Neuronal Encoding of Temporal and Spatial Information in the Hippocampus

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The hippocampus is fundamental for episodic memory and spatial navigation. However, the circuit and computational mechanisms of these cognitive functions are still to be elucidated. We have explored how hippocampal neurons encode temporal and spatial information in memory-related behaviors, taking advantage of large-scale electrophysiology recording in rodents. In this talk, I will introduce our recent work, which revealed hippocampal neuronal representations of other animals' spatial information during observation in the social context. Also, I will present our results that clarified how neuronal assemblies in the hippocampus encode the sequence of information of non-spatial events that the animal experienced. Based on these findings, I will discuss neuronal and circuit mechanisms of temporal and spatial memory representations in the hippocampus.

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