

講演会のお知らせ

“Astrocyte contributions to striatal circuits”

Speaker: Jun Nagai, PhD

**Postdoctoral Scholar in Baljit Khakh's lab
Department of Physiology,
David Geffen School of Medicine, UCLA**



This seminar will report the latest insights on astrocytes, a type of brain cells, in neural circuit regulation and animal behavior, revealed by using multiple integrated approaches, including $[Ca^{2+}]_i$ imaging, electrophysiology, optogenetics, pharmacogenetics, animal behavioral tests, and RNA-seq.

An open question in brain science concerns how multiple cell types in the brain interplay to regulate circuit and animal behaviour. Astrocytes tile the entire brain in adult mammals, interacting with other glia, blood vessels, neurons and synapses with their myriad of fine processes. We here systematically explored the astrocyte-neuron communication in the adult striatum and discovered that striatal astrocytes drive hyperactivity and disrupted attention in mice through a hitherto unknown synaptic mechanism. We found that striatal neurons triggered astrocyte $GABA_B$ receptor signaling and that such Gi-signaling resulted in acute behavioral hyperactivity with disrupted attention. The mechanism involved synaptic plasticity mediated by an astrocytic synaptogenic cue. Taken together, our findings show not only that physiological activity of neurons triggers astrocyte signaling, but that signaling from astrocytes to neurons is also sufficient *per se* to alter synapses, circuits and behavior in adults by reactivating a single, latent astrocyte synaptogenic cue.



[参考文献]

Nagai et al., Cell (2019) 177(5):1280-1292

Yu et al., Neuron (2018) 99(6):1170-1187

Yu*, Nagai* et al., Nature Rev Neurosci (2020) in press.

日時：2月18日 14時～

場所：薬学部 南館 4F 大学院講義室

連絡先：薬学系研究科 薬品作用学教室
池谷 裕二 (内線 24781)