Imaging and optogenetically manipulating recent and very remote memories reveals that CA1 is required for retrieving gist memories over time and CA3 for memory precision

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AIM

We aim to investigate the contribution of CA1 and CA3 to the nature of recent and remote memories.

METHOD

Fear conditioning task to investigate memory precision in combination with CA1 or CA3 optogenetic inhibition (ArchT) and immediate early gene Arc imaging.

MEMORY PERFORMANCE

CA3 is required for the precision of recent memory

CA1 is crucial for remote gist memory

ARC IMAGING RESULTS AND CONCLUSIONS

CA3 inhibition has a local effect only disrupting Arc activity in CA3 during recent memory retrieval:

Inhibiting CA3 has no effect on remote memory retrieval

CA1 inhibition has a global effect disrupting Arc activity in the engaged regions during memory retrieval:

CA1 is required for retrieving recent and remote gist memories.