

Quantitative Analysis and Cell Distribution Imaging of Phosphoinositides

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Abstract :

Phosphoinositides are minor components of phospholipids in various cell types, but they have pivotal roles in cell functions. Due to their low abundance and rapid turnover rate in cells, it is difficult to detect the contents and cellular distribution of phosphoinositides. However, the development of phosphoinositide-labeling methods using radioisotopes and the identification of phosphoinositide-binding domains have helped to uncover the metabolic pathways of phosphoinositides and their physiological functions. In this review, we summarize the quantitative analysis of cellular phosphoinositides using [³H] inositol labeling and a HPLC system. We also discuss the spatio-temporal imaging of the cellular localization of phosphoinositides using phosphoinositides-binding domains tagged with fluorescent proteins.

Key words : Phosphoinositides, [³H] inositol, HPLC, Phosphoinositide-binding domain