

BDR SEMINAR via Zoom

Masayuki Oginuma

Research Institute for Microbial Diseases, Osaka University

Friday, August 4, 2023

9:30-10:30

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

※This seminar is open only to BDR members.

Unraveling the novel embryonic clock machinery from diapause in turquoise killifish

Summary

“Time” is the greatest mystery that remains in the field of developmental biology. The timing of embryonic development is a programmed process. Embryogenesis proceeds according to a schedule and has a species-specific tempo, which means the embryo has a clock that monitors and controls the progress of embryogenesis. However, the molecular mechanisms of this clock remain largely unknown. To unravel this mystery, I focus on diapause (developmental pause) in turquoise killifish, where embryonic development is suspended for an extended period. I succeeded in inducing killifish diapause in the laboratory and proceeded to examine the molecular mechanism of this phenomenon from a metabolic perspective. To achieve this, I established real-time imaging systems of energy metabolism and utilized an effective F0 gene knockout method by optimizing the CRISPR/Cas9 system. Through these experiments, I discovered novel regulators of embryonic clock systems. Today, I would like to discuss the new embryonic clock systems unraveled through this unique experimental model.



RIKEN Center for Biosystems Dynamics Research (BDR)

Host: Tomoya Kitajima

Laboratory for Chromosome Segregation, BDR
Contact: bdr-mtg@ml.riken.jp