

<b>Research Theme: Cell adhesion and Cancer</b>
<b>Research Project Title: Investigating the roles of kindlins in cancer epithelial-mesenchymal transition</b>
<b>Principal Investigator/Supervisor: Tan Suet Mien</b>
<b>Co-supervisor/ Collaborator(s) (if any): To be announced at a later date</b>
<b>Project Description</b>
<p><b>a) Background</b></p> <p>Cell polarization, cohesiveness and intermediate filament expression profiles undergo marked changes during epithelial to mesenchymal transition (EMT). Induction of EMT includes a repertoire of stromal derived signals, including inflammatory cytokines, ROS, TGF-beta and hypoxia. Many of these are known to activate EMT-linked transcription factors such as the Snail, Twist and Zeb family of proteins, which can regulate gene expression involved in cell-cell adhesion and cytoskeletal remodeling. Kindlins are FERM-containing cytoplasmic proteins known to regulate cell adhesion and migration by modulating the ligand-binding affinity of adhesion molecules integrins. The three kindlin paralogs (kindlin-1, -2, and -3) have different tissue distributions. Kindlins are known to regulate signalling pathways, including Wnt-signaling, Akt-mTOR-p70S6K, and Syk-Vav-1-Rac/Cdc42 pathways. Kindlins are important in cancer progression. However, more investigations are needed to clarify the roles of each kindlin in this process.</p>
<p><b>b) Proposed work</b></p> <p>In brief, the project will examine the expression profiles of kindlins during cancer EMT using different cancer cell line models and relevant EMT-stimuli in <i>in vitro</i> studies. The roles of the kindlins in these cells undergoing EMT will also be determined by using gene-silencing and overexpression methods. These studies will be verified by performing <i>in vivo</i> animal studies. Potential candidate applying for this project should be familiar with standard molecular biology techniques and preferably have experience with cell culture.</p>
<b>Supervisor contact:</b>
<p>If you have questions regarding this project, please email the Principal Investigator: <a href="mailto:smtan@ntu.edu.sg">smtan@ntu.edu.sg</a></p>
<b>SBS contact and how to apply:</b>
<p>Associate Chair-Biological Sciences (Graduate Studies) :AC-SBS-GS@ntu.edu.sg Please apply at the following: <a href="http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx">http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx</a></p>