Research Theme: Cell Biology

PhD Research Project Title:

The dynamic organization and function of the Golgi complex

Scholarship category (Please indicate the source of funding for this project):

(a) SBS Research Student Scholarship (for SBS faculty only)

Principal Investigator/Supervisor: Lu Lei

Co-supervisor/ Collaborator(s) (if any):

Project Description

a) Background:

The Golgi complex plays a critical role in the trafficking and post-translational modification of proteins and lipids. Structurally, it is composed of stacks of flattened membrane sacs known as cisternae, through which cargo molecules move in a polarized and regulated manner. Each cisterna houses specific enzymes responsible for modifying cargo as it progresses through the stack. Despite its importance, the molecular and cellular organization of the Golgi complex remains poorly understood, largely due to the difficulty in resolving its cisternal architecture using conventional light microscopy.

b) Proposed work:

In this project, the PhD candidate will use state-of-the-art light microscopy, and a suite of Golgi imaging tools previously developed in our lab (Tie et al., 2016; 2018; 2022) to investigate how proteins and lipids are spatially and temporally organized as they move through the Golgi cisternae in cultured mammalian cells. This work will provide novel insights into the dynamic architecture and function of the Golgi at the molecular level.

c) Preferred skills:

We are looking for a highly motivated candidate with:

- A strong interest in cell biology, molecular biology, or imaging
- Curiosity and passion for exploring the subcellular world
- A background in life sciences

This project offers an exciting opportunity to learn cutting-edge imaging technologies and to explore the intricate and fascinating world of subcellular structures.

Supervisor contact:

If you have questions regarding this project, please email the Principal Investigator:

lulei@ntu.edu.sg

SBS contact and how to apply:

Associate Chair-Biological Sciences (Graduate Studies) : AC-SBS-GS@ntu.edu.sg

Please apply at the following:

Application portal:

https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX