

Mototsugu Eiraku

Laboratory of Developmental Systems, Institute for Frontier Life and Medical Sciences, Kyoto University

Monday, August 30, 2021

13:30~15:00 Seminar (@Zoom)

15:30~16:30 Discussion with students (@SpatialChat)

16:30~17:30 Free-discussion (@SpatialChat)

Meeting URL will be announced on the event day by e-mail.

※1 This seminar is open only to BDR members.

※2 “Discussion with students” is open only to students in BDR.

Multicellular autonomy in stem cell culture

Summary

Pluripotent stem cells (such as ES cells and iPS cells) can, in principle, differentiate into all cell types that make up our body. In a last decade, a technology that induces the differentiation of pluripotent stem cells into desired cell types by mimicking the environment of the developing organ in a culture dish has greatly developed. We have developed a method to induce various neural regions such as cerebral cortical tissue and retinal tissue from pluripotent stem cells (cerebral organoids and retinal organoids), and have studied the molecular basis of self-organization in the pattern formation and morphogenesis. In this talk, I will introduce a new means to form a tissue with the function as a circadian clock center, capable of sustaining stable clock gene oscillations in a 24-hour cycle for more than 20 days in stem cell culture. In addition, I will talk about induction of human olfactory sensory epithelium organoids and its application to elucidate the mechanism of olfactory abnormality caused by SARS-CoV2 infection.

Host: BDR students association (hiroki.machida@riken.jp)