Division of Medical Sciences

Kick-Off 2024

Selective representation and control of memory by an anomalous excitatory neuron of the hippocampus.

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The hippocampus is often conceptualized as a cognitive map, wherein pyramidal cell activity can represent specific physical and mental properties. Recent results have illustrated that a region of the hippocampus termed the subiculum has a variety of distinct excitatory cell types, suggesting potential specialized cellular roles within this broad cognitive map framework. Here, we reveal and analyze a sparse non-pyramidal excitatory cell type in the subiculum, and discover that this cell type deviates substantially from classical structural and functional properties of pyramidal cells. Strikingly, this cell type selectively exhibits novelty-associated activity across multiple behavioural timescales (from seconds to months), and can control novelty-associated behavioural phenotypes. Our work suggests that distinct subtypes of excitatory neurons in the subiculum are specialized for fundamentally different types of cognitive maps.

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Date: Friday, September 6th
Time: 2:00 pm
Location: MSB 210