NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

ON-SITE BIOLOGY COLLOQUIUM

Friday, 24 Nov 2023 | 4 pm | DBS Conference Room 1

Hosted by Assoc Prof Low Boon Chuan

Assembly dynamics of nuclear condensates are critical for transcriptional effects

By **Daniel Hebenstreit**

Professor, University of Warwick, UK

There is a growing recognition that Liquid-Liquid Phase Separation (LLPS) is involved in many cellular processes, including transcription or chromatin organisation. However, the biological implications of LLPS are still largely unresolved.

We use an optogenetics system to induce in vivo condensation of an unstructured protein domain in the nucleus of a mammalian cell line. Microscopic analysis revealed three main condensate phenotypes, which we isolated by flow cytometric sorting. Characterization of these by next generation sequencing techniques to capture chromatin topology and transcriptional dynamics, along with advanced imaging analysis, revealed formation and disassembly kinetics as the main determinants of their effects on transcription.

About the Speaker

Daniel Hebenstreit studied genetics and mathematics at the University of Salzburg in Austria. After a postdoctoral stay at the Laboratory of Molecular Biology in Cambridge, UK, he was appointed to a faculty position at the University of Warwick, he has been researching transcription in mammalian cells since.