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用荧光共振能量转移研究Synaptotagmin 胞质部分的寡聚化

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目前人们公认synaptotagmin在神经递质释放过程中作为钙离子感受器而发挥作用。以前的研究发现，synaptotagmin存在两种形式的寡聚化，一种是通过跨膜区以及随后的中间链部分介导的寡聚化；另一种是通过胞质部分（C2AB）介导的寡聚化。对于后者有很多争议。在这篇文章中，作者用荧光共振能量转移的方法，在尽可能接近生理的条件下，证明了C2AB 在有细胞膜和游离的钙离子的条件下能够寡聚化。而且，抽提细胞膜上的胆固醇或者封闭膜上的磷酸肌醇二磷酸能抑制C2AB 在膜上的寡聚。

The oligomerization of the cytoplasmic domain of synaptotagmin: a fluorescence resonance energy transfer study

Synaptotagmin is thought as the calcium sensor that functions during the neurotransmitter release. Previous studies revealed that synaptotagmin has two forms of oligomerization. One is dependent on the transmembrane domain and the subsequent linker. The other one is mediated by the cytoplasmic domain, C2AB. However, whether or not C2AB can mediate the oligomerization is still in debate. In this article, using FRET method under the situation close to the native state, the authors demonstrate that C2AB can form oligomer in the presence of membrane and free calcium. In addition, extracting the cholesterol or blocking PIP2 on the membrane can inhibit the oligomerization of C2AB.

关键词

Synaptotagmin; 蛋白寡聚化(The oligomerization of protein); 荧光共振能量转移(Fluorescence resonance energy transfer)