

IGSN - COLLOQUIUM

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Place field assembly distribution encodes episodic-like memory

Hippocampus is the main locus of episodic memory formation and the neurons there encode the spatial map of the environment. Hippocampal place cells represent location, but their role in the learning of preferential location remains unclear. The hippocampus may encode locations independently from the stimuli and events, which are associated with these locations. We have discovered a unique population code for the experience-dependent value of the context. The degree of reward-driven navigation preference highly correlates with the spatial distribution of the place fields recorded in the CA1 region of hippocampus. Optogenetic manipulation of the ventral tegmental area demonstrates that the experience-dependent place field assembly distribution is directed by tegmental dopaminergic activity. Our findings present key evidence that the hippocampal neurons are not merely mapping the static environment but also store the concurrent context reward value, enabling episodic memory for past experience to support future adaptive behaviour.

Host:

DENISE MANAHAN-VAUGHAN

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Guests are welcome

