

PhD Position at the University of Melbourne, Australia - in Biofabrication and Matrix Mechanobiology of Cartilage Tissue Models

The Integrative Cartilage Research Group headed by Associate Professor Kathryn Stok at the Department of Biomedical Engineering, The University of Melbourne is seeking an excellent PhD candidate in Biofabrication and Matrix Mechanobiology of Cartilage Tissue Models.

The aim of the research is to develop a cartilage tissue model in order to investigate tissue and cellular responses to mechanical stimuli in a multiscale manner.

During human movement, mechanical stimuli are passed from the whole body through the joints and tissues to the cell. There is continuous feedback between cartilage cells (chondrocytes) and the mechanical force they receive from the surrounding matrix. This “mechanosensation” signals cells to produce and degrade matrix products, changing the mechanical environment that surrounds them. Many studies and techniques have demonstrated the cell response to mechanical stimulation, but none describe the continual mechano-adaptation feedback of cartilage at the microstructural level over time. By developing novel methods allowing us to study structural remodelling over time we can explore the role of mechanics in this feedback loop. The specific aims of this PhD project will therefore be (1) to develop cartilage tissue-engineered models for exploration of mechano-adaptation over time, and (2) to combine digital volume correlation and tissue quantification to describe tissue remodelling and mechano-adaptation.

If you are interested in pursuing this PhD and have an adventurous spirit, you are highly recommended to apply. In order to qualify for a UoM Postgraduate scholarship,

- you should have a four-year bachelor degree in a relevant discipline which includes a substantial research component equivalent to at least 25% of one year of full-time study and has achieved a minimum weighted average of 75% in the final year subjects or equivalent, or a masters degree in a relevant discipline which includes a substantial research component equivalent to at least 25% of one year of full-time study and achieved a minimum weighted average of 75% or equivalent,
- any prior research experience is an advantage.

Only candidates who qualify for a scholarship will be considered.

The successful candidate should have a strong background in health sciences, biomedical engineering or similar, and be willing to work at the interface of engineering and biological research. Previous experience in tissue engineering or image analysis is advantageous.

The successful candidate must be a keen learner, creative, possess effective written and oral communication skills in English, have good time management, be willing to perform and/or be involved in testing of human and animal biological specimens, and most importantly have a strong ability to work in an international and dynamic team environment.

To apply, please send your application including a motivational letter, a curriculum vitae, university transcripts, and contact details of two academic or professional references to Dr Kathryn Stok, kstok@unimelb.edu.au. For further information, please contact Dr Stok directly.

The University of Melbourne
Integrative Cartilage Research Group
Department of Biomedical Engineering
The University of Melbourne, Victoria 3010 Australia
T: +61 3 8344 9761
E: kstok@unimelb.edu.au