

PDPK1 phosphorylates RSKs

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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: 70

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

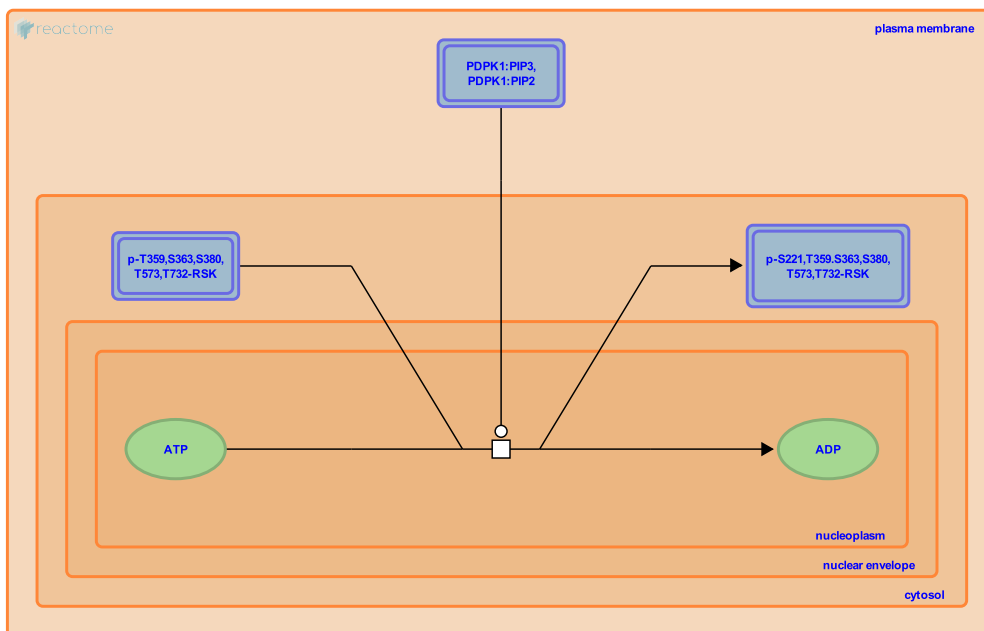
PDPK1 phosphorylates RSKs ↗

Stable identifier: R-HSA-442739

Type: transition

Compartments: nucleoplasm

Inferred from: [PDPK1 phosphorylates Rps6ka2 \(Homo sapiens\)](#)



PDPK1 (PDK1) activates ribosomal S6 kinases (RSKs) by phosphorylating a conserved serine residue S221 (in RPS6KA1). The binding site for PDPK1 on RSKs is available after RSK phosphorylation by MAPKs/ERKs. PDPK1 is present in the activated form at the plasma membrane where the phosphorylation occurs (Jensen et al. 1999).

Literature references

Jensen, C.J., Buch, M.B., Krag, T.O., Hemmings, B.A., Gammeltoft, S., Frödin, M. (1999). 90-kDa ribosomal S6 kinase is phosphorylated and activated by 3-phosphoinositide-dependent protein kinase-1. *J Biol Chem*, 274, 27168-76. ↗

Editions

| | | |
|------------|----------|---------------------|
| 2009-06-02 | Edited | Gillespie, ME. |
| 2009-10-29 | Authored | Mahajan, SS. |
| 2009-11-17 | Reviewed | Tukey, D. |
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| 2018-11-02 | Reviewed | Hansen, KB., Yi, F. |
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