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14:00-15:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom
Zoom meeting URL will be announced on the event day by e-mail.

※This seminar is open only to BDR members.

NeuroMesodermal Progenitors and Their Role in Body Axis Morphogenesis and Pathology

Summary

The formation of the vertebrate trunk and tail relies on the coordinated addition of mesodermal (muscles and vertebrae) and neural (spinal cord) cells from a progenitor zone in the tailbud. Central to this process are bipotent NeuroMesodermal Progenitors (NMPs), which generate both neural and mesodermal tissues. These cells are critical for posterior body axis morphogenesis, and disruptions in their function can lead to body axis anomalies. In humans, such disruptions are associated with neural tube defects (NTDs), including spina bifida, a condition marked by incomplete closure of the spinal cord and vertebrae. While folate deficiency and genetic mutations are recognized as risk factors for NTDs, the mechanisms by which folate deficiency disrupts posterior development remain poorly understood.

In this talk, I will share our findings on how folate levels influence NMP homeostasis and contribute to pathological posterior axis morphogenesis resembling NTDs. Using a multiscale approach that integrates single-cell transcriptomics, cell and tissue morphometry, and quantitative biology, we uncover the role of NMPs in driving NTD-like phenotypes