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Co-allocation to overlapping dendritic branches in the retrosplenial cortex integrates memories across time

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Events occurring close in time are often linked in memory, providing an episodic timeline and a framework for those memories. Recent studies suggest that memories acquired close in time are encoded by overlapping neuronal ensembles, but whether dendritic plasticity plays a role in linking memories is unknown. Using activity-dependent labeling and manipulation, as well as longitudinal one- and two-photon imaging of RSC somatic and dendritic compartments, we show that memory linking is not only dependent on ensemble overlap in the retrosplenial cortex, but also on branch-specific dendritic allocation mechanisms. These results demonstrate a causal role for dendritic mechanisms in memory integration and reveal a novel set of rules that govern how linked, and independent memories are allocated to dendritic compartments.

Event link:
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https://neurise.github.io

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