POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow in Bioengineering
Organisation Unit: UQ Centre in Stem Cell Ageing and Regenerative Engineering (UQ-StemCARE) Australian Institute for Bioengineering and Nanotechnology
Position Number: 3036164
Type of Employment: Fixed-term, full time
Classification: Research Academic Level A

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 (65). 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://uniquest.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.

Organisational Environment

The University of Queensland's Australian Institute for Bioengineering and Nanotechnology (AIBN) is a dynamic multi-disciplinary research institute dedicated to developing technology to alleviate societal problems in the areas of health, energy, manufacturing and environmental sustainability. AIBN brings together the skills of more than 450 world-class researchers complimented by an extensive suite of integrated facilities, working at the intersection of biology, chemistry, engineering and computer modelling. With a reputation for delivering translational science, AIBN conducts research at the forefront of emerging technologies, and has developed strong collaborations with leading members of industry, academia and government. AIBN goes beyond basic research to develop the growth of innovative industries for the benefit of the Queensland and Australian economies. Information about the Institute can be accessed on the Institute's web site at http://www.aibn.uq.edu.au/.

AIBN is committed to supporting the career growth of female researchers and have a number of initiatives to support females in developing and achieving a fulfilling research career at the institute. For more information, please visit our AIBN Women in Science web site at http://www.aibn.uq.edu.au/women.

The UQ Centre in Stem Cell Ageing and Regenerative Engineering (UQ-StemCARE), located within the AIBN brings together UQ’s leading researchers in stem cell biology, bioengineering, neural, vascular, and musculo-skeletal biology, genome biology, proteomics, bioinformatics, and clinical ageing-related research, to address the following challenges:

1. Discover the intrinsic and extrinsic regulators of stem cell ageing within in vivo perivascular, muscle, skeletal and neural stem cell niches;
2. Develop novel in vitro and in vivo models to interrogate the functional interactions between the intrinsic and extrinsic processes that result in ageing of stem cells and their niches in these tissues;
3. Demonstrate that manipulating novel key regulators can maintain stem cell and tissue function with age; and
4. Translate the scientific results into clinical solutions with medical and commercial potential.

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

This project is part of a multi-disciplinary team focussing on stem cell and niche ageing to design novel regenerative medicine solutions to combat ageing-related decline in function and productivity and increase health span.

This position will be responsible for developing tissue engineered blood vessels that can be incorporated into stimuli-responsive hydrogels to enable the creation of perivascular tissue niches, mimicking those found in the brain, muscle, and bone. This position will work at the interface of stem cell biology, biomaterials science, multi-mode additive (scaffold) fabrication, and bioreactor and microdevice engineering. This approach represents a front-line solution to create medium to high throughput platforms for functional drug screening and discovery of therapeutics for tissue rejuvenation.

Duties

Duties and responsibilities include, but are not limited to:

**Research**
- Development of multilayered electrospun tubular scaffolds tailored for vessel tissue engineering
- Investigation of the role of cellular ageing on the creation of, and functional response of small diameter vessels engineered within a multimodal dynamic bioreactor
- Interrogation of the impacts of induced ageing on cell types within a perivascular niche, using in vitro engineered human induced pluripotent stem cell models;
- Screen drug candidates to rejuvenate aged niches;
- Conduct outstanding research and publish in high impact scholarly papers;
- Secure independent funding for further expansion of research portfolio;
- Assist in the supervision and training of research higher degree students.

**Service and Engagement**
- Foster the Centre’s relations with UQ partner Institutes, industry, government departments, professional bodies and the wider community;
- Any other duties as reasonably directed by your supervisor.

**Other**

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
- 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 the Centre Co-Directors Prof Justin Cooper-White and Prof Ernst Wolvetang.

SELECTION CRITERIA

Essential
• PhD in a relevant field such as Adult and/or Pluripotent Stem Cell Biology; Vascular Biology; Vascular Tissue Engineering; In Vitro Vascular Models; Engineered Living Systems

• Expertise in one or more of the following areas:
  o Stem cell expansion and differentiation;
  o Development of advanced biomaterials;
  o 3D Scaffold fabrication (electrospinning, 3D bio-printing);
  o Polymer hydrogel synthesis/functionalisation, characterisation and biological validation;
  o Biomicrofluidic device design, fabrication, and validation;
  o Bioreactor design and operation;
  o High throughput robotic cell culture, screening and interrogation of data.

• Demonstrated experience with manipulation and generation of stem cell-based engineered tissues, cell-based microdevice platforms and in vitro engineered niches.

• Evidence of a contribution to research, including successful external grant applications and a publications record;

• An ability to establish effective relationships and to represent and promote academic discipline at a university and wider community level, including industry, government and professional bodies;

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 and actively encourages applications from those who bring diversity to the University. Please refer to the University’s Diversity and Inclusion webpage (http://www.uq.edu.au/equity) for further information and points of contact if you require additional support.
Accessibility requirements and/or adjustments can be directed to the contact person listed in the job advertisement.