POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow - Genetics / Microbiology
Organisation Unit: School of Chemistry and Molecular Biosciences
Position Number: 3044756
Type of Employment: Full Time, Fixed Term for 2 years
Classification: 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 CWTS Leiden Ranking (32), the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (42), QS World University Rankings (48), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (69). Excluding the award component, UQ is now ranked 45th in the world in the ARWU, and is one of the only two Australian universities to be included in the global top 50.

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 52,000-plus strong student community includes more than 16,400 postgraduate scholars and more than 15,400 international students from 135 countries, adding to its proud 250,000-plus alumni. The University has more than 6,600 academic and professional staff (full-time equivalent) and a $1.75 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 Faculty of Science is recognised as a powerhouse for some of the world's leading scientists, teachers, science programs and commercial outcomes. The Faculty is one of the largest Science groupings in Australia, with approximately 1100 (equivalent full-time) staff, and about 7500 (equivalent full-time) students.

Throughout its Schools and Centres, the Faculty unites the disciplines of agriculture and animals, biomedical and biological sciences, chemistry, earth sciences, food sciences, geography, marine science, maths and physics, the environment and veterinary science.

With strong links between the enabling and applied sciences, UQ researchers and graduates are working on a wide range of groundbreaking projects from the molecular characterisation of drug resistant bacteria that affect piglets through to finding better treatments for illness and rehabilitation of the environment.

Information about the Faculty may be accessed on the Faculty's web site: http://www.science.uq.edu.au/

School of Chemistry and Molecular Biosciences

The School of Chemistry and Molecular Biosciences (SCMB) combines the disciplines of Chemistry, Biochemistry & Molecular Biology, Microbiology and Parasitology into a single academic unit. The School has modern research laboratories with state-of-the-art equipment and research infrastructure. The School includes over 50 academic staff, who are widely published internationally and have extensive research backgrounds. Information about the School and research interests of academic staff may be found on the web site http://www.scmb.uq.edu.au.

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

A high calibre Postdoctoral Research Fellow is sought to undertake investigation of koala retrovirus genomics. The research to be carried out involves the deep sequencing of the koala retrovirus genome from koala samples collected from both wild and captive koala
populations. Viral genomic analysis will be used to gain insights into retrovirus association with disease, transmission dynamics. This position is funded by ARC Discovery Project grant 2019-2020.

Duties

Duties and responsibilities include, but are not limited to:

Research

- Work within an established research group and with national and international collaborators to conduct high quality research and publish scholarly papers related to the project outline below

Project summary

Koala Retrovirus (KoRV) has spread through the majority of wild and captive koala populations. Uniquely, this infectious agent is transmitted both between infected individuals and onto offspring due to its integration into germline DNA. This project aims to, firstly, identify mechanisms that govern the rate of southerly dissemination for the ongoing KoRV epidemic, and secondly, identify virulence factors that endow KoRV subtypes with distinct modes of transmission and contribute disease. Understanding the mechanisms behind this advancing epidemic will have important implications for conservation efforts.

Project aims

1. **Survey KoRV genetic diversity across the koala's geographic range.** This will allow us to test the hypothesis that KoRV subtype presence will differ between systemically infected koala populations and populations at the frontline of the epidemic.
2. **Examine transmission dynamics and identify subtypes that have invaded the germline.** Endogenous provirus in spermatozoa will be compared with circulating virus recovered from plasma and KoRV genetic profiling will be compared with pedigree analysis. Together these two analyses will allow us to differentiate horizontal and vertical transmission.
3. **Determine the association with disease.** KoRV load and subtype presence will be correlated with histology, haematology and chlamydial loads as indicators of neoplastic or infectious bacterial disease.
4. **Characterise receptor usage and replication efficiency.** KoRV subtype isolates will be compared by experimental infection in cell culture and recombinantly expressed and purified envelope proteins representative of different subtypes will be used to directly test receptor binding.
5. **Determine the mechanisms of endogenisation.** KoRV subtypes will be compared for their ability to attach to and infect distinct subtypes of koala cells, including male germline spermatogonial cells. Of KoRV subtypes will be compared by experimental infection of immortalised cell cultures.

For more information please see Chappell et al., (J Virol 2017): Phylogenetic Diversity of Koala Retrovirus within a Wild Koala Population

Teaching and Learning

- Some involvement in Honours and (where appropriate) Higher Degree by Research supervision would be expected.

Service and Engagement

- Involvement in one or more of the following:
  - Academic service responsibilities
Contribute to the outcomes of internal committees

Develop external contributions.

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/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 the project leaders, Prof Paul Young, Dr Keith Chappell and Dr Daniel Watterson.
**SELECTION CRITERIA**

- PhD in the area of *Genetics, Evolution and/or Microbiology*.
- Demonstrated expert knowledge and evidence of a contribution to research, including published journal articles in the areas of *genetics, immunology and/or microbiology*.
- Experience with the analysis of deep sequencing results.
- An ability to establish effect relationships and to represent and promote academic discipline at a university and wider community level, including industry, government and professional bodies.
- Ability to work collaboratively with colleagues.
- Demonstrated teaching skills at undergraduate and postgraduate levels would be desirable.

**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.

This role is a full-time position; however flexible working arrangements may be negotiated.

Accessibility requirements and/or adjustments can be directed to science.recruitment@uq.edu.au.