

# PI(3,4,5)P3 (PIP3) binds DAPP1 (BAM32) and DAPP1 is phosphorylated

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## 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.

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## Literature references

Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)

Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)

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. [↗](#)

Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

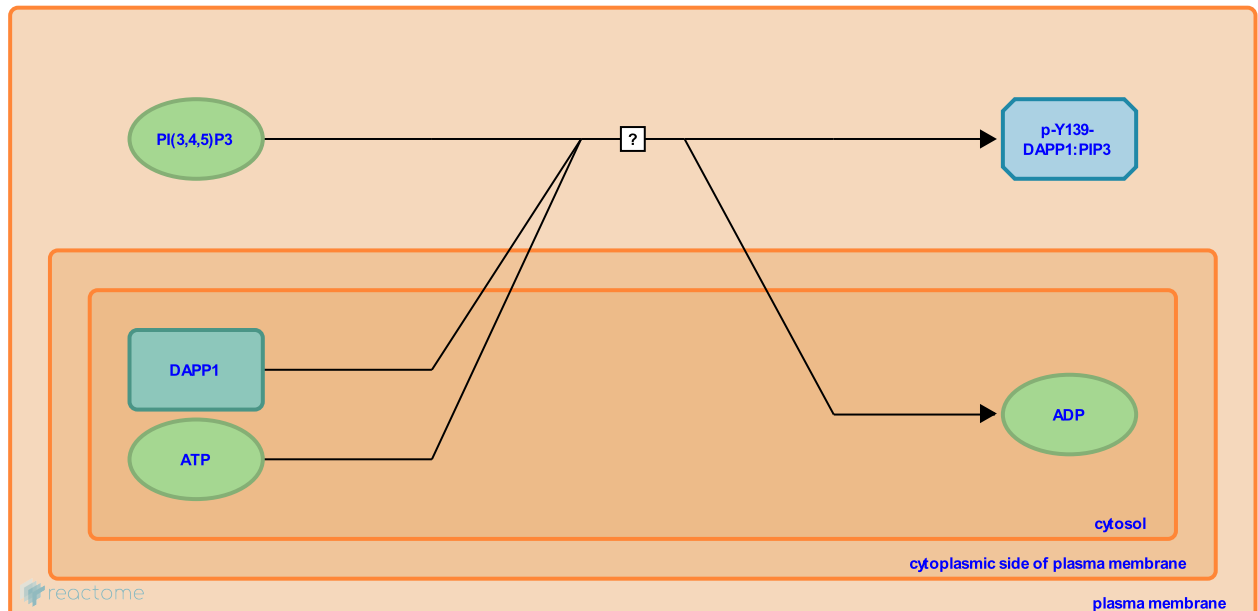
This document contains 1 reaction ([see Table of Contents](#))

## PI(3,4,5)P3 (PIP3) binds DAPP1 (BAM32) and DAPP1 is phosphorylated ↗

**Stable identifier:** R-HSA-9606884

**Type:** uncertain

**Compartments:** plasma membrane



DAPP1 (BAM32) is recruited to the plasma membrane by the binding of its PH domain to phosphoinositol 3,4,5-trisphosphate (PIP3) (Dowler et al. 1999, Marshall et al. 2000, Ferguson et al. 2000). DAPP1 also binds phosphatidylinositol 3,4-bisphosphate (Dowler et al. 1999, Ferguson et al. 2000) and therefore remains bound at the plasma membrane after PIP3 has been dephosphorylated by phosphatases. At the plasma membrane DAPP1 is phosphorylated by a Src family kinase, likely LYN in B cells (Dowler et al. 2000).

### Literature references

- Downes, CP., Currie, RA., Dowler, S., Alessi, DR. (1999). DAPP1: a dual adaptor for phosphotyrosine and 3-phosphoinositides. *Biochem. J.*, 342, 7-12. ↗
- Thomas, S., Yun, TJ., Lerner, CG., Clark, EA., Marshall, AJ., Disteche, CM. et al. (2000). A novel B lymphocyte-associated adaptor protein, Bam32, regulates antigen receptor signaling downstream of phosphatidylinositol 3-kinase. *J Exp Med*, 191, 1319-32. ↗
- Kavran, JM., Fournier, E., Sankaran, VG., Isakoff, SJ., Lemmon, MA., Skolnik, EY. et al. (2000). Structural basis for discrimination of 3-phosphoinositides by pleckstrin homology domains. *Mol. Cell*, 6, 373-84. ↗
- Morrice, N., Montalvo, L., Dowler, S., Alessi, DR., Cantrell, D. (2000). Phosphoinositide 3-kinase-dependent phosphorylation of the dual adaptor for phosphotyrosine and 3-phosphoinositides by the Src family of tyrosine kinase. *Biochem. J.*, 349, 605-10. ↗

### Editions

2018-04-22	Authored, Edited	May, B.
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