



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

## ***LIFS Seminar Series***

# **Alterations in age-related circRNA expression associated with brain ageing in primate**

by

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### *Abstract*

Brain ageing is attributed to alterations in genetic and epigenetic regulations. Here, using deep RNA profiling with linear RNA digestion by RNase R we described a comprehensive map of changes in circRNA expression in rhesus monkey (*Macaca Mulatta*) brain during ageing, and observed that age-related circRNAs regulated host mRNA expression, calcium homeostasis and synaptic plasticity. Total 17,050 well-expressed, stable circRNAs were identified, showing spatial-, sex-, and age-biased manner. Based on separate profiling of the RNAs, several clusters of circRNA expression was negatively correlated with their host gene isoforms. Changes in voltage-dependent L- and R-type calcium channel gene-derived *circCacna2d1* and *circCacna1e* contribute to loss of calcium homeostasis and synaptic plasticity in the aged fetal macaque hippocampal neurons. Knockdown of *circCacna2d1* and *circCacna1e* improves calcium homeostasis and homeostatic synaptic plasticity in the aged neurons. Changes in circRNA expression and function have the potential to reveal insights into circRNA-mediated regulatory mechanism underlying brain ageing.

**Date** : **21 June 2017 (Wednesday)**

**Time** : **4 pm**

**Venue** : **Lecture Theatre G (Lifts 25/26)  
HKUST**

***(Host faculty: Prof. Karl Herrup)***

***All are Welcome!***