

グローバルCOE特別セミナー



演題 : Priming factors prepare SNAREs for calcium-triggered vesicle fusion

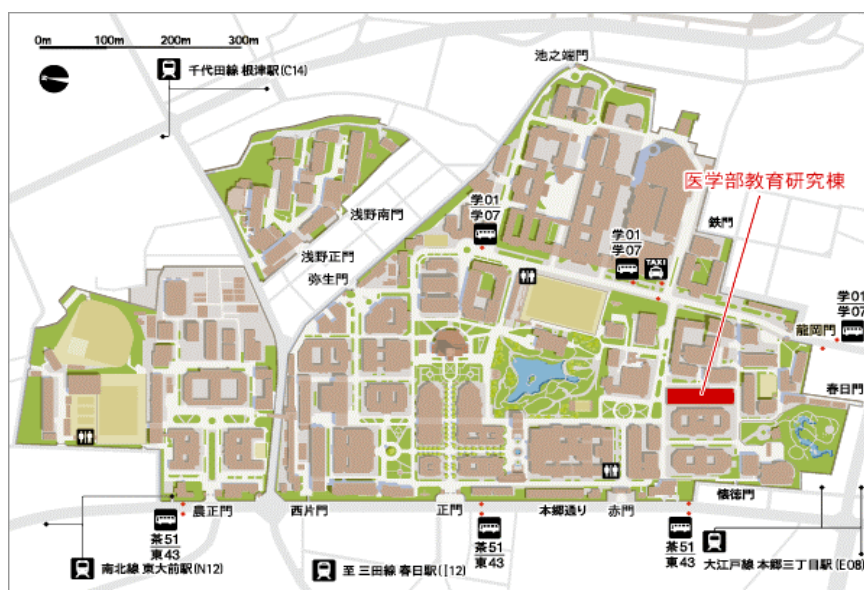
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日時 : 平成21年5月11日 (月) 13 : 00~14 : 00

場所 : 医学部教育研究棟2階 第1セミナー室

SNARE protein complexes between VAMP2 on vesicles and syntaxin-1/SNAP25 on the plasma membrane mediate the final steps of vesicle fusion triggered by Ca^{2+} . However, the pathway of SNARE complex assembly prior to fusion and the factors that catalyze it are poorly understood. A stage of vesicle exocytosis termed priming establishes whether vesicles are competent for Ca^{2+} -triggered fusion. Several protein factors that operate in priming have been identified including CAPS and Munc13 proteins. The phospholipid PI-4,5-P2 is also essential and its (re)synthesis represents an ATP-dependent stage of priming. We found that CAPS accelerates SNARE-dependent liposome fusion in vitro that is dependent upon PI-4,5-P2 and a functional PH domain in CAPS. CAPS promoted trans SNARE complex formation probably through its direct interactions with syntaxin and SNAP25. SNARE binding was found to be mediated by a CAPS domain (MH) that is conserved among CAPS/Munc13 family members. The MH domain binds directly to helical SNARE domains. Our findings on CAPS are being generalized to Munc13 family members. Current studies are directed toward determining how CAPS promotes SNARE complex formation. These studies will reveal the pathway by which SNARE complex assembly occurs, and will provide clarification of the priming step in vesicle fusion.



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