

SEMINAR

Wed, 18 Aug 2021 | 9 am | Online Zoom Session

Hosted by A/P Ge Ruowen

Primary cilia in development, physiology & behavior: unraveling molecular to systems mechanisms in the brain



By Siew Cheng PHUA

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The primary cilium is an exemplar of structure-function paradox; despite holding 1/10000th volume of a cell, molecular pathways in primary cilia play vastly important roles in shaping development, physiology and behavior. In this talk, I will discuss how my research career has evolved around investigating the cross-scale significance of primary cilia in biology. At the single-cell level, I have illuminated the functional dynamics of primary cilia in cell cycle control that is relevant to development and cancer. To develop systems knowledge of how ciliopathies (cilia malfunction) affect body metabolism and feeding behavior, I elucidated a key neural circuit underpinning feeding motivational drive and am currently investigating the role of neuronal primary cilia in modulating the persistence and flexibility of hunger and satiety behavioral states. I will also share my future plans to investigate the bi-directional relationship between unconventional ciliary G-protein coupled receptors and obesogenic neural pathways and to discover new molecular targets in metabolic regulation. Overall, my research aims to bridge the gap between molecular and systems neuroscience and to promote new therapeutic strategies for brain-related disorders.

About the Speaker

*Siew Cheng obtained her PhD from Takanari Inoue's lab at Johns Hopkins School of Medicine and is currently a research fellow in Yu Fu's lab at IMCB, A*STAR. Trained as a molecular cell biologist with specialization in systems neuroscience, her research interests lie in providing molecular explanations to circuit-level behaviors. Her work has been published in journals including Cell and Nature Methods, and she is a recipient of the National Science Scholarship, Weintraub Graduate Student Award as well as the NMRC Young Individual Research Grant.*

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