

Abstracts

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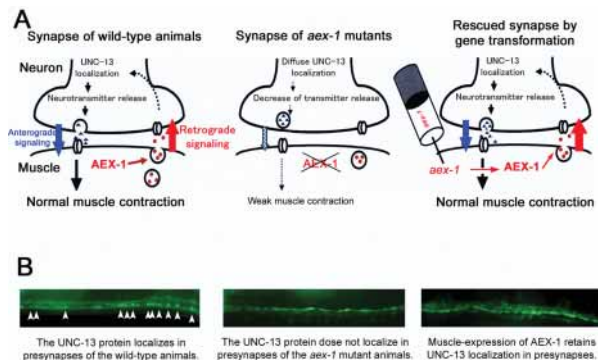
Life Science & Technology

Regulation of Neuronal Activities by Muscles

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Retrograde signaling from postsynaptic cells to presynaptic neurons is important for regulation of neuronal activities such as efficacy of synaptic transmission. We have identified the novel protein AEX-1 that controls retrograde signaling at neuromuscular junctions in the Nematode *C. elegans*. *aex-1* mutants show neural defects including reduced presynaptic activity and abnormal localization of the synaptic

vesicle fusion protein UNC-13. We found that AEX-1 protein has similarities with UNC-13 and only muscle-specific AEX-1 expression rescues neural defects. This suggests that AEX-1 acts for a peptide release form muscles. Our finding sheds a light on understanding the molecular mechanism of retrograde signaling in vertebrates including human beings.



Regulation of retrograde signaling by AEX-1. (A) Schematic model of the AEX-1 dependent signaling mechanism at synapses. (B) Localization patterns of the UNC-13 protein at corresponding synapses of (A)