COLLEGE OF ENGINEERING
MECHANICAL ENGINEERING
UNIVERSITY OF MICHIGAN

Stromal Cells as a Target for Immuno-Engineering

Andy Tay

Assistant Professor,
Presidential Young Professor,
Department of Biomedical Engineering,
National University of Singapore

Monday, April 14th, 2025
10 AM to 11:00 AM
Room 2540 GGB

ME Seminar Link
Passcode: 319624

Add ME Seminar to Google Calendar

Abstract:
Immuno-engineering is an interdisciplinary field using approaches in immunology, bioengineering and material sciences to manipulate immunity for therapeutic purposes. Much has been focused on how immune cells can be engineered or reprogrammed for treating diseases spanning diabetes, cancer and infectious diseases. In this talk, I will first share my lab's effort to enhance diabeti wound healing through mechano-activation of fibroblasts with magnetic hydrogel. This will be followed by the mechanical reprogramming of cancer-associated fibroblasts with antibody drug conjugate to treat pancreatic cancer. Finally, I will discuss how the incorporation of stromal cells into immune organoids enabled us to create a more authentic in vitro human immunity in a dish model for studying infectious diseases. The audience can expect to learn how an integrative approach using hydrogel, mechanobiology and organoid allows for stromal cell manipulation for immuno-engineering.

Bio:
Andy Tay graduated in 2014 from NUS with a First-Class Honors in Biomedical Engineering. He later headed to the University of California, Los Angeles for his PhD studies and graduated in 2017 as the recipient of the Harry M Showman Commencement Award. Andy next received his postdoctoral training at Stanford University before heading to Imperial College London as an 1851 Royal Commission Brunel Research Fellow. He is currently a Presidential Young Professor in NUS.

Andy is a recipient of international awards including the Christopher Hewitt Outstanding Young Investigator Award, Terasaki Young Innovator Award and Micro and Nano Engineering Young Investigator Award. He is listed as a Forbes 30 Under 30 (US/Canada, Science), World Economic Forum Young Scientist and Top 2% Scientist in the World by Stanford University.