NUS National University of Singapore | Department of Anatomy
Yong Loo Lin School of Medicine

NUHS National University Health System

Student Presentation

INVESTIGATING THE MOLECULAR MECHANISMS CONTROLLING MITOPHAGY

Mitophagy, the process of eliminating damaged mitochondria via autophagy, is an important cellular process that ensures efficient turnover of mitochondria. Defective mitophagy contributes to the pathology of several diseases such as Parkinsons' Disease. Thus far, PINK1/Parkin-dependent mitophagy has been the best characterised type. When mitochondria are damaged, the stabilisation of PINK1 on the mitochondria recruits Parkin, which is an E3 ligase that is capable of causing ubiquitination of mitochondrial proteins. This results in the recruitment of autophagy receptors and subsequently induces the formation of an autophagosome that engulfs the mitochondria. The fusion of the autophagosome with a lysosome will result in degradation of mitochondria. Although autophagy-related genes (ATGs) have been well-characterised, the various factors and pathways involved in PINK1/Parkin-mediated mitophagy have thus far not been fully elucidated. This study aims to use a genome-wide CRISPR-Cas9 screening to identify novel genes and proteins related to PINK1/Parkin-mediated mitophagy. Further validation will be performed for selected genes from this screen and results from this project are expected to provide novel insights into the molecular mechanisms in control of mitophagy.

Thursday
21 November 2019
11.00 am – 12.00 pm
Seminar Room, MD10
Level 2, Anatomy Museum

Ms Cho Yik Lam
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Department of Anatomy

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