DukeNUS Medical School | Cancer & Stem Cell Biology

CSCB Seminar Series

Extracellular vesicles mediate a novel muscle-intestine crosstalk underlying lipid uptake

Date: 19 October 2026 (Monday)
Time: 12:00pm – 1:00pm

Format : In-person
Amphitheatre, Level 2
Duke-NUS Medical School

Abstract:

The skeletal muscle mediates many beneficial effects of physical activity through secretion of bioactive factors such as extracellular vesicles (EVs). However, the regulation and targeting of myofiber-derived EVs (myoEV) remain unclear. Here, we establish a mouse reporter to mark myoEVs with a green fluorescent protein (GFP), enabling their visualization and enrichment. Using this model, we detect myoEVs in the intestine and show that myoEVs promote lipid uptake by intestinal absorptive cells. We further identify PRMT5 as a regulator of myoEVs as myofiber-specific Prmt5 knockout (Prmt5-mKO) altered EV-protein contents. Subsequently, the Prmt5-mKO mice are protected from diet-induced obesity and metabolic dysfunction due to reduced jejunal lipid uptake. Finally, we show that Prmt5-mKO upregulates thrombospondin 2 (THBS2) in myoEVs to suppress lipid uptake. These results establish a muscle-gut communication pathway that controls intestinal lipid uptake and systemic metabolism.

Speaker:

Prof. Shihuan KUANG

Professor of Orthopaedic Surgery
Director of Orthopaedic Stem Cell Research
Duke University School of Medicine

Dr. Kuang is a professor at Duke University School of Medicine and director of Orthopedic Stem Cell Research. He is one of the top 2% most-cited scientists with over 200 publications, 18000 citations and an H-index of 67. Among his many scholarly contributions, he discovered how extrinsic and intrinsic signals regulate skeletal muscle stem cells; he illustrated the lineage origin and interconversion of brown and white fat cells; he patented technologies to treat muscular and metabolic diseases.

Host:
Dr. Hong-Wen TANG
Assistant Professor,
Programme in Cancer & Stem Cell Biology,
Duke-NUS Medical School

No registration is required.
All are welcome.
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