PRODUCT INFORMATION

PtdIns-(3,4,5)-P_3 Binding Protein

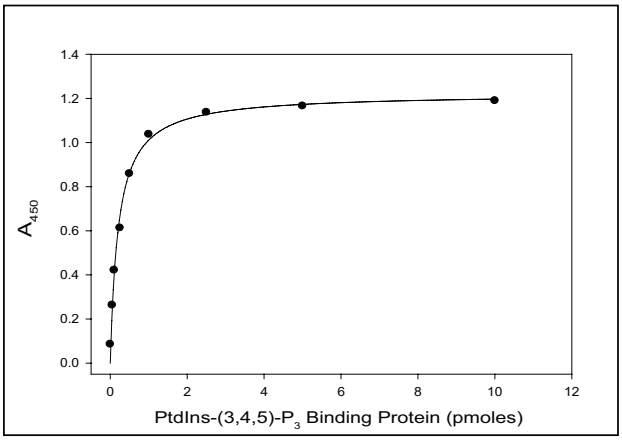
Item No. 10009817

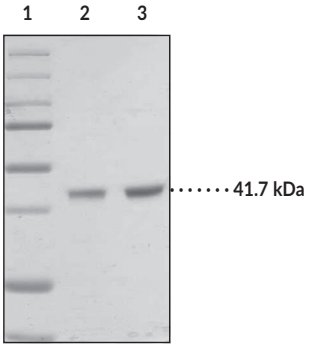
Overview and Properties

Synonyms:	Cyth3, Cytohesin 3, GRP1, GRP1 PH Domain, PIP_3, PIP3[3',4',5'] Binding Protein, PI(3,4,5)-P_3, PI(3,4,5)P_3 Binding Protein, Phosphatidylinositol-3,4,5-triphosphate
Source:	Recombinant human N-terminal GST-tagged PIP_3 expressed in *E. coli*
Amino Acids:	264-381 (PH domain)
Uniprot No.:	O43739
Molecular Weight:	~41.7 kDa (15.4 kDa native; 26.3 kDa as provided)
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95%
Supplied in:	A solution in PBS, pH 7.2, containing 20% glycerol
Protein Concentration:	1.0 mg/ml

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

Images





Lane 1: MW Markers
Lane 2: PtdIns-(3,4,5)-P_3 (1 µg)
Lane 3: PtdIns-(3,4,5)-P_3 (2 µg)

Figure 1: PtdIns-(3,4,5)-P_3-biotinamide (10 pmol/well) was applied to a streptavidin-coated, 96-well plate and was detected using PtdIns-(3,4,5)-P_3 binding protein. Colorimetric readout at 450 nm was accomplished using a HRP-conjugated anti-GST antibody.

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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 PtdIns phosphates with weak affinity and low specificity. However, a small subclass binds specifically and with high-affinity for certain PtdIns phosphates. PtdIns-(3,4,5)-P_3 Binding Protein contains a highly specific PH domain that recognizes and binds PtdIns-(3,4,5)-P_3 (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)-P_2 can be phosphorylated by phosphoinositide (PI)-3-kinase to make PtdIns-(3,4,5)-P_3 which initiates an intricate signalling cascade that has been implicated in cancer.[5] PtdIns-(3,4,5)-P_3 binding protein can be used in *in vitro* assays for the detection of PtdIns-(3,4,5)-P_3 in PI_3-kinase and PTEN phosphatase assays. Cayman's PtdIns-(3,4,5)-P_3 Binding Protein is isoform 2, which differs from isoform 1 by the absence of a glycine residue at position 277.

References

1. Lemmon, M.A. and Ferguson, K.M. *Biochem. Soc. Trans.* **29(4)**, 377-384 (2001).
2. Lemmon, M.A. *Traffic* **4**, 201-213 (2003).
3. Exton, J.H. *Annu. Rev. Pharmacol. Toxicol.* **36**, 481-509 (1996).
4. Majerus, P.W. *Annu. Rev. Biochem.* **61**, 225-250 (1992).
5. Vivanco, I. and Sawyers, C.L. *Nature Reviews Cancer* **2**, 489-501 (2002).

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