

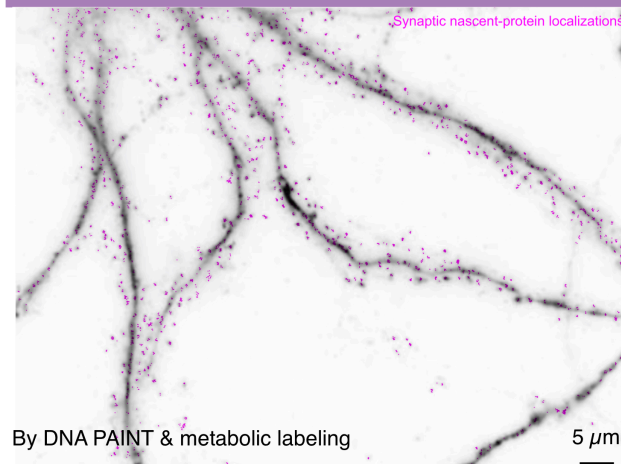
The Spatial Scale of Synaptic Protein Allocation during Homeostatic Plasticity



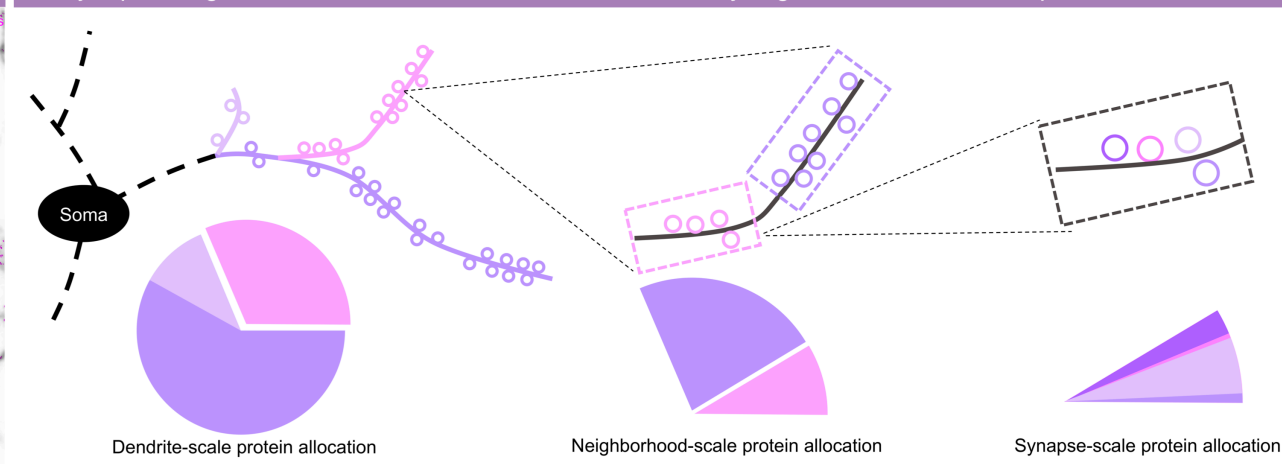
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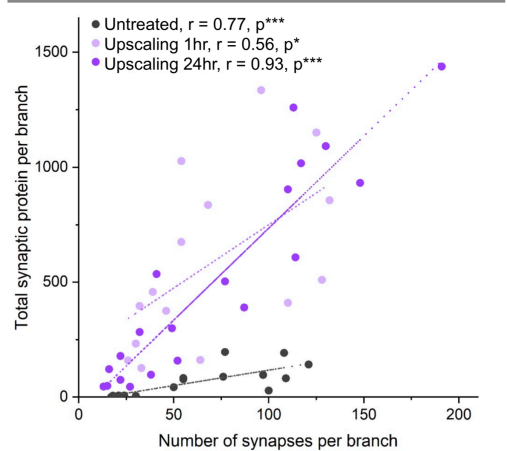
Single molecule imaging of nascent synaptic protein



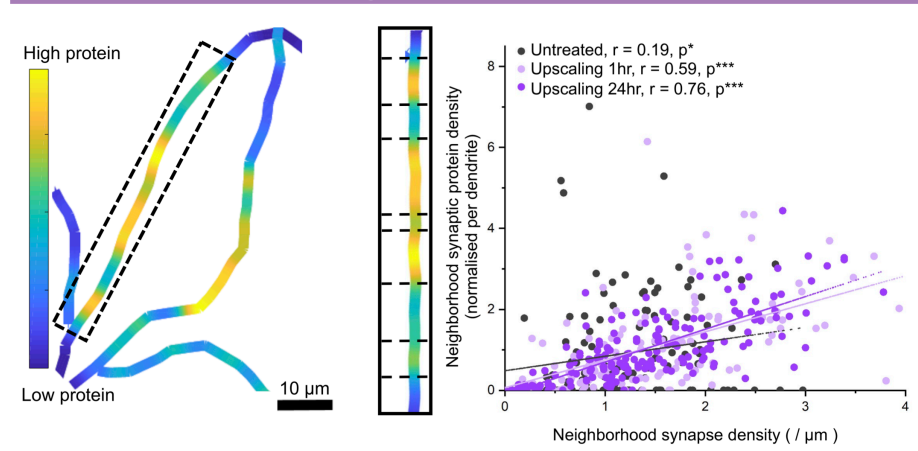
Synaptic neighborhoods mediate between local autonomy & global homeostasis in protein allocation



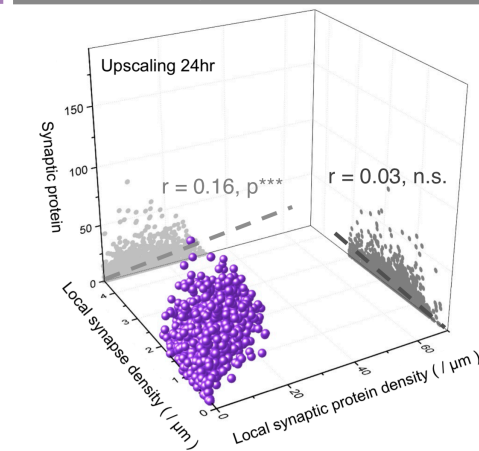
Dendrite scale



Neighborhood scale



Synapse scale



- Global increase of locally synthesized protein at synapses and in dendrites
 - Nascent synaptic protein was allocated fairly among dendritic branches
- Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

- Local domains of high and low protein localization density within branch
- Dendritic neighborhoods of synapses ($\sim 10 \mu\text{m}$) segregated based on synapse density
- Nascent synaptic protein was allocated fairly among synaptic neighborhoods during homeostatic upscaling

- Individual synapses are highly autonomous:
 - Local synapse density did not predict synaptic protein allocation
- Protein allocation of neighboring synapses poorly predicted synaptic protein allocation