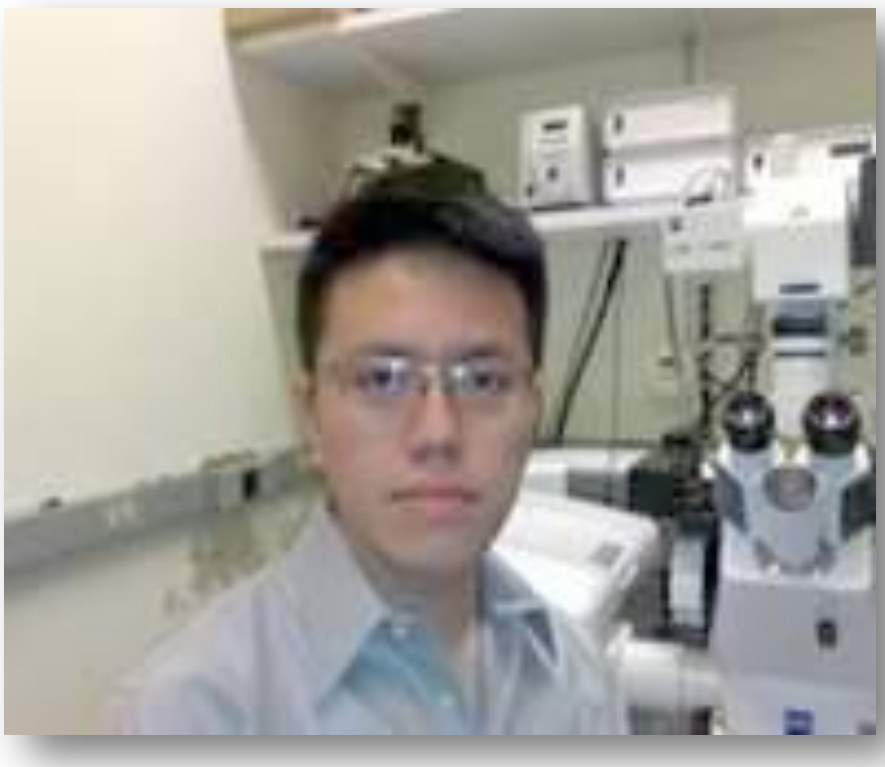
NTU MOLECULAR IMAGING SEMINAR

Elucidating RNA Functions in Living Cells with Novel Optical Imaging Methods



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時間：2/3(三)10：00

地點：國立臺灣大學
醫學院講堂202

Abstract

Since the discovery of nucleic acids over more than a century ago, the role of RNA has been unraveled in many biological events, ranging from synthesis of proteins, silencing of gene expression, to the catalysis of various biochemical reactions. In addition, it has become increasingly evident that slight variations in RNA synthesis, localization and transport may drastically alter the behavior of the cells and lead to irreversible biological complications. Unfortunately, these features cannot be easily elucidated by commonly available RNA analysis techniques, such as qRT-PCR, northern blotting and DNA-microarray, of which gene expression analysis is generally performed on lysates extracted from a population of cells.

Fluorescent microscopy offers the potential for providing spatial and temporal information of specific biomolecules of interest at the single- and subcellular levels. Here, I will highlight our research progress in the development and applications of fluorescent microscopy techniques, including live-cell imaging, fluorescent in situ hybridization, and superresolution imaging methods (i.e. photoactivated localization microscopy, PALM) to elucidate the role of RNA in regulating cell physiology and disease evolution. Specific topics include: 1) Quantifying gene expression in single living cells with novel molecular beacon probes, and 2) Binding of microRNA to the HIV-1 Gag proteins inhibits virus production by disrupting Gag assembly.

主辦單位

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