

Signal Transduction



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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the [Reactome Textbook](https://reactome.org/textbook/).

04/05/2024

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

- 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. [↗](#)
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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. [↗](#)
- 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 17 pathways ([see Table of Contents](#))

Signal Transduction ↗

Stable identifier: R-SSC-162582

Inferred from: [Signal Transduction \(Homo sapiens\)](#)



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.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by Receptor Tyrosine Kinases ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-9006934

Inferred from: [Signaling by Receptor Tyrosine Kinases \(Homo sapiens\)](#)



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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Signaling by TGFB family members ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-9006936

Inferred from: [Signaling by TGFB family members \(Homo sapiens\)](#)



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

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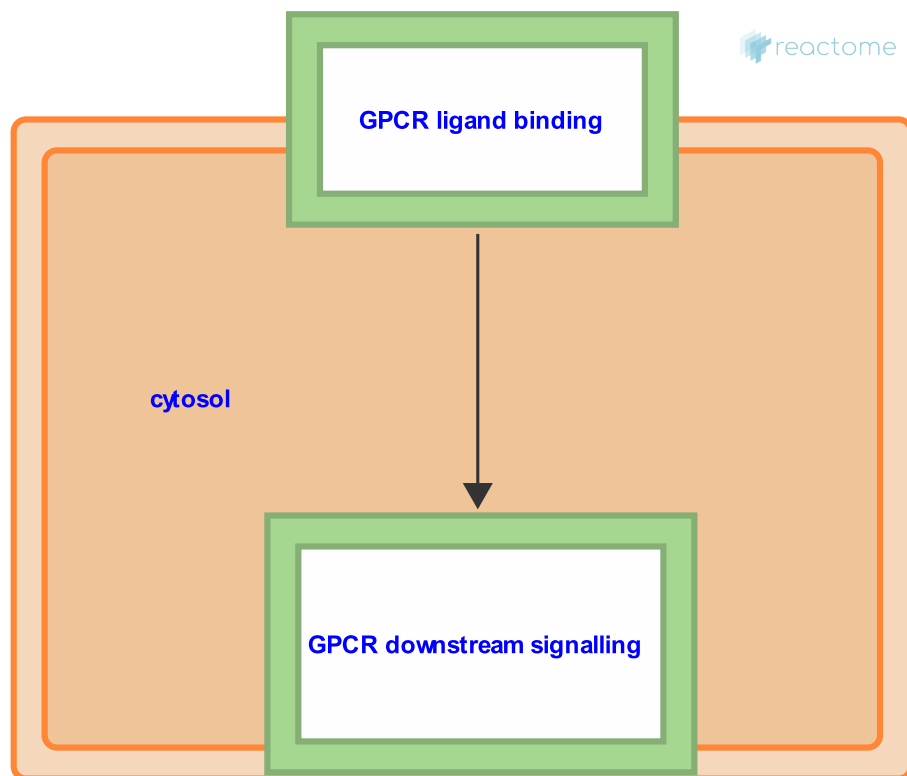
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by GPCR ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-372790

Inferred from: [Signaling by GPCR \(Homo sapiens\)](#)



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

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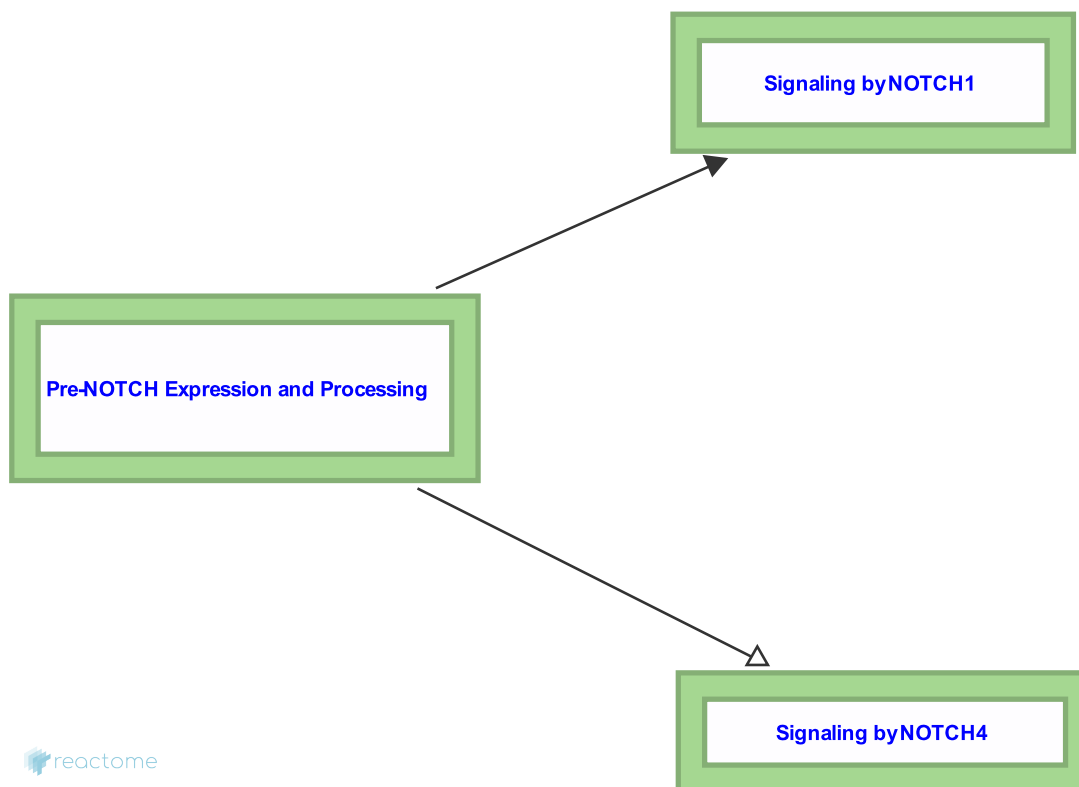
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by NOTCH ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-157118

Inferred from: [Signaling by NOTCH \(Homo sapiens\)](#)



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.

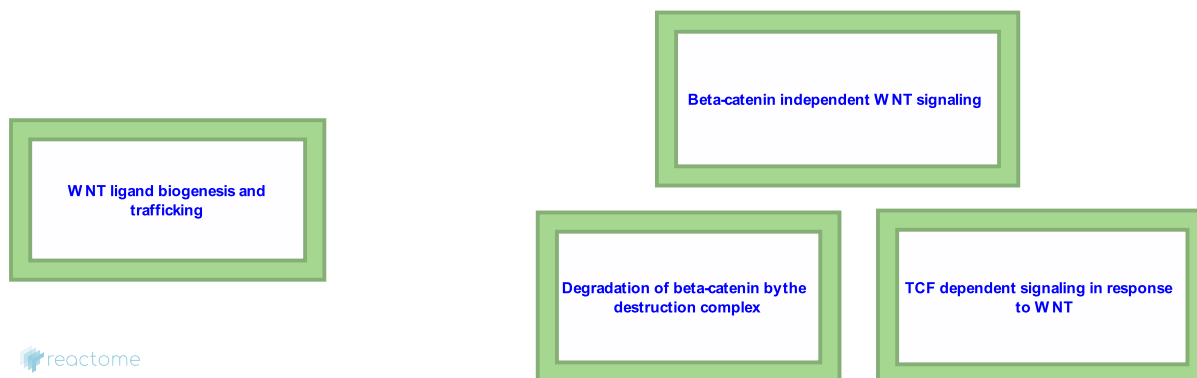
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by WNT ↗

Location: Signal Transduction

Stable identifier: R-SSC-195721

Inferred from: Signaling by WNT (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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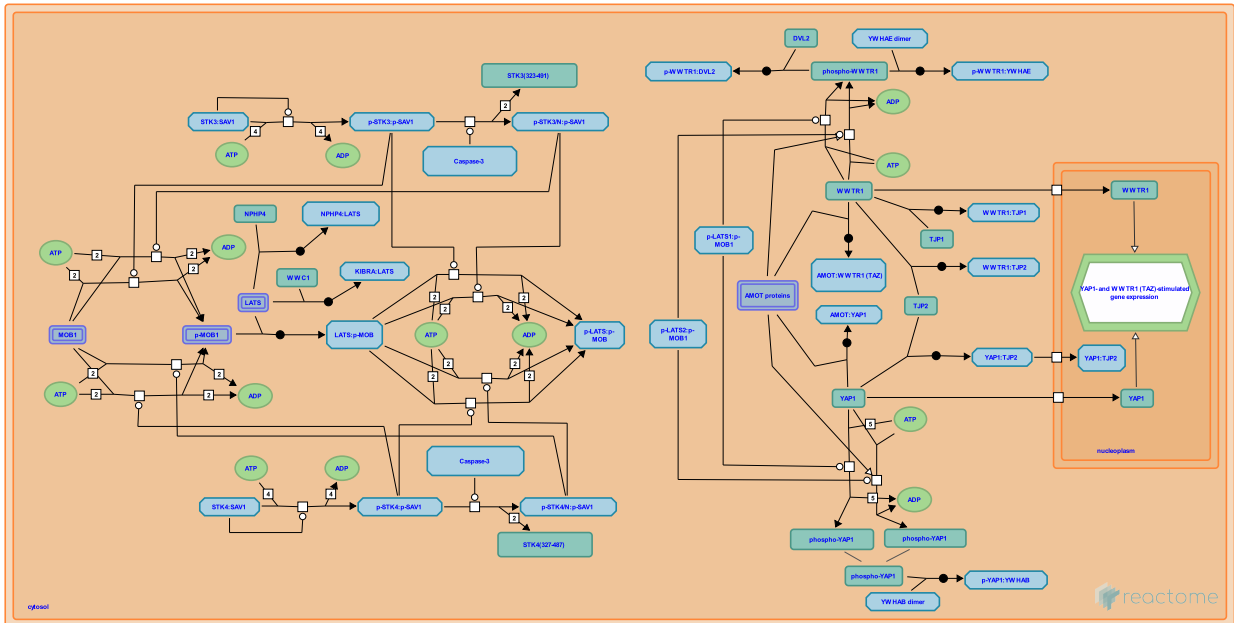
Signaling by Hippo ↗

Location: Signal Transduction

Stable identifier: R-SSC-2028269

Compartments: cytosol

Inferred from: Signaling by Hippo (Homo sapiens)



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

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Signaling by Hedgehog ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-5358351

Inferred from: [Signaling by Hedgehog \(Homo sapiens\)](#)



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.

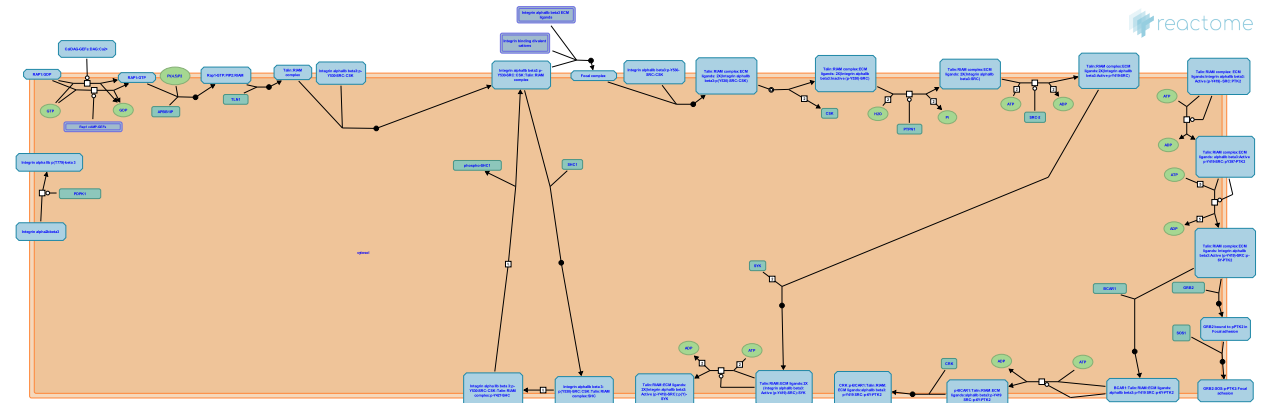
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Integrin signaling ↗

Location: Signal Transduction

Stable identifier: R-SSC-354192

Inferred from: Integrin signaling (Homo sapiens)



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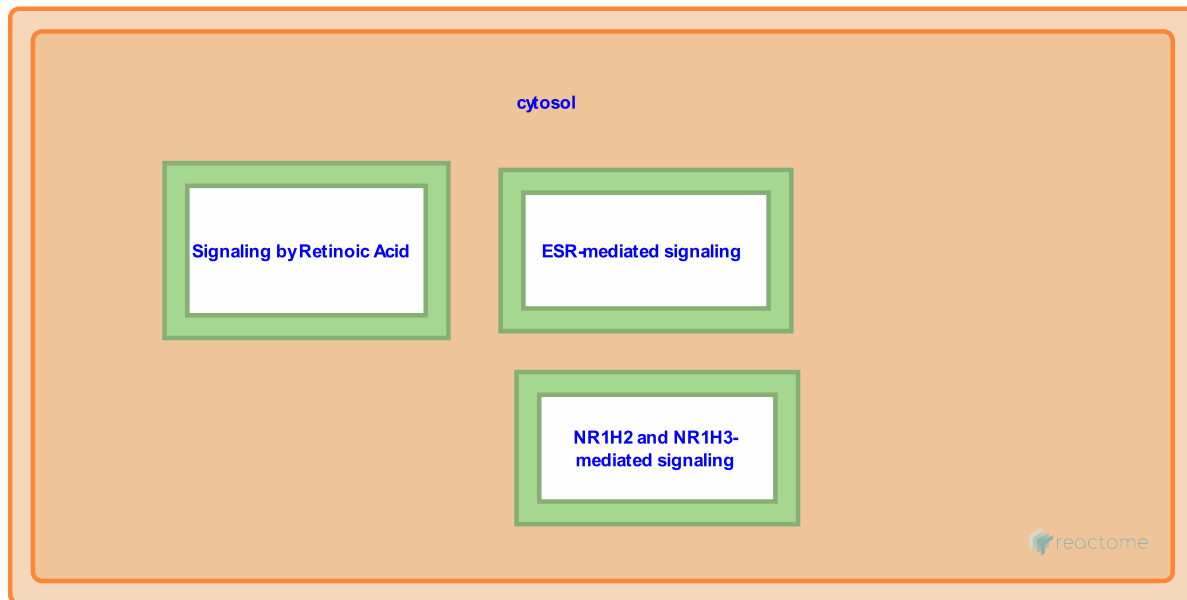
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by Nuclear Receptors ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-9006931

Inferred from: [Signaling by Nuclear Receptors \(Homo sapiens\)](#)



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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MAPK family signaling cascades ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-5683057

Inferred from: [MAPK family signaling cascades \(Homo sapiens\)](#)



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.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Intracellular signaling by second messengers ↗

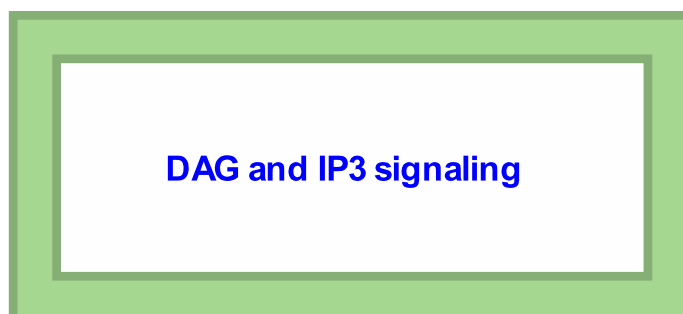
Location: [Signal Transduction](#)

Stable identifier: R-SSC-9006925

Inferred from: [Intracellular signaling by second messengers \(Homo sapiens\)](#)



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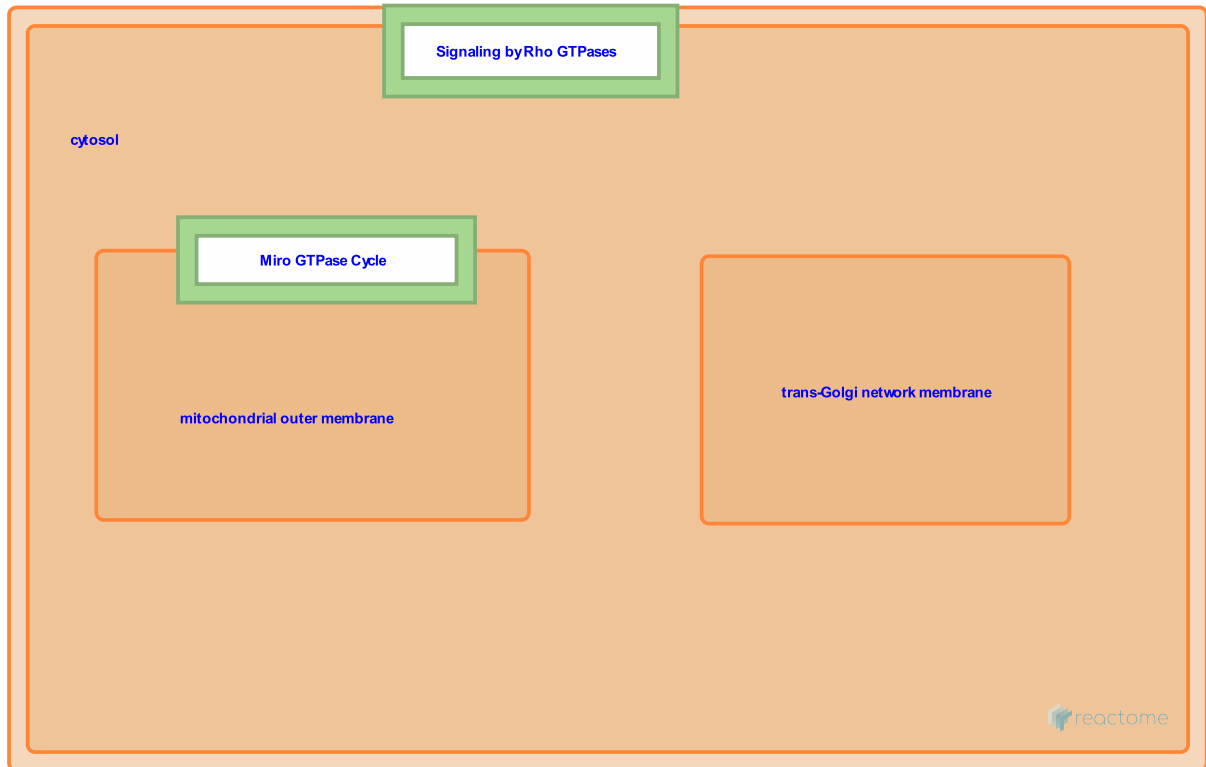
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by Rho GTPases, Miro GTPases and RHOBTB3 ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-9716542

Inferred from: [Signaling by Rho GTPases, Miro GTPases and RHOBTB3 \(Homo sapiens\)](#)



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.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by Non-Receptor Tyrosine Kinases ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-9006927

Inferred from: [Signaling by Non-Receptor Tyrosine Kinases \(Homo sapiens\)](#)



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.

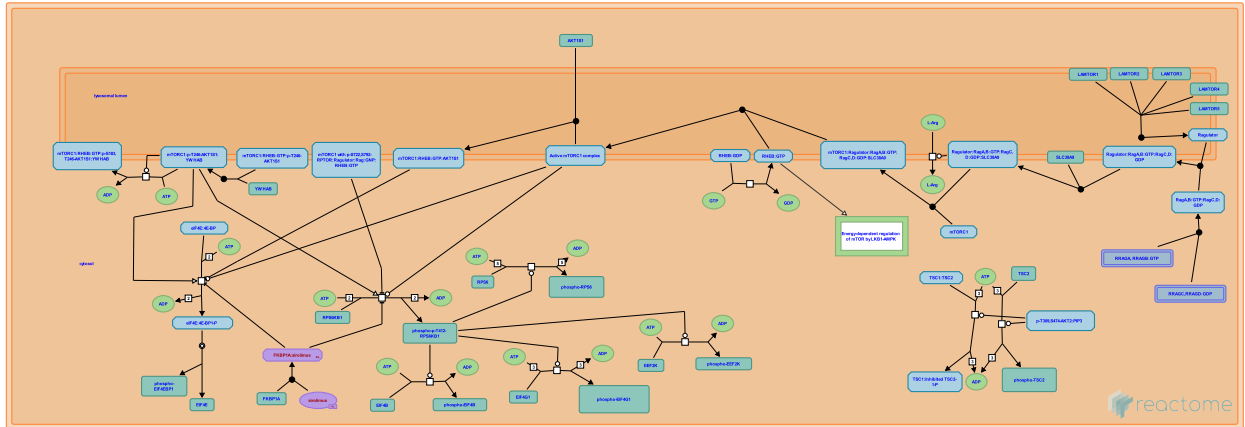
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

MTOR signalling ↗

Location: Signal Transduction

Stable identifier: R-SSC-165159

Inferred from: MTOR signalling (Homo sapiens)



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

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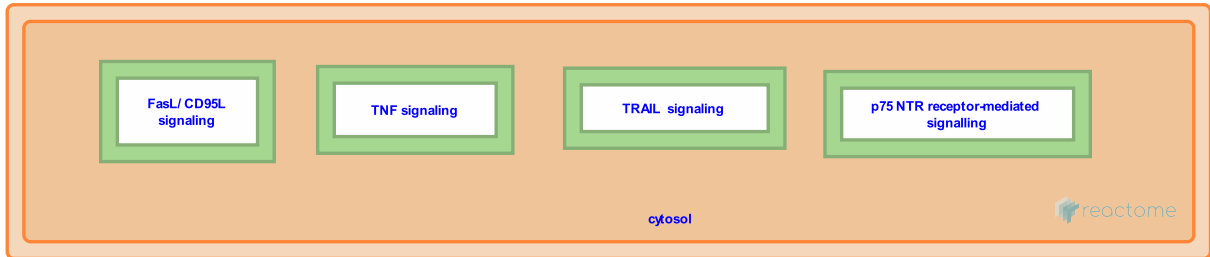
[More details and caveats of the event inference in Reactome.](http://www.reactome.org) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Death Receptor Signaling ↗

Location: [Signal Transduction](#)

Stable identifier: R-SSC-73887

Inferred from: [Death Receptor 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.

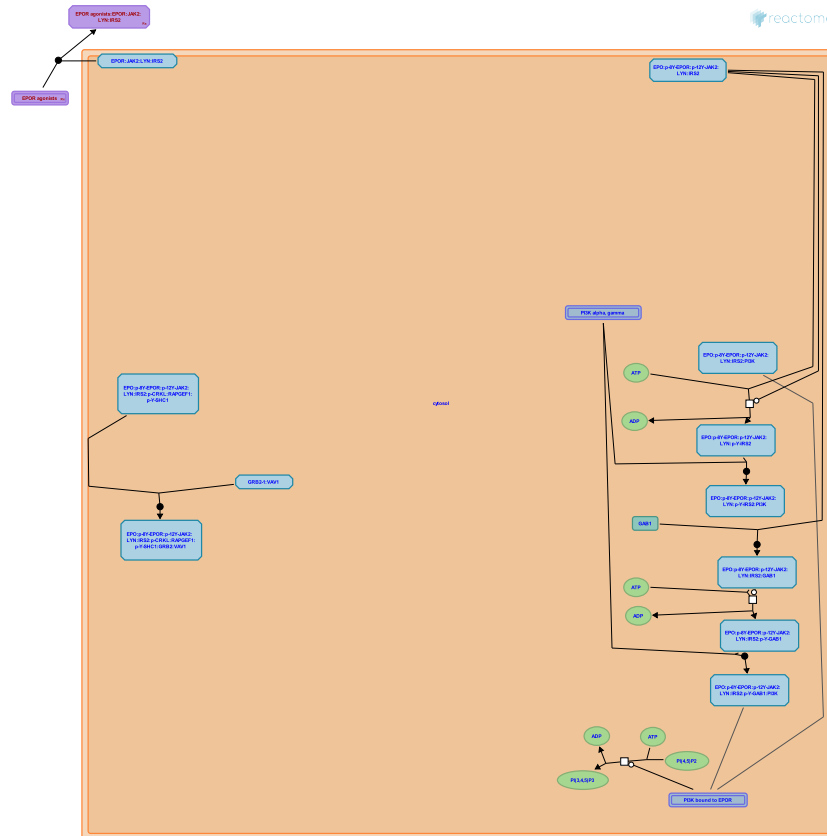
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Signaling by Erythropoietin ↗

Location: Signal Transduction

Stable identifier: R-SSC-9006335

Inferred from: Signaling by Erythropoietin (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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