

The 53rd Frontier Brain Science Seminar

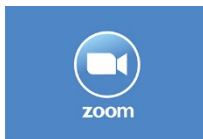
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Stepwise synaptic plasticity events drive memory consolidation

Speaker: **Akihiro Goto, Ph.D**
Kyoto University, Faculty of Medicine.

Date: **14th October, 2021 (THUR.) 17:00~18:30**

Live streaming by Zoom



Pre-registration is required. To register, please send
① your name ② your affiliation ③ student number if you are student and ④ university e-mail address to the following address.

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Abstract

Memories are initially encoded in the hippocampus but subsequently consolidated to the cortex. While synaptic plasticity is key to these processes, its precise spatiotemporal profile remains poorly understood. Using a novel optogenetic method to selectively erase long-term potentiation (LTP) within a defined temporal window, we found that distinct phases of synaptic plasticity play differential roles. The first wave acts locally in the hippocampus to confer context specificity. The second wave during the same day sleep, organizes these neurons into synchronously firing assemblies. Finally, LTP in the anterior cingulate cortex during sleep on the second day is required for further stabilization of the memory. This demonstrates the precise localization, timing and unique contributions of the plasticity events that underlie memory consolidation.

Reference

Goto A, et al, Stepwise synaptic plasticity events drive early phase of memory consolidation. *Science*, 2021, in press.

※ This seminar is eligible for credit accreditation for "Advanced Study of Brain Science" of Graduate School of Medicine and Pharmaceutical Sciences for Education.

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