

Research Theme: Non-coding RNAs and cancer
Research Project Title: Epigenetic regulation of NF-κB in cancers
Principal Investigator/Supervisor: Asst/Prof Li Yinghui
Co-supervisor/ Collaborator(s) (if any): NA
Project Description a) Background: The nuclear factor κ B (NF- κ B) family of transcription factors regulate the expression of a broad range of inducible genes critical for various biological processes such as inflammation and immune responses. Deregulation of the NF- κ B pathway has been causally linked to many diseases including cancer. However, how it regulates gene expression programs during cancer progression through non-coding RNAs remains uncharacterized. The primary objective of this PhD project is to elucidate how the altered expression of non-coding RNAs during aberrant NF- κ B activation drive the malignant development of cancers. b) Proposed work: We will examine specific cancer models with constitutive NF- κ B signaling for expression signatures of non-coding RNAs and regulation by NF- κ B factors, using high-throughput methods such as ChIP sequencing and RNA sequencing. Novel RNAs and their target genes which are identified from genomics studies will be validated in patient samples and their precise roles in cancer development will be investigated using various molecular biology techniques such as CRISPR/Cas9 genome-editing as well as <i>in vitro</i> and <i>in vivo</i> functional assays. This project will involve genomics, biochemistry and several molecular biology techniques such as genome-editing and chromatin immunoprecipitation. Highly motivated candidates with a keen interest in non-coding RNAs and cancer cell biology are strongly encouraged to apply.
Supervisor contact: If you have questions regarding this project, please email the Principal Investigator: liyh@ntu.edu.sg
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