



BiophysTO Lunchtime Seminar Series

Date

Thursday, March 21, 2024
12:00 pm – 1:00 pm

Location

McLennan Physical
Labs
60 St. George Street
Room MP606

Pizza and refreshments
will be provided

Dr. Alison McGuigan

Department of Chemical Engineering and Applied
Chemistry, Department of Biomedical Engineering,
University of Toronto

Engineered cellular models to explore human disease heterogeneity

Ex vivo culture models provide powerful tools to interrogate the role of tumour heterogeneity in human cancers. Patient-derived organoids (PDOs) are emerging as powerful models to capture the genetic heterogeneity of human tumors. However, extrinsic factors present in the tumor microenvironment (TME) of a tumour, such as the presence of stromal cells and gradients of small molecules such as oxygen, also affect cancer phenotype and response to therapy. This talk will describe tissue-engineered platforms we have developed 1) to enable controlled assembly and disassembly of organoid structures to study the impact of both genetic and microenvironmental heterogeneity on tumor cell behavior and 2) to explore tumour microenvironment remodelling, heterogeneity in response to therapy, and potential to re-grow after therapy.

Bio: Dr. Alison McGuigan is a Professor in Chemical Engineering and Applied Chemistry and the Institute for Biomedical Engineering at University of Toronto. She obtained her undergraduate degree from University of Oxford, her PhD from University of Toronto working, and completed Post Doctoral Fellowships at Harvard University and Stanford School of Medicine. Dr. McGuigan has made pioneering contributions to the engineering of tissue models to explore mechanisms of disease and regeneration. Her team has established methods to generate multi-component tissues with specified organization and designed tissue platforms for smart data acquisition, with a focus on stratifying heterogeneous bulk data by cell population, by spatial location, or by time.

Host: Sid Goyal



**Seminar
Sponsors**

UTSG

Biochemistry Physics Chemistry