

Research Theme: Cancer metastasis (Future Healthcare)
Research Project Title: Dynamic transcriptome and interactome of cancer EMT.
Principal Investigator/Supervisor: A/P Andrew Tan
Co-supervisor/ Collaborator(s) (if any):
Project Description
<p>a) Background:</p> <p>Tumor epithelial-to-mesenchymal transition (EMT) is a complex series of cellular reprogramming events that culminates in the loss of epithelial characteristics and the <i>de novo</i> acquisition of a mesenchymal phenotype. The clinical significance of the EMT process is linked to its crucial role in tumor cell invasion, circulating tumour cell formation and metastatic dissemination of carcinomas. There is also accumulating evidence that EMT-phenotype changes are associated with therapy resistance.</p> <p>Tumor EMT is not an on/off binary switch, but rather a graded series of interrelated and overlapping events that can be quite variable. The process of EMT is now recognized to involve interplay between several different levels of regulation. While many structural proteins represent the characteristic “marker profile” of EMT, the expression of these molecules is mediated by additional layers of control that include regulators that shape the transcriptome and interactome landscapes of cancer cells during EMT.</p> <p>b) Proposed work:</p> <p>Metastatic cancer cells acquire energy-intensive processes including increased invasiveness and chemoresistance. Using experimental and clinical metastatic tumors, we showed that an increase in adenylate energy charge during cancer cell EMT is widespread and is required for metastasis competency. We identified a pivotal signaling node that coordinates the different events during EMT. In this project, the candidate will decipher how mediator of this signaling node affect the different networks via protein-protein interaction to regulate gene expression and molecular processes.</p>
Supervisor contact:
If you have questions regarding this project, please email the Principal Investigator:
<p>SBS contact and how to apply:</p> <p>Associate Chair-Biological Sciences (Graduate Studies) : AC-SBS-GS@ntu.edu.sg</p> <p>Please apply at the following:</p> <p>http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx</p>