Faculty Seminar

Unraveling Neural Degeneration via Patient Stem Cells



Date: 13 April 2018 (Friday)
Time: 12:00pm – 1:00pm
Venue: Workshop, MD9 Level 1

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Abstract

Human pluripotent stem cells (PSCs), including embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs), are useful models for revealing early development, modelling pathological processes, and developing therapeutics. We have developed chemically defined *in vitro* systems to direct hPSCs to functionally specialized neuronal and glial subtypes. Modification of hPSCs with advanced gene-editing technology CRISPR enables us to dissect out molecular pathways underlying pathological processes and to build platforms for drug discovery. Transplantation of hPSC-derived neural progenitors into animal models of neurological conditions indicates that appropriately specified neural progenitors differentiate to predicted neural cell types, reconstruct lost circuits, and contribute to functional improvement. Thus, hPSCs are instrumental to therapeutic development for a range of diseases.

Biography

Su-Chun Zhang, MD, PhD, is Professor of Neuroscience and Behavioral Disorders Program at the Duke-NUS Medical School, Singapore. Before joining Duke-NUS, he was Steenbock Professor in Behavioral and Neural Sciences, Department of Neuroscience and Department of Neurology at the University of Wisconsin–Madison. Dr. Zhang received his MD and MS in China and his PhD in Canada. He has pioneered in guiding human stem cells, including induced pluripotent stem cells (iPSCs), to functionally specialized nerve cell types that are lost in many neurological and psychiatric conditions like Parkinson's disease, Huntington's disease, ALS, Alzheimer's disease, and spinal cord injury. He has served as a reviewer or consultant for numerous agencies and scientific journals, including the NIH, FDA, and research foundations. He testified in the US Senate on aging and stem cell research. He was a founding member of the WiCell Institute.

Convener: Prof. Lim Kah Leong

NUS National University of Singapore | Department of Physiology
Yong Loo Lin School of Medicine

NUHS National University Health System