

2019 Melbourne Mechanobiology Symposium

7-8 November 2019, Melbourne, Australia

RMIT University, Building 98, Activator (City campus)

Day 1

Thursday, 07 November 2019

- 9.00 am - 9.20 am** Registration
- 9.20 am - 9.30 am** Welcome: Sara Baratchi / Khashayar Khoshmanesh
- 9.30 am - 12.45 pm** Session 1 Mechanotransduction and Methods
Chairs: Sara Baratchi, RMIT / Nicholas Veldhuis, Monash
- 9.30 am - 9.55 am** Robert Parton, University of Queensland
Mechanoprotection and mechanotransduction by caveolae
- 9.55 am - 10.20 am** Maté Biro, University of New South Wales
Mechanobiology of T cell and tumour cell movements and interactions
- 10.20 am - 10.30 am** Amy Gelmi, RMIT University
Temporal investigation of electrical stimulation for stem cell fate
- 10.30 am - 10.40 am** Sharda Yadav, Griffith University
Biophysical cellular properties as a tool for early cancer detection
- 10.40 am - 10.50 am** Kate Firipis, RMIT University
Agarose for mechanical control of self-assembling peptide systems
- 10.50 am - 11.00 am** Jung Un (Ally) Choi, University of Queensland
A synthetic polymer mimicking the osteocyte 3D microenvironment
- 11.00 am - 11.30 am** Morning Tea
- 11.30 am - 11.55 am** Alpha Yap, University of Queensland
Epithelial coordination by cell-cell mechanotransduction
- 11.55 am - 12.20 pm** Yu Suk Choi, University of Western Australia
Volume adaptation controls stem cell mechanotransduction and differentiation
- 12.20 pm - 12.45 pm** Daryan Kempe, University of New South Wales
3D traction force microscopy of cytotoxic T cells
- 12.45 pm - 2.00 pm** Lunch and Poster Session

- 2.00 pm - 5.05 pm** **Session 2 Mechanoreceptors and Mechanosensation**
Chairs: Maté Biro, UNSW / Charles Cox, VCCRI
- 2.00 pm - 2.25 pm** Boris Martinac, Victor Chang Cardiac Research Institute
Biophysical principles of gating mechanosensitive channels by mechanical force
- 2.25 pm - 2.50 pm** Kate Poole, University of New South Wales
Mechanical signalling via ion channels
- 2.50 pm - 3.15 pm** Samantha Stehbens, University of Queensland
Mechanochemical regulation of microtubules in cell migration
- 3.15 pm - 3.25 pm** Amrutha Patkunarajah, University of New South Wales
Mechanically activated ion channels can regulate cell-cell binding in organotypic spheroids
- 3.25 pm - 3.35 pm** Scott Peng, Monash Institute of Pharmaceutical Sciences
Mechanosensing TRPV4 is a master regulator of endothelial cell junction integrity and edema
- 3.35 pm - 3.45 pm** Martin Fronius, University of Otago
Shear force sensing of epithelial Na⁺ channel (ENaC) and regulation of the vascular tone relies on extracellular glycosylated asparagines and the extracellular matrix
- 3.45 pm - 4.15 pm** **Afternoon Tea**
- 4.15 pm - 4.40 pm** Karlheinz Peter, Baker Health and Diabetes Institute
Haemodynamic forces are essential factors contributing to atherosclerosis and aortic stenosis
- 4.40 pm - 5.05 pm** Sara Baratchi, RMIT University
Towards understanding the mechanotransduction of blood flow
- 5.05 pm - 6.00 pm** **AGM for the Australian Society of Mechanobiology**
Hosts: Boris Martinac/ Sara Baratchi

Day 2
Friday, 08 November 2019

9.30 - 11.00 am Session 3 Emerging tools

Chair: Elena Pirogova, RMIT

9.30 am - 9.55 am Kathryn Stok, University of Melbourne
Multiscale approach for the exploration of cartilage and joint health mechanomics

9.55 am - 10.20 am Khashayar Khoshmanesh, RMIT University
Microfluidics simplified: From alternative fabrication techniques to self-sufficient tools

10.20 am - 10.45 am Lining Ju, University of Sydney
Novel single-cell mechanobiology approach reveals an intermediate state of integrin $\alpha\text{IIb}\beta\text{3}$ that mediates platelet aggregation under disturbed flow

10.45 am - 11.15 am Morning Tea

11.15 am - 1.05 pm Session 4 Mechanopathology

Chair: Kate Poole, UNSW

11.15 am - 11.40 am Sarah Boyle, Centre for Cancer Biology
ROCK-mediated mechanical signalling generates a breast cancer-promoting microenvironment

11.40 am - 12.05 pm Shireen Lamandé, Murdoch Children's Research Institute
Modelling TRPV4 skeletal disorders using iPSC-derived chondrocytes

12.05 pm - 12.30 pm Guillermo Gomez, University of South Australia
Active mechanical relaxation of adherens junctions in the vicinity of apoptotic cells facilitates cell extrusion by promoting epithelial topological transitions

12.30 pm - 12.55 pm Anne Lagendijk, University of Queensland
Mechanisms of adhesion during vascular development and pathogenesis in zebrafish

12.55 pm - 1.10 pm Symposium close / Award ceremony

Sara Baratchi / Khashayar Khoshmanesh

1.10 pm - 2.30 pm Lunch / Drinks and Departure

2.00 pm - 2.30 pm Organising committee meeting for 2020 International Conference of Mechanobiology