POSITION DESCRIPTION

Position Title: Research Officer/Research Fellow
Organisation Unit: School of Pharmacy
Position Number: New
Type of Employment: Full-Time, Fixed-Term for 24 months
Classification: Research Academic Level A/B

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver knowledge leadership for a better world.

UQ ranks in the world’s top universities, as measured by several key independent ranking, including the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (52), QS World University Rankings (47), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (60). UQ again topped the nation in the prestigious Nature Index and our Life Sciences subject field ranking in the Academic Ranking of World Universities was the highest in Australia at 20.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland’s highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia’s Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 50,000-plus strong student community includes more than 13,000 postgraduate scholars and more than 12,000 international students from 144 countries, adding to its proud 240,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.8 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and biomedical sciences, sustainable minerals, bioengineering and nanotechnology, as well as social science research.
UQ has an outstanding track-record in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of $11billion+ (see http://uniqquest.com.au/our-track-record).

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

The Faculty of Health and Behavioural Sciences

The Faculty of Health and Behavioural Sciences is a strong faculty that has a coherent focus on health and well-being underpinned by a clear integrative theme related to preventative health and behavioural change. Furthermore, the Faculty provides the opportunity for the allied health sciences to have a strong voice and great visibility within the University.

The Faculty currently includes six schools and three research centres:

- School of Dentistry
- School of Health and Rehabilitation Sciences
- School of Human Movement and Nutrition Sciences
- School of Nursing, Midwifery and Social Work
- School of Pharmacy
- School of Psychology
- Centre for Youth Substance Abuse Research
- RECOVER Injury Research Centre
- Queensland Alliance for Environmental Health Sciences (QAEHS)

More information about the Faculty is available at: http://habs.uq.edu.au/

The School of Pharmacy

The School of Pharmacy is one of the largest Schools of this type in Australia with over 50 academic staff (including joint appointments with the community, hospital and government pharmacies) who are widely published internationally and have extensive research backgrounds. A team of 20 administrative, scientific and IT staff provide operational support, and over 50 people are employed through the School on research grants and other contracts.

The School of Pharmacy has experienced tremendous growth in student numbers, research productivity and professional pharmacy involvement over recent years. The School offers:

- Bachelor of Pharmacy Honours (4 years).
  The degree is taught in six integrated streams of study (Quality Use of Medicines,Dosage Form Design, Drug Discovery, Data Analysis in Pharmacy, Biological Fate of Drugs and Social and Professional Aspects of Pharmacy)
- Research-focused Major in Clinical and Experimental Therapeutics (on-course)
- Clinical Pharmacy and Pharmacy Practice (postgraduate – flexible delivery options)

The School has active research groups in areas ranging from Therapeutic Targeting, Pharmacometrics, and Pharmacy Education to Quality Use of Medicines. Research funds are obtained from government and private sources – UQ, ARC, NHMRC, Queensland Cancer Fund, Queensland Pharmacy Research Trust, Federal and State governments and the pharmaceutical industry. In 2010, the School of Pharmacy relocated to new, purpose built facilities in Brisbane’s PACE (Pharmacy Australia Centre of Excellence) precinct adjacent to hospital, research and industry partners.
Details of the School's activities may be accessed on the school's web site at http://www.uq.edu.au/pharmacy

Information for Prospective Staff

Information about life at UQ including staff benefits, relocation and UQ campuses is available at - http://www.uq.edu.au/current-staff/working-at-uq

The University of Queensland Enterprise Agreement outlines the position classification standards for Levels A to E.

DUTY STATEMENT

Primary Purpose of Position

The primary purpose of the position is to undertake R&D into the chemical synthesis, characterization and in vivo biodistribution and efficacy studies of bioresponsive gene-carrier systems in animal models of diabetes and obesity. A media release on this industry-funded project can be found here.

The individual will use state-of-the-art instrumentation to generate libraries of ligand-functionalized, peptide-based bioresponsive gene-carrier systems. Characterization of the delivery system library using HPLC/MS will follow, alongside determination of their self-assembling potential. In conjunction with research teams at QIMR-B (Brisbane, QLD) and Murdoch University (Perth, WA) the candidate will be involved in conducting and overseeing toxicity, gene delivery and protein silencing studies in a range of cellular/tissue models over-expressing the target protein, PTP-1B. The candidate will also be responsible for developing and validating protocols that pave the way for in vivo biodistribution and efficacy studies investigating lead siRNA-gene carrier system complexes in rodent models of diabetes and obesity.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Demonstrate leadership, initiative and drive for the multi-disciplinary industry-funded project, through regular dialogue and guidance from more senior academic staff. A Level A academic will work with a higher level of support and guidance from more senior academic staff, including project collaborators at QIMR-B and Murdoch University.

- Design and execute well-planned, documented research experiments (working towards GMP standards) relevant to the project aims, objectives and desired outcomes.

- Manage the day-to-day operations of the research project, including those parallel activities underway at QIMR-B and Murdoch University, alongside method development and laboratory book recording (working towards GLP standards), data collection and critical analysis of data, and regular review of the literature.

- Undertake design, synthesis and characterisation of a diverse library of functionalised, bioresponsive carrier systems using manual/automated solid phase peptide synthesis methodologies.
• Undertake comprehensive characterisation of all purified carrier systems using HPLC/MS while using ancillary methodologies to assess self-assembly.

• Be competent in developing, optimizing and validating cell-based models of diabetes/obesity using appropriate chemical inducers and quantifying the gene and protein of interest.

• Determine the stability profile of modified gene-based libraries to a range of enzymes and bodily fluids/tissues.

• Evaluate the biodistribution of carrier-gene systems in rodents, assisted by live animal bioluminescent and fluorescent imaging.

• Evaluate the safety and efficacy of lead gene-carrier system complexes in rodent models of diabetes and obesity.

• Prepare interim progress reports as requested for internal review, and present findings with critical insights at regular ‘in-house’ and collaborator meetings via Skype/Zoom.

• Prepare comprehensive major milestone reports in a timely manner, allowing for internal review, prior to submission and review by the industry partner.

• Take an active, leadership role in supervising related Major/Honours/PhD student projects (as appropriate to the level of the appointment), ensuring where applicable that milestone reports for projects are prepared and submitted in a timely manner and milestone presentations are prepared for students under supervision.

• Engage vendors, arrange quotes and work with UQ’s procurement office in finalising documentation towards the purchase of major infrastructure for the project.

• Be proactive in developing draft manuscripts for publication in high quality outlets, pending industry partner approval (which may be delayed), as appropriate to the level of appointment.

• Be proactive in identifying novel, innovative paths of research and partnerships related to the project, and actively engage in exploring these, as appropriate to the level of appointment.

**Service and Engagement**

• Undertake administrative tasks related to the day-to-day running of research projects, including maintaining lab books and stock levels.

• A Level A academic will demonstrate efficient performance in allocated roles, share in academic service responsibilities, contribute to the outcomes of internal committees and begin to develop external contributions.

• A Level B academic will demonstrate efficient management of allocated internal service roles and will be active in making external contributions

• Foster the School’s relationships with industry, government departments, professional bodies and the wider community.

• Any other duties as reasonably directed by your supervisor.

**Other**

V6.1 August 2017
Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:

- the University’s Code of Conduct
- requirements of the Queensland occupational health and safety (OH&S) legislation and related OH&S responsibilities and procedures developed by the University or Institute/School
- the adoption of sustainable practices in all work activities and compliance with associated legislation and related University sustainability responsibilities and procedures
- requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related responsibilities and procedures developed by the University

Organisational Relationships

The position reports to Dr Harendra (Harry) Parekh in the School of Pharmacy.

SELECTION CRITERIA

**Essential**

- A PhD in Pharmaceutical Sciences or Drug Delivery in addition to a Bachelor (Hons) or Master of Science in Pharmaceutical Chemistry or a related field.
- At a Level A, an emerging profile in research with publications in high-quality outlets.
- At a Level B, an established record of publications or exhibition in high-quality outlets.
- At Level B, evidence of previous contribution in the area of service and engagement
- Proven experience in efficient planning and execution of experiments.
- Relevant research experience working in a research laboratory with demonstrated experience in the areas of:
  - Designing peptide-based carrier systems including bio-conjugation of ligands for tissue-targeted delivery.
  - Synthesis of multi-component peptide-based systems via manual/solid phase peptide synthesis, and their comprehensive characterisation using HPLC/MS and nano/zetasizer analysis to confirm micellar assembly.
  - Developing, optimizing and validating cell-based models of diabetes/obesity through chemical induction and modulation of gene and protein, most preferably with a focus on PTP-1N/1B or similar biomarker of diabetes/obesity.
  - Stability testing of gene-based therapeutics/peptide carrier systems following exposure to enzymes/bodily fluids.
  - Live animal imaging using bioluminescent and/or fluorescent-labelled systems for determination of carrier/gene biodistribution in rodents.
  - Molecular biology techniques including but not limited to gene expression (RT-PCR), Western blot for protein expression, siRNA transfection/fluorescence studies, and gel electrophoresis to determine optimal gene-peptide carrier complexation parameters.
  - Extraction of organs and tissues (from rodents) and their preparation for histological evaluation.
• Evidenced ability in report writing, record keeping, and presentation of research results.
• Demonstrated ability in adopting a methodical, systematic approach to experimental design and problem solving.
• An ability to work collaboratively with team members from different institutions/states and also work with minimal supervision.
• High level of organizational skills, including experience and demonstrated ability to manage confidential research records/data and adhere to specific work schedules to meet strict/tight deadlines.
• Ability to keep regular maintenance of housekeeping duties, checks and troubleshooting of scientific equipment.
• Established computer skills, including working with spreadsheets, databases, imaging and word processing programs.
• Excellent communication and interpersonal skills and an ability to maintain and develop a positive working relationship within the research team.

Desirable

• Measurement of target gene/protein levels in organs/tissues of diabetic (db/db) or obese (ob/ob) rodent models.
• Histopathological evaluation of harvested tissue.

Qualification Verification

An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

The University of Queensland values diversity and inclusion.

Applications are particularly encouraged from Aboriginal and Torres Strait Islander peoples. Applications are also encouraged from women.