Mass spectrometric approaches to define the functional properties of ion channel phosphorylation

Park Kang-Sik

1) Department of Physiology, Kung Hee University School of Medicine, Seoul 130-701, Korea

Ion channels are membrane proteins responsible for regulating membrane excitability in neuron. Phosphorylation has been shown to play a major role in ion channel gating, trafficking, and cellular mechanism. We have recently applied mass spectrometric-based approaches to identify and quantify phosphorylation at specific sites on native ion channels immunopurified from mammalian brain using specific antibodies. Our previous studies have begun to show a noteworthy extent of in vivo ion channel phosphorylation in brain. Here, I show examples of the advantages of employing newly developed mass spectrometric-based approaches to explore the identification and characterization of ion channel phosphorylation in regulating the function of the channels.

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