



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
Division of Life Science

LIFS Seminar Series

The tale of microRNA-125b in cancer

by

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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.

Biography

Dr Le graduated from the National University of Singapore in 2005 with a Bachelor degree in Life Sciences. She further received a Ph.D. degree in Computational and Systems Biology from the Singapore-Massachusetts Institute of Technology (MIT) Alliance under the guidance of Prof. Bing Lim at the Genome Institute of Singapore and Prof. Harvey Lodish at the Whitehead Institute for Biomedical Research. From 2010 to 2015, she worked as a postdoctoral fellow with Prof. Judy Lieberman at Boston Children's Hospital and Harvard Medical School in the USA. She joined the Department of Biomedical Sciences at City University of Hong Kong (CityU) as a tenure-track Assistant Professor in August 2015. Dr Le was awarded several prestigious scholarships and fellowships during her studies such as the Lee Foundation study grant and the Singapore-MIT Alliance scholarship. She was one of the first three recipients of the L'Oréal Singapore for Women in Science National Fellowship broadcasted widely by the news in 2009 ([link](#)). During her training at Harvard Medical School, she was awarded the Jane Coffin Childs fellowship, a prestigious postdoctoral fellowship in the USA. She also won a number of competitive travel scholarships and poster awards at international conferences.

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!!