Graduate School Seminar

Dissecting Neural Circuits in the Medial Entorhinal Cortex for Learning and Memory

Speaker: **Takashi Kitamura, Ph.D**
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Date: **9th June 2025 (MON.) 17:00～18:30**

Venue: **富山大学附属病院 2 階 臨床講義室 1**

The medial entorhinal cortex (MEC) and hippocampus (HPC) play essential roles in spatial memory. Traditionally, it has been believed that the superficial layers (II/III) of the entorhinal cortex (EC) project to the HPC, while the deep layers (V/VI) receive input from it, forming a loop circuit that supports learning and memory. However, recent advances in circuit-mapping technologies have uncovered previously unrecognized neural pathways. In this talk, I will present our findings on the layer-specific functions of the MEC in learning and memory in rodents.

Selected Publications:

1) Kitamura et al., ***Cell***, 139, 4, 814-827 (2009) 2) Kitamura et al., ***Science***, 343, 6137, 896-901 (2014)
3) Kitamura et al., ***Neuron***, 87, 6, 1317-1331 (2015) 4) Kitamura et al., ***Science***, 356, 6333, 73-78 (2017)
5) Tonegawa S, Morrissey MD & Kitamura T, The role of engram cells in the systems consolidation of memory. ***Nature Review Neuroscience***, 19(8):485-498 (2018)
6) Terranova JI, Yokose J, Osanai H, Marks WD, Yamamoto Y, Ogawa SK & Kitamura T. Hippocampal-Amygdala Memory Circuits Govern Experience-Dependent Observational Fear. ***Neuron***, 110(8), 1416-1431, (2022)
7) Terranova JI, Yokose J, Osanai H, Ogawa SK & Kitamura T, Systems consolidation induces multiple memory engrams for a flexible recall strategy in observational fear memory in male mice. ***Nature Communications***, 14(1), 3976, (2023)
8) Yokose J, Marks WD & Kitamura T, Visuotactile integration facilitates mirror-induced self-directed behavior through activation of hippocampal neuronal ensembles in mice. ***Neuron***, 112 (2), 306-318, (2024)

※ 本セミナーは、大学院博士課程授業「認知・情動脳科学特論」の一環です。
履修者は、レポートの提出が必要です。 また、大学院の単位認定の対象となります。

Sponsor: Research Center for Idling Brain Science (RCIBS)
Organizer: Daisuke Miyamoto (RCIBS/Laboratory for Sleeping-Brain Dynamics) (Ext, 7324)