Research Fellow – Chemical biology (peptide/organic chemistry and microbiology/immunology)

Melbourne Dental School
Faculty of Medicine, Dentistry and Health Sciences

POSITION NO  0045621

CLASSIFICATION  Research Fellow Grade 1, Level A

SALARY  $69,148 – $93,830 p.a.

SUPERANNUATION  Employer contribution of 9.5%

WORKING HOURS  Full-Time

EMPLOYMENT TYPE  Fixed-term position available for 3 years

Fixed term contract type: Externally Funded Contract Employment

OTHER BENEFITS  http://about.unimelb.edu.au/careers/working/benefits

HOW TO APPLY  Online applications are preferred. Go to http://about.unimelb.edu.au/careers, under ‘Job Search and Job Alerts’, select the relevant option (‘Current Staff’ or ‘Prospective Staff’), then find the position by title or number.

CONTACT FOR ENQUIRIES ONLY  Prof Neil O’Brien-Simpson
Tel +61 3 9341 1550
Email neil.obs@unimelb.edu.au

Please do not send your application to this contact

For information about working for the University of Melbourne, visit our websites:

about.unimelb.edu.au/careers
Position Summary

Located in the Oral Biology Unit at Melbourne Dental School, you will work on projects developing a new antibiotic agent. The project is funded by an NHMRC project grant investigating a novel antimicrobial peptide polymer and is a collaboration between the Melbourne Dental School and the Department of Chemical and Biomolecular Engineering. This project involves evaluation of the ability of these modified peptide polymers to kill bacteria as well as assessment of toxicity to mammalian cells.

The incumbent will use a number of chemical biology techniques including peptide/organic/polymer chemistry methodologies and microbial techniques to grow a range of Gram positive and Gram negative bacteria, as well as using microbial flow cytometry and tissue culture to evaluate the activity of the antimicrobial peptide polymers. You will be expected to show initiative in the analysis of the antimicrobial peptides using flow cytometry and tissue culture. You will also be expected to assume a degree of responsibility for the coordination and management of the chemistry on antimicrobial material synthesis and analysis using standard and novel flow cytometry assays for assessing activity and growth of bacteria.

1. Key Responsibilities

1.1 Research and Research Training

- Use flow cytometry and bacterial growth assays to determine the ability of modified antimicrobial polypeptides to kill bacteria.
- Synthesis of antimicrobial materials and investigating and liaising with members of the research team novel methods of fabrication.
- Use tissue culture techniques to determine the haemolytic and growth inhibitory activity of the antimicrobial peptides.
- Maintain bacterial cell lines for the assays.
- Prepare reports on the results of experimental investigation for submission as a peer-reviewed publication and/or for grant submission(s).
- Undertake appropriate literature reviews as required, keeping up to date with all relevant literature by using online data searches.
- Writing manuscripts for publication.
- Research coordination of the project including staff and students linked to the project.

1.2 Leadership & Service

- Provide presentations of research results at regular project management meetings and at appropriate national and international conferences.
- Maintain a bibliography database on relevant research topics
- Actively participate and contribute to regular team meetings related to research

1.3 Engagement

- Active participation in some outreach activities relating to research and scholarship
- Effective liaison with external networks to foster collaborative partnerships
Other duties commensurate with the position as directed by the Supervisor.

Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 5.

2. Selection Criteria

2.1 ESSENTIAL

- PhD or equivalent in a relevant discipline e.g. peptide chemistry and antimicrobial materials assessment.
- Demonstrated experience in microbiological techniques including proficiency in the use of microbiological analysis software
- Demonstrated experience in growing bacteria, aerobic and anaerobic.
- Experience in laboratory maintenance and coordination.
- Strong analytical capabilities and problem-solving skills
- Demonstrated ability to work in close cooperation with other members of a research team and to maintain good working relationships.
- Highly developed organisational skills and demonstrated ability to set priorities and to meet deadlines
- Experience in writing and aiding in manuscript preparation for publication in peer-reviewed journals.
- Excellent verbal and written communication skills, including experience in report preparation and delivery.

2.2 DESIRABLE

- Demonstrated experience in peptide chemistry or organic or polymer chemistry.
- Experience with tissue culture, particularly growing cells that form monolayers e.g. epithelial cells.
- Experience in flow cytometry.
- Experience in antibiotic assays.
- Experience in statistical analysis of biological data.
- Experience with growing a range of bacteria.
- Experience with antimicrobial peptide assays and determining their activity and determining minimal inhibitory concentration (MIC) or minimal bactericidal concentration (MBC).

3. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification
and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University’s People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people’s age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous deserve to service for excellence and reach the targets of Growing Esteem.

4. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:
http://safety.unimelb.edu.au/people/community/responsibilities
These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 ORGANISATION UNIT

http://www.dent.unimelb.edu.au/

The Melbourne Dental School is a large clinical department that employs approximately 27 full time teaching academic staff, 21 research staff and 30 general staff and has 300 undergraduate students and 50 graduate students. The oral biology research unit is part of the Melbourne Dental School and the Oral Health Co-operative Research Centre and is located within the School and Bio21 Institute and acts as a functional research group in Peptide Chemistry, Protein Chemistry, Microbiology, Immunology and Molecular Biology, and has strong collaborative ties with other universities and Government Research organisations. This position is one of 26 academic, 2 technical and 3 administrative staff. The Research unit receives extensive funding from industry and the Victorian and Federal Governments. There are currently and 18 graduate and postgraduate students within the Research unit.

5.2 FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

www.mdhs.unimelb.edu.au
The Faculty of Medicine, Dentistry & Health Sciences has an enviable research record and is the University of Melbourne's largest faculty in terms of management of financial resources, employment of academic and professional staff, teaching of undergraduate and postgraduate (including research higher degree) students and the conduct of basic and applied research. The Faculty's annual revenue is $628m with approximately 55% of this income related to research activities.

The Faculty has a student teaching load in excess of 8,500 equivalent full-time students including more than 1,300 research higher degree students. The Faculty has approximately 2,195 staff comprising 642 professional staff and 1,553 research and teaching staff.

The Faculty has appointed Australia’s first Associate Dean (Indigenous Development) to lead the development and implementation of the Faculty's Reconciliation Action Plan (RAP), which will be aligned with the broader University – wide plan. To enable the Faculty to improve its Indigenous expertise knowledge base, the Faculty’s RAP will address Indigenous employment, Indigenous student recruitment and retention, Indigenous cultural recognition and building partnerships with the Indigenous community as key areas of development.

5.3 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia’s premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at http://about.unimelb.edu.au/careers.

5.4 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. http://about.unimelb.edu.au/strategy-and-leadership

The University is at the forefront of Australia’s changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the
University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University’s global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University’s research strategy Research at Melbourne: Ensuring Excellence and Impact to 2025 aspires to a significant advancement in the excellence and impact of its research outputs. http://research.unimelb.edu.au/our-research/research-at-melbourne

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

- **Understanding our place and purpose** – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia’s ‘place’ in the Asia-Pacific region and the world, and on our ‘purpose’ or mission to improve all dimensions of the human condition through our research.

- **Fostering health and wellbeing** – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on harnessing our contribution to the ‘convergence revolution’ of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.

- **Supporting sustainability and resilience** – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

**5.5 GOVERNANCE**

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at http://www.unimelb.edu.au/governance