改定版（場所が変更になりました）

IGERセミナー　/　アドバンス生命理学特論

Dissecting neural circuits for visual motion processing in zebrafish

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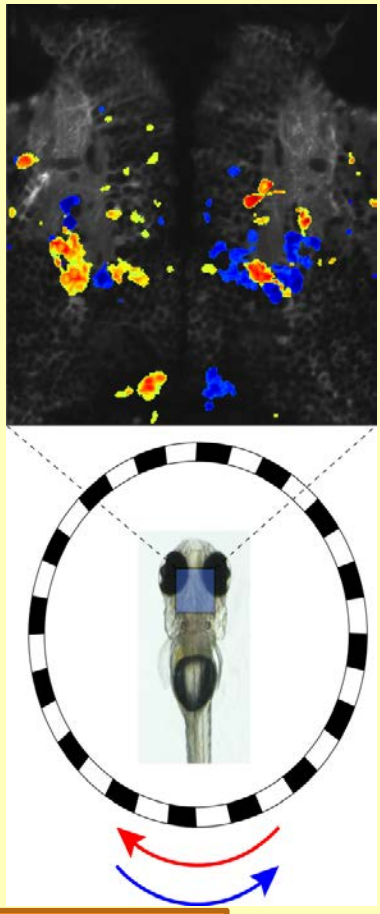
Processing of visual motion is a fundamental neural computation performed by both invertebrates and vertebrates. During locomotion, animals' own movement produces a flow-like motion of the large field of view, called "optic flow". This optic flow triggers stabilization behaviors of the eyes, head or body to compensate for the perceived self-motion.

Using a combination of optogenetics and in vivo calcium imaging in larval zebrafish, we recently identified a neural circuit that processes optic flow information received by two eyes and distinguishes rotational and translational optic flow in zebrafish pretectum. Our data allowed us to predict a wiring diagram that can effectively perform binocular optic flow computation. However, how such hypothetical wiring diagram is implemented in the actual neural circuit remains elusive. In this seminar, I will present our ongoing work aimed at bridging the gap between physiology and anatomy of the pretectal circuit to better understand the circuit-level mechanisms underlying the optic flow processing.



July 25th, 13:00–14:30 Language: English

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