Abstract:

microRNAs (miRNAs) have emerged in the last decade as an important class of gene expression regulators in all tissues. Dysregulation of many miRNAs are associated with cancers. The miR-125 family, including miR-125a and miR-125b, are the mammalian homologues of lin-4, the first miRNA discovered in C. elegans, which regulates developmental timing. Our pioneer work on miR-125b uncovered the important role of this miRNA in neural differentiation and embryogenesis. Loss of miR-125b triggers massive neural cell death in zebrafish embryos. miR-125b also suppresses apoptosis in human fibroblasts and tumor cells. We found that miR-125b directly inhibits the expression of p53 and multiple genes in the p53 network. By modulating the expression of these genes, miR-125b buffers and fine-tunes p53 activity to regulate apoptosis and proliferation of normal and malignant cells. Indeed, miR-125b is a bona fide oncogene in leukemia, lymphoma and prostate cancer. miR-125b also mediates drug resistance in breast cancer, lung cancer and glioma. We found that inhibition of miR-125b significantly suppresses the survival of leukemia and breast cancer cells. We have developed a novel method for delivery of antisense oligonucleotides to leukemia and breast cancer cells for efficient knockdown of miR-125b and suppression of cancer progression in vitro and in vivo.

Date : 8 December 2017 (Friday)
Time : 4:00 p.m.
Venue : Lecture Theatre J
The Hong Kong University of Science & Technology
Clear Water Bay, Kowloon

(Host faculty: Dr. Angela Wu)

All are Welcome!!