

## JC4 Notes

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### **Engrams and circuits crucial for systems consolidation of a memory**

Referring from wikipedia, **memory** is the faculty of the mind by which information is encoded, stored, and retrieved. When we learn new thing, new synapse form and a population of neuron are activated, which can be called information encode and are thought to store within the hippocampal-entorhinal cortex (HPC-EC). Over time, short-term memories transform to long-term memory (remote memory). For decades in neuroscience, the most widely accepted model posited that short-term memories form rapidly in hippocampus and are later transferred to long-term memory in HPC-EC. During uncovering the nature and dynamics of process, they found a different model.

Susumu Tonegawa use lots of technology. I highlight optogenetics here. They installed channelrhodopsin-2 to MEC-Va cell, PFC engram cell and DG engram cell. Then these cell can be triggered precisely by light, which involved the behavior of memory.

Finally, they found the evidence that new memories form at both location at the same time.