

ARMI EXTERNAL SEMINAR SERIES 2021



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Mechanosensing for epithelial homeostasis

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Abstract

Epithelia constitute many of the principal barriers in metazoan bodies and are also common sites for disease, notably cancer and inflammation. Yet, the incidence of epithelial disease is remarkably low, given their constant exposure to injurious agents. Therefore, epithelia must have ways to detect potential disturbances and deal with them. It is now apparent that one path for detection is through tissue mechanics and mechanosensing. Cells constantly exert contractile forces on their neighbours through their cell-cell junctions, and possess mechanotransduction pathways at those junctions that detect changes in force. Importantly, altered contractility is a hallmark of many forms of cellular disturbance from apoptosis to transformation. Mechanosensing may then be an early-warning system that allows epithelia to detect, and respond to, homeostatic challenges. Conversely, defects in mechanotransduction may predispose epithelia to disease. I will discuss these ideas in the context of how epithelia detect and eliminate dying and transformed cells.

Bio

Alpha Yap is a Professor and Group Leader at the Institute for Molecular Bioscience, The University of Queensland. After training in Internal Medicine, Endocrinology and Cell Physiology, he undertook post-doctoral research with Barry Gumbiner at Memorial Sloan-Kettering Cancer Center before returning to Australia to establish his independent research group. His laboratory studies how tissue mechanics and mechanotransduction participate in epithelial morphogenesis and homeostasis, work that has led them into the rapidly-developing field of mechanobiology. Collaborating across disciplines with colleagues from physics, developmental biology and mathematics, they have been instrumental in discovering how mechanical forces are generated, and sensed, to coordinate cell behaviour in tissues. Alpha Yap was Chair of the 2011 Gordon Research Conference on Cell Contact & Adhesion and of the 2016 GRC on Signaling by Adhesion Receptors. He currently serves on the editorial boards of several journals, amongst them Molecular Biology of the Cell, Developmental Cell and Current Biology. He was the recipient of the 2013 President's Medal of the Australia and New Zealand Society for Cell and Developmental Biology and is a Senior Principal Research Fellow of the National Health and Medical Research Council of Australia.



EVENT DETAILS

DATE:

Tuesday, 13th April

TIME:

11:00am AEDT

VENUE:

<https://monash.zoom.us/j/81437724794?pwd=OWgzRzJ1aERHMG93d0FyMTBIVkVJUT09> Or, go to <https://monash.zoom.us/join> and enter meeting ID: 814 3772 4794 and passcode: 931992 Ensure your device has a dedicated mic

HOST:

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