



## SCHOOL COLLOQUIUM

# Protein Trafficking: Mechanism and Diseases

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### Talk Abstract

Mammalian cells are divided by elaborate membrane compartments. Like in the logistics business, materials inside the cells need to be transported between different subcellular compartments. The transportation of proteins between different subcellular compartments is called protein trafficking. Protein trafficking is tightly regulated to ensure proper function of different proteins and abnormal trafficking of proteins has been found to cause many human diseases. In our study, we identified PICK1, a peripheral membrane protein with a PDZ domain and a BAR domain, as an important protein trafficking regulator. The PDZ domain of PICK1 binds to a number of membrane proteins while the BAR domain of PICK1 binds to liposome and couple membrane proteins to trafficking vesicles. In addition, the BAR domain of PICK1 forms tight heteromeric BAR domain complex with ICA69, another BAR domain containing protein. The switch from heteromeric PICK1-ICA69 to homomeric PICK1-PICK1 BAR domain complex provides an important mechanism for vesicle sorting and refinement. In brain, PICK1 interacts and regulates the trafficking of AMPA type glutamate receptor and this regulation is critical to synaptic plasticity, the cellular basis of learning and memory. In pancreatic beta-cells, PICK1 controls the trafficking of insulin granules and its deficiency leads to glucose intolerance and symptoms related to diabetes.

**Date : 16 September 2015 (Wednesday)**

**Time : 4:00 p.m.**

*\*\* Refreshment will be served at 3:45 p.m. outside the lecture theatre \*\**

**Venue : Chen Kuan Cheng Lecture Theatre (LT-H) (via Lifts No. 27/28)  
The Hong Kong University of Science & Technology  
Clear Water Bay, Kowloon**

***All are Welcome!!***