

ASHBi SEMINAR

Understanding brain circuits and their modulation using connectomic and novel imaging approaches

Lecturer: **Tianyi Mao** Ph.D.

Associate Professor

Vollum Institute Oregon Health and Science University Portland, Oregon



Date **Thursday, 10 August 2023**

Time **17:00 – 18:00 [JST]**

Venue **Conference Room**

B1F, Faculty of Medicine Bldg. B

*Register via the right QR code



Abstract

My laboratory is interested in elucidating the structure-function relationship of brain circuitry underlying sensori-motor integration and understanding how these circuits are changed and modulated by disease, brain state and behavioral context. We utilize cutting-edge technology including connectome, imaging, computation, genetics, and functional circuit mapping in the mouse model to examine the principles governing neuronal connectivity and their regulation. In parallel, my laboratory also develop and implement novel imaging tools and computational algorithms for monitoring and manipulation of these circuits. This talk will first focus on establishing comprehensive connectomic maps at the mesoscopic scales between the mouse cortex, thalamus, and striatum and the modulatory network. Connections across these brain structures are essential for motor control, affective pain sensation, decision making, and reward. Structural principles governing the neuronal connectivity will be discussed. The second part of the talk aims to address how to utilize such comprehensive structural connectomic maps together with novel in vivo cAMP/PKA imaging to further our understanding of circuit function and their modulation including dopamine, norepinephrine and opioids modulation.

Organizer : Graduate School of Medicine

Institute for the Advanced Study of Human Biology (WPI-ASHBi)

Contact: Dr. Tadashi Isa

[E-mail] isa.tadashi.7u@kyoto-u.ac.jp

