

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. [↗](#)

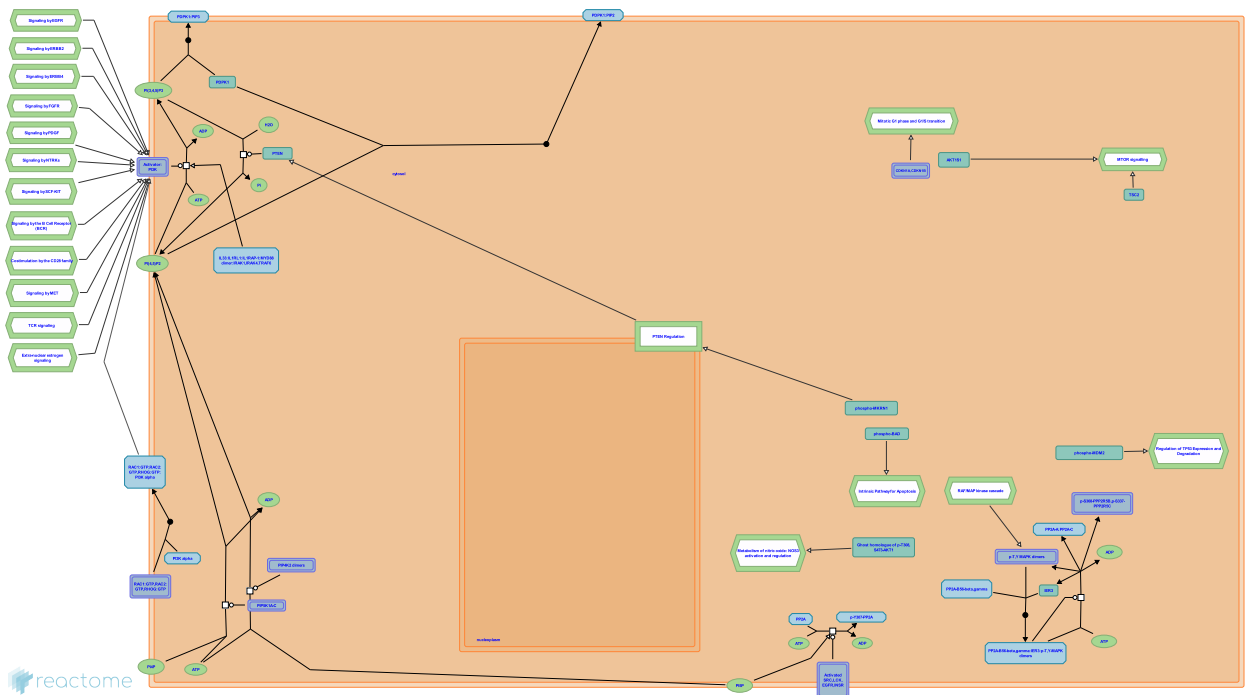
Reactome database release: 82

This document contains 3 pathways and 4 reactions ([see Table of Contents](#))

PIP3 activates AKT signaling ↗

Stable identifier: R-BTA-1257604

Inferred from: PIP3 activates AKT signaling (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

RAC1,RAC2,RHOG activate PI3K ↗

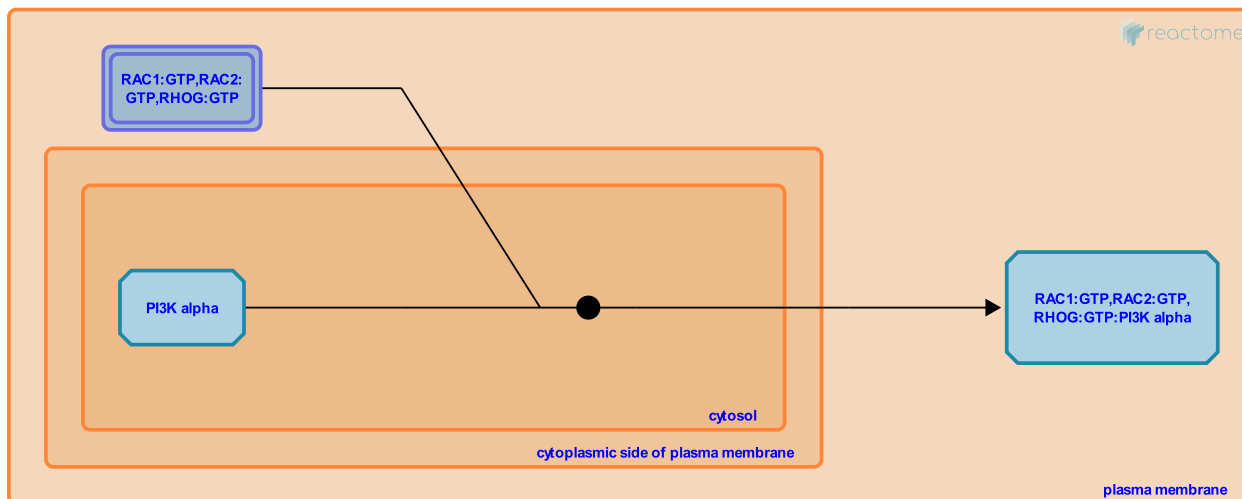
Location: PIP3 activates AKT signaling

Stable identifier: R-BTA-114542

Type: binding

Compartments: cytosol

Inferred from: RAC1,RAC2,RHOG activate PI3K (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

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Followed by: PI3K phosphorylates PIP2 to PIP3

PI3K phosphorylates PIP2 to PIP3 ↗

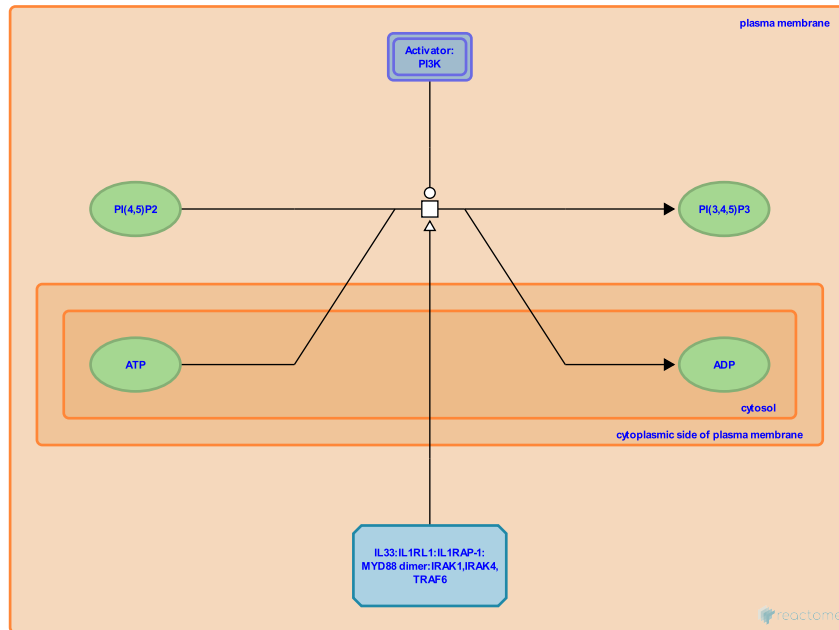
Location: PIP3 activates AKT signaling

Stable identifier: R-BTA-2316434

Type: transition

Compartments: plasma membrane, cytosol

Inferred from: PI3K phosphorylates PIP2 to PIP3 (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

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Preceded by: RAC1,RAC2,RHOG activate PI3K

Followed by: PIP3 recruits PDPK1 to the membrane

PIP3 recruits PDPK1 to the membrane ↗

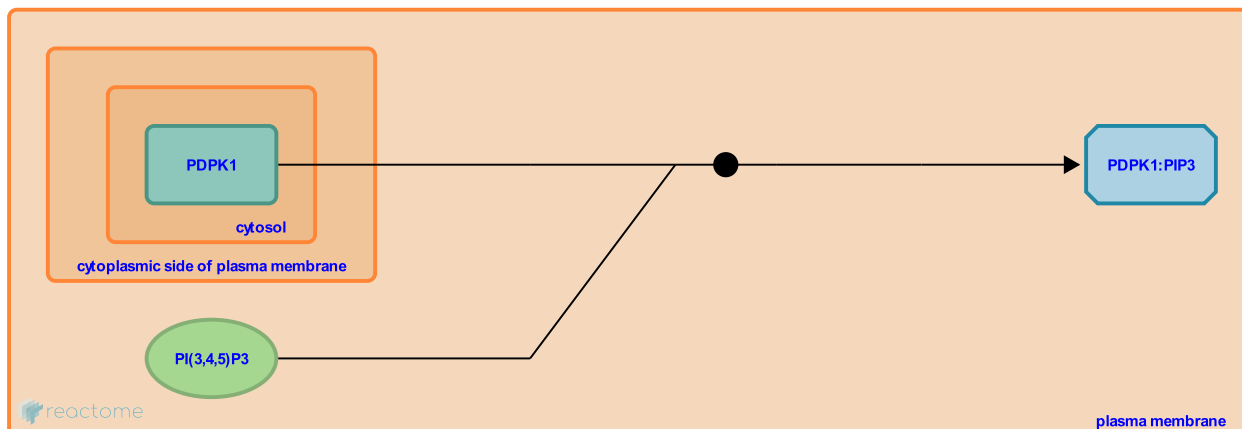
Location: [PIP3 activates AKT signaling](#)

Stable identifier: R-BTA-2316429

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: [PIP3 recruits PDPK1 to the membrane \(Homo sapiens\)](#)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

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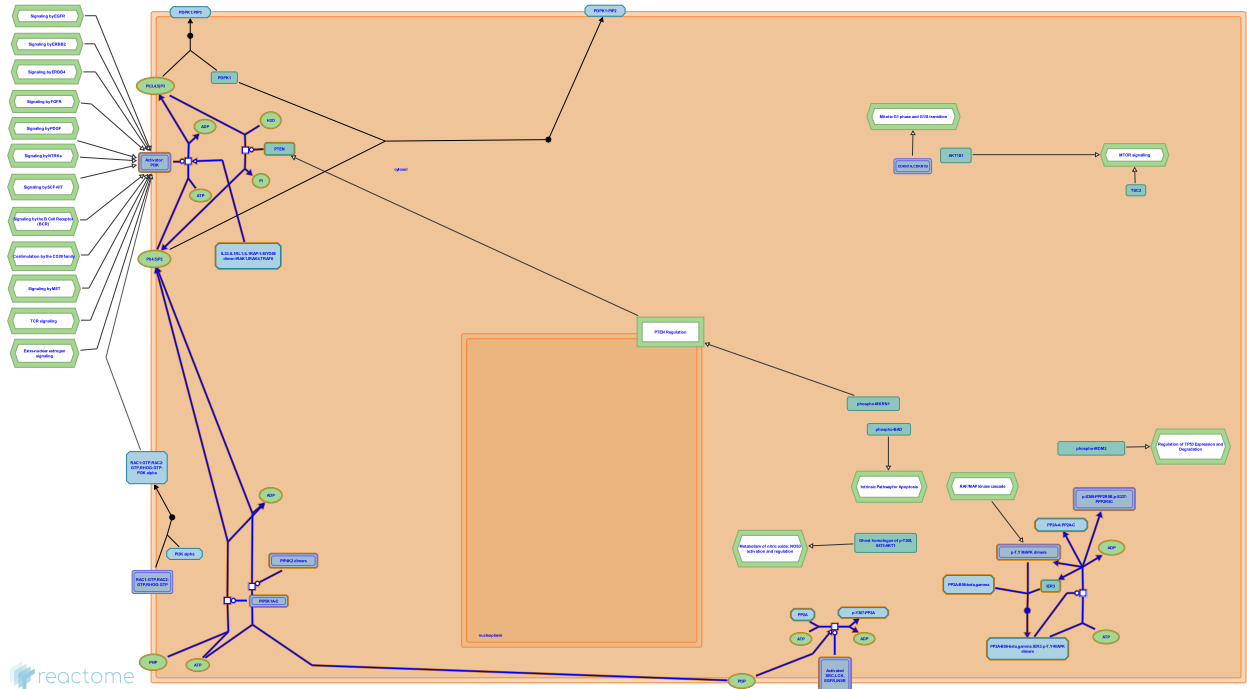
Preceded by: [PI3K phosphorylates PIP2 to PIP3](#)

Negative regulation of the PI3K/AKT network ↗

Location: PIP3 activates AKT signaling

Stable identifier: R-BTA-199418

Inferred from: Negative regulation of the PI3K/AKT network (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

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PDPK1 binds PIP2 ↗

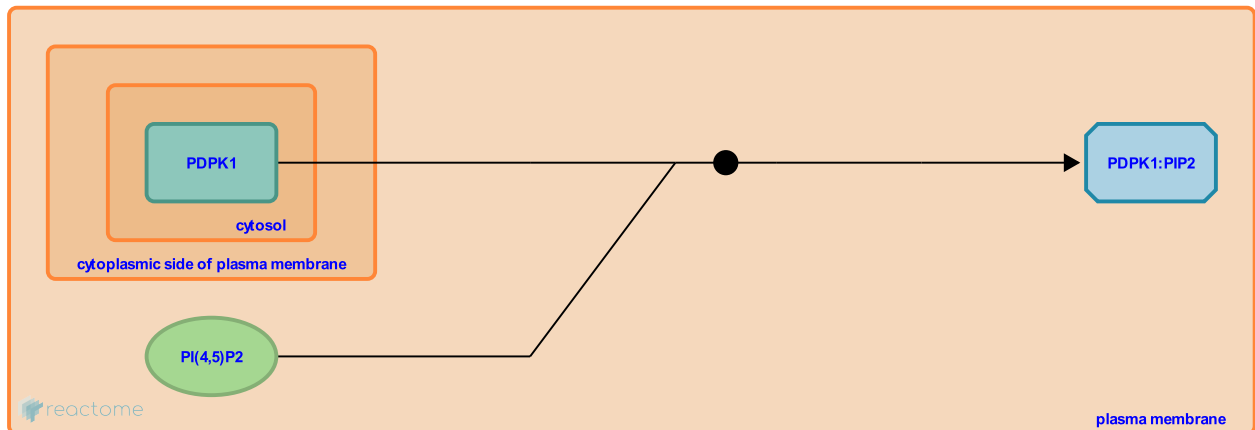
Location: [PIP3 activates AKT signaling](#)

Stable identifier: R-BTA-2219524

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: [PDPK1 binds PIP2 \(Homo sapiens\)](#)



This event has been computationally inferred from an event that has been demonstrated in another species.

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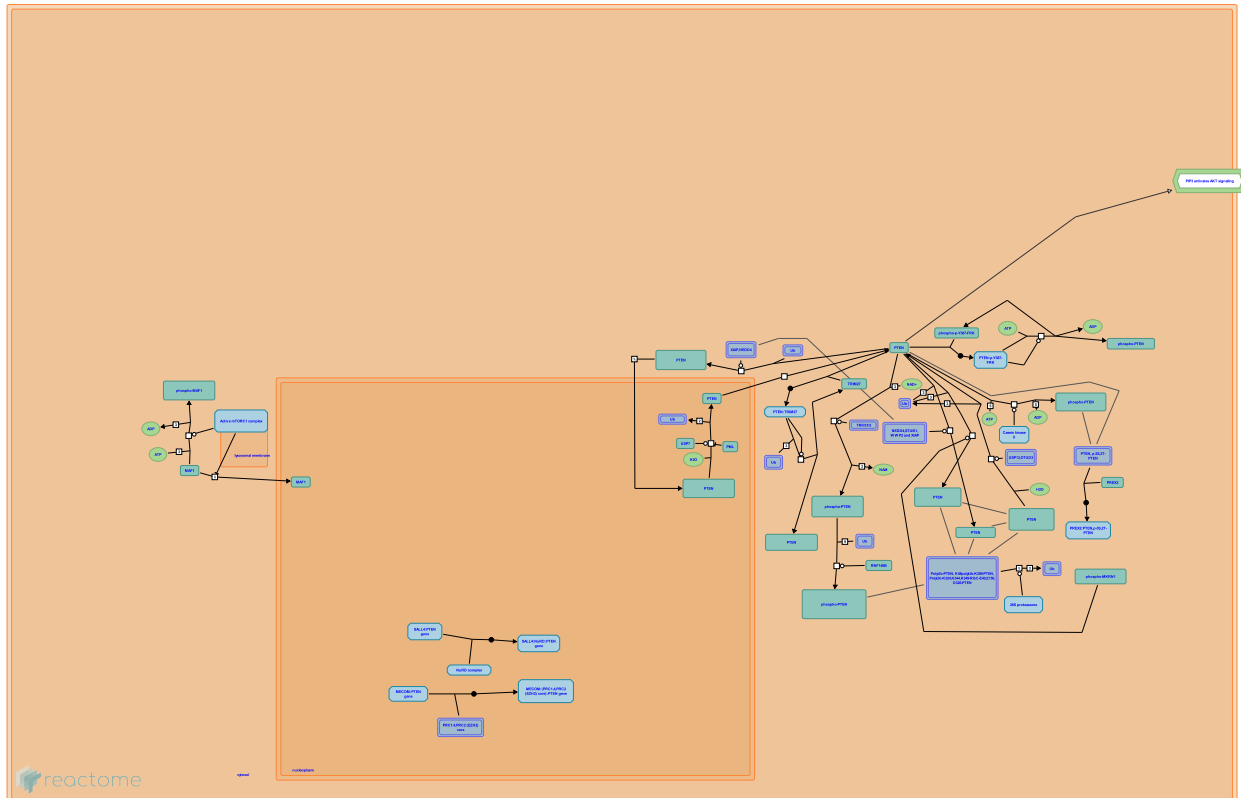
[More details and caveats of the event inference in Reactome.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

PTEN Regulation ↗

Location: PIP3 activates AKT signaling

Stable identifier: R-BTA-6807070

Inferred from: PTEN Regulation (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

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