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“*UNC-13 is required for synaptic vesicle fusion in C. elegans*”

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Abstract: We analyzed the synaptic physiology of *unc-13* mutants in the nematode *C. elegans*. Mutants of *unc-13* had normal nervous system architecture, and the densities of synapses and postsynaptic receptors were normal at the neuromuscular junction. However, the number of synaptic vesicles at neuromuscular junctions was two- to threefold greater in *unc-13* mutants than in wild-type animals. Most importantly, evoked release at both GABAergic and cholinergic synapses was almost absent in *unc-13* null alleles, as determined by whole-cell, voltage-clamp techniques. Although mutant synapses had morphologically docked vesicles, these vesicles were not competent for release as assayed by spontaneous release in calcium-free solution or by the application of hyperosmotic saline. These experiments support models in which UNC-13 mediates either fusion of vesicles during exocytosis or priming of vesicles for fusion.

Access Article: https://www.nature.com/articles/nn1199_959#auth-2