ASHBi SEMINAR

Human spinal cord organoid for disease modeling and drug screening

Lecturer: Woong Sun, Ph.D.

Professor at the Department of Anatomy,
Korea University College of Medicine

Date Wednesday, 8 February 2023

Time 16:00 – 17:00 [JST]

Venue Hybrid* *Register via the right QR code

Conference Room / Zoom online
B1F, Faculty of Medicine Bldg. B

Abstract

Spinal cord is generated by the folding of the neural plate along anterior-posterior axis via an embryonic process called neurulation. Perturbation of this process often leads to a common congenital malformation, neural tube defects, highlighting the importance to develop in vitro model recapitulating human neurulation. The advent of organoid technology, which produces 3D structure resembling parts of organs from ESCs/iPSCs, has provided ways to study human organogenesis and to model human diseases. Recently, we developed a novel organoid model that exhibits specific morphogenetic features of spinal cord development, such as neural tube formation. The human spinal cord organoids (hSCOs) exhibited tube-forming morphogenesis, and differentiation into the major types of caudal spinal-cord cells, and functional maturations such as synaptic contacts and synchronized neural activities. Furthermore, optimization of the process allowed quantifiable and scaleable organoid production, suitable for the high contents drug screening. In this talk, I will present an example that the hSCOs were used to toxicology screen for drugs that might cause neural-tube defects.

Organizer : Graduate School of Medicine
Institute for the Advanced Study of Human Biology (WPI-ASHBi)

Contact: Prof. Cantas Alev
[E-mail] alev.cantas.8m@kyoto-u.ac.jp