香港中文大學理學院
FACULTY OF SCIENCE
THE CHINESE UNIVERSITY OF HONG KONG

School of Life Sciences 生命科學學院

LIFE SCIENCES SEMINAR SERIES 2024 – 2025

Phase separation and circadian rhythm

Brief biography

Prof. Yi Lin's research focuses on the phase separation of biomacromolecules, investigating the molecular mechanisms and their physiological functions in the nervous system. She also explores the implication of abnormal phase separation in neurodegenerative diseases. The ultimate goal of her research is to understand the molecular details of phase separation and develop therapeutic approaches by intervening in pathological phase transitions. She received Asian Young Scientist Fellowshipin 2024 and Outstanding Scientific Research Achievements Award for Female Scientists in 2023.

Professor Yi LIN
IDG/McGovern Institute for Brain Research
at Tsinghua University & Peking-Tsinghua Joint Center for Life Sciences,
School of Life Sciences, Tsinghua University

Date:
Wednesday, 30 Oct

Time:
4:00 pm – 5:00 pm

Venue:
SC297, Science Centre

Abstract

Terrestrial life has evolved circadian rhythms to align with Earth's 24-hour rotation. Aligning cellular processes, such as translation, with this cycle is crucial. Our study reveals ATXN2 and ATXN2L as key regulators of rhythmic translation in mammals, orchestrating phase separation in the suprachiasmatic nucleus. This oscillating mechanism ensures the timely progression of mRNA processing to protein synthesis for key genes. Moreover, we are exploring more aspects of phase separation in regulating circadian rhythm, investigating how compartmentalized protein translation is influenced by the properties of protein phase separation. Disrupting these regulators can invert the circadian period or blur the rhythm, emphasizing the importance of phase separation for precise timekeeping. Our discovery underscores the cellular condensates' role in tuning circadian clocks and opens avenues to explore their broader impact on rhythmic regulation.

ALL ARE WELCOME