INFORMATION FOR CANDIDATES

for appointment as

Postdoctoral Fellow
Metabotropic Glutamate Receptor Signalling in a Mouse Model of Cerebellar Ataxia
(Fixed-term)

DEPARTMENT OF PHYSIOLOGY
OTAGO SCHOOL OF MEDICAL SCIENCES

General Information

A statement of general information for applicants for academic posts within the University is attached.

The Department

The Department of Physiology at the University of Otago is the largest and best known Department of Physiology in New Zealand. Established in 1905, the Otago Department of Physiology celebrated its 100th anniversary mid-2005. Over the years we have made major contributions to undergraduate science, physical education, medical, dental, pharmacy and physiotherapy education and we are one of the larger departments in the University. We have contributed markedly to biomedical research both nationally and internationally and have trained many postgraduates, a number of whom have attained high international reputation for their research.

The University is divided into four main divisions of Health Sciences, Sciences, Humanities and Commerce. We belong administratively to the Division of Health Sciences and the Head of Department reports directly to the Dean of the Otago School of Medical Sciences (OSMS), who in turn is responsible to the Pro-Vice-Chancellor, Division of Health Sciences.

The Otago School of Medical Sciences was established at the beginning of 1996 and comprises the Departments of Anatomy and Structural Biology; Biochemistry; Microbiology and Immunology; Pharmacology and Toxicology; and Physiology.

The Health Sciences Division incorporates within Dunedin the Otago School of Medical Sciences, Dunedin School of Medicine, School of Physiotherapy, School of Dentistry and School of Pharmacy, and in northern campuses the Christchurch and Wellington Schools of Medicine and Health Sciences. Although the Department is administered by the Division of Health Sciences, it is closely allied academically with the Division of Sciences through its BSc programme and the teaching of physical education, human nutrition, and consumer and applied science students. We also have research collaborations within both Health Sciences and Sciences.

Management and Staffing

Leadership and management are provided by a Head, and the Department operates via a fortnightly staff meeting, a system of committees and occasional ad hoc working parties. The Department is an Academic Resource Responsibility Centre within the Otago School of Medical Sciences, giving the Department the flexibility to manage its own finances, establish its own priorities and act accordingly.
The Department currently employs 71 staff:

- **Academic Staff:** Two Professors, two Associate Professors, nine Senior Lecturers, four Lecturers, ten Teaching Fellows, one Professorial Research Fellow, one Research Associate Professor, two Senior Research Fellows, five Research Fellows, four Postdoctoral Fellows, eight Assistant Research Fellows, and two honorary fellows.
- **General Staff:** One Head Technician, one Technical/Laboratory Manager, one Financial Manager, three Administrators, two Computer Support Technicians, two Senior Research Technicians, three Research Assistants, six Technicians/Assistants, and two Electromechanical Specialists.

**Research**

Academic and research-support staff in the 20 research laboratory groups of the Department are engaged in high quality, internationally-recognised physiological research focussed on the three themes of Membrane and Ion Transport, Cellular and Molecular Neuroscience and Circulation, Integrative Physiology and Inflammation. State-of-the-art technologies, including the use of transgenic mouse models, are used to undertake integrative, cellular and molecular investigations aimed at understanding animal and human physiology.

Research in the Department is funded by International and National research organisations such as the USA National Institutes of Health, UK Wellcome Trust, Health Research Council, Foundation for Research, Science and Technology, Royal Society Marsden Fund, Lottery Health, Neurological Foundation, National Kidney Foundation and Arthritis Foundation. Individual researchers within the Department maintain strong collaborative links with other Departments within the University and multiple Australasian, European and US laboratories.

**Recent publications from the Department**

• Clunes, M.T., Butt, A.G. and Wilson, S.M. A glucocorticoid-induced Na\(^+\) conductance in human airway epithelial cells identified by perforated patch recording. Journal of Physiology, 557: 809-819, 2004


Teaching

In addition to our degree programmes (Physiology for BSc and BSc Honours, and Functional Human Biology for BBiomedSc) we contribute to an interdepartmental BSc and BSc(Hons) in Neuroscience, to the First Year Health Sciences paper BIOL 115 and to undergraduate medical education (Med 2 and Med 3). We also provide 200-level courses for other health science professionals (Dentistry; Medical Laboratory Science/Human Nutrition; Pharmacy; and Physiotherapy) and a service course within the Division of Sciences for the School of Physical Education. We teach more than 3,000 individual students over the course of an academic year.

Physical Resources

The Department is housed in the Lindo Ferguson Building in the Medical School complex where we have been since the building was opened in 1927. It occupies in total about three quarters of the basement, ground and first floor of the Lindo Ferguson Building with additional space on the ground floor of the Scott Building and on the first and second floors of the Wellcome Building. In the early 1970s, with the expansion of the Medical School intake and the relocation of the Department of Biochemistry to its new building, extensive alterations were made to the Lindo Ferguson Building to accommodate our Department and the Department of Anatomy and Structural Biology. More recently, most of our teaching laboratories have been upgraded as have many of our
research laboratories, offices and corridors. The Department also manages, jointly with the Department of Anatomy and Structural Biology, the Otago Centre for Confocal Microscopy.

**Further information about the Department of Physiology**

Further information can be obtained from [http://www.otago.ac.nz/physiology](http://www.otago.ac.nz/physiology)

**Duties and Responsibilities**

The Postdoctoral Fellow will carry out research aiming to establish how metabotropic glutamate receptor signalling is altered in a mouse model of cerebellar ataxia, the PMCA2 knockout mouse. Ataxia in the mouse is accompanied by defective cerebellar circuitry and disorganised expression of metabotropic glutamate receptors (mGluR1), the same type of receptors that are lost in a human form of ataxia. The Postdoctoral fellow will determine how mGluR1 signalling is disrupted in this ataxic mouse using whole cell recordings from cerebellar Purkinje neurones and will use in vivo manipulation of mGluR1 pharmacology with post hoc electrophysiological recordings as a way to rescue the defective cerebellar circuitry.

This work will provide better understanding of how mGluR1 signalling influences the function of cerebellar circuits and may reveal future targets for the treatment of ataxia.

The research will be under the direction of Dr Ruth M. Empson, the PI. There is also opportunity for collaboration with other members of the Cellular and Molecular Neuroscience Research Focus Group and with other scientists within the Department and the University. The work is also in collaboration with Dr Thomas Knöpfel at RIKEN Brain Science Institute in Tokyo, Japan and with Dr Natalie Medlicott in the Otago School of Pharmacy in Dunedin. The Postdoctoral Fellow will receive training from the PI in electrophysiological experiments and data analysis, and subsequently will be expected to carry them out in a largely independent way. They will be expected to contribute to innovation and development as the project progresses and to make significant contributions to manuscripts.

We offer a promising research project addressing important questions towards understanding the dynamics of cerebellar function using a combination of established and novel methods, excellent equipment and facilities, a stimulating environment, and a highly competitive salary.

**Relevant publications from the laboratory**

Qualifications

Applicants should hold a PhD and have a strong academic record whilst possessing appropriate practical research skills. The expectation is that applicants should possess competence in some or all of the following techniques with a willingness to develop some or all of these techniques further:

Electrophysiology: Experience with whole cell patch clamp recordings from brain slices, evoked and spontaneous synaptic currents.

Ca\(^{2+}\) Imaging: Experience with fluorescence based Ca\(^{2+}\) measurements in living cells.

In Vivo: Small animal surgery and stereotaxic manipulations.

Molecular Biology: Standard techniques for PCR based genotyping of transgenic animals.

Salary

The salary for a Postdoctoral Fellow is $62,199 per annum.

Contact Person

Specific enquiries may be directed to Dr Ruth M. Empson, Department of Physiology, Otago School of Medical Sciences, Tel 03 479 7328, Fax 03 479 7323, Email ruth.empson@stonebow.otago.ac.nz

Offer of the Position

Should the University wish to offer you the position, a formal, written letter of offer will follow any verbal discussions that might be held with you. It is recommended that you do not resign from your current employment until you have received our written offer. The contents of this formal letter of offer and its attachments will constitute the entire agreement between the employee and the employer, and will supersede all previous representations, negotiations, commitments and communications, either written or oral between the parties. Any agreements will only be binding on the employer where they have been formally offered by the Human Resources Division and accepted by the employee.

Applications

The application procedure is set out in the accompanying General Information Statement. Applications quoting reference number A07/153 close with the Recruitment Consultant, Human Resources Division on Wednesday 31 October 2007.

University of Otago
PO Box 56
Dunedin
NEW ZEALAND

Tel 64 3 479 8269
Fax 64 3 479 8279
Email job.applications@otago.ac.nz