Interleukin-10 signaling

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.

19/05/2024

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.

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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. ↗

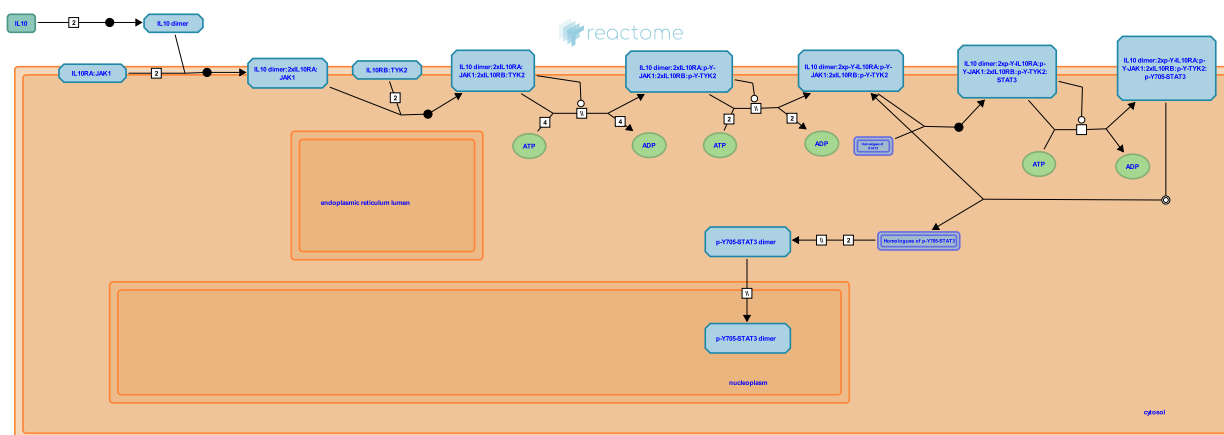Reactome database release: 88

This document contains 1 pathway and 10 reactions (see Table of Contents)

Interleukin-10 signaling ↗

Stable identifier: R-SSC-6783783

Inferred from: Interleukin-10 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

IL10 dimerizes ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-449855

Type: binding

Compartments: extracellular region

Inferred from: IL10 dimerizes (Homo sapiens)
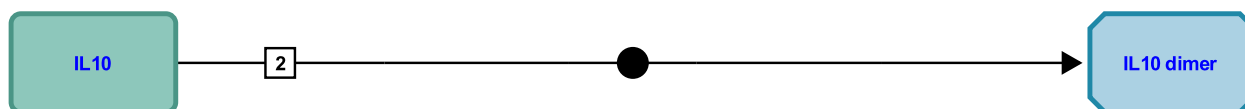
This event has been computationally inferred from an event that has been demonstrated in another species.

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: IL10 dimer binds IL10RA:JAK1
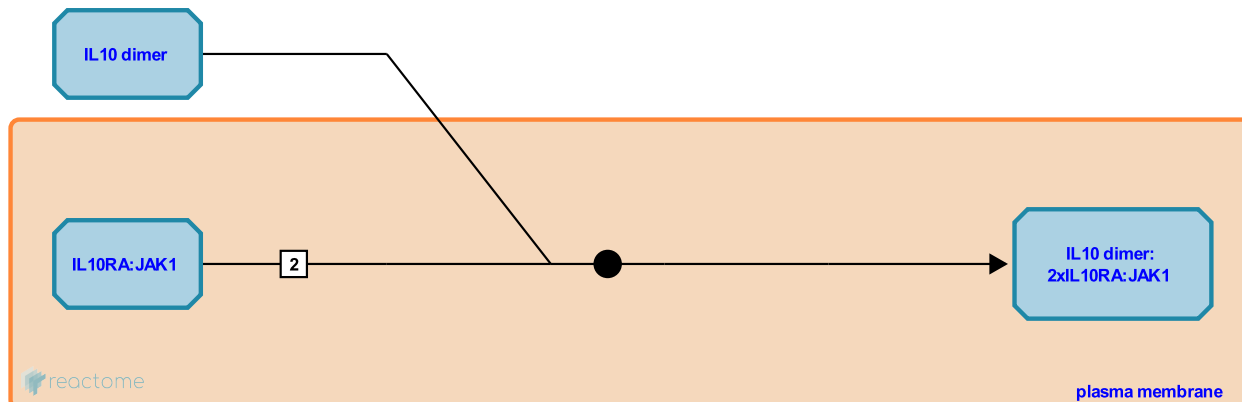
IL10 dimer binds IL10RA:JAK1 ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-449803

Type: binding

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: IL10 dimer binds IL10RA:JAK1 (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

Preceded by: IL10 dimerizes

Followed by: IL10 dimer:2xIL10RA1:JAK1 binds IL10RB:TYK2

IL10 dimer:2xIL10RA1:JAK1 binds IL10RB:TYK2 ↗

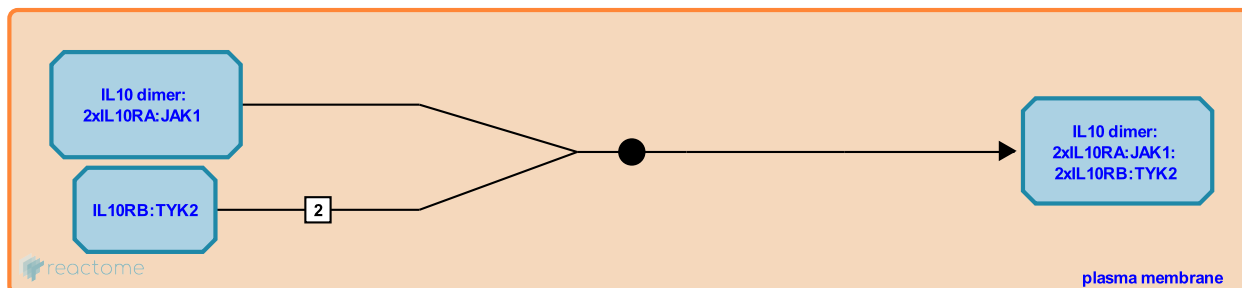**Location:** Interleukin-10 signaling

Stable identifier: R-SSC-449811

Type: binding

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: IL10 dimer:2xIL10RA1:JAK1 binds IL10RB:TYK2 (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

Preceded by: IL10 dimer binds IL10RA:JAK1

Followed by: JAK1,TYK2 phosphorylate JAK1,TYK2
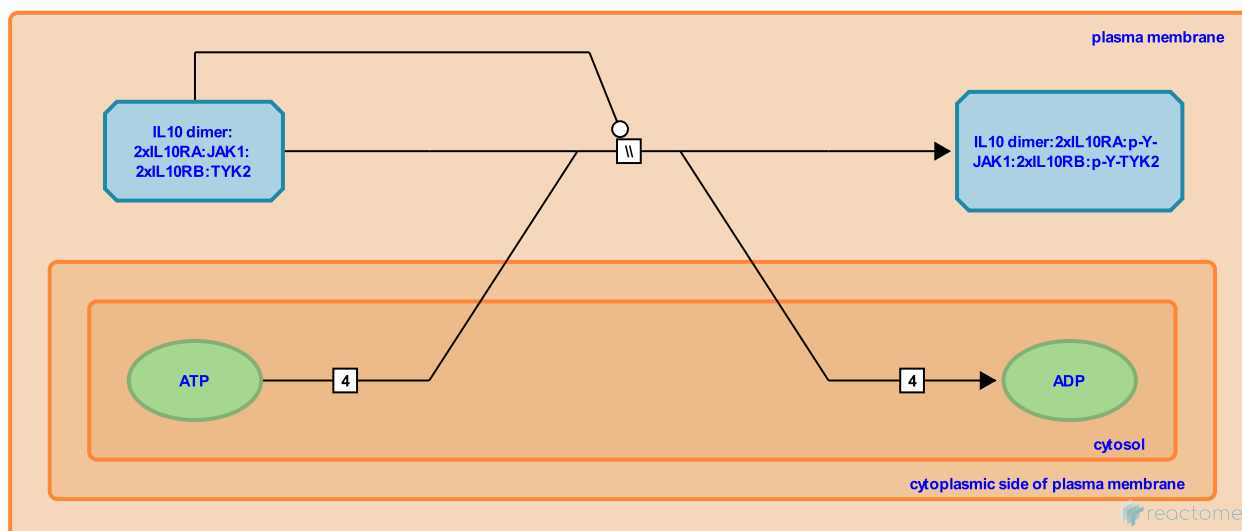
JAK1,TYK2 phosphorylate JAK1,TYK2 ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784319

Type: omitted

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: JAK1,TYK2 phosphorylate JAK1,TYK2 (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

Preceded by: IL10 dimer:2xIL10RA1:JAK1 binds IL10RB:TYK2

Followed by: p-Y-JAK1,p-Y-TYK2 phosphorylate IL10RA
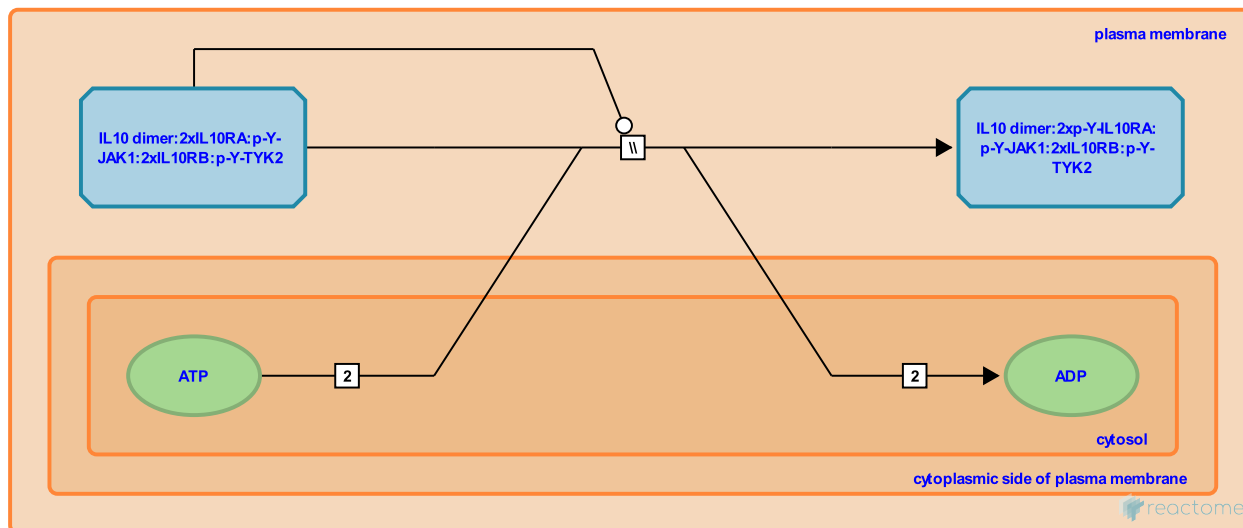
p-Y-JAK1,p-Y-TYK2 phosphorylate IL10RA ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784324

Type: omitted

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: p-Y-JAK1,p-Y-TYK2 phosphorylate IL10RA (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

Preceded by: JAK1,TYK2 phosphorylate JAK1,TYK2

Followed by: IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2 binds STAT3

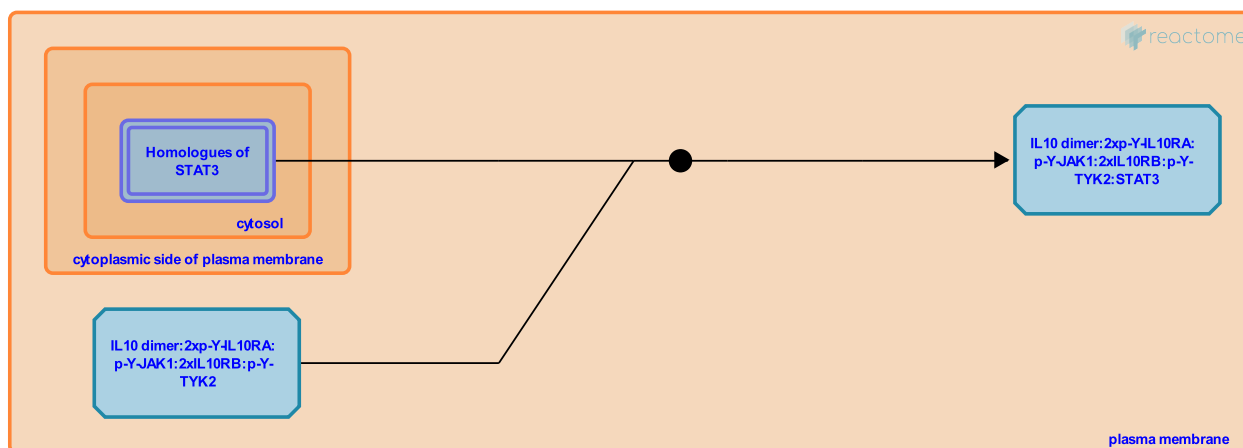# IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2 binds STAT3 ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784323

Type: binding

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2 binds STAT3 (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

Preceded by: p-Y-JAK1,p-Y-TYK2 phosphorylate IL10RA

Followed by: STAT3 is phosphorylated by p-Y-JAK1,P-Y-TYK2
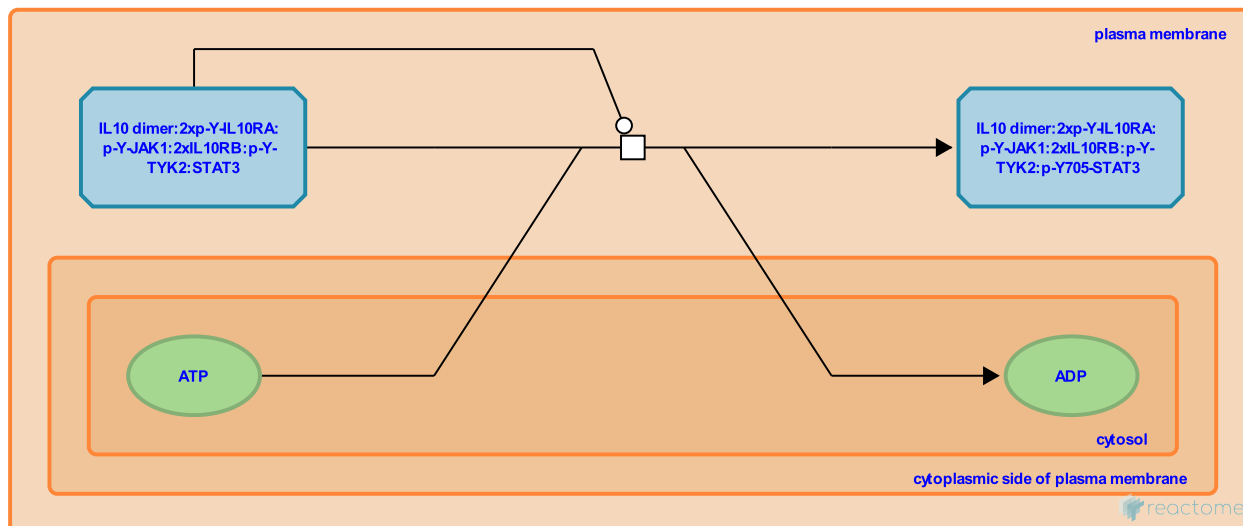
STAT3 is phosphorylated by p-Y-JAK1,P-Y-TYK2 ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784006

Type: transition

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: STAT3 is phosphorylated by p-Y-JAK1,P-Y-TYK2 (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

Preceded by: IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2 binds STAT3

Followed by: p-Y705-STAT3 dissociates from IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2:p-Y705-STAT3

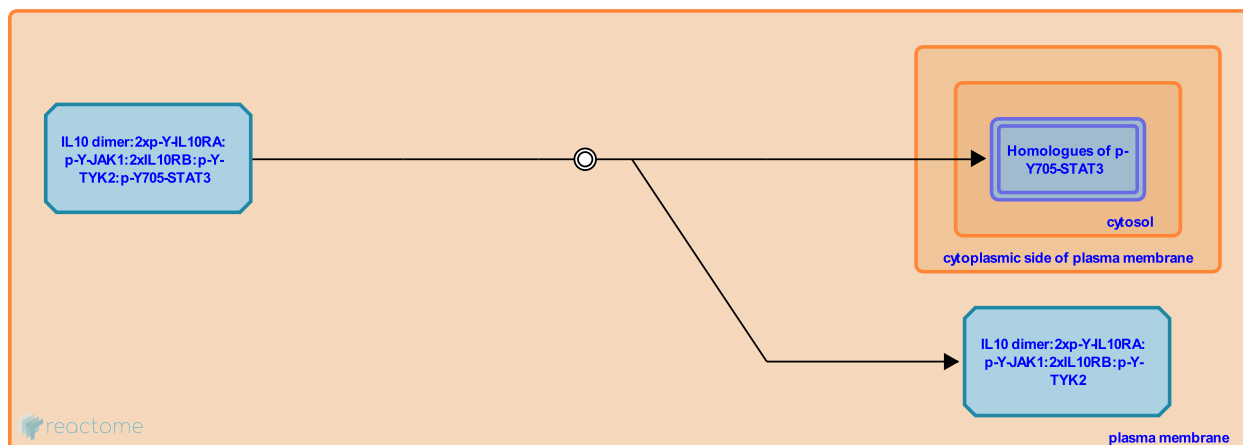# p-Y705-STAT3 dissociates from IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2:p-Y705-STAT3 ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784791

Type: dissociation

Compartments: plasma membrane, extracellular region, cytosol

Inferred from: p-Y705-STAT3 dissociates from IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2:p-Y705-STAT3 (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

Preceded by: STAT3 is phosphorylated by p-Y-JAK1,P-Y-TYK2

Followed by: p-Y705-STAT3 dimerizes
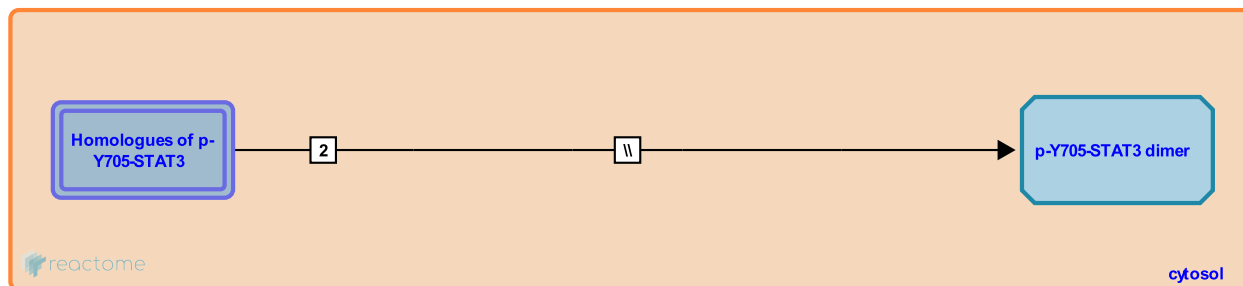
p-Y705-STAT3 dimerizes ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784765

Type: omitted

Compartments: cytosol

Inferred from: p-Y705-STAT3 dimerizes (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

Preceded by: p-Y705-STAT3 dissociates from IL10 dimer:2xp-Y-IL10RA:p-Y-JAK1:2xIL10RB:p-Y-TYK2:p-Y705-STAT3

Followed by: p-Y705-STAT3 dimer translocates from cytosol to nucleoplasm

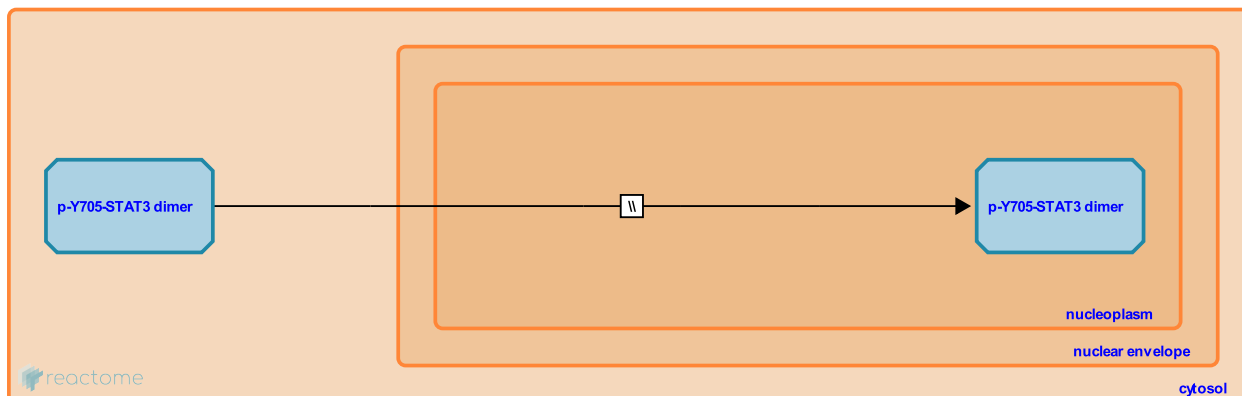# p-Y705-STAT3 dimer translocates from cytosol to nucleoplasm ↗

Location: Interleukin-10 signaling

Stable identifier: R-SSC-6784763

Type: omitted

Compartments: nucleoplasm, cytosol

Inferred from: p-Y705-STAT3 dimer translocates from cytosol to nucleoplasm (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

Preceded by: p-Y705-STAT3 dimerizes

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