

Abstract Submitted  
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**Conformational fluctuation of Synaptotagmin-1 observed with single molecule fluorescence resonance energy transfer (smFRET)**  
UCHEOR CHOI, KEITH WENINGER, North Carolina State University — Calcium dependent neurotransmitter release at the synapses involves a synaptic vesicle protein synaptotagmin-1, a calcium sensor, to regulate exocytosis. It has been known that Synaptotagmin-1 interacts with assembled SNARE complexes, but it is unclear how their molecular mechanisms are coupled. X-ray studies in the absence of calcium revealed a closed conformation of synaptotagmin-1 and with calcium bound to the C2 domains of synaptotagmin-3 found extensive interactions holding the domains open. Suggesting the two conformations can be the key to the two functions of synaptotagmin in regulating neurotransmission. Here we use single molecule fluorescence resonance energy transfer (smFRET) to study synaptotagmin interactions with SNARE complexes and the spontaneous conformational changes of synaptotagmin-1 when calcium is induced.

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