

Super-resolution Imaging Reveal Protein Synthesis in Drosophila Brain

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Long-term memory (LTM) formation requires learning-induced protein synthesis in specific neurons and synapses within a neural circuit. Precisely how neural activity allocates new proteins to specific neurons and synaptic ensembles, however, remains unknown. Here we developed a new method to expand fly brain 10 times and visualize protein allocation with lattice lightsheet microscopy (10xExLLSM). We show that with this new method, active DNA can be found in DAL neuron after 10x spaced training, and multiple memory proteins can be localized in specific synapses terminals that never been found before.

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