

# Cellular and Physiological Functions of Phosphoinositide-Metabolizing Enzymes

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**Abstract** : Phosphatidylinositol 4,5-bisphosphate (PI(4,5)P<sub>2</sub>) is not only a component of the plasma membrane, but it also plays various physiological functions including membrane trafficking, actin cytoskeletal reorganization, endocytosis, exocytosis, and the regulation of ion channels and transporters. PI(4,5)P<sub>2</sub> also becomes a precursor of intracellular signal transduction. The *in vivo* physiology of phosphoinositide (PI)-metabolizing enzymes has been analyzed based on the study of gene knockout mice. This review summarizes the cellular and physiological functions of PI-metabolizing enzymes.

**Key words** : Phosphatidylinositol, Phospholipase C, PI-Kinase, Ca<sup>2+</sup> Signaling