

Research Theme: Cell Signaling
Research Project Title: Cancer Microenvironment and its Impact on the Biology of Cancer Cells
Principal Investigator/Supervisor: A/Prof KOH Cheng-Gee
Co-supervisor/ Collaborator(s) (if any): NA
Project Description
<p>The tumour microenvironment is complex and can influence the state of tumour proliferation and progression to metastasis. The tumours mass itself is affected by both biochemical and physical cues from its environment. We are interested to investigate the relationship and impact of the tumour microenvironment and cancer biology. The two main research topics are listed below.</p> <p>1. Cancer microenvironment and mechanosensitive genes As the tumours grow in sizes, the tumour masses encounter external compressive forces and other stresses. In this project, we wish to investigate mechano-sensitive genes and their regulation when the tumour cells are subjected to compression and interaction with extracellular matrix of different stiffness. We also plan to study how the cancer microenvironment can impact cancer cell migration and invasion.</p> <p>2. Tumours in 2D and 3D environment We have long realized that the commonly used 2-dimensional (2D) cell culture could not represent the in vivo architecture and microenvironment of cancer cells. Using 3D cell culture system can better mimic the cancer microenvironment and signaling. In this project, we plan to investigate the genes and signaling pathways which regulate breast cancer cell morphology, cell polarity and proliferation in 2D and 3D culture systems.</p>
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