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Thursday, November 9, 2023

11:00-12:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

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

※Non-BDR members: Please register from the following link.

<https://krs1.riken.jp/m/bdrseminarregistration> (Registration deadline: Nov 4)

A Bird's-Eye Perspective on Skin Patterning, Regional Specification, and Evolution

Summary

My research group has been utilizing the feather as a model to investigate morphogenesis and evolution. We explore the mechanisms of tissue patterning in the avian integument, which are formed through principles including Turing activators / inhibitors, gradient in the morphogenetic field, cyclic renewal of follicle stem cells, and epigenetic modulation of temporal and regional specific phenotypes, with functional adaptation for evolutionary purposes. Today, we will discuss more on recent findings on the potential roles of channel activity to mediate long distance patterning signals, and regulation of Hox gene clusters in avian integumentary appendage morphogenesis.

Chang WL, .. WT Juan, Chuong CM. The Making of a Flight Feather: Bio-architectural Principles and Adaptation. *Cell*. 2019 Nov 27;179:1409-.

Inaba M, Jiang TX, Liang YC, Tsai S, Lai YC, Widelitz RB, Chuong CM. 2019. Instructive role of melanocytes during pigment pattern formation of the avian skin. *Proc Natl Acad Sci U S A*. 116:6884-6890.

Jiang TX, Li A, Lin CM, Chiu C, Cho JH, Reid B, Zhao M, Chow RH, Widelitz RB, Chuong CM. 2021 Global feather orientations changed by electric current. *iScience*. 24:102671-

Lei M, Harn HI, Li Q, Jiang J, Wu W, Zhou W, Jiang TX, Wang M, Zhang J, Lai YC, Juan WT, Widelitz RB, Yang L, Gu ZZ, Chuong CM. The mechano-chemical circuit drives skin organoid self-organization. *Proc Natl Acad Sci U S A*. 2023 Sep 5;120(36):e2221982120.