td>
<td>New Zealand Lottery Grants Board</td>
<td>91,204</td>
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<td>2012</td>
<td>Prof John McCall</td>
<td>Lymphatic Drainage and Prognosis in Colorectal Cancer</td>
<td>Cancer Society of New Zealand</td>
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<td>2011</td>
<td>Dr Gerard Wilkins</td>
<td>W and GS Dick Fellowship</td>
<td>Southland Medical Foundation</td>
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<td>2011</td>
<td>A/P Patrick Dawes</td>
<td>The parapharyngeal space: advancing surgical practice through anatomical study</td>
<td>Royal Australasian College of Surgeons</td>
<td>56,250</td>
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<td>2012</td>
<td>Prof Andre van Rij</td>
<td>Circulating markers of metabolic changes following surgery for morbid obesity</td>
<td>HS and JC Anderson Charitable Trust</td>
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<td>2011</td>
<td>Prof Andre van Rij</td>
<td>Optimising the screening for Abdominal Aortic Aneurism</td>
<td>Healthcare Otago Charitable Trust</td>
<td>26,087</td>
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<td>2011</td>
<td>A/P Magnus Thorn</td>
<td>The molecular and cellular immunology of regulatory T-cell trafficking in the human body</td>
<td>Healthcare Otago Charitable Trust</td>
<td>24,270</td>
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<td>2011</td>
<td>A/P Magnus Thorn</td>
<td>T-cell trafficking in Crohn’s disease</td>
<td>Otago Medical Research Foundation</td>
<td>23,679</td>
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* GST exclusive

COMMERCIAL CONTRACTS

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<th>Organisation</th>
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| 2011-12 | Orchestral Developments Ltd  
Southern District Health Board  
Synthes New Zealand Ltd |

**Total** | **199,502**

POSTGRADUATE STUDENTS

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† thesis or dissertation students only
## AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
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<tbody>
<tr>
<td>2012</td>
<td>Professor Andre van Rij</td>
<td>Deans Research Medal, Dunedin School of Medicine and the Southern District Health Board Health Research Excellence Awards</td>
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<td>2012</td>
<td>A/P Haxby Abbott</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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<tr>
<td>2012</td>
<td>Cheng Yee Chan (MMedSc student)</td>
<td>Richard Stewart Scholarship</td>
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<td>2012</td>
<td>Omid Ahmadi</td>
<td>Cancer Society Scholarship</td>
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<td>2011</td>
<td>Professor Jean-Claude Theis</td>
<td>Officer of the New Zealand Order of Merit (ONZM) for services to Medicine</td>
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<tr>
<td>2011</td>
<td>Professor Andre van Rij</td>
<td>Colin McRae Medal, Royal Australasian College of Surgeons</td>
</tr>
<tr>
<td>2011</td>
<td>Alice Guidera (MMedSc student)</td>
<td>Australasian College of Surgeons Scholarship</td>
</tr>
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</table>
The Department of Women’s and Children’s Health comprises the Section of Obstetrics and Gynaecology and the Section of Paediatrics and Child Health.

The Section of Obstetrics and Gynaecology has diverse research areas, specifically, reproduction and infertility, urogynaecology, urinary incontinence, contraception, menopause, obesity and weight management in pregnancy, placental pathology and management of high-risk pregnancy. Staff members are involved with the Cochrane Incontinence Review Group.

Areas of particular research strength in the Section of Paediatrics and Child Health include paediatric pharmacology, sudden unexpected death syndrome in infancy, sleep in childhood, clinical genetics and clinical ethics.

The Department is also home to: 1) the New Zealand Child and Youth Epidemiology Service (NZCYES); 2) The New Zealand Mortality Review Data Group (NZMRDG); and, 3) the New Zealand Paediatric Surveillance Unit (NZPSU). These groups are now known collectively as the CYPRESS Group (Child and Youth Policy, Research and Support Service).

MAJOR AREAS OF RESEARCH STRENGTH

Clinical genetics
Congenital birth defects affect one in every 30 children born in New Zealand and many aspects of their genesis remain a mystery. The prime thrust of clinical genetics research is the identification of the genetic determinants of congenital birth defects in children. Disorders under investigation include: the otopalatodigital syndrome spectrum disorders; the Larsen syndrome-atelosteogenesis spectrum; periventricular nodular heterotopia; osteopathia striata congenita; and De Barsy syndrome. In addition, the characterisation of new disease genes is a priority. The ethical consequences of the application of genetic information in the clinical arena are also of interest.

Website: www.otago.ac.nz/dsm/clinicalgeneticsgroup

Sleep in children
Research into children’s sleep evolved from a long interest in understanding normal and abnormal breathing during sleep in infancy (when the focus was on infants having apparent life threatening events). It has become increasingly clear that in both adults and children disordered sleep can affect daytime attention span and learning. Studies are currently looking at sleep and breathing in children with ADHD as there is a suggestion that up to 25% of these children may have disordered sleep breathing. Sleep duration is also relevant to childhood obesity.

Childhood obesity
Becoming overweight is one of the biggest threats to health in the twenty first century in many countries including New Zealand. Growth in early childhood sets the pattern for future growth. What babies eat, how they play, and how well they sleep may all be important in how fast babies put on weight. The Prevention of Overweight in Infancy study is a Health Research Council funded study designed to work out whether extra information and support for families can improve eating and activity, encourage better sleep for babies and parents, reduce post-natal depression, improve a family’s well-being and reduces the rate of excessive weight gain during infancy.

Paediatric pharmacology
The use and effect of drugs is different in children. In collaboration with the School of Pharmacy, and the Department of Pharmacology and Toxicology, many studies related to drug use in children are under investigation.

Incontinence
The Cochrane Incontinence Group provides a major focus for this research theme within the Department. The goal of the group is to prepare systematic reviews of the effectiveness of interventions for incontinence, including prevention, treatment and rehabilitation, concentrating on randomised controlled trials. Other incontinence research within the department falls within the framework of clinical rehabilitation, with a specific interest in the management of adult urinary incontinence.
# EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
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<tr>
<th>Year</th>
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<tr>
<td>2012</td>
<td>Prof Stephen Robertson</td>
<td>Defining the genetic predisposition to biliary atresia</td>
<td>Health Research Council of NZ</td>
<td>1,199,327</td>
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<td>2012</td>
<td>Prof Stephen Robertson</td>
<td>Feeling gravity in your bones: Characterising a molecular sensor of force</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>975,000</td>
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<td>2012</td>
<td>Prof Barry Taylor</td>
<td>Prevention of Overweight in Infancy (POI): The Emergence of Self-regulation</td>
<td>Health Research Council of NZ</td>
<td>901,013</td>
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<tr>
<td>2011</td>
<td>Prof Stephen Robertson</td>
<td>Genetic and functional studies into the causation of malformations in children</td>
<td>Cure Kids</td>
<td>600,323</td>
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<td>2011</td>
<td>Dr Pamela Jackson</td>
<td>RV3 Rotovirus Vaccine: A Phase 2 clinical trial for a human neonatal rotavirus vaccine for the global community</td>
<td>Health Research Council of NZ</td>
<td>459,000</td>
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<tr>
<td>2011</td>
<td>Dr Pamela Jackson</td>
<td>RV3 Rotovirus Vaccine: A Phase 2 clinical trial for a human neonatal rotavirus vaccine for the global community</td>
<td>Murdoch Children’s Research Institute</td>
<td>326,869</td>
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<td>2012</td>
<td>A/P Barbara Galland</td>
<td>Sleep patterns over the first two years of life</td>
<td>Freemasons New Zealand</td>
<td>107,759</td>
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<tr>
<td>2012</td>
<td>Prof Stephen Robertson</td>
<td>Studying the genetics of biliary atresia</td>
<td>Cure Kids</td>
<td>99,279</td>
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<td>2012</td>
<td>Dr Jean Simpson</td>
<td>Children’s Social Health Monitor</td>
<td>J R McKenzie Trust</td>
<td>96,131</td>
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<td>2012</td>
<td>Dr Pamela Jackson</td>
<td>Impact of rotavirus specific maternal antibodies on immune response to RV3-BB rotavirus vaccine within the RV3-BB Phase IIa clinical trial in Dunedin, New Zealand</td>
<td>Freemasons of New Zealand</td>
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<td>2011</td>
<td>Prof Don Wilson</td>
<td>Markers of regression in cervical Intraepithelial neoplasia (CIN2) in young women</td>
<td>Lady King Scholarship</td>
<td>63,808</td>
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<td>2012</td>
<td>Rebekah Luo</td>
<td>Sleep disruption in children: Impact on learning and self-regulatory skills</td>
<td>Freemasons New Zealand</td>
<td>54,286</td>
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<td>2011</td>
<td>Rebekah Luo</td>
<td>The role of good self-regulatory skills in children: do they counteract the negative behavioural learning consequences of sleep disruption</td>
<td>Freemasons New Zealand</td>
<td>51,779</td>
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<td>2012</td>
<td>A/P Barbara Galland</td>
<td>Sleep problems in New Zealand infants: developmental outcomes</td>
<td>New Zealand Lottery Grants Board</td>
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* GST exclusive

## COMMERCIAL CONTRACTS

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<tr>
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| 2011-12       | Accident Compensation Commission  
Bay of Plenty District Health Board  
Canterbury District Health Board  
Health Quality and Safety Commission  
Hutt Valley District Health Board  
MidCentral District Health Board  
Ministry of Health  
Nelson Marlborough District Health Board  
Southern District Health Board  
University of Sydney |

Total 2,362,003
### POSTGRADUATE STUDENTS

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<th>Recipient</th>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Pamela Jackson</td>
<td>The Royal Australasian College of Physicians, Excellence in Mentoring Award (clinical and professional practice category)</td>
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<tr>
<td>2011</td>
<td>Professor Barry Taylor</td>
<td>Dean’s Research Medal, Dunedin School of Medicine</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Margriet van Kogelenberg</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
</tbody>
</table>
UNIVERSITY OF OTAGO, CHRISTCHURCH

DEPARTMENT OF ANAESTHESIA
Head of Department: Professor Edward Shipton
Email: ted.shipton@otago.ac.nz
Website: www.otago.ac.nz/christchurch/departments/anaesthesia

The Department of Anaesthesia has a small but active research programme. Recent areas of interest include volatile anaesthetic uptake and distribution; acute and chronic pain, and model-based therapies.

MAJOR AREAS OF RESEARCH STRENGTH

Anaesthetic uptake and distribution
The research is diversified, although realistically collaborative research assumes greater importance in a small Department. Part of the research has been on anaesthetic monitoring particularly with the predictive use of computer modelling. A computer programme has been developed to model volatile anaesthetic uptake and distribution. The relationship between calculated effect-site volatile anaesthetic levels and awakening from anaesthesia has been studied. The safe delivery of anaesthesia has also been examined in patients with mitochondrial myopathies and prolonged QT syndromes. Other research projects include: effect-site guided opioid administration in the immediate postoperative period; effect of low dose intravenous premedication on cardiac output and induction of anaesthesia; and estimating the relative potency of morphine and fentanyl levels by modelling using data from PCA administration.

Pain
An ongoing area of interest is persistent pain and its management. Research focuses on complex regional pain syndrome (CRPS), post surgical neuropathic pain and chronic pain. The predictors and risk factors in the development of persistent acute postoperative pain have been looked at as well. The psychosocial adjustment and physical health of children living with mothers with chronic pain has been explored. The role of parenting as a mediator has been probed. Novel methods of perioperative pain relief have been developed particularly in the paediatric population with the intranasal route and with the use of analgesic drops. The comparison of usual surgical advice versus a non-aggravating six-month gym-based exercise rehabilitation program post-lumbar discectomy with three years of accumulated data has been researched as well. Two ongoing studies are the effect of pre-emptive gabapentin on chronic neuropathic pain following inguinal hernia repair, and the efficacy and safety of bisphosphonates in CRPS.

Intensive care
There is collaboration of work on effect site concentrations of volatile and intravenous anaesthetic agents with bioengineering at Canterbury University. There is potential for feedback loops for target-controlled infusions to be tested in clinical anaesthesia and in pain medicine. There is active collaborative research in model-based therapeutics in the application of physiological modelling and computation. This occurs in the following areas, namely: Tight Glycaemic Control and Specialised Insulin and Nutrition Tables; Metabolic Markers of Critical Illness; Optimising Mechanical Ventilation; Cardiovascular Modelling; and Control Agitation Sensing and Optimising Sedation Delivery. Other research projects include: cardiovascular monitoring for circulatory dysfunction; continuous glucose monitoring and subcutaneously delivered insulin in critically ill patients; and acoustic sensing of ‘crackles’ in patients undergoing mechanical ventilation.

POSTGRADUATE STUDENTS

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<th>Total Head Count</th>
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† thesis or dissertation students only
The Department of Medicine has diverse research interests and hosts a number of very productive research groups. Areas of research include cardioendocrinology, respiratory research, renal disease, clinical pharmacology, neurology, rheumatology; and healthcare of the elderly.

MAJOR AREAS OF RESEARCH STRENGTH

Cardioendocrine research
Cardioendocrine research is undertaken by members of the Christchurch Heart Institute. Research is aimed at defining those plasma neurohormonal measurements, cardiac imaging features, and genotypes which provide the best diagnostic, prognostic and therapeutic potential for detection and management of heart failure. The Group is also involved in a community heart study to assess the proportion of Māori living with undiagnosed heart disease, diabetes, hypertension, high cholesterol or other significant cardiovascular disease risk factors. The work of the Institute has provided a large bank of practical knowledge that is used by cardiologists to monitor the prognosis and treatment of patients who have suffered heart attacks. The Group’s world leading research on natriuretic peptides has contributed to several clinical trials on their use.

Website: www.otago.ac.nz/christchurch/research/cardioendocrine/

Kidney disease
Research is directed towards investigating innovative ways to prevent and treat kidney disease. Expertise ranges from molecular and cellular-level investigations of kidney function, to applying therapies to prevent kidney injury or the progression of kidney disease. The aim is to better understand the mechanisms of insult to the kidney, so as to allow earlier detection and better treatment. Efforts are underway to find new markers for early acute renal failure so it can be treated before irreversible damage or death occurs. Current research projects include: pathophysiology and early detection of acute renal failure; roles of apoptosis, growth factors, cell survival genes, nitric oxide and free radicals in acute renal failure; clinical renal trials, and progression of renal disease.

Website: www.otago.ac.nz/christchurch/research/ckrg

Clinical pharmacology
The clinical application of pharmacology knowledge is the focus of the Clinical Pharmacology Research Group. This Group includes staff from the Clinical Pharmacology Department at Christchurch Hospital, the Drug Information Service and the Drug Utilisation Review Service. Current research interests include: pharmacogenetics; drug metabolism in the elderly; drug use in pregnancy and lactation; antibiotic dosing regimens - especially for the aminoglycosides; phase III drug trials of gastroenterology drugs; provision of drug information; adverse drug reactions; and thiopurine drugs.

Website: www.otago.ac.nz/christchurch/research/clinicalpharmacology

Rheumatology and immunology
The Canterbury Rheumatology and Immunology Research Group conducts research in the broad field of rheumatic diseases. The group aims to promote public awareness and support for arthritis, and to improve the standard of care for patients with rheumatic and immunologic disorders in the Canterbury regions. Research interests include: pharmacokinetics and pharmacogenomics of disease modifying anti-rheumatic therapies; management of gout; novel markers in early arthritis; and Wegener’s granulomatosis. Many of the staff involved in this group are members of the University of Otago’s Arthritis Research Theme.
## EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
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<th>Project Title</th>
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<tbody>
<tr>
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<td>Neurohumoral and genetic prediction and protection in heart disease</td>
<td>Health Research Council of NZ</td>
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<td>Prof Lisa Stamp</td>
<td>Safety and efficacy of high dose allopurinol in the management of gout; a randomised interventional study</td>
<td>Health Research Council of NZ</td>
<td>1,199,225</td>
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<td>2012</td>
<td>A/P Chris Pemberton</td>
<td>A novel insulin production diagnostic</td>
<td>Ministry of Business Innovation &amp; Employment</td>
<td>866,718</td>
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<td>Prof Tim Anderson</td>
<td>Multiple Sclerosis Fellowship</td>
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<td>2012</td>
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<td>2012</td>
<td>Prof Tim Anderson</td>
<td>CHDI sponsored study of Huntington patients, relatives and controls</td>
<td>CHDI Foundation</td>
<td>219,005</td>
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<tr>
<td>2011</td>
<td>Prof Tim Anderson</td>
<td>Multiple sclerosis imaging research fellow</td>
<td>NZ Brain Research Ltd</td>
<td>165,563</td>
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<tr>
<td>2011</td>
<td>Dr Paul Chin</td>
<td>Determining drug clearance for clinically applicable dosing individualisation</td>
<td>Health Research Council of NZ</td>
<td>151,103</td>
</tr>
<tr>
<td>2011</td>
<td>Prof Tim Anderson</td>
<td>Creatine safety, tolerability and efficacy in Huntington’s disease CREST-E</td>
<td>National Institutes of Health (subcontract)</td>
<td>136,667</td>
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<tr>
<td>2011</td>
<td>Dr Anthony Rahman</td>
<td>Venous thromboembolism in cancer patients treated with chemotherapy</td>
<td>Bone Marrow Cancer Research Trust</td>
<td>108,850</td>
</tr>
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<td>2011</td>
<td>Prof Lisa Stamp</td>
<td>Identifying and overcoming barriers to smoking cessation in rheumatoid arthritis</td>
<td>Health Research Council of NZ</td>
<td>102,779</td>
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<td>2011</td>
<td>Prof Vicky Cameron</td>
<td>Genetics of NZ families with premature coronary heart disease</td>
<td>National Heart Foundation of NZ</td>
<td>99,534</td>
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<tr>
<td>2011</td>
<td>Prof Eric Espiner</td>
<td>C-type natriuretic peptide (CNP): a putative biomarker of neuronal damage in Parkinson’s Disease</td>
<td>Michael J Fox Foundation for Parkinson’s Research</td>
<td>96,432</td>
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<td>2011</td>
<td>Dr Anna Pilbrow</td>
<td>Molecular mechanisms underlying genetic susceptibility for heart disease</td>
<td>Canterbury Medical Research Foundation</td>
<td>87,225</td>
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<td>2012</td>
<td>Dr Toni Pitcher</td>
<td>Parkinson’s disease in New Zealand: Prevalence and medication consumption</td>
<td>Neurological Foundation of New Zealand</td>
<td>78,143</td>
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<td>2011</td>
<td>Dr Nicola Scott</td>
<td>The effect of dietary modification on the development of the metabolic syndrome</td>
<td>Canterbury Medical Research Foundation</td>
<td>75,906</td>
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<tr>
<td>2011</td>
<td>Prof Zoltan Endre</td>
<td>High vs low urine outputs targets in surgical patients: a clinical trial</td>
<td>University of Auckland</td>
<td>69,960</td>
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<td>2012</td>
<td>Prof Tim Wilkinson</td>
<td>The effect of an exercise programme on falls in older people with depression</td>
<td>Health Research Council of NZ (subcontract)</td>
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<td>2012</td>
<td>Prof Bridget Robinson</td>
<td>Hypoxic cabinet for cancer research</td>
<td>Canterbury Community Trust</td>
<td>60,368</td>
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<tr>
<td>2011</td>
<td>Prof Zoltan Endre</td>
<td>Multi centre trial of management of biomarkers of acute kidney injury</td>
<td>Australian &amp; New Zealand Society of Nephrology</td>
<td>59,037</td>
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<td>2011</td>
<td>Prof Bridget Robinson</td>
<td>Tissue bank liquid nitrogen freezer</td>
<td>Lions Club of Christchurch Host Charitable Trust</td>
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<tr>
<td>2012</td>
<td>A/P Chris Pemberton</td>
<td>Signal peptides</td>
<td>Otago Innovation Limited</td>
<td>50,998</td>
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* GST exclusive
# Commercial Contracts

<table>
<thead>
<tr>
<th>Year Approved</th>
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<td>Canterbury District Health Board</td>
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<td>Clinical Network Services (CNS) Pty Ltd</td>
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<td>Covance Pty Ltd (Roche)</td>
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<td>Massey University</td>
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<td></td>
<td>PPD Global Ltd New Zealand</td>
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<td>Plant and Food Research</td>
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<td>Quintiles Pty Ltd</td>
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Total 1,001,968

# Postgraduate Students

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† thesis or dissertation students only

# Awards and Honours

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
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</thead>
<tbody>
<tr>
<td>2012</td>
<td>Professor Lisa Stamp</td>
<td>Rowheath Trust Award and Carl Smith Medal, University of Otago</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Suetonia Palmer</td>
<td>L'Oreal Australia and New Zealand Women in Science Fellowship</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Joanna Young</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Chris Pemberton</td>
<td>Liley Medal, Health Research Council of New Zealand</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Richard Troughton</td>
<td>Rowheath Trust Award and Carl Smith Medal, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Evan Begg</td>
<td>Gold Medal for Research, University of Otago, Christchurch</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Michael MacAskill</td>
<td>Outstanding Teaching Award, University of Otago, Christchurch</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Anna Pilbrow</td>
<td>Sir Charles Hercus Health Research Fellowship, Health Research Council of New Zealand</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Tim Wilkinson</td>
<td>Visiting Professor Medal, Australian and New Zealand Society for Geriatric Medicine</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Tracy Melzer</td>
<td>Career Development Postdoctoral Fellowship, Division of Health Sciences</td>
</tr>
</tbody>
</table>
The Department of Obstetrics and Gynaecology has a number of established research projects in progress which are funded from a variety of sources. The main themes are gynaecological cancer; reproductive steroids in cardiovascular disease; endocrine regulation of reproduction; and maternal and fetal medicine.

Staff are members of a number of advisory bodies, serve on a variety of grant assessing committees including the HRC, are guest editors of international journals, present invited talks at international conferences and peer review journal submissions and grant applications.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Gynaecological cancer and precancer**

The department is closely affiliated with the regional gynaecological cancer service as well as local colposcopy and pathology services. Such collaborative links permit bench to bedside research. The department takes part in, and leads, international multicentre clinical trials, local clinical trials, retrospective clinical studies and commercial research.

**Cell and protein regulation**

The Laboratory for Cell and Protein Regulation is interested in characterising the communities of chemical factors that make up physiological systems and to describe the dynamic interactions that occur. The main research themes are gynaecological cancers, endocrine regulation of reproduction, female fertility, and assessment of fetal welfare. The research is undertaken in collaboration with other scientists both locally and internationally in basic science and clinical areas. There have been long-standing interactions with the Schools of Biological Sciences and Engineering at the University of Canterbury with whom we hold a Marsden Grant.

**Maternal and fetal medicine**

Research covers both maternal and fetal health and outcomes. One area of research interest is database development. Ongoing data is collected for the (i) Fetal Medicine Clinical Unit which reviews women with complicated fetal problems or those at risk for them, and the (ii) Maternal Medical Clinic where women with underlying medical problems attend. This enables both audit and follow up of specific cases. The Department is also running two substantial local studies exploring the prognostic value of HbA1c and C-type Natriuretic Peptide (CNP) in pregnancy. Researchers in the department are also involved in multicentre trials related to control of hypertension in pregnancy, preterm birth and predictors of preeclampsia.

**EXTERNAL GRANTS > $10,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI Name</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>A/P Peter Sykes</td>
<td>PRINCess: The prediction of regression in CIN2. A prospective multicentre trial of conservative management of CIN2 in women under the age of 25</td>
<td>Cancer Society of New Zealand Inc</td>
<td>107,173</td>
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<td>2011</td>
<td>Prof John Evans</td>
<td>Interactions between cells and substrates</td>
<td>MacDiarmid Institute</td>
<td>102,159</td>
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<td>2011</td>
<td>Prof John Evans</td>
<td>Mechanisms of hormone storage inside neurons: novel hypotheses</td>
<td>Royal Society of New Zealand (subcontract)</td>
<td>67,788</td>
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<td>2011</td>
<td>Prof John Evans</td>
<td>Intersection of nanoscience and biology</td>
<td>MacDiarmid Institute</td>
<td>49,837</td>
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<td>2012</td>
<td>Dr Gloria Evans</td>
<td>Endometrial biomarker assessment IVFdx</td>
<td>Otago Innovation Limited</td>
<td>33,061</td>
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<tr>
<td>2012</td>
<td>A/P Peter Sykes</td>
<td>Research data coordinator</td>
<td>Gynaecological Cancer Research Trust</td>
<td>10,000</td>
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* GST exclusive
## COMMERCIAL CONTRACTS

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<th>Organisation</th>
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<td></td>
<td>Onogenetix Ltd</td>
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<td>Roche Diagnostics</td>
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<td>University of Sydney</td>
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Total: 134,100

## POSTGRADUATE STUDENTS

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† thesis or dissertation students only

## AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Dr Ruth Hughes</td>
<td>Australasian Diabetes in Pregnancy Society, Graz Clock Award for best clinical presentation and research</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Ruth Hughes</td>
<td>Society of Obstetric Medicine of Australasia and New Zealand, President's Award for best clinical presentation and research</td>
</tr>
</tbody>
</table>
The Department of Orthopaedic Surgery and Musculoskeletal Medicine is unique in New Zealand in that both the Academic and Service Departments are combined so that the surgical and medical components of musculoskeletal diseases and injuries come under the roof of one department.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Tissue engineering and Regenerative Medicine**

Tissue engineering and regenerative medicine strategies which aim to combine a patient’s own cells, biodegradable scaffolds and growth factors may offer considerable advantages over current surgical interventions used to repair or regenerate damaged tissues following trauma or disease. This is the focus of the Christchurch Regenerative Medicine and Tissue Engineering Group (CReaTE). Using advanced 3D scaffolds and in-vitro culture techniques, combined with adult human stem cells, our group is attempting to identify the complex cellular environments controlling tissue growth in 3D. We are also researching their application in translating cell-based therapies to the clinic. Areas of particular research interest include: articular cartilage and bone regeneration, advanced scaffold design and biofabrication, orthopaedic medical device design and research related to spine and total joint arthroplasty interventions.

**Prospective clinical outcome studies**

Studies underway are mainly long term prospective outcome studies on various types of total joint replacements. In addition the department is responsible for the National Joint Replacement Register. The Register was established by the New Zealand Orthopaedic Association in 1997 to record technical information about total hip and knee surgery performed in New Zealand including patient outcome measures. There are now over 52,000 procedures registered. These include primary and revision hips, knees, ankles, elbows and shoulders.

**Monitoring outcomes of joint replacement**

Several collaborative studies investigating varied outcome measures are underway including: joint replacement revision due to infection (Pathology/Infectious Disease Departments, UOC), bone density adjacent to implants (Health Care of the Elderly Department), acoustic monitoring of implants (Engineering, University of Canterbury), as well as ongoing assessment of wear in implants with different articulations.

**Reconstructive upper limb surgery for tetraplegia**

Reconstructive surgery for tetraplegia has been carried out at the Spinal Injuries Unit at Burwood Hospital since 1982. The Unit is now one of the leaders in the world, not only for the surgery itself but also for outcome studies including the development of new surgical procedures. An active research programme includes studies into: changes in tendon length during postsurgical rehabilitation; development of a device for accurate measurement of joint torque; patterns of shoulder motion; and wheelchair kinematics.

**EXTERNAL GRANTS > $10,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI Name</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Dr Tim Woodfield</td>
<td>New frontiers in musculoskeletal regenerative medicine: Biofabrication of cartilage and bone for entire joint resurfacing</td>
<td>Rutherford Discovery Fellowship, Royal Society of NZ</td>
<td>800,000</td>
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<tr>
<td>2012</td>
<td>Dr Sumit Lal</td>
<td>Titania nanoparticle targeted theranostics for breast, colorectal and prostate cancer</td>
<td>Genesis Oncology Trust</td>
<td>164,223</td>
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<tr>
<td>2012</td>
<td>Dr Tim Woodfield</td>
<td>skelGEN (FP7-PEOPLE-2012-IRSES) – Establishment of a cross continent consortium for enhancing regenerative medicine in skeletal tissues.</td>
<td>Marie Curie/European Commission, International Research Staff Exchange Scheme</td>
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<tr>
<td>2012</td>
<td>Prof Alastair Rothwell</td>
<td>Postdoctoral Fellowship</td>
<td>Canterbury Orthopaedic Services Trust</td>
<td>78,657</td>
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<tr>
<td>2011</td>
<td>Prof Gary Hooper</td>
<td>Bone density monitoring of hip replacements</td>
<td>NZ Wishbone Trust</td>
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<tr>
<td>2011</td>
<td>Dr Tim Woodfield</td>
<td>Neural tissue engineering</td>
<td>Canterbury Orthopaedic Services Trust</td>
<td>51,000</td>
</tr>
</tbody>
</table>
2011 Dr Tim Woodfield  
Pre-clinical multi-spectral (MARS) imaging of cartilage and bone for early detection of osteoarthritis  
Arthritis New Zealand  
27,500

2012 Dr Tim Woodfield  
Equipment grant for sawing microtome  
New Zealand Orthopaedic Association  
12,438

* GST exclusive

### COMMERCIAL CONTRACTS

<table>
<thead>
<tr>
<th>Year</th>
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<td>Biomet</td>
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<td></td>
<td>Orthotec</td>
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<td></td>
<td>Plant and Food Research</td>
</tr>
<tr>
<td></td>
<td>Synthes New Zealand Ltd</td>
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<td>University of Auckland</td>
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<td>University of Canterbury</td>
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**Total** 584,596

### POSTGRADUATE STUDENTS

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<thead>
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<tr>
<td>Masters†</td>
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<td>-</td>
</tr>
</tbody>
</table>

† thesis or dissertation students only

### AWARDS AND HONOURS

<table>
<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Dr Tim Woodfield (PhD student)</td>
<td>Rutherford Discovery Fellowship, Royal Society of New Zealand</td>
</tr>
<tr>
<td>2012</td>
<td>Ben Schon (PhD student)</td>
<td>Todd Foundation Award for Excellence</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Sumit Lal (PhD student)</td>
<td>John Gavin Postdoctoral Fellowship, Genesis Oncology Trust</td>
</tr>
<tr>
<td>2012</td>
<td>Ben Schon (PhD student)</td>
<td>Best Poster Prize, Division of Health Sciences Research Forum</td>
</tr>
<tr>
<td>2012</td>
<td>Ben Schon (PhD student)</td>
<td>Todd Foundation Award for Excellence</td>
</tr>
<tr>
<td>2011</td>
<td>Ben Schon (PhD student)</td>
<td>Claude McCarthy Fellowship, Te Pkai Tara Universities New Zealand</td>
</tr>
</tbody>
</table>
The Department of Paediatrics has an active research programme. Long-established research interests include paediatric urology especially reflux, community child health, sudden infant death syndrome, and neonatal research. Ongoing research activities include respiratory medicine, gastroenterology, nutrition, neonatal medicine, infectious diseases and childhood cancer.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Neonatology**

The Cure Kids Chair in Paediatric Research is held in the Department by Professor Brian Darlow. Research interests concern the care of newborn, sick and premature babies, including trying to identify the causes of health problems associated with premature birth and ways to prevent them. Follow-up studies of the health outcomes of extremely premature infants are also carried out. A specific interest is free radical disease in the newborn.

**Childhood cancer**

The Children’s Cancer Research Group is working on a variety of projects, from the basic biology of cancer in children, to the complex long-term effects of its treatment. Researchers are interested in the biology and genetics of childhood solid tumours. Current projects involve investigating the molecular genetics of neuroblastomas and hepatoblastomas using microarray gene expression technology, tissue arrays and protein analysis. More specifically, projects are underway to investigate the role of histone methylation and DNA methylation in both neuroblastoma and hepatoblastoma, and the role of the sonic hedgehog developmental pathway in paediatric solid tumours.

**Gastrointestinal disorders**

In recent years, a new research focus has been developed on host:pathogen interactions within the gastrointestinal tract, with particular emphasis upon inflammatory bowel disease (IBD) and Crohn’s disease.

**EXTERNAL GRANTS > $10,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
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<tbody>
<tr>
<td>2012</td>
<td>Prof Brian Darlow</td>
<td>New Zealand very low birth weight young adults: mapping the road ahead</td>
<td>Health Research Council of NZ</td>
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<td>2012</td>
<td>Prof Brian Darlow</td>
<td>New Zealand very low birth weight adult follow-up study: Project manager</td>
<td>Cure Kids</td>
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<tr>
<td>2012</td>
<td>Prof Brian Darlow</td>
<td>New Zealand very low birth weight adult follow-up study: MRI scanning and other support</td>
<td>Cure Kids</td>
<td>300,000</td>
</tr>
<tr>
<td>2012</td>
<td>Prof Andrew Day</td>
<td>Crohn’s and colitis in New Zealand children</td>
<td>Cure Kids</td>
<td>103,379</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Tony Walls</td>
<td>Monitoring the safety of pertussis vaccine (Tdap) given during pregnancy</td>
<td>Canterbury District Health Board</td>
<td>89,500</td>
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<tr>
<td>2012</td>
<td>Dr Sarah Harris</td>
<td>N-Terminal Pro B-Type Natriuretic Peptide (NT-pBNP) and late pulmonary hypertension secondary to chronic lung disease in extremely low gestational age neonates</td>
<td>Freemasons New Zealand</td>
<td>48,311</td>
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<tr>
<td>2012</td>
<td>Prof Brian Darlow</td>
<td>Funding for EndoPAT machine</td>
<td>Canterbury Neonatal Unit Trust</td>
<td>33,984</td>
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* GST exclusive
## POSTGRADUATE STUDENTS

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<tr>
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*thesis or dissertation students only

## Awards and Honours

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<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Dr Sarah Harris</td>
<td>Freemasons Research Fellowship</td>
</tr>
</tbody>
</table>
The Department of Pathology is one of the largest and most research intensive departments at the University of Otago, Christchurch. Research groups within the Department include: the Free Radical Research Group (FRRG); the Cancer Genetics Research Group; the Gene Structure and Function Laboratory; the Angiogenesis and Cancer Research Group (ACRG); the Christchurch Haematology Research Group; the Inflammation Research Group, the Liver Sieve Research Group; the Christchurch Microbiology Research Group; and the Breath Research Group. The Department also hosts the Carney Centre for Pharmacogenetics.

Major Areas of Research Strength

Free radical research
Free radical research, carried out in the Centre for Free Radical Research is one of the Department’s major research interests. The Centre consists of biochemists and cell biologists undertaking a range of interrelated research projects on aspects of oxidative stress and antioxidant action. Current areas of research include: oxidant production by neutrophils, with emphasis on the enzymology of myeloperoxidase; the molecular and cellular reactions of the neutrophil oxidant, hypochlorous acid; mechanisms and consequences of thiol protein oxidation; redox regulation of cell signaling; oxidative stress and apoptosis; radical scavenging mechanisms and reactions of superoxide radicals. The group has an active programme of developing biomarker assays for specific oxidants and applying them to investigating oxidative injury in disease. Collaborative clinical projects include investigations of the role of oxidants in lung disease and brain injury in premature infants, cystic fibrosis, inflammatory conditions such as asthma, gout and sepsis; and gastrointestinal diseases.

Website: www.otago.ac.nz/christchurch/research/freeradical

Cancer research
The Mackenzie Cancer Research Group is investigating the biology of human tumours with a focus on the molecular regulation of blood (angiogenesis) and lymphatic vessel formation (lymphangiogenesis) and function during human tumour growth and metastasis. Specific research interests include: expression and regulation of angiogenic factors in human cancers; effects of the tumour microenvironment on tumour angiogenesis; targeting tumour endothelium; links between cancer, inflammation, and thrombosis; ethnicity and cancer biology; metabolism, insulin resistance and chronic low-grade inflammation in cancer biology; and skin cancers in immune-suppressed renal transplant recipients.

Website: www.otago.ac.nz/christchurch/research/mackenzie/otago011636.html

Gene structure and function
Much of the current research centres on the areas of psychiatric genetics and pharmacogenetics (the impact of genetic variation on responses to drugs) and is carried out within the Gene Structure and Function Laboratory. The laboratory’s psychiatric genetics research is a collaboration with Professor Peter Joyce in the Department of Psychological Medicine. Another important collaboration exists with the Christchurch Health and Development Study. Laboratory expertise includes DNA banking, gene structure and expression analysis, polymorphism discovery and genotyping, DNA sequence analysis, tissue culture, proteomics, microarray analysis, and genomics.

Website: www.otago.ac.nz/christchurch/research/genestructure

Inflammation
The Inflammation Research Group has an active research programme on the molecular pharmacology and molecular pathology of various inflammatory conditions such as acute pancreatitis, polymicrobial sepsis and burns with the long-term goal of developing clinically effective therapeutic approaches.

Website: www.otago.ac.nz/christchurch/research/inflammation

Infectious diseases
Infectious diseases research is carried out by several clinicians and scientists within the department, and is based both locally and overseas. Current interests include the epidemiology and microbiology of respiratory tract and bloodstream infections, the role of vitamin D in infection, and the development of new diagnostics for infectious diseases. The latter includes analysis of potential biomarkers in breath.
## EXTERNAL GRANTS > $40,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
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<td>2012</td>
<td>Prof Tony Kettle</td>
<td>Oxidative stress in health and disease</td>
<td>Health Research Council of NZ</td>
<td>4,242,985</td>
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<tr>
<td>2011</td>
<td>Prof Margreet Vissers</td>
<td>Ascorbate-mediated regulation of HIF-1 controlled tumour growth and angiogenesis</td>
<td>Health Research Council of NZ</td>
<td>812,984</td>
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<tr>
<td>2011</td>
<td>A/P Mark Hampton</td>
<td>Regulatory cytokine with a built-in redox sensor</td>
<td>New Zealand – Marsden</td>
<td>773,913</td>
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<tr>
<td>2011</td>
<td>Prof Martin Kennedy</td>
<td>Methylation-stabilised G-quadruplex structures as a novel mammalian gene regulation mechanism</td>
<td>Royal Society of New Zealand – Marsden</td>
<td>708,696</td>
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<td>2012</td>
<td>Dr Logan Walker</td>
<td>Genetic variation and breast cancer development</td>
<td>Health Research Council of NZ</td>
<td>485,920</td>
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<tr>
<td>2011</td>
<td>A/P Mark Hampton</td>
<td>NRCGD: Biomarkers of mitochondrial oxidative stress</td>
<td>TEC (subcontract)</td>
<td>299,420</td>
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<tr>
<td>2011</td>
<td>Prof Stephen Brennan</td>
<td>Hyper activation of phagocytes by toxic lipoproteins</td>
<td>Royal Society of New Zealand (subcontract)</td>
<td>145,178</td>
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<td>2011</td>
<td>A/P Mark Hampton</td>
<td>NRCGD Depreciation</td>
<td>TEC (subcontract)</td>
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<td>2011</td>
<td>Dr Margaret Currie</td>
<td>Myeloid-derived suppressor cells, immune suppression and tumourigenesis</td>
<td>Cancer Society of New Zealand Inc</td>
<td>103,355</td>
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<td>2011</td>
<td>Dr Gabi Dachs</td>
<td>Physiological targeting in cancer therapy</td>
<td>Health Research Council of NZ (subcontract)</td>
<td>81,265</td>
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<td>2012</td>
<td>Dr Logan Walker</td>
<td>Copy number variants and BRCA1 associated breast cancer</td>
<td>Canterbury Medical Research Foundation</td>
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<td>2012</td>
<td>Dr Amy Scott-Thomas</td>
<td>Improving the 2-AA breath test for Ps. aeruginosa detection</td>
<td>New Zealand Lottery</td>
<td>72,000</td>
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<td>2011</td>
<td>A/P Mark Hampton</td>
<td>SUORG top up – development and testing of novel MIF inhibitors: Novel isothiocyanates for the treatment of murine models of inflammatory bowel disease</td>
<td>Otago Innovation Limited</td>
<td>47,000</td>
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<td>2012</td>
<td>Dr Logan Walker</td>
<td>Genetic copy number variation and breast cancer development</td>
<td>Cancer Society of New Zealand Inc</td>
<td>44,220</td>
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<td>2012</td>
<td>Prof Bhatia Madhav</td>
<td>Hydrogen sulfide and substance P: Novel markers of inflammation in rheumatoid arthritis and gout</td>
<td>Arthritis New Zealand</td>
<td>41,469</td>
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* GST exclusive

## COMMERCIAL CONTRACTS

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## POSTGRADUATE STUDENTS

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† thesis or dissertation students only

## AWARDS AND HONOURS

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<th>Year</th>
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<th>Award</th>
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<tbody>
<tr>
<td>2012</td>
<td>Professor Christine Winterbourn</td>
<td>Companion of the New Zealand Order of Merit</td>
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<tr>
<td>2012</td>
<td>Professor Tony Kettle</td>
<td>Fellow Royal Society of New Zealand</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Logan Walker</td>
<td>Sir Charles Hercus Health Research Fellowship, Health Research Council of New Zealand</td>
</tr>
<tr>
<td>2012</td>
<td>Professor Martin Kennedy</td>
<td>Life Sciences/New Zealand Society of Biochemistry and Molecular Biology Award</td>
</tr>
<tr>
<td>2012</td>
<td>Professor Christine Winterbourn</td>
<td>Elected Foreign Member of Brazilian Academy of Sciences</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Christine Winterbourn</td>
<td>Rutherford Medal, Royal Society of New Zealand</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Mark Hampton</td>
<td>Gold Medal for Research, University of Otago, Christchurch</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Steve Chambers</td>
<td>Gold Medal for Research, University of Otago, Christchurch</td>
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</table>
The Department of Psychological Medicine is one of the largest Departments at the University of Otago, Christchurch and has a very active research programme. The Department hosts a number of research groups including: the Christchurch Health and Development Study (CHDS); the Mental Health Clinical Research Unit (MHCRU); and the National Addiction Centre (NAC).

**MAJOR AREAS OF RESEARCH STRENGTH**

**Lifecourse research**
The Christchurch Health and Development Study (CHDS) has been in existence for more than thirty years. During this time it has followed the health, education and life progress of a group of 1,265 children born in the Christchurch urban region during mid 1977. This cohort has now been studied from infancy into childhood, adolescence and adulthood. Research projects in this study span a wide range of disciplines including psychology, psychiatry, epidemiology, paediatrics, health economics and sociology.

Website: [www.otago.ac.nz/christchurch/research/healthdevelopment](http://www.otago.ac.nz/christchurch/research/healthdevelopment)

**Mental health research**
The Mental Health Clinical Research Unit (MHCRU) is involved in studies on depression, bipolar affective disorder, bulimia nervosa, anorexia nervosa, and the psychological effects of the Christchurch earthquakes. Current studies include a psychotherapy treatment trial in depression, a psychotherapy trial in people with bipolar disorder, a comparison of three psychotherapies for binge eating, and a study on the genetics of depression and personality.

Website: [www.otago.ac.nz/christchurch/research/mentalhealthclinicalresearch](http://www.otago.ac.nz/christchurch/research/mentalhealthclinicalresearch)

**Addiction research**
The National Addiction Centre (NAC) is dedicated to developing and promoting effective interventions for people with alcohol, drug and addiction related problems in Aotearoa New Zealand. Ongoing research projects include: Zonnic™ and Patch (ZAP) Smoking Cessation Study; Treatment Evaluation of Alcohol and Mood (TEAM) Study; Youth Retention Study; Odyssey Youth Outcome Study; The Effectiveness of Naltrexone in Reducing the Craving of People with Pathological Gambling; Resilience in Indigenous Health Networks; Nicotine Study; and Development of Māori AOD Services and Workforce in Aotearoa New Zealand.

Website: [www.otago.ac.nz/nationaladdictioncentre/](http://www.otago.ac.nz/nationaladdictioncentre/)

**EXTERNAL GRANTS > $10,000 AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
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<tr>
<td>2011</td>
<td>Prof David Fergusson</td>
<td>The Christchurch Health and Development study: Birth to 35 years</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>Prof Marie Crowe</td>
<td>A randomised clinical effectiveness trial of a bipolar disorder clinic</td>
<td>Health Research Council of NZ</td>
<td>1,189,961</td>
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<td>2011</td>
<td>Prof Roger Mulder</td>
<td>Health anxiety CBT vs TAU for patients with non-cardiac chest pain</td>
<td>Health Research Council of NZ</td>
<td>726,685</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Cameron Lacey</td>
<td>Psychological stress and genetic associations with stress cardiomyopathy</td>
<td>Health Research Council of NZ</td>
<td>104,918</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Simon Adamson</td>
<td>Collaboration with and for rural Māori with addiction and related problems</td>
<td>Health Research Council of NZ</td>
<td>60,000</td>
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<td>2012</td>
<td>A/P John Horwood</td>
<td>Prevalence of traumatic brain injury in New Zealand</td>
<td>Health Research Council of NZ (subcontract)</td>
<td>52,996</td>
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<td>2012</td>
<td>Katie Douglas</td>
<td>Effect of glucocorticoid administration on brain function in PTSD</td>
<td>Canterbury Medical Research Foundation</td>
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* GST exclusive
COMMERCIAL CONTRACTS

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Total 9,076

POSTGRADUATE STUDENTS

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<tr>
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† thesis or dissertation students only

AWARDS AND HONOURS

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<thead>
<tr>
<th>Year</th>
<th>Recipient</th>
<th>Award</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>A/P Lois Surgenor</td>
<td>Fellow, New Zealand College of Clinical Psychologists</td>
</tr>
<tr>
<td>2011</td>
<td>Professor Roger Mulder</td>
<td>Gold Medal for Research, University of Otago, Christchurch</td>
</tr>
<tr>
<td>2011</td>
<td>A/P Simon Adamson</td>
<td>SSA Fred Yates Prize Researcher of the Year, Society for the Study of Addiction in York, United Kingdom</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Jenny Jones</td>
<td>Fellow, New Zealand College of Clinical Psychologists</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Melanie Coker</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
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</table>
The joint department is unique in New Zealand in that it brings together Public Health and General Practice/Primary Care teaching and research groups.

**MAJOR AREAS OF RESEARCH STRENGTH**

**General practice research**

The Christchurch General Practice Research Group is involved in research into many areas of primary health care in New Zealand. The Group focuses on clinical research, where the results can be directly translated into clinical practice. The two central research themes underpinning this are rational use of medicines and innovative models of primary care.

Website: [www.otago.ac.nz/christchurch/research/generalpractice](http://www.otago.ac.nz/christchurch/research/generalpractice)

**Public health research**

Public health is the study and practice of preventing disease, prolonging life and promoting the health of the population through the organised efforts of society. Research by the Public Health Research Group is carried out in the following areas: epidemiology, including colorectal cancer control in New Zealand; influenza; health services; health policy; health determinants; and methodological advances.

Website: [www.otago.ac.nz/christchurch/research/publichealth](http://www.otago.ac.nz/christchurch/research/publichealth)

**EXTERNAL GRANTS AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Phil Hider</td>
<td>Lifting the performance of New Zealand’s health system. A research collaborative</td>
<td>University of Auckland</td>
<td>790,399</td>
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<tr>
<td>2011</td>
<td>Dr Lee Thompson</td>
<td>Role evolution and community pharmacy in Christchurch: perceptions of pharmacists, GPs and pharmacy users</td>
<td>Canterbury Medical Research Foundation</td>
<td>53,102</td>
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<tr>
<td>2011</td>
<td>Prof Philip Schluter</td>
<td>Keep on brushing: improving the oral health self-care of 18-24 year old beneficiaries</td>
<td>Partnership Health Canterbury (Te Kei o Te Waka)</td>
<td>3,509</td>
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* GST exclusive

**Postgraduate Students**

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<tr>
<td>Masters†</td>
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† thesis or dissertation students only
The Department has a small but active research programme. Recent research projects include: the development of a national thoracic aortic stent database to collect and assess data from all implants performed in New Zealand; the development of new detectors that have applications in medical imaging; and bioengineering and nanomedicine.

**MAJOR AREAS OF RESEARCH STRENGTH**

Bioengineering and nanomedicine

Researchers in the department are involved in the University of Otago Centre for Bioengineering and Nanomedicine which was formed in late 2009. The Centre aims to facilitate the commercial delivery of biomedical and scientific innovations for the benefit of New Zealand and the international community. Research within the Centre at UOC is currently focused on medical imaging, tissue engineering, and medical computing.

Website: www.otago.ac.nz/bioengineering/

Aneurysm repair

Research seeks to evaluate the safety and efficacy of new devices and techniques in interventional radiology.

### EXTERNAL GRANTS AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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<tbody>
<tr>
<td>2011</td>
<td>Dr Anthony Butler</td>
<td>Spectral analysis with synchrotron for translating spectral CT imaging from small animal to human use</td>
<td>Royal Society of New Zealand</td>
<td>15,000</td>
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<tr>
<td>2011</td>
<td>Dr Nigel Anderson</td>
<td>Spectral CT of fatty liver disease in live mice</td>
<td>Royal Australian and New Zealand College of Radiologists</td>
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* GST exclusive

### POSTGRADUATE STUDENTS

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† thesis or dissertation students only

### AWARDS AND HONOURS

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<th>Recipient</th>
<th>Award</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Anthony Butler</td>
<td>Phillips Healthcare Prize, Royal Australian and New Zealand College of Radiologists</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Paul Ronaldson</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
</tbody>
</table>
Major research interests in the Department of Surgery include emergency medicine; ophthalmology; otolaryngology; general, oral and maxillofacial, paediatric, vascular, endovascular and transplant surgery; and urology. Another focus is in the Developmental Genetics Research Group, working in collaboration with Paediatrics.

**MAJOR AREAS OF RESEARCH STRENGTH**

*Helicobacter pylori*

A range of projects relating to Helicobacter infection in humans are being carried out by the Helicobacter Research Group. Current research centres on the gastric pathogen, *Helicobacter pylori* and the role that small outer membrane vesicles shed from the bacterial surface play in the development of *Helicobacter pylori*-associated disease, including gastric cancer. Investigations into the use of common foods to ameliorate *Helicobacter pylori*-associated gastric inflammation are ongoing. The link between the presence of *Helicobacter pylori* and inflammatory bowel disease, a precursor for colon cancer is also being studied. Investigations of *Mycobacterium avium* subsp. paratuberculosis in the aetiology and pathogenesis of Crohn’s disease are also underway.

Emergency medicine

Research includes diagnostic decision-making research, in collaboration with the Respiratory Medicine and Cardioendocrine Research Groups and the ethics of resuscitation medicine.

General surgery

The department has considerable expertise in clinically-based research. A number of clinical trials are underway including: ALCCaS RCT – an Australasian randomised controlled multi-centre trial of laparoscopic versus open surgery for colorectal cancer; a multicentre RCT on colonic stents versus open operation for stage 4 colorectal cancers; and a multicentre RCT of laparoscopic versus open surgery for rectal prolapse.

**EXTERNAL GRANTS AWARDED 2011-2012**

<table>
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<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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<tbody>
<tr>
<td>2012</td>
<td>Keenan Jacqueline</td>
<td>Toxin-producing strains of Bacteroides fragilis and colorectal cancer</td>
<td>Genesis Oncology Trust</td>
<td>33,972</td>
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* GST exclusive

**COMMERCIAL CONTRACTS**

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<td>Ministry of Health</td>
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<td>Waikato District Health Board</td>
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### AWARDS AND HONOURS

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<th>Year</th>
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<tr>
<td>2012</td>
<td>Professor Michael Ardagh</td>
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<tr>
<td>2011</td>
<td>Professor Michael Ardagh</td>
<td>John Gilroy Potts Award, Australasian College for Emergency Medicine</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Tim Eglinton</td>
<td>Roche Best Poster Award, New Zealand Society of Gastroenterology Annual Meeting</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Tim Eglinton</td>
<td>American College of Surgeons International Guest Scholarship</td>
</tr>
</tbody>
</table>
The Centre for Postgraduate Nursing Studies is actively involved in research around advancing nursing practice and improving health outcomes for patients nationally and internationally. While there is a nursing emphasis in much of the Centre’s research, studies may not be exclusively focused on nursing.

Research at the Centre has a focus on person centred care with the goal of minimising the impact of chronic health needs on people’s lives. Research explores symptom experience, risk assessment, preventative care and symptom control issues, with particular emphasis on the enhancement of patient self-management strategies. The study of chronic health needs encompasses a broad spectrum of disease and age groups to include children, families and older people.

### EXTERNAL GRANTS AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
<th>$*</th>
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<tbody>
<tr>
<td>2011</td>
<td>A/P Whitehead Lisa</td>
<td>Building research capability: Nursing and allied health</td>
<td>University of Auckland</td>
<td>18,481</td>
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<tr>
<td>2011</td>
<td>Dr Sandra Richardson</td>
<td>Recognising the impact on students of a crisis event in an educational setting: Developing response recommendations</td>
<td>University of Canterbury</td>
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<td>2011</td>
<td>Dr Mary Gagan</td>
<td>Nurse practitioner job satisfaction and anticipated turnover in New Zealand</td>
<td>New Zealand Nursing Education and Research Foundation</td>
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* GST exclusive

### POSTGRADUATE STUDENTS

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### AWARDS AND HONOURS

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<th>Award</th>
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<tr>
<td>2012</td>
<td>Virginia Jones</td>
<td>Strategy to Advance Research (STAR) Postdoctoral Fellowship</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Sandra Richardson</td>
<td>Distance Education Association of New Zealand DEANZ Award</td>
</tr>
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</table>
The Department of Medicine is active in many areas of medical research including disease mechanisms, new treatments and clinical trials of treatments. The Department is home to three major research groups which are reflected in the areas of research strength detailed below. Other academic staff in the department also participate in research appropriate to their subspecialty, either individually, or in collaboration with other departments or outside bodies.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Rehabilitation**
Research into the process and outcomes of rehabilitation is conducted at the Rehabilitation, Teaching and Research Unit (RTRU). Research is aimed at improving the quality of life of people with disabilities in New Zealand. Specific interests include qualitative methodologies, psychometrics, continence, kinetic video games, multiple sclerosis, rheumatic disorders, theory of mind, stroke, spinal cord injury and family therapy.

Website: www.otago.ac.nz/wellington/study/rehabilitation

**Asthma**
The Wellington Asthma Research Group’s (WARG’s) research programme covers clinical, biomedical and public health aspects of allergy, asthma and respiratory research, including studies to understand the causes of these disorders and investigate novel treatments. The group is also part of the HRC Housing and Health research programme in the, and part of the ASPIRE network for tobacco control, both in the Department of Public Health and internationally with UCLA Berkeley on studies of chronic hydrogen sulphide exposure and health.

Website: www.otago.ac.nz/wellington/research/waarg/otago016711.html

**Sleep disorders**
Sleep research is the focus of WellSleep - a comprehensive sleep investigation centre which carries out diagnosis, treatment and research into a variety of sleep disorders including sleep apnoea, nocturnal hypoventilation, periodic limb movements during sleep, narcolepsy, and parasomnias. Recent research topics include: Ethic differences in treatment outcomes for patients with obstructive sleep apnoea (OSA); the technical performance and patient acceptability home setup polysomnography; effectiveness and acceptance of different modes of positive airway pressure (CPAP, C-Flex™ and AutoPAP) in severe OSA; cardiovascular effects of OSA; cardio-ventilatory coupling during sleep in human adults, children and infants; development of healthy sleep educational material for Mäori; novel measures of insomnia diagnosis; and evaluation of a new milk product for insomnia.

Website: www.otago.ac.nz/wellington/about/services/wellsleep/index.html

**EXTERNAL GRANTS > $30,000 AWARDED 2011-2012**

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<tr>
<th>Year</th>
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<tr>
<td>2011</td>
<td>Dr Kristin Wickens</td>
<td>A maternal probiotic intervention for infant allergic disease prevention</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>Dr Tristram Ingham</td>
<td>Whiti Te Ra: The contribution of housing conditions to bronchiolitis disparities</td>
<td>Health Research Council of NZ</td>
<td>1,157,725</td>
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<td>2012</td>
<td>Dr Bernadette Jones</td>
<td>Asthma health literacy and Mäori</td>
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<td>2012</td>
<td>Dr Caroline Shorter</td>
<td>Fungal spore and allergen reduction using a PCO device</td>
<td>BRANZ</td>
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<td>Dr William Levack</td>
<td>The process and experience of family carers managing nursing procedures at home</td>
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<td>Dr Jean Hay-Smith</td>
<td>Disability foundations: Anxiety and injury perceptions after upper limb trauma</td>
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<td>Pulmonary Wii-habilitation: A pilot study</td>
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2012 Dr Will Taylor  

Award for the development of gout classification criteria  

American College of Rheumatology  

73,903

2012 Dr Will Taylor  

ACR-EULAR Revised Classification Criteria for Gout – New Zealand data collection arm  

Arthritis New Zealand  

49,346

2012 Dr Angela Campbell  

Sleep health education in Māori: A local intervention study  

New Zealand Lottery Grants Board  

47,502

2012 Prof Julian Crane  

A new measurement system for fungal exposure: Are levels of qPCR fungi linked to new onset asthma in NZ children?  

Asthma Foundation  

33,831

* GST exclusive

COMMERCIAL CONTRACTS

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† thesis or dissertation students only

AWARDS AND HONOURS

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<tr>
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<td>Janet McDonald (PhD student)</td>
<td>Health Research Council, Disability Research Placement Programme Grant</td>
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<td>2011</td>
<td>Dr Rob Griffiths</td>
<td>John Stoke Memorial Prize, Australia and New Zealand Society of Occupational Medicine</td>
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<tr>
<td>2011</td>
<td>Dr Pauline Boland</td>
<td>Best Abstract in Postgraduate Neurology, Australian Occupational Therapy Association Conference</td>
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<tr>
<td>2011</td>
<td>Dr Pauline Boland</td>
<td>Best Emerging Researcher, New Zealand Rehabilitation Conference</td>
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<td>2011</td>
<td>Dr David Powell</td>
<td>Master’s Award, New Zealand Region of the Guild of Air Pilots and Air Navigators</td>
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<tr>
<td>2011</td>
<td>Elaine Tyrrell (Masters student)</td>
<td>Best Oral Presentation, Australian Rehabilitation Nurses Association 21st Annual Conference</td>
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</table>
Research interests in the Department of Obstetrics and Gynaecology are varied and include fertility and assisted reproductive techniques, endometrial cancers, renal disorders, prenatal diagnosis and therapy, endometriosis, incontinence following delivery, perinatal outcomes following caesarean section, perinatal pathology, and sudden infant death syndrome.

MAJOR AREAS OF RESEARCH STRENGTH

Reproductive medicine

The Reproductive Medicine team within the Department are involved in collaborative research with the School of Biological Sciences, Victoria University of Wellington. Studies underway include: the possible regulatory role of proteins from the human egg in IVF patients undergoing intracytoplasmic sperm injection; a clinical audit of the effectiveness of two different approaches to the management of infertile patients presenting with anovulation.

EXTERNAL GRANTS AWARDED 2011-2012

<table>
<thead>
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<th>Year</th>
<th>PI</th>
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<td>2011</td>
<td>Pringle Kevin</td>
<td>Effects of Bladder outlet obstruction on fetal Lambs</td>
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* GST exclusive

AWARDS AND HONOURS

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<tbody>
<tr>
<td>2012</td>
<td>Professor John Hutton</td>
<td>Distinguished Service Medal, Royal Australian and New Zealand College of Obstetricians and Gynaecologists</td>
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</table>
The members of the Department of Paediatrics and Child Health are committed to conducting high quality research into common and important childhood diseases and to ensure the knowledge gained is translated into improved adolescent and child health outcomes. Current research focuses on paediatric infectious disease, vascular complications of diabetes, hypoglycaemia, genetics of childhood epilepsy, respiratory control in newborn babies and preterm infants, long-term cardiovascular sequelae of prematurity childhood asthma, eczema and allergy, and the effect of pre- and probiotics on the development of these disorders.

MAJOR AREAS OF RESEARCH STRENGTH

Epilepsy
The epilepsies are a common group of disorders. A significant proportion of them are inherited and due to genetic factors. The Wellington Epilepsy Research Group is undertaking research aimed at further delineation of the clinical features and genetics of epilepsies found in families, and identifying genes for these epilepsies. The overall rationale is that by understanding the basic molecular mechanisms of the inherited epilepsies we will get a deeper understanding of the disorder, with implications for diagnosis, prognosis and development of new treatments.

Sleep and breathing
The department is collaborating with colleagues in the Department of Surgery and Anaesthesia on research into measures of respiratory variability and cardiorespiratory interactions in infants and children. Another area of interest is the cause of perinatal death and SUDI. Staff are involved with the national SUDI case-control study.

Diabetes
Research in this area involves investigation of the acute and chronic complications of diabetes, particularly their pathophysiology and early development, and also treatment. The aims of this research are to identify factors involved in the early pathogenesis of the vascular complications of diabetes, when interventions will have the greatest effect.

Allergy and infectious disease
Recent research has looked at the role of probiotics in preventing infant eczema and atopy; Vitamin D in bronchiolitis; dampness and fungal spores in childhood wheeze; gut permeability in eczema; the use of exhaled nitric oxide in assessing asthma control; and effectiveness of allergen desensitisation. There are strong research links in these areas with the Wellington Asthma Research Group and the Housing and Health Research Programme.

Long-term physiological outcomes after extremely preterm birth
This is a newly developing research area for the department. Initial studies have been completed looking at cardiorespiratory stability of preterm infants at time of discharge. Long-term follow-up studies looking at the effects of extreme prematurity on cardiac and respiratory function are being planned both in a preterm infant cohort and in a translational animal model paradigm.

EXTERNAL GRANTS AWARDED 2011-2012

<table>
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<tr>
<th>Year</th>
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<th>Project Title</th>
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<td>Dr Amanda D’Souza</td>
<td>Healthy public policy for children in NZ: overcoming the obstacles</td>
<td>Health Research Council of NZ</td>
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<td>Lucie Zwimpfer</td>
<td>Talking to babies in a neonatal intensive care unit: The impact of verbal soothing on measures of infant stress during painful procedures</td>
<td>Hawkes Bay Medical Research Foundation Inc</td>
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<td>2011</td>
<td>Dr Tamsin Roberts</td>
<td>What is the best method to monitor the severity of ongoing respiratory events in very preterm infants prior to discharge from the neonatal nursery?</td>
<td>Hawkes Bay Medical Research Foundation Inc</td>
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<td>2012</td>
<td>Dr Berry Max</td>
<td>Donation towards research using an animal model</td>
<td>The Neonatal Trust, Wellington</td>
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* GST exclusive
### POSTGRADUATE STUDENTS

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† thesis or dissertation students only

### AWARDS AND HONOURS

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<th>Award</th>
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<td>2012</td>
<td>Lucie Zwimpfer (PhD student)</td>
<td>Fanny Evans Postgraduate Scholarship for Women</td>
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<td>2012</td>
<td>Dr Mary Berry</td>
<td>Neonatal Update Young Investigator Award, Imperial College London</td>
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<tr>
<td>2011</td>
<td>Dr Tamsin Roberts</td>
<td>Freemasons Paediatric Fellowship</td>
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</table>
The Department of Pathology and Molecular Medicine is a multidisciplinary unit in which the subdisciplines of haematology, microbiology, chemical pathology, anatomical pathology and molecular pathology are represented. Current research activities within the Department focus on the causes and behaviour of various cancers with a specific emphasis on breast, cervix, kidney, prostate and bladder malignancy. Dental research and urogenital pathology are also areas of research interest.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Urogenital pathology**
Research activities are focused on the classification, diagnosis, molecular biology, growth kinetics and outcome prediction for adult and childhood renal tumours. Other areas of research are: the pathogenesis and spread of bladder cancer; the pathogenesis, diagnosis and behaviour of testicular tumours and prostate cancer; and progeria kidney.

**Molecular pathology**
The Wakefield Biomedical Research Unit moved to the department from Wakefield Hospital in 2009. It has a strong research focus on the molecular basis of the spread of colorectal cancer and the fundamental cause of insulin resistance, type 2 diabetes and obesity.

**Prostate cancer research**
The Prostate Cancer Trials Unit is a research unit within the department participating in international and local clinical trials to treat prostate cancer. Research activities are focused on the classification, in particular the Gleason categories, diagnosis and effective treatment of prostate cancer.

**Dental research**
The Dental Research Unit has an extensive research programme investigating dental mineralisation, causes of tooth decay and oral microbiology. Studies to date include plaque growth and development, regulation of plaque pH, urea metabolism, plaque mineralisation by calcium phosphates, enamel demineralisation and fluoride effects, antiplaque agents, and the biodiversity and ecology of dental plaque bacterial communities. The Unit houses a novel computer-controlled 'multiplaque artificial mouth'. This allows the development of realistic plaque microcosm biofilm model systems.

**EXTERNAL GRANTS AWARDED 2011-2012**

<table>
<thead>
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<td>Dr David Lamb</td>
<td>Prostate cancer: Protein markers to determine which patients require treatment</td>
<td>Victoria University; Wellington</td>
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<td>2011</td>
<td>Dr Jonathan Foo</td>
<td>Identification of gene transcription profile differences in the liver following gastric bypass surgery in a Zucker diabetic fatty rat model of obese type 2 diabetes mellitus</td>
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* GST exclusive

**POSTGRADUATE STUDENTS**

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† thesis or dissertation students only

**AWARDS AND HONOURS**

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<td>2012</td>
<td>Professor Brett Delahunt</td>
<td>Fellow, Royal Society of New Zealand</td>
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<tr>
<td>2012</td>
<td>A/P David Lamb</td>
<td>Officer of the New Zealand Order of Merit (ONZM) for services to health</td>
</tr>
<tr>
<td>2011</td>
<td>Professor John Carter</td>
<td>Member of the New Zealand Order of Merit (MNZM) for services to Medicine</td>
</tr>
<tr>
<td>2011</td>
<td>A/P David Lamb</td>
<td>Life Membership of the Cancer Society of New Zealand (Wellington Division)</td>
</tr>
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DEPARTMENT OF PRIMARY HEALTH CARE AND GENERAL PRACTICE

Head of Department: Associate Professor Sue Pullon
Email: sue.pullon@otago.ac.nz
Website: www.otago.ac.nz/wellington/departments/primaryhealthcaregeneralpractice

The interdisciplinary research undertaken within the Department informs practitioners and consumers, patients and policy makers about many aspects of health and primary health care. Our research strengths are in women’s health, mental health, communication in health care and health services research - with a focus on primary health care.

MAJOR AREAS OF RESEARCH STRENGTH

Women’s health
Many diseases including osteoporosis, depression, breast cancer, menopause and Alzheimer’s disease differentially affect women. The Women’s Health Research Centre (WHRC) works collaboratively, both internationally and locally, to explore important health challenges for New Zealand women. Key areas of research focus include: mid-life health, diabetes and heart disease, health and well-being for young pregnant women, and sexual health. Research is conducted within a kaupapa Māori framework. Other areas of interest include: osteoporosis, contraception, fertility, unplanned pregnancy, maternity and health of the newborn.
Website: www.otago.ac.nz/wellington/research/whrc

Communication in health care
Communication in health care is the domain of the Applied Research on Communication on Health (ARCH) Group, with a particular focus on effective health professional- patient communication. Major studies to date include the Interaction Study: Exploring Clinical Decision-Making when Rationing is Explicit (2003-2005); Tracking Health Care Interactions: Patient-Professional Communication; Understanding Diabetes Management- Tracking Communication in Primary Care (2008-2011) and Communication in Interpreted Health Encounters (2012-13). Members of the ARCH core group have been collecting and analysing video recordings of naturally occurring interactions between health practitioners and patients since 2003. These have now been permanently archived along with various related data in the ARCH Corpus, a searchable digitised collection of health care interactions and related data for use in interaction analysis and education; this is the first data set of its kind in New Zealand.
Website: www.otago.ac.nz/wellington/research/arch

Mental health
The Department has a longstanding involvement in mental health care research. Academics from the Department in collaboration with the Department of Psychological Medicine were responsible for producing the landmark Mental Health in General Practice (MaGPie) study which described the prevalence, form, course and outcome of common mental disorders in New Zealand general practices. The Department has also been responsible, together with colleagues from Psychological Medicine, for the evaluation of the Ministry of Health funded programme of Primary Mental Health Initiatives, the development of toolkits for primary mental health care and the production of an ultra-brief psychological intervention for consultation use. The Department is currently involved in two randomised controlled trials in mental health care, the first of light and exercise therapy in dementia and the second of anti-depressant cessation in general practice. A member of the Department is also working with a WHO panel involved in the mental health component of the revised international classification of disease (ICD-11).

Health services research
A variety of projects and studies in health services research have been completed and include: the evaluation of Mid Central District Health Board mobile nursing service; Pathways Study; Primary Health Care Nurse Education Nelson Bays Primary Health Care Report; utilisation of primary health care: analysis of routinely collected data (HURA); performance indicators in primary care, and the capacity of routine primary care to manage pandemic influenza. The Study of Interprofessional Practice in Primary care (SIPP) investigating collaborative practice and teamwork is in progress, and is related to evaluation of interprofessional education for undergraduate health professionals in clinical settings.

Addictive and lifestyle research
The Taboo (Tackling Obesity) study builds on earlier work undertaken by the ARCH group (above). A study on families living with addiction has just been completed, and an investigation into addictive behaviour education for medical students is in progress.
### EXTERNAL GRANTS > $20,000 AWARDED 2011-2012

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<td>SAMM AUDIT Part 2</td>
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<td>Dr Roshan Perera</td>
<td>Quality improvement: the right tool for the right task. A prescription safety pilot project</td>
<td>Health Quality &amp; Safety Commission</td>
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<td>2012</td>
<td>A/P Sue Pullon</td>
<td>An observational study of interprofessional collaborative primary care practice</td>
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Total 59,818

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† thesis or dissertation students only
The Department of Psychological Medicine's research programme is configured around several themes relevant to mental health practice in the New Zealand setting, including:

- mental health service delivery and evaluation, including in primary care
- the interface between psychological and physical health
- social psychiatry
- psychiatric epidemiology
- suicide
- education in the clinical professions.

MAJOR AREAS OF RESEARCH STRENGTH

Psychiatric disorders
These studies include epidemiology, schizophrenia and sleep disorders. This stream includes the epidemiological work of A/P Kate Scott in connection to Te Rau Hinengaro, The New Zealand Mental Health Survey, part of the WHO World Mental Health Surveys studies on schizophrenia and sleep disorders.

Interventional therapies
Research activity here ranges from psychopharmacological to cognitive-behavioural therapies and includes work with consumers and government agencies.

EXTERNAL GRANTS AWARDED 2011-2012

<table>
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<td>2011</td>
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<td>Alcohol Healthwatch</td>
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<td>2011</td>
<td>Fiona Mathieson</td>
<td>The impact of postgraduate training in cognitive behaviour therapy (CBT) on therapist competence and patient outcome</td>
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* GST exclusive

POSTGRADUATE STUDENTS

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<td>2012</td>
<td>Dr Elliot Bell</td>
<td>Fellowship, New Zealand College of Clinical Psychologists</td>
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<tr>
<td>2011</td>
<td>Fiona Mathieson</td>
<td>Beck Institute Scholarship</td>
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</table>
For a number of years the main focus of the Department's research work has been monitoring, understanding and mitigating inequalities in health. The Department also has research strengths in the areas of housing and health, health inequalities, sustainable cities, health promotion and policy in relation to tobacco, nutrition and obesity, health service and preventive intervention prioritisation research, Māori health, cancer control and screening, infectious diseases and health impact assessment.

MAJOR AREAS OF RESEARCH STRENGTH

Housing and health
He Kainga Oranga, the Housing and Health Research Programme, seeks to examine and elucidate the links between housing and health. The aim is to identify and then evaluate housing-related interventions to improve individual, family and community health. Examples of current studies include: Warm Homes for Older New Zealanders; Close-contact Infectious Diseases; Healthy Housing Index; Housing and Childhood Respiratory Illness; Home Injury Prevention Intervention; and Severe Housing Deprivation.

Website: www.healtyhousing.org.nz/

Sustainable cities
In 2008, the New Zealand Centre for Sustainable Cities was established by members of the He Kainga Oranga programme. The Centre is dedicated to providing the research base for innovative solutions to the economic, social, environmental and cultural development of New Zealand's urban centres. In 2012, the Centre was awarded $9.2 million from the Ministry of Business, Innovation and Employment for the Resilient Urban Futures project.

Website: http://sustainablecities.org.nz/

Health inequalities research
The Health Inequalities Research Programme (HIRP) is an HRC funded programme established in July 2005 to explore, explain and provide solutions for systematic health inequalities in New Zealand. There are eight projects within the HIRP programme: CancerTrends; Differential Colon Cancer Survival by Ethnicity in New Zealand; Neighbourhoods and Health; the New Zealand Census-Mortality Study; Socioeconomic Deprivation Indexes (NZDep, NZiDep); SoFIE-Health; SoFIE-Primary Care; and Unequal Treatment – the Role of Health Services.

Website: www.otago.ac.nz/wellington/research/hirp
Health service and preventive intervention prioritisation research

This area of research covers the spectrum from prevention to palliation. A major study is the HRC funded Burden of Disease Epidemiology, Equity and Cost-Effectiveness (BODE’) study. The aim of this study is to build capacity and academic rigour in New Zealand in the estimation of disease burden, cost-effectiveness and equity impacts of proposed interventions, and undertake a range of such assessments. The two subsidiary projects of BODE3 are: the Aotearoa Burden of Cancer and Comparative Benefit Assessment study (ABC-CBA) and the NZ-Assessing Cost-effectiveness – Prevention (NZ-ACE) study.

Website: www.otago.ac.nz/wellington/research/bode3

Māori health

The focal point for Māori health research in the department is Te Rōpū Rangahau Hauora a Eru Pōmare. The goals of the Centre are to promote and foster health research by, and for, Māori and to provide an environment in which Māori can be trained in a variety of research techniques. Health disparities and unequal treatment between Māori and non-Māori are the foundation of the Centre’s research. Current research themes include breast cancer screening, cancer incidence and statistics, ethnicity, caring for young pregnant Māori women, oral health, rural Māori health, and access to health services.

Website: www.otago.ac.nz/wellington/departments/publichealth/research/otago019668.html

Tobacco and healthy eating - health promotion and policy research

The Health Promotion and Policy Research Unit (HePPRU) is the hub for policy-oriented research into tobacco, food and obesity within the department. ASPIRE2025 is the major thrust in terms of tobacco research and policy. This a partnership between major New Zealand research groups carrying out research to help achieve the Government’s goal of a tobacco-free Aotearoa by 2025. With regard to food and obesity, investigations are underway into policy-relevant issues in nutrition and food policy such as food marketing in sport settings and Pacific perspectives on promoting children’s healthy eating.

Website: www.otago.ac.nz/wellington/research/heppru

Cancer control and screening

This is a growing area of research interest within the department. The Group is involved in a range of research and policy work related to cancer epidemiology and control, and population screening. Their work intersects with that of other research groups within the Department of Public Health, particularly the Health Inequalities Research Programme (HIRP) and Te Rōpū Rangahau Hauora A Eru Pōmare.

Website: www.otago.ac.nz/wellington/research/cancercontrol

Social psychiatry and mental health

The purpose of the Social Psychiatry and Mental Health (SoPop) Group is to contribute to knowledge, policy, and services by conducting research and teaching in the areas of mental health, mental illness, and suicide prevention. The group takes the perspective that understanding mental health and mental illness cannot be achieved without acknowledging the social context. In 2009, over $5 million in funding was received from the Ministry of Health for a Multilevel Intervention Suicide Prevention trial (MISP). While SoPop maintains a strong association with the Department of Public Health it now exists within the Dean’s Department, UOW.

EXTERNAL GRANTS > $30,000 AWARDED 2011-2012

<table>
<thead>
<tr>
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<th>Project Title</th>
<th>Funder</th>
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<tbody>
<tr>
<td>2012</td>
<td>Prof Philippa Howden-Chapman</td>
<td>Resilient Urban Futures Innovation &amp; Employment</td>
<td>Ministry of Business</td>
<td>9,236,552</td>
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<tr>
<td>2012</td>
<td>Prof Philippa Howden-Chapman</td>
<td>He Kainga Oranga/Community Housing and Health Intervention Research Programme</td>
<td>Health Research Council of NZ</td>
<td>3,749,138</td>
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<tr>
<td>2011</td>
<td>A/P Louise Signal</td>
<td>C3 - Cancer Care Journeys and Clinical Decision Making</td>
<td>Health Research Council of NZ</td>
<td>1,198,742</td>
</tr>
<tr>
<td>2011</td>
<td>Prof Michael Baker</td>
<td>Southern Hemisphere influenza vaccine effectiveness research and surveillance (SHIVERS)</td>
<td>Institute of Environmental Science and Research Limited</td>
<td>207,007</td>
</tr>
<tr>
<td>2011</td>
<td>Prof Sunny Collings</td>
<td>Found in translation: Implementing a tool for primary mental health development</td>
<td>Health Research Council of NZ</td>
<td>199,249</td>
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<td>2011</td>
<td>A/P Simon Hales</td>
<td>Community vulnerability, resilience and adaptation to climate change</td>
<td>Research Trust of Victoria University Wellington (subcontract)</td>
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2012 Dr Vivienne Ivory  Built Environments and Physical Activity in NZ Youth (BEANZ)  Health Research Council of NZ (subcontract)  111,022
2012 Dr Kristie Carter  Alcohol consumption in SoFIE  Alcohol Advisory Council of New Zealand  90,000
2011 Dr Kristie Carter  Social policy change: Impacts on the health of New Zealanders  New Zealand Lottery Grants Board  45,000
2011 AVP Simon Hales  Climate change adaptation  World Health Organisation  44,187
2011 Gina Pene  Challenges for Tokelau families managing asthma and COPD in maintaining a healthy environment  Asthma Foundation  40,000
2012 Prof Michael Baker  Rheumatic fever: Improving surveillance in New Zealand  Ministry of Health  38,729
2011 Prof Richard Edwards  Evaluation of the tobacco excise increase in New Zealand  Ministry of Health (subcontract)  32,863
2011 Frank Pega  Alcohol use in bisexual young people: Identifying risk and protective factors  Alcohol Advisory Council of New Zealand  30,000

* GST exclusive

COMMERCIAL CONTRACTS

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<tr>
<th>Year Approved</th>
<th>Organisation</th>
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<td>Auckland Uniservices Limited</td>
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<td></td>
<td>Housing New Zealand Corporation</td>
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<td>Hutt Valley District Health Board</td>
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Total 652,885

POSTGRADUATE STUDENTS

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</table>

† thesis or dissertation students only
The Department has a very varied research portfolio reflecting the interests of staff, ranging from preclinical cancer research and educational research to research into radiation-induced side effects, cancer patient education and information, self care of radiation therapists and radiation therapy advanced practice.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Cancer biology**
Cancer research is being undertaken in conjunction with the Malaghan Institute of Medical Research and Victoria University Wellington. The focus is on highly glycolytic cancers that are very aggressive and resistant to radiation and chemotherapies. One project investigates the mechanism(s) of action of radiosensitization of highly aggressive GBM, by high dose ascorbate in cell and animal models.

**Clinical trials**
A number of clinical trials for treatment of acute side effects of radiation treatment are being conducted in collaboration with the Southern DHB, capital and Coast DHB, MidCentral DHB and Auckland Radiation Oncology. Trials include: the use of soft silicone dressings for radiation-induced skin reactions in women treated for breast cancer; manuka honey for radiation-induced oral mucositis in patients treated for head and neck cancer and cranberry capsules to treat radiation induced cystitis in men with prostate cancer.

**Psycho-oncology**
Psycho-oncology is the investigation into the psychosocial impact of cancer and its treatments, and is undertaken in areas with particular relevance to the radiation therapy profession. The current focus is on the impact of high stress levels experienced by oncology workers in New Zealand on personal accomplishment, job satisfaction and burnout.

**Support of cancer patients during their cancer journey**
In New Zealand support and education services for cancer patients and their families are being provided by the Cancer Society of New Zealand. A series of formal evaluations of one such support and education programme aim to ascertain whether this programme meets the needs of cancer patients and their support people and whether health providers can be confident in referring patients to this programme.

Another aspect of the cancer patient journey is the disjointed transition from specialist oncology care to primary healthcare, provided mainly by general practitioners (GPs). Patients often do not know whom to turn to after they finish hospital care and experience health problems associated with their cancer or cancer treatments. In particular the role of GPs in patient care in this setting is unclear. This research aims to determine how GPs and oncologists view the role of GPs in this setting and to provide a framework for better communication to facilitate a seamless transition from specialist to primary care.

**Radiation therapy advanced practice**
Advanced practice for radiation therapists is an exciting opportunity to develop skills in areas not traditionally seen as part of the radiation therapist role. Worldwide, advanced practice has been shown to increase job satisfaction and retention as well as patient care.

Nationwide surveys in collaboration with the New Zealand Institute of Medical Radiation Technology (NZIMRT) have been undertaken in 2008 and 2011. All research to date had demonstrated that there is substantial support for the implementation of Advanced Practice roles in New Zealand and that a Masters degree is considered to be the minimum qualification to underpin the clinical knowledge of radiation therapy advanced practice. In recent years the University of Otago has implemented two dedicated postgraduate pathways to provide academic qualifications for radiation therapy advanced practice.
## EXTERNAL GRANTS > $5,000 AWARDED 2011-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
<th>Funder</th>
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<tr>
<td>2012</td>
<td>Dr Patries Herst</td>
<td>Radiosensitisation of highly aggressive cancers by high dose ascorbate</td>
<td>Genesis Oncology Trust</td>
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<td>2011</td>
<td>Paul Kane</td>
<td>Evaluation of Living Well Programme in New Zealand</td>
<td>Cancer Society of New Zealand Inc</td>
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<tr>
<td>2012</td>
<td>Paul Kane</td>
<td>An investigation of best ways for GPs to support and inform those affected by cancer under their care</td>
<td>Cancer Society of New Zealand Inc</td>
<td>11,241</td>
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<td>2011</td>
<td>Dr Gay Dungey</td>
<td>Stress, burnout and job satisfaction in oncology care in New Zealand</td>
<td>Cancer Society Wellington Division</td>
<td>9,360</td>
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<td>2012</td>
<td>Dr Patries Herst</td>
<td>The effect of high dose ascorbate ± radiation on tumour progression in an intracranial mouse glioma model</td>
<td>The Surgical Research Trust</td>
<td>8,990</td>
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<td>2012</td>
<td>Dr Patries Herst</td>
<td>The effect of high dose ascorbate ± radiation on tumour progression in an intracranial mouse glioma model</td>
<td>Neurological Foundation of New Zealand</td>
<td>8,550</td>
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<td>2012</td>
<td>Kareen Grimshaw</td>
<td>Predicting patient outcomes using biological modeling for radiation therapy treatment plans</td>
<td>Genesis Oncology Trust</td>
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* GST exclusive

## POSTGRADUATE STUDENTS

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<tr>
<td>Masters†</td>
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</table>

† thesis or dissertation students only
The Department of Surgery and Anaesthesia is involved in a range of research fields including clinical cardiovascular physiology and medicine, surgical practice, anaesthesia, resuscitation, and emergency medicine.

**MAJOR AREAS OF RESEARCH STRENGTH**

**Circulation control (PI S. Tzeng)**
- Minimisation of brain injury after stroke
- Effects of alcohol consumption on brain flow regulation
- Influence of tobacco smoking on dynamic cerebral autoregulation
- Mechanisms of cerebral autoregulation
- The cardiovascular effects of renal nerve ablation in resistant hypertension
- Baroreflex sensitivity and cerebral autoregulation in heart failure

**Ventricular rhythm disturbances (PI P. Larsen)**
- Platelet reactivity and inflammation in ischaemic heart disease
- Technical aspects of interventional cardiology
- Mechanisms of ventricular arrhythmia
- Provision of implantable cardioverter defibrillator therapy
- Applications of novel imaging techniques to aid in diagnostic processes
- Scoring tools for risk stratification in cardiac disease.

**Prehospital emergency care (PI A. Swain)**
- Does a dual fire service and paramedic response improve survival from community cardiac arrest
- Is survival from community cardiac arrest linked to socioeconomic status or location in the Wellington area
- Extended care paramedics – do they reduce hospital emergency attendances?
- Extended care paramedics – a randomised controlled trial of ECP care versus standard paramedic care
- Extended care paramedics – what do the patients think and what is the clinical outcome of ECP care?

**EXTERNAL GRANTS AWARDED 2011-2012**

<table>
<thead>
<tr>
<th>Year</th>
<th>PI</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>2012</td>
<td>Dr Karen Peebles</td>
<td>Reproducibility of the sit-to-stand manœuvre to assess baroreflex function</td>
<td>Wellington Medical Research Foundation Incorporated</td>
<td>5,746</td>
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<td>2012</td>
<td>Dr Shieak-Tzeng</td>
<td>Establishment of a sheep model of focal cerebral ischaemia</td>
<td>Maurice and Phyllis Paykel Trust</td>
<td>5,000</td>
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<tr>
<td>2012</td>
<td>Michael Harrison</td>
<td>An investigation into the morphology of the central venous waveform at the onset of hypovolaemia</td>
<td>J Campbell Barrett Wellington Anaesthesia Trust</td>
<td>3,600</td>
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* GST exclusive

**POSTGRADUATE STUDENTS**

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† thesis or dissertation students only

**AWARDS AND HONOURS**

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<th>Year</th>
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<th>Award</th>
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<tr>
<td>2011</td>
<td>Dr Sheak-Tzeng</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Sheak-Tzeng</td>
<td>Sir Charles Hercus Health Research Fellowship, Health Research Council of New Zealand</td>
</tr>
</tbody>
</table>
The School of Pharmacy has a very active research programme, with disciplines ranging from science to humanities with each having a strong contextual link to health sciences.

MAJOR AREAS OF RESEARCH STRENGTH

Fundamental drug research
Research in this area includes drug discovery, drug metabolism and drug action to extend the range of drugs available and to provide a scientific basis for the quality use of medicines and bioactive substances. Specific areas of research include: computational methods encompassing rational, structure and analogue based drug design techniques, QSAR, drug target identification and lead optimisation; preclinical assessment of new chemical entities including small molecular weight and polypeptide bioactives; development of analytical methods for drugs in formulations and body fluids; studies on drugs of abuse aimed at harm minimisation and for application in forensic toxicology; and pharmacokinetic and toxicity studies on synthetic bioactives and those extracted from natural sources.

Drug formulation and delivery
Bioactive materials such as drugs, vaccine antigens, pesticides and nutrients cannot be administered in their pure form, but must be incorporated into biocompatible formulations which maintain their stability and deliver them in a way that achieves optimal beneficial effects while minimising unwanted side effects. This field has important human, veterinary and agricultural applications. Research in Formulation and Delivery has been designated a Research Theme by the University of Otago.

Clinical pharmacy
Clinical pharmacy is the area of pharmacy concerned with patient care and the optimisation of medicine use in order to promote health and wellness, and prevent disease. Research in this area includes biopharmaceutical, pharmacokinetic and pharmacodynamic strategies to optimise drug therapy in patients; consideration of adverse or toxic events to minimise harm; the study of special populations; and optimal use of medicines.

Social pharmacy
The underlying theme of this research is to improve access to, and the use of, medicines. Several projects explore medicines use in the community, a number of which involve using large datasets to examine medicines use by gender, age, ethnicity and socio-economic status. Other projects look at the extent of medicines wastage in the community and lay people’s understanding and use of medicines. Staff members have an interest in pharmacy practice in developing countries. Recent projects investigate the quality of medicines in South Africa, and other staff members have carried out research in the South Pacific. The evaluation of pharmaceutical policy is also an important theme in the group’s work.
### EXTERNAL GRANTS > $5,000 AWARDED 2011-2012

<table>
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<tr>
<th>Year</th>
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<th>Funder</th>
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<tbody>
<tr>
<td>2011</td>
<td>A/P Natalie Medlicott</td>
<td>From materials to dosage forms for proteins and vaccines</td>
<td>New Zealand Lottery Grants Board</td>
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<td>2012</td>
<td>Dr Rhiannon Braund</td>
<td>Choosing medications that forgive patients for being forgetful</td>
<td>New Zealand Lottery Grants Board</td>
<td>41,800</td>
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<tr>
<td>2012</td>
<td>Dr Shakila Rizwan</td>
<td>Cubosomes: Novel lipid-based particulate carriers to improve delivery and efficacy of anti-epileptic drugs in drug-resistant epilepsy</td>
<td>Otago Medical Research Foundation</td>
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<tr>
<td>2012</td>
<td>Prof Sarah Hook</td>
<td>Development of single dose vaccine implants</td>
<td>NZPERF</td>
<td>12,687</td>
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<tr>
<td>2011</td>
<td>Dr Joel Tyndall</td>
<td>Targeting emerging fungal pathogens and combating resistance</td>
<td>NZPERF</td>
<td>12,250</td>
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<tr>
<td>2012</td>
<td>Dr Shakila Rizwan</td>
<td>Cubosomes: Novel lipid-based particulate carriers for drug delivery across the blood-brain barrier</td>
<td>NZPERF</td>
<td>11,000</td>
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<tr>
<td>2012</td>
<td>Dr Greg Walker</td>
<td>Electrospun wound dressing from wine waste</td>
<td>NZPERF</td>
<td>7,015</td>
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<td>2012</td>
<td>Dr Arlene McDowell</td>
<td>Improving drug absorption using cell penetrating peptides</td>
<td>NZPERF</td>
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<td>2012</td>
<td>Prof Stephen Duffull</td>
<td>Identification of biomarkers of biological ageing to predict drug clearance in the elderly</td>
<td>NZPERF</td>
<td>5,400</td>
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* GST exclusive

### COMMERCIAL CONTRACTS

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<td>TB Alliance</td>
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**Total 627,224**

### POSTGRADUATE STUDENTS

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* † thesis or dissertation students only
### Awards and Honours

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<tr>
<td>2012</td>
<td>Dr Rhiannon Braund</td>
<td>Prime Minister’s Supreme Award for Tertiary Teaching Excellence</td>
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<tr>
<td>2012</td>
<td>Dr Rhiannon Braund</td>
<td>Teaching Excellence Award, University of Otago</td>
</tr>
<tr>
<td>2012</td>
<td>Dr Nicky Thomas</td>
<td>Exceptional PhD Thesis, University of Otago</td>
</tr>
<tr>
<td>2011</td>
<td>Dr Clare Strachan</td>
<td>Early Career Award for Distinction in Research, University of Otago</td>
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</table>
Research and knowledge transfer are integral parts of the School’s activities, and these areas continue to develop rapidly. The School has active research programmes in a variety of rehabilitation related areas, which are managed through the Centre for Health, Activity, and Rehabilitation Research.

MAJOR AREAS OF RESEARCH STRENGTH

- Healthy aging
- Physical activity and health
- Injury prevention and sports concussion
- Clinical biomechanics and medical technologies

EXTERNAL GRANTS > $5,000 AWARDED 2011-2012

<table>
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<tr>
<th>Year</th>
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<tr>
<td>2011</td>
<td>A/P Leigh Hale</td>
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<td>2011</td>
<td>A/P Leigh Hale</td>
<td>Prevention of falls for adults with intellectual disability (PROFAID)</td>
<td>Health Research Council of NZ</td>
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<td>2011</td>
<td>A/P Leigh Hale</td>
<td>Low-cost telerehabilitation for people with chronic stroke</td>
<td>Auckland University of Technology</td>
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<tr>
<td>2011</td>
<td>Dr Steve Tumilty</td>
<td>Support the chronic care community exercise programme – including diabetes, cardiovascular, respiratory disease and morbid obesity</td>
<td>Well Dunedin Health Trust</td>
<td>29,546</td>
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<tr>
<td>2011</td>
<td>A/P Leigh Hale</td>
<td>Developing bridges New Zealand</td>
<td>Physiotherapy New Zealand</td>
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<td>2011</td>
<td>Ben Darlow</td>
<td>The attitudes and beliefs of New Zealanders about low back pain</td>
<td>Physiotherapy New Zealand</td>
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* GST exclusive

COMMERCIAL CONTRACTS

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POSTGRADUATE STUDENTS

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† thesis or dissertation students only

AWARDS AND HONOURS

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<th>Year</th>
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<th>Award</th>
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</thead>
<tbody>
<tr>
<td>2011</td>
<td>Professor John Sullivan</td>
<td>Distinguished Researcher Award Outstanding Publisher-Senior, University of Otago School of Physiotherapy</td>
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<tr>
<td>2011</td>
<td>Dr Gisela Sole</td>
<td>Distinguished Research Award for Outstanding Emerging Researcher, University of Otago School of Physiotherapy</td>
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</table>
RESEARCH FACILITIES AND SUPPORT SERVICES

The Division hosts the following research support services:

Anatomy Museum and Human Skeletal Collection
The W.D. Trotter Anatomy Museum in the Department of Anatomy was established in 1874 and holds a large collection of anatomical specimens and models, many of which date back to the late 1800s. The Museum also holds many osteological specimens and an extensive collection of normal and abnormal radiographs.

The Department has a well-equipped plastination laboratory which provides many of the new material for the Museum’s collections. A number of plastination techniques are undertaken including the silicone technique for plastinated prosections, E12 for transparent body slices, and P35 for thin brain slices.

The Department’s anthropological collection of human skeletal material is the largest in New Zealand. Postgraduate students and staff from any department in the University may apply for research-based access to the Museum and skeletal collections.

Website: http://anatomy.otago.ac.nz

Biostatistical and Bioinformatics Services
The Division and Schools provide professional biostatistical services that are available across the three campuses. Individual arrangements for accessing the services exist in each School.

Bioinformatics expertise and advice is available through the Department of Biochemistry, especially those problems pertaining to microarray data. Contact: Dr Mik Black mik.black@otago.ac.nz. Additional services are available from NZGL, see below.

Centre for Protein Research
The Centre for Protein Research is a facility strongly supported by the Departments of Biochemistry and Microbiology and Immunology but available to all researchers within the University of Otago. It combines both a service facility and a user laboratory that supports research projects largely within the Division of Health Sciences. The centre also provide service analyses for external institutes.

The facility is equipped with contemporary technologies for protein and proteome analyses such as MALDI tandem Time of Flight and ESI-coupled LTQ-Orbitrap mass spectrometry, different HPLC-systems for peptide and protein separation and large scale 2-D gel electrophoresis.

Website: http://biochem.otago.ac.nz/cpr/home.html

Histology Unit
The Division houses the Pathology Anatomy Histology Unit (PAHU). The Unit provides histology services for University researchers as well as outside companies. It also offers diagnostic dental services for the country. The Unit undertakes processing, cutting and staining of all types of tissue. Routine staining, immunoperoxidase and fluorescent techniques are all catered for. Qualified Medical Laboratory Scientists are available to advise on all aspects of histology and to instruct users in either staining techniques or use of equipment. Equipment available for use includes a cryostat, an embedding machine, a microtome, staining machines and a light microscope.

Contact: Mandy Fisher, Department of Pathology (mandy.fisher@otago.ac.nz)
Lynda Horne, School of Dentistry (lynda.horne@otago.ac.nz)

Laser Capture Microdissection
Laser Capture Microdissection is a method for isolating pure cells of interest from specific microscopic regions of tissue sections. Isolated cells can be used for downstream reactions such as RNA extraction for gene analysis, or protein extraction and analysis. Facilities are located in the Department of Anatomy.

Contact: Andrew McNaughton (andrew.mcnaughton@otago.ac.nz)

New Zealand Genomics Limited (NZGL)
NZGL is a collaborative infrastructure serving New Zealand scientists. Several of the countries universities and Crown Research Institutes have pooled their resources in a collaborative national infrastructure designed to accelerate New Zealand’s genomic research and technology. Otago has led this initiative. NZGL provides genomics technology and bioinformatics services to underpin research in a broad range of areas, including medicine, agriculture and the environment. Through its collaborating partners, NZGL offers the following services: next generation sequencing, a microarray service, bioinformatics, genotyping, and IT cloud for data storage and processing.

Website: www.nzgenomics.co.nz
Otago Centres for Electron and Confocal Microscopy

The Otago Centre for Electron Microscopy (OCEM) is well-equipped for all conventional electron microscopy applications. The Centre specialises in a range of cryopreparation techniques (both transmission and scanning electron microscopy) and immunocytochemical techniques. There are two transmission electron microscopes, a Phillips CM 100TM and a Phillips EM410 TEM. The scanning electron microscopes are a JEOL 6700F Field emission scanning electron microscope, a Zeiss Sigma VP FEG SEM, and a Cambridge S360 conventional SEM. The JEOL 6700f is fitted with an Alto 2500 high resolution cryostage for working with frozen hydrated specimens and an elemental analysis (EDS) system.

The Otago Centre for Confocal Microscopy (OCCM) works in close association with the OCEM. It has a Zeiss LSM 710 confocal microscope and two ZEISS LSM 510 confocal laser scanning microscopes: one configured for fixed, slide mounted material, the other for live cell investigations. There is an Olympus AX70 research grade microscope configured for brightfield, phase contrast, darkfield and fluorescence microscopy. It is fitted with a Spot RT 5 megapixel camera and associated software for digital image capture. The Centres also have other equipment available and a full list can be found on the website.

Website: http://ocem.otago.ac.nz/

Otago Flow Cytometry Facility

The Flow Cytometry Facility provides the University of Otago with fluorescent cell analysis and sorting, magnetic bead separation and fluorescent protein detection technology. The facility is situated in two locations on the campus. Two analysers and the fluorescent and magnetic bead based cell sorters, are housed within the Department of Microbiology and Immunology. The other analyser is housed within the Wellcome Institute. In addition the facility offers a Bioplex machine that allows researchers to simultaneously analyse multiple analytes, such as cytokines, within biological samples. These can be used for the analysis of complex cell suspensions: blood cells, bacterial communities, disaggregated tumours, cell cycle analysis.

Contact: Dr Alex McLellan, alex.mclellan@otago.ac.nz

PC3 Facility

The Division’s PC3 biocontainment laboratory is located on the roof of the Microbiology and Immunology building. This facility enables researchers to work directly on human disease causing infections and pathogens. This facility facilitates work in virology, tuberculosis, and other pathogens.

Contact: Professor Kurt Krause, kurt.krause@otago.ac.nz

Protein Crystallography Facility

Professor Krause serves as the Director of the protein crystallography facility within the Division. The facility consists of three large temperature controlled rooms. One is devoted to crystallisation and contains a new MosquitoTM crystallisation robot. The second room contains computer control and modelling facilities. The third room contains a MicroMax007HF with an R-axis IV++ area detector. It is equipped with both chromium and copper anodes and separate optics. Chromium radiation is used for single wavelength anomalous diffraction (SAD) determination of protein structures, mitigating in most cases the need to visit a synchrotron. This approach has been effective for proteins with 2% or more S or Se containing residues. The flux of this machine is roughly equivalent to the protein crystallography beamline at the LSU- CAMD synchrotron facility in Baton Rouge, La. Cryo-cooling is carried out using a Rigaku X-stream 2000 cooling system. The University is also part of a consortium that will have regular access to the protein beamlines at the Australia National Synchrotron in Melbourne. Beams there will be optimised for MAD structure determination and native data collection.

Researchers interested in pursuing a protein crystal structure determination should email Professor Krause at: kurt.krause@otago.ac.nz
DIVISIONAL SUPPORT FOR RESEARCH

The Division has a Research Committee, consisting of the Associate Deans of Research from each School plus other representatives. This Committee meets four or more times annually and controls an annual budget which provides:

- Postdoctoral fellowships
- PhD conference travel funding
- An annual Divisional Research Forum
- Mentoring for targeted grant applications
- Review of applications
- Oversight of PBRF Evidence Portfolio preparation
- Research workshops
- Other support as decided

The Committee is Chaired by the Division's Associate Dean for Research, Professor Catherine Day. The Division employs Dr Michele Coleman as its Research and Development Manager and Dr Kerry Galvin to support research.

For further information please contact: michele.coleman@otago.ac.nz
UNIVERSITY OF OTAGO RESEARCH AND ENTERPRISE OFFICE

The Research and Enterprise Office deals with research funding and assists researchers in gaining funding from the application/proposal stage right through to contracting and reporting stages. Research and Enterprise staff provide the liaison between the funding bodies, industry or businesses and staff at the University. The Research and Enterprise Office deal with a range of activities including:

• Research grants, proposals and contracts (externally funded travel and equipment grants)
• Fellowships
• University of Otago Research Grants
• Technology transfer
• Intellectual property protection (including patents and trademarks)
• Material transfer agreements

Under the auspices of the Research and Enterprise Office, research in the Division of Health Sciences is supported by a number of Research Advisors and Administrators, and additional staff at the University of Otago, Christchurch and Wellington.

STAFF WITH HEALTH SCIENCES RESPONSIBILITIES:

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ruth.appleby@otago.ac.nz

Dr Rachel Elliott, Enterprise Manager - Food, Nutrition and Health
rachel.elliott@otago.ac.nz
APPENDIX 1: PUBLICATIONS BY SCHOOL AND DEPARTMENT 2011 - 2012

BIOETHICS CENTRE

Authored Book - Research

Authored Book - Other

Chapter in Book - Research

Chapter in Book - Other

Journal - Research Article

Journal - Other


Journal - Research Other

Journal - Professional & Other Non-Research Articles

SCHOOL OF DENTISTRY
ORAL DIAGNOSTIC & SURGICAL SCIENCES
Journal - Research Article


**Journal - Research Other**


**Journal - Research Other**


**Journal - Professional & Other Non-Research Articles**


**SCHOOL OF DENTISTRY**

**ORAL SCIENCES**

**Authored Book - Research**


**Chapter in Book - Research**


journal - research other

Journal - professional & other non-research articles
Faggion, Jr., C. M. (2012). Conflict of interest policies should be better reported in dental journals. Journal of the Canadian Dental Association, 78, c52.

Intellectual property

Commissioned report for external body

Awarded doctoral degree

Authorised book - research

Authorised book - other

Edited book - research

Chapter in book - research


Johnson, S. L., & Gemmell, N. J. (2012). Are old males still good males and can females tell the difference?: Do hidden advantages of mating with old males offset costs related to fertility, or are we missing something else? *BioEssays*, 34(7), 609-619. doi: 10.1002/bies.20110157


Morgan, K., Dennis, N. A., Ruffman, T., Bilkey, D. K., & McLaren, I. S. (2011). The stature of boys is inversely correlated to the levels of their Sertoli cell hormones: Do the testes restrain the maturation of boys? PLoS ONE, 6(6), e20533. doi: 10.1371/journal.pone.0020533


**Journal - Research Other**


**Journal - Research Other**


**Journal - Professional & Other Non-Research Articles**


**Intellectual Property**


Gore, C., Custovic, A., Tannock, G. W., Munro, K., Kerry, G., Johnson, K., … Woodcock, A. (2012). Treatment and secondary prevention effects of the probiotics *Lactobacillus paracasei* or *Bifidobacterium lactis* on early infant eczema: Randomized controlled trial with follow-up until age 3 years. *Clinical & Experimental Allergy*, 42(1), 112-122. doi: 10.1111/j.1365-2222.2011.03885.x


Journal - Research Other

Journal - Professional & Other Non-Research Articles

Intellectual Property

Awarded Doctoral Degree

OTAGO SCHOOL OF MEDICAL SCIENCES
PHARMACOLOGY & TOXICOLOGY

Chapter in Book - Research

Journal - Research Article


**Journal - Research Other**


**Journal - Professional & Other Non-Research Articles**

RESEARCH REPORT 2011/2012

Chapter in Book • Research


Journal • Research Article


Journal - Research Other


Journal - Professional & Other Non-Research Articles


DUNEDIN SCHOOL OF MEDICINE
DEAN'S DEPARTMENT

Journal - Research Article


Journal - Research Other


DUNEDIN SCHOOL OF MEDICINE
GENERAL PRACTICE AND RURAL HEALTH

Journal - Research Article

Blattner, K., & Ward, C. (2011). Point of care testing in Hokianga Hospital or 'How to get a good night's sleep in a lab-free zone'. New Zealand Journal of Medical Laboratory Science, 65, 39-41.


Journal - Research Other


Coppell, K. (2012). In people with newly diagnosed type 2 diabetes an intensive dietary intervention, with or without an activity programme, improves glycaemic control over 12 months compared with usual care [Commentary]. *Evidence-Based Medicine, 17*, 85-86. doi: 10.1136/ebm.2011.100193


**Journal - Professional & Other Non-Research Articles**


**DUNEDIN SCHOOL OF MEDICINE PATHOLOGY**

**Authored Book - Research**


**Chapter in Book - Research**


**Journal - Research Article**


*Journal - Research Other*


*Commissioned Report for External Body*


DUNEDIN SCHOOL OF MEDICINE
HUGH ADAM CANCER EPIDEMIOLOGY UNIT, PREVENTIVE AND SOCIAL MEDICINE

*Journal - Research Other*


Commissioned Report for External Body


DUNEDIN SCHOOL OF MEDICINE
INJURY PREVENTION RESEARCH UNIT, PREVENTIVE AND SOCIAL MEDICINE

Chapter in Book • Research


Journal • Research Article


Murray, C. J. L., Vos, T., Flaxman, A. D., Michaud, C., ... Derrett, S., ... Grainger, R., ... Merriman, T. R., ... Taylor, W. J., ... Thomson, W. M., ... Lopez, A. D. (2012). Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet, 380(9859), 2197-2233. doi: 10.1016/S0140-6736(12)61689-4


Vos, T., Flaxman, A. D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., ... Derrett, S., ... Grainger, R., ... Merriman, T. R., ... Taylor, W. J., ... Thomson, W. M., ... Murray, C. J. (2012). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet, 380(9859), 2163-2196. doi: 10.1016/S0140-6736(12)61729-2


**Journal - Research Other**


**Journal - Professional & Other Non-Research Articles**


**Commissioned Report for External Body**


**DUNEDIN SCHOOL OF MEDICINE**

**NATIONAL POISONS CENTRE, PREVENTIVE AND SOCIAL MEDICINE**

**Journal - Research Article**


**Journal - Research Other**


**DUNEDIN SCHOOL OF MEDICINE**

**NEW ZEALAND PHARMACOVIGILANCE CENTRE, PREVENTIVE AND SOCIAL MEDICINE**

**Journal - Research Article**


**Journal - Research Other**


**DUNEDIN SCHOOL OF MEDICINE**

**PREVENTIVE AND SOCIAL MEDICINE**

**Authorised Book - Research**


**Edited Book - Research**

Chapter in Book • Research


Chapter in Book • Other

Journal • Research Article


Bradbury, K. E., Williams, S. M., Green, T. J., McMahon, J. A., Mann, J. L., Knight, R. G., & Skeaff, C. M. (2012). Differences in erythrocyte folate concentrations in older adults reached steady-state within one year in a two-year, controlled, 1 mg/d folate supplementation trial. Journal of Nutrition, 142(9), 1633-1637. doi: 10.3945/jn.112.161562


Gale, C., Skegg, K., Mullen, R., Patterson, T., & Gray, A. (2012). Thoughts of suicide and stage of recovery in patients with schizophrenia in community mental health care. *Australasian Psychiatry*. Advance online publication. doi: 10.1177/1039856212449669


**Journal · Research Other**


RESEARCH REPORT 2011/2012


Parkin, L., & Paul, C. (2011). Should the AEA accept pharmaceutical industry sponsorship for annual scientific meetings and other AEA related events: The argument against [Round Table]. Australasian Epidemiologist, 18(3), 4-5.


Journal - Professional & Other Non-Research Articles


Commissioned Report for External Body


Exhibition


Estimating actual HIV prevalence and undiagnosed infection in a community sample of men who have sex with men: Methods and fieldwork in a New Zealand oral fluid study. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 12p.

Mataura Community development strategy evaluation: Phase one. Dunedin, New Zealand: Department of Preventive and Social Medicine, University of Otago. 20p.

The New Zealand AIDS Foundation Get it On! social marketing campaign: Recall and understanding of the campaign message: Research brief to the Ministry of Health. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 6p.

Attitudes towards safe sex among men who have sex with men in New Zealand: Findings from the GAPSS and GOSS surveys 2002-2011: Research brief to the Ministry of Health. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 15p.


Exhibition


Estimating actual HIV prevalence and undiagnosed infection in a community sample of men who have sex with men: Methods and fieldwork in a New Zealand oral fluid study. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 12p.

Mataura Community development strategy evaluation: Phase one. Dunedin, New Zealand: Department of Preventive and Social Medicine, University of Otago. 20p.

The New Zealand AIDS Foundation Get it On! social marketing campaign: Recall and understanding of the campaign message: Research brief to the Ministry of Health. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 6p.

Attitudes towards safe sex among men who have sex with men in New Zealand: Findings from the GAPSS and GOSS surveys 2002-2011: Research brief to the Ministry of Health. Dunedin, New Zealand: AIDS Epidemiology Group, University of Otago Medical School. 15p.


Exhibition


**Journal - Research Other**


**DUNEDIN SCHOOL OF MEDICINE**

**ORTHOPAEDIC SURGERY, SURGICAL SCIENCES**

**Journal - Research Article**


**Journal - Professional & Other Non-Research Articles**


**DUNEDIN SCHOOL OF MEDICINE**

**OBSTETRICS & GYNAECOLOGY, WOMEN’S & CHILDREN’S HEALTH**

**Journal - Research Article**


Journal - Research Other


Journal - Professional & Other Non-Research Articles


Commissioned Report for External Body


UNIVERSITY OF OTAGO, CHRISTCHURCH
ANAESTHESIA

Journal - Research Article


Journal - Research Other


Commissioned Report for External Body

UNIVERSITY OF OTAGO, CHRISTCHURCH
MĀORI INDIGENOUS HEALTH INSTITUTE

Journal - Research Article


UNIVERSITY OF OTAGO, CHRISTCHURCH
MEDICINE

Chapter in Book - Research


Journal • Research Article


Journal - Research Other


Journal - Professional & Other Non-Research Articles


Intellectual Property


Commissioned Report for External Body


Awarded Doctoral Degree


Chitcholtan, K., Harris, E., Yu, Y., Harland, C., & Garrill, A. (2012). An investigation into plasmolysis in the oomycete Achlya bisexualis reveals that membrane-wall attachment points are sensitive to peptides containing the sequence RGD and that cell wall deposition can occur despite retraction of the protoplast. *Canadian Journal of Microbiology*, 58(10), 1212-1220. doi: 10.1139/w12-099


Inglis, T., Dalzell, K., Hooper, G., Rothwell, A., & Frampton, C. (2012). Does orthopaedic training compromise the outcome in total hip arthroplasty? Advance online publication. doi: 10.1016/j.jsurg.2012.08.003


**Journal · Research Other**


**Commissioned Report for External Body**


**Awarded Doctoral Degree**


**UNIVERSITY OF OTAGO, CHRISTCHURCH**

**PAEDIATRICS**

**Authored Book · Other**


**Chapter in Book · Research**


Journal • Research Article


**Journal - Research Other**


Journal - Professional & Other Non-Research Articles


Journal - Research Article


**Journal • Professional & Other Non-Research Articles**


UNIVERSITY OF OTAGO, CHRISTCHURCH

NATIONAL ADDICTION CENTRE, PSYCHOLOGICAL MEDICINE

**Journal • Research Article**


**Journal • Research Other**


**Commissioned Report for External Body**


**UNIVERSITY OF OTAGO, CHRISTCHURCH

PSYCHOLOGICAL MEDICINE**

**Chapter in Book • Research**


Journal - Research Article


Journal - Research Other


Journal - Professional & Other Non-Research Articles


Commissioned Report for External Body


Chapter in Book - Research

Journal - Research Article


Thompson, L., Reeder, T., & Abel, G. (2012). ‘I can’t get my husband to go and have a colonoscopy’: Gender and screening for colorectal cancer. *Health*, 16(3), 235-249. doi: 10.1177/1363459311403948


**Journal • Research Other**


**Journal • Professional & Other Non-Research Articles**


**Commissioned Report for External Body**


UNIVERSITY OF OTAGO, CHRISTCHURCH SURGERY

**Journal • Research Article**


Journal - Professional & Other Non-Research Articles


Commissioned Report for External Body


UNIVERSITY OF OTAGO, WELLINGTON
DEAN’S DEPARTMENT

Chapter in Book - Research


Journal - Research Article


**UNIVERSITY OF OTAGO, WELLINGTON**

**MEDICINE**

**Chapter in Book - Research**


**Journal - Research Other**


Siebers, R. (2012). Extraction of house dust mite allergen, Der p 1, from dust [Letter to the editor]. Archives of Industrial Hygiene & Toxicology, 63(4), 553. doi: 10.2478/10004-1254-63-2012-2329


Journal - Professional & Other Non-Research Articles

Awarded Doctoral Degree

UNIVERSITY OF OTAGO, WELLINGTON
OBSTETRICS & GYNAECOLOGY
Chapter in Book - Research

Journal - Research Article

Journal - Research Other

UNIVERSITY OF OTAGO, WELLINGTON
PAEDIATRICS & CHILD HEALTH
Journal - Research Article


**Journal - Research Other**


Elder, D. E. (2012). Sleep position does not appear to influence the risk of extreme cardiorespiratory events in vulnerable infants [Commentary]. *Evidence-Based Nursing*. Advance online publication. doi: 10.1136/eb-2012-101003


**Journal - Professional & Other Non-Research Articles**


**UNIVERSITY OF OTAGO, WELLINGTON**
**PATHOLOGY & MOLECULAR MEDICINE**

**Authored Book - Research**


**Edited Book - Research**


**Chapter in Book - Research**

Journal · Research Article


Journal - Research Other


*Journal - Professional & Other Non-Research Articles*


UNIVERSITY OF OTAGO, WELLINGTON

PRIMARY HEALTHCARE AND GENERAL PRACTICE

Chapter in Book - Research


Journal · Research Article


Commissioned Report for External Body


Awarded Doctoral Degree


UNIVERSITY OF OTAGO, WELLINGTON

PSYCHOLOGICAL MEDICINE

Chapter in Book - Research


Journal - Research Article


**Journal • Research Other**


**Journal • Professional & Other Non-Research Articles**


**UNIVERSITY OF OTAGO, WELLINGTON**

**PUBLIC HEALTH**

**Authored Book • Research**


**Chapter in Book • Research**


**Journal • Research Article**


**Journal - Research Other**


Wilson, N., & Thomson, G. (2011). Preventing NCDs through nutritional change is not as complex as it may seem [Letter]. *BMJ*, 343,d6117. doi: 10.1136/bmj.d6117


**Journal - Professional & Other Non-Research Articles**


**Commissioned Report for External Body**


**Creative Work**


**Awarded Doctoral Degree**


**UNIVERSITY OF OTAGO, WELLINGTON**

**SURGERY & ANAESTHESIA**

**Chapter in Book - Research**


**Journal - Research Article**


Isbister, G. K., & Kumar, V. V. P. (2011). Indications for single-dose activated charcoal administration in acute overdose. *Current Opinion in Critical Care*, 17(4), 351-357. doi: 10.1097/MCC.0b013e32834bf59


**Journal \cdot Research Other**


SCHOOL OF PHYSIOTHERAPY

Journal - Research Article


Finch, C. F., McCrory, P., Ewing, M. T., & Sullivan, S. J. (2012). Concussion guidelines need to move from only expert content to also include implementation and dissemination strategies [Commentary]. British Journal of Sports Medicine. Advance online publication. doi: 10.1136/bjsports-2012-091796


Journal • Professional & Other Non-Research Articles


Commissioned Report for External Body


Awarded Doctoral Degree
