

PRODUCT INFORMATION



PtdIns-(4,5)-P₂ Binding Protein (GST-tagged)

Item No. 10009815

Overview and Properties

Synonyms: Phosphatidylinositol-4,5-diphosphate, PI(4,5)-P₂, PI(4,5)P₂ Binding Protein, PIP₂, PIP2[4',5'] Binding Protein, PLC-δ1-PH Domain

Source: Recombinant N-terminal GST-tagged protein purified from *E. coli*

Molecular Weight: ~45.2 kDa

Storage: -80°C (as supplied)

Stability: ≥1 year

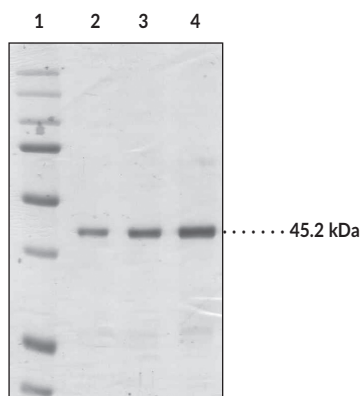
Purity: ≥90%

Supplied in: A solution in PBS, pH 7.2, with 20% glycerol

Protein Concentration: 1.0 mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: PtdIns-(4,5)-P₂ (0.5 µg)
Lane 3: PtdIns-(4,5)-P₂ (1.0 µg)
Lane 4: PtdIns-(4,5)-P₂ (2.0 µg)

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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Description

Pleckstrin homology (PH) domains all contain a seven-standard β -sandwich that allows binding to various species of phosphatidylinositol (PtdIns) phosphates.¹ Most PH domains bind to PtdIn phosphates with weak affinity and low specificity. However, a small subclass binds specifically and with high-affinity for certain PtdIns phosphates. PtdIns-(4,5)-P₂ Binding Protein (GST-tagged) contains a highly specific PH domain that recognizes and binds PtdIns-(4,5)-P₂ (see Figure 1).²

PtdIns phosphates represent a small percentage of total membrane phospholipids. However, they play a critical role in the generation and transmission of cellular signals.^{3,4} PtdIns-(4,5)-P₂ can be phosphorylated by phosphoinositide (PI)-3-kinase to make PtdIns-(3,4,5)-P₃ which initiates an intricate signaling cascade that has been implicated in cancer.⁵ PtdIns-(4,5)-P₂ binding protein can be used in in vitro assays for the detection of PtdIns-(4,5)-P₂ in PI₃-kinase and PTEN phosphatase assays.

References

1. Lemmon, M.A. and Ferguson, K.M. Molecular determinants in pleckstrin homology domains that allow specific recognition of phosphoinositides. *Biochem. Soc. Trans.* **29(4)**, 377-384 (2001).
2. Lemmon, M.A. Phosphoinositide recognition domains. *Traffic* **4(4)**, 201-213 (2003).
3. Exton, J.H. Regulation of phosphoinositide phospholipases by hormones, neurotransmitters, and other agonists linked to G proteins. *Annu. Rev. Pharmacol. Toxicol.* **36**, 481-509 (1996).
4. Majerus, P.W. Inositol phosphate biochemistry. *Annu. Rev. Biochem.* **61**, 225-250 (1992).
5. Vivanco, I. and Sawyers, C.L. The phosphatidylinositol 3-kinase-AKT pathway in human cancer. *Nat. Rev. Cancer* **2(7)**, 489-501 (2002).