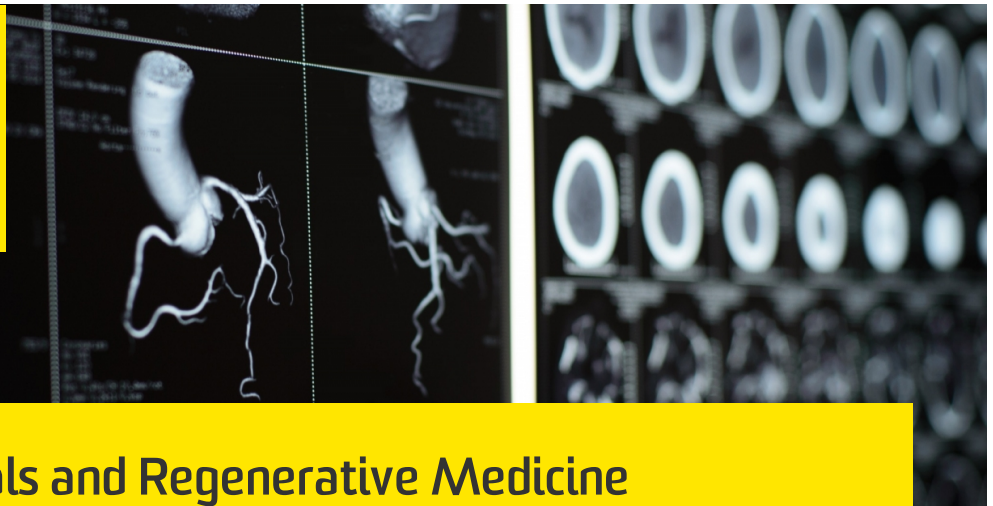




**UNSW**  
SYDNEY



## Bioinspired Materials and Regenerative Medicine

**Functional biomaterials and bioengineered tissues will play a key role in replacing and regenerating injured and diseased tissue in our ageing population, have the potential to revolutionise drug, medical device and cosmetics testing, and enable the study of disease development and progression in human tissues rather than in animal models.**

### Competitive advantage

- Functional biomaterials inspired by native tissue
- Fundamental understanding of tissue-biomaterial interactions for improved material engineering
- Biomaterial processing, fabrication and characterisation capabilities and expertise
- In vitro and in vivo functional models
- Multidisciplinary expertise and strong collaborative links

### Impact

- Novel functional biomaterials for the treatment of cardiovascular disease and wound healing
- In vitro human tissue models for use in drug, medical device and cosmetics testing, and for studying disease development and progression

### Successful outcomes

- Novel biomaterials toward small diameter vascular grafts, cardiac patches and wound dressings (pre-clinical testing)
- Fundamental contributions to understanding of silk biomaterial processing into implantable biomaterials
- Fundamental contribution to the understanding of biomaterial and bioengineered tissue vascularisation and integration in the body
- Strategies toward material biofunctionalisation for enhanced biological outcomes

### Capabilities and facilities

- Silk biomaterial processing and fabrication
- Biomaterial characterisation
- In vitro cell based assays; in vivo safety and functional models
- Molecular biology and biochemistry assays

### Our partners

- Heart Research Institute
- Westmead Institute for Medical Research
- Department of Orthopaedic Surgery, Centre for Bioengineering & Nanomedicine, University of Otago Christchurch
- Department of Biomedical Engineering, Tufts University, Boston
- School of Dentistry, University of Leeds

### More Information

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