NEUROSCIENCE & BEHAVIOURAL DISORDERS

INVITED SPEAKER SEMINAR

Generation, maintenance, and specialization of sensory cilia

Speaker: **Dr Ashish Maurya**
Postdoctoral Associate
Brandeis University, USA

Host: **Prof Wang Hongyan**
Deputy Programme Director
Neuroscience & Behavioural Disorders Programme, Duke-NUS

Date: **16 October 2020, Friday**
Join Zoom Meeting
https://nus-sg.zoom.us/j/81898729076?pwd=czlxa0R6ci9qam5NdVZMTlR1T0NJQT09

Meeting ID: 818 9872 9076
Password: 362426

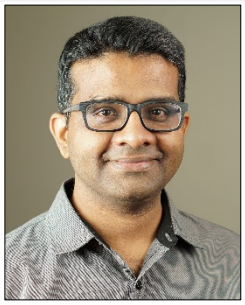
Time: **12.00pm to 1.00pm**

Contact Person: **Jacqueline Ho (jacqueline.ho@duke-nus.edu.sg)**
Neuroscience & Behavioural Disorders Programme, Duke-NUS

Seminar Abstract

Cilia are conserved microtubule based sensory organelles that underlie our sense of sight, taste, smell, and hearing. Cilia also coordinate the reception and much of the transduction of the important developmental signal Sonic Hedgehog. The size and shape of the ciliary compartment is highly regulated and has major implications for signaling homeostasis. In studying the specialized and branched morphology of neuronal cilia in *C. elegans*, I have uncovered a conserved kinase cascade that controls cilia structure in a tunable fashion, it does so by regulating microtubule stability. Upregulation of this pathway entirely dismantles cilia, while its loss leads to cilia that are highly elongated. These kinases seem to act as crucial nodes to regulate cilia structure, but little is known about how cells sense cilia size or integrity to tune the activity of this kinase cascade? Or how these kinases in turn regulate microtubule stability? I will present a novel upstream regulator of this pathway that we hope will help us better understand the ciliary size sensing mechanism. In related studies on the branching morphogenesis of cilia, I have identified a specific role for glial support cells in ciliary elaboration in a process that is analogous to the morphogenesis of vertebrate photoreceptor outer segments (or specialized cilia).

Speaker's Profile



Ashish Maurya is a postdoctoral associate at Brandeis University in Piali Sengupta's laboratory. He is studying how specialized cilia types are generated, maintained, and contribute to neuronal and organismal biology using *C. elegans*. For his graduate studies in cell and developmental biology in the laboratory of Philip Ingham at IMCB, he studied how the developmental signal Sonic Hedgehog (Shh) elicits differential target gene expression in zebrafish embryos. Intrigued by the essential role of cilia in Shh transduction, Ashish further studied (also at IMCB) how a kinesin-like molecule Kif7 coordinated the response to Shh in and around the cilium.

All are welcome. No registration is required.

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