

**School of Biomedical Sciences – Projects offered for the UQ Summer Research School 2016**  
**If you are interested in participating in a project please contact the listed supervisor.**

Name	email	Project description
Dr Johannes Koebach	<a href="mailto:j.koebach@uq.edu.au">j.koebach@uq.edu.au</a>	<b>Discovery and characterization of ant peptides for the development of novel antibiotic drugs.</b>
Dr Simon Phipps	<a href="mailto:s.phipps@uq.edu.au">s.phipps@uq.edu.au</a>	<b>Can the microbiome affect susceptibility to severe viral bronchiolitis?</b>
Dr Simon Phipps	<a href="mailto:s.phipps@uq.edu.au">s.phipps@uq.edu.au</a>	<b>Does the nature of cell death affect the severity of severe bronchiolitis?</b>
A/Prof Michael Piper,  Dr Oressia Zalucki	<a href="mailto:m.piper@uq.edu.au">m.piper@uq.edu.au</a>  <a href="mailto:o.zalucki1@uq.edu.au">o.zalucki1@uq.edu.au</a>	<b>What is the role of NFIX in adult neurogenesis?</b> <i>Our lab studies the biology of neural stem cells. In particular, we focus on the role of the transcription factor, NFIX, in mediating the transition from neural progenitors to neurons and glia within the brain.</i> <i>We have an opportunity for a student to join the lab over the summer break to study the function of NFIX in adult neurogenesis.</i> <i>The project will probe the effects of NFIX deletion in the adult mouse brain using various molecular biology techniques. Scholars will gain experience in all aspects of lab work, including brain sectioning, immunofluorescence, and data analysis. Scholars will also have an opportunity to write up results for publication. A brief lab meeting presentation will be expected from scholars following their stay in the lab.</i> <i>Applications are invited from students with a background in biology and/or chemistry, but this is not essential. Applicants should be highly motivated and capable of independent work.</i>
A/Prof Michael Piper  Dr Oressia Zalucki	<a href="mailto:m.piper@uq.edu.au">m.piper@uq.edu.au</a>  <a href="mailto:o.zalucki1@uq.edu.au">o.zalucki1@uq.edu.au</a>	<b>The role of Nsd1 in the developing brain</b> <i>Our lab studies the biology of neural stem cells. In particular, we focus on the role of the transcription factor, NFIX, in mediating the transition from neural progenitors to neurons and glia within the brain. We have an opportunity for a student to join the lab over the summer break to study transcriptional targets of NFIX, focussing on the nuclear receptor binding SET-domain 1 (Nsd1) gene. Scholars will gain experience in all aspects of lab work, including brain sectioning, immunofluorescence, and data analysis. Scholars will also have an opportunity to write up results for publication. A brief lab meeting presentation will be expected from scholars following their stay in the lab.</i>  <i>Applications are invited from students with a background in biology and/or chemistry, but this is not essential. Applicants should be highly motivated and capable of independent work.</i>
Dr Ethan Scott	<a href="mailto:ethan.scott@uq.edu.au">ethan.scott@uq.edu.au</a>	<b>Observing and manipulating neural activity with light-based tools.</b>

Dr Ethan Scott	<a href="mailto:ethan.scott@uq.edu.au">ethan.scott@uq.edu.au</a>	<b>Behavioural analysis of motor learning in swimming fish.</b>
Dr Kirsty Short	<a href="mailto:k.short@uq.edu.au">k.short@uq.edu.au</a>	<p><b>Fluoro flu:</b> Every year, seasonal outbreaks of influenza virus (the flu) infect approximately 20% of children and 5% of adults. Approximately every 50 years there is a global pandemic of influenza, which can result in the deaths of thousands, or sometimes millions, of people. Thus, influenza virus represents a major challenge to human health. The proposed project will focus on the use and creation of fluorescently labelled strains of influenza virus. Specifically, as part of an ongoing collaboration with researchers in the Netherlands, we have been working on creating influenza virus strains that express various different fluorescent labels (e.g. mCherry, GFP etc) that we can use in vivo to study how influenza virus damages the lungs during infection. This project will thus involve a range of different laboratory techniques including: PCR; sequencing; virus and cell culture; mouse experiments; in vivo imaging and confocal microscopy.</p>
Dr Brooke Coombes, Dr Kylie Tucker	<a href="mailto:b.coombes@uq.edu.au">b.coombes@uq.edu.au</a>	<p><b>Evaluation of tendon stiffness, effects of joint position and loading:</b> Supersonic shear imaging (SSI) is an ultrasound imaging modality that can provide insight into tissue mechanics by measuring tissue elasticity (stiffness). Research within our laboratory has demonstrated regional changes in elasticity of tendon tissue in people with tendon pain (tendinopathy). However little is known about how stiffness varies spatially within the tendon and whether it is influenced by joint position and loading. This information will contribute to an understanding of which joint positions and exercise regimes optimally load affected regions in people with tendinopathy.</p> <p>A research scholarship student will assist in several projects involving laboratory measurement of tendon stiffness using SSI, as well as other anthropometric and motor control measures; data extraction and interpretation.</p>