PLEKHA4,(5,6) bind PI3P

D'Eustachio, P., Jassal, B.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

26/10/2020

Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

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Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

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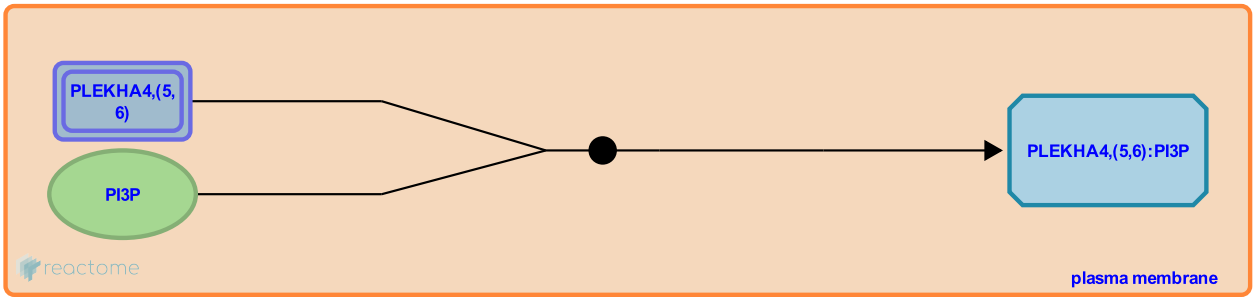
Stable identifier: R-HSA-8870489

Type: binding

Compartments: plasma membrane



The second messenger phosphatidylinositol 3,4,5-trisphosphate

(PIP3, PtdIns(3,4,5)P) is generated by the action of phosphoinositide

3-kinase (PI3K) in response to growth factors and insulin and regulates a range of cellular processes. Proteins containing the plekstrin homology (PH) domain can interact specifically with PIP3 or its immediate breakdown product, phosphatidylinositol 3,4-diphosphate (PIP2, PtdIns(3,4)P). Proteins with a PH domain have also been found to bind to PIs other than PIP3 or PIP2. Pleckstrin homology domain-containing family A member 4 (PLEKHA4 aka PEPP1) is able to specifically bind phosphatidylinositol 3-phosphate (PI3P) but not other phosphoinositides (Dowler et al. 2000). Two related isoforms of

PLEKHA4, PLEKHA5 and 6 (PEPP2 and PEPP3), possess a very similar PH domain sequence, indicating that they may also interact with PI3P (Dowler et al. 2000, Yamada et al. 2012). These proteins may function as adaptor molecules since they possess no obvious catalytic moieties.

Literature references

Dowler, S., Currie, RA., Campbell, DG., Deak, M., Kular, G., Downes, CP. et al. (2000). Identification of pleckstrin-homology-domain-containing proteins with novel phosphoinositide-binding specificities. *Biochem. J., 351*, 19-31. ↗

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Editions

2016-05-10	Authored, Edited	Jassal, B.
2016-07-15	Reviewed	D'Eustachio, P.