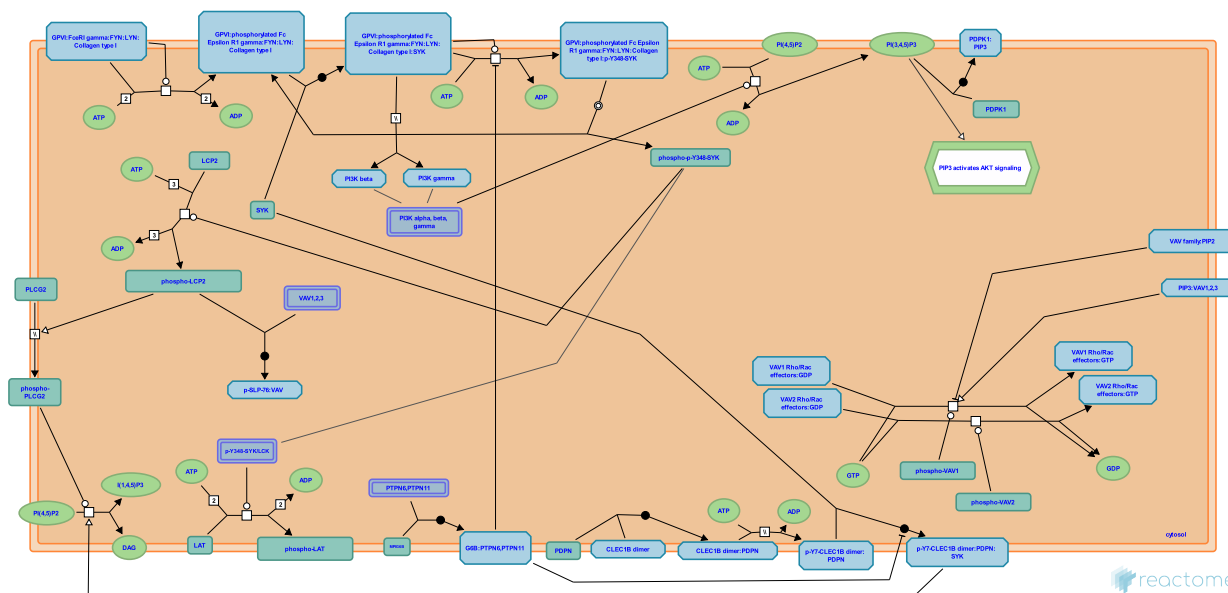


GPVI-mediated activation cascade



European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

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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](#).

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. [↗](#)

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 18 reactions ([see Table of Contents](#))

Fyn/Lyn-mediated phosphorylation of FcR1 gamma ↗

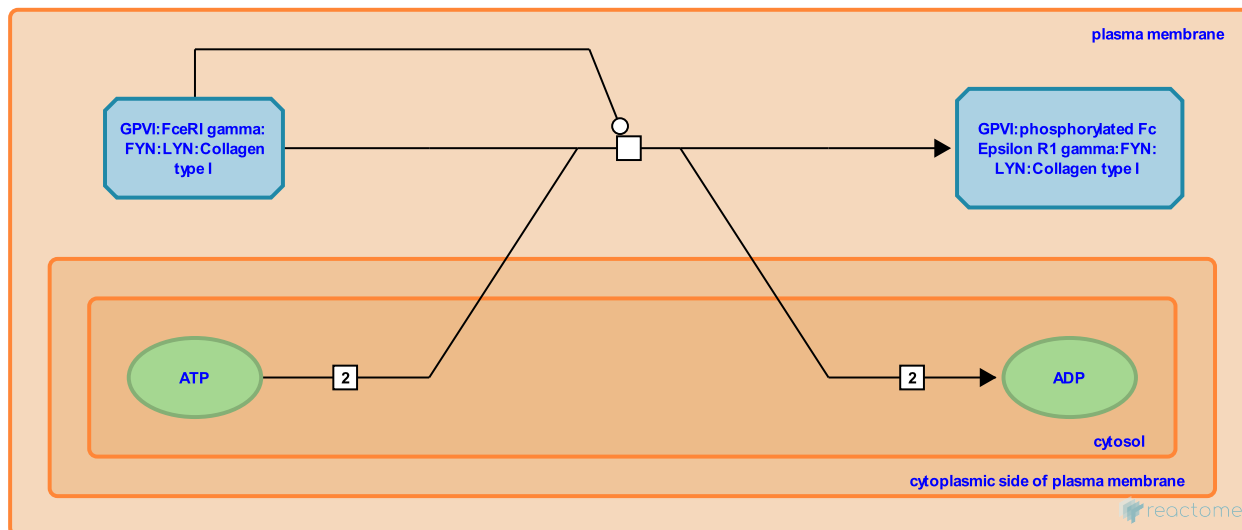
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-114600

Type: transition

Compartments: plasma membrane, cytosol

Inferred from: [Fyn/Lyn-mediated phosphorylation of FcR1 gamma \(Homo sapiens\)](#)



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>

Followed by: [Binding of Syk tyrosine kinase](#)

Binding of Syk tyrosine kinase ↗

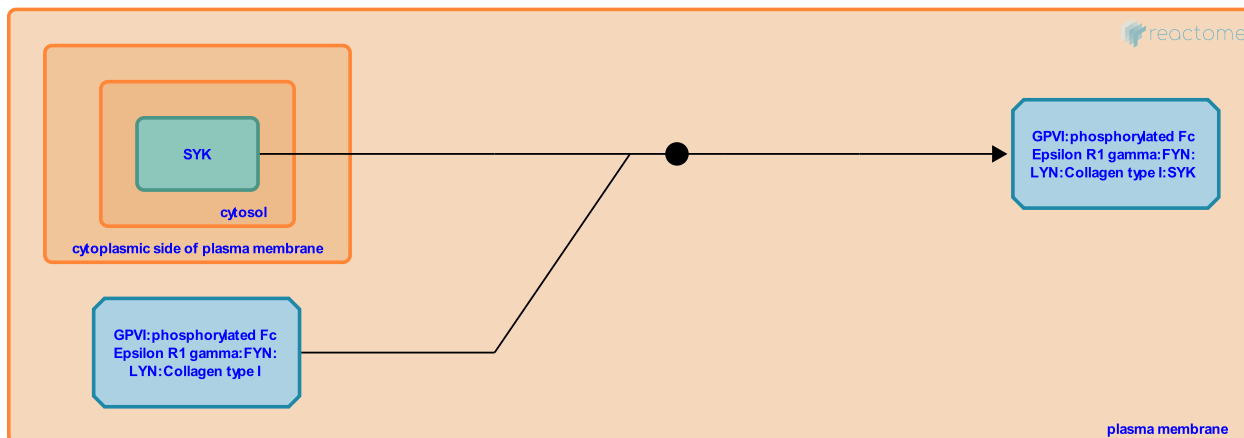
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-139842

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: [Binding of Syk tyrosine kinase \(Homo sapiens\)](#)



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: [Fyn/Lyn-mediated phosphorylation of FcR1 gamma](#)

Followed by: [GPVI stimulates PI3K beta, gamma, SYK autophosphorylates](#)

SYK autophosphorylates ↗

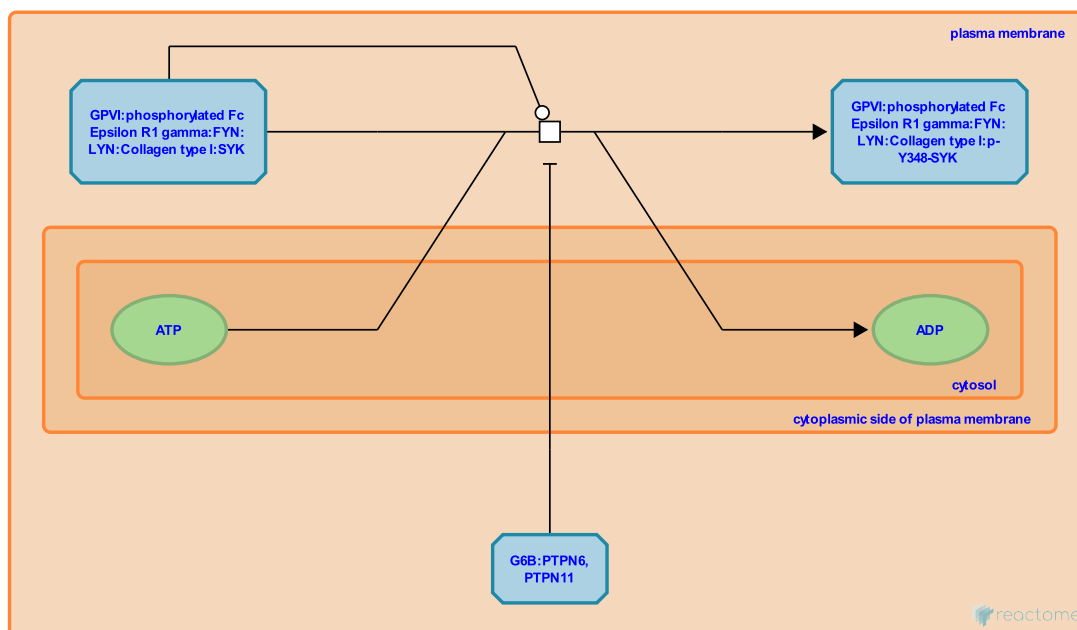
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-453200

Type: transition

Compartments: plasma membrane, cytosol

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

Preceded by: Binding of Syk tyrosine kinase

Followed by: p-Y348-SYK dissociates

p-Y348-SYK dissociates ↗

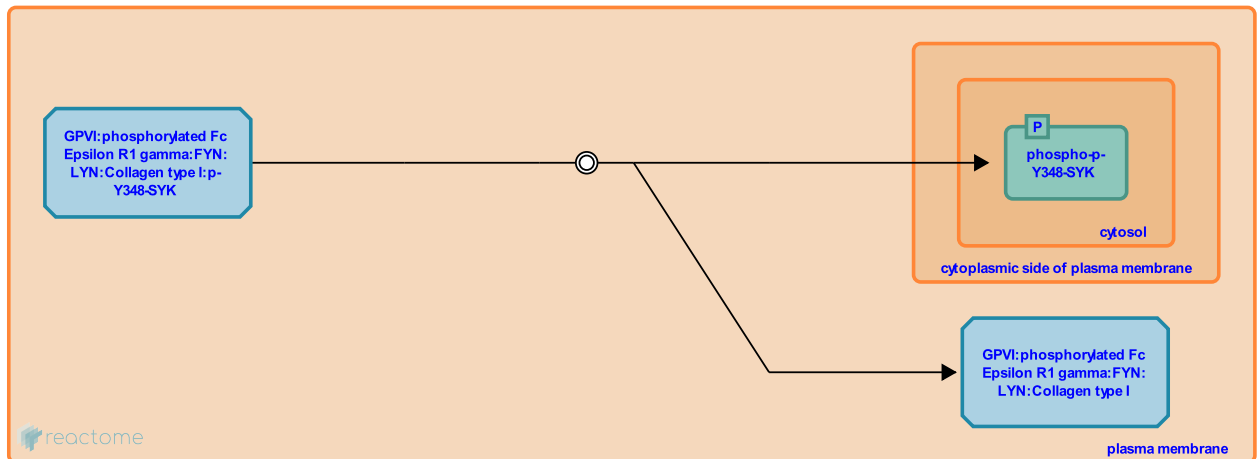
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-453183

Type: dissociation

Compartments: plasma membrane, cytosol

Inferred from: p-Y348-SYK dissociates (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: SYK autophosphorylates

Followed by: Syk/Lck phosphorylate LAT, Syk activation leads to SLP-76 activation

VAV1 is a GEF for Rho/Rac family GTPases ↗

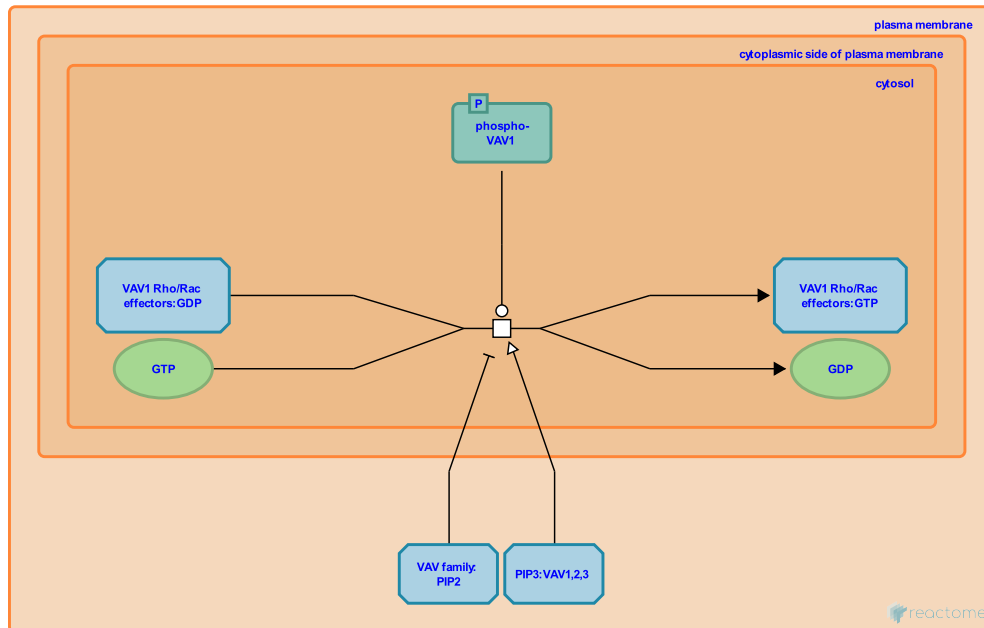
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-442273

Type: transition

Compartments: cytosol

Inferred from: VAV1 is a GEF for Rho/Rac family GTPases (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

VAV2 is a GEF for Rho/Rac family kinases ↗

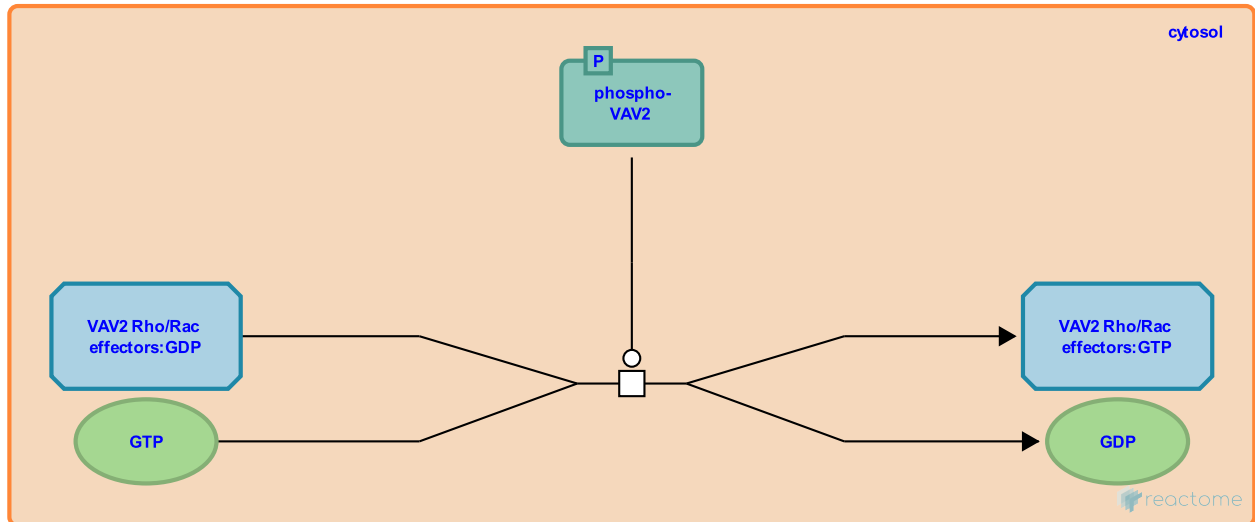
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-442291

Type: transition

Compartments: cytosol

Inferred from: [VAV2 is a GEF for Rho/Rac family 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>

Syk/Lck phosphorylate LAT ↗

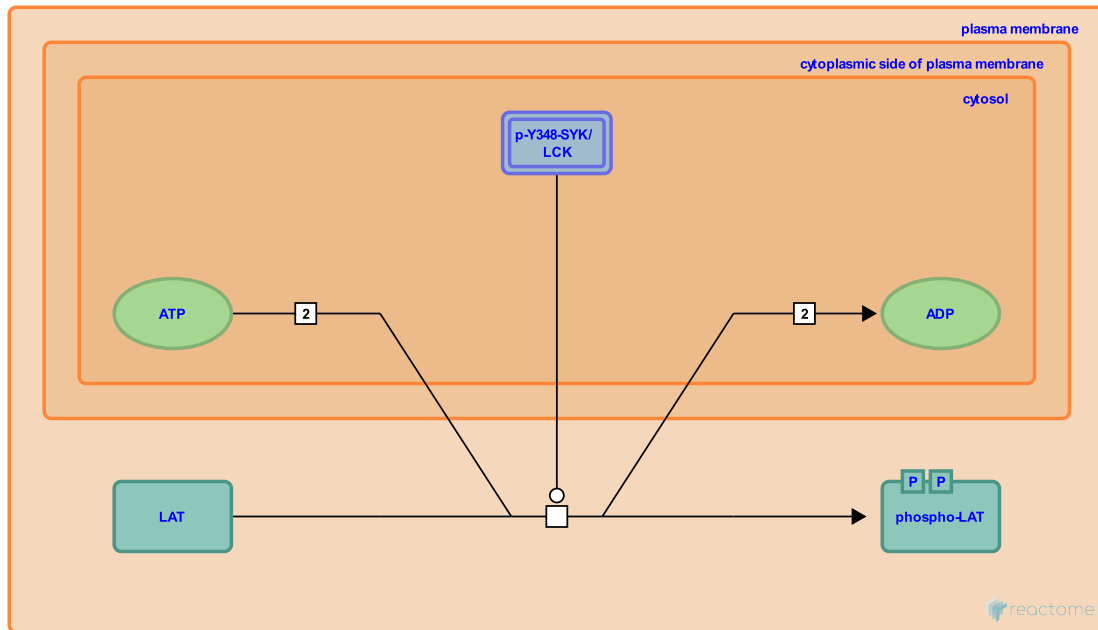
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-434836

Type: transition

Compartments: plasma membrane, cytosol

Inferred from: Syk/Lck phosphorylate LAT (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: p-Y348-SYK dissociates

Syk activation leads to SLP-76 activation ↗

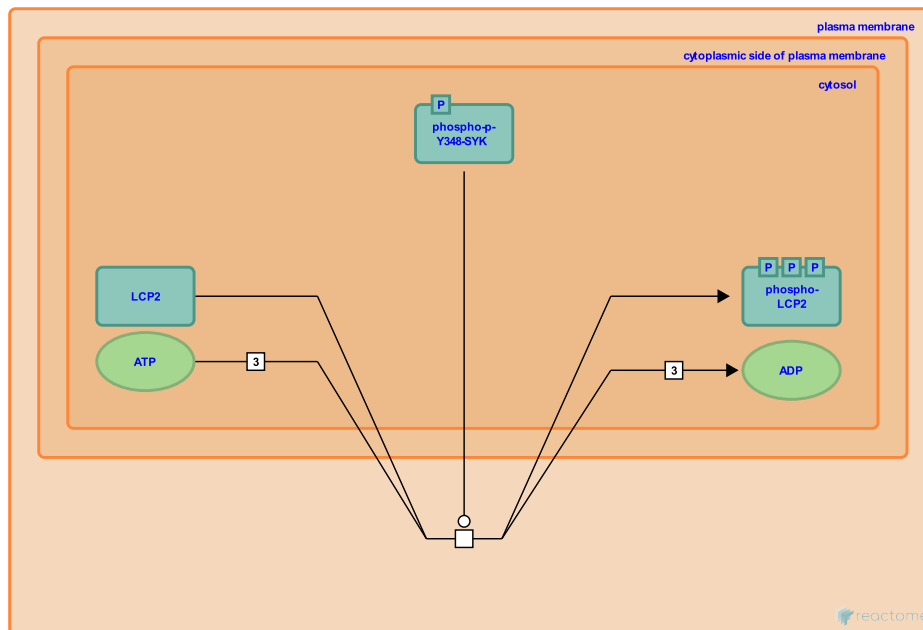
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-429449

Type: transition

Compartments: plasma membrane

Inferred from: Syk activation leads to SLP-76 activation (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: p-Y348-SYK dissociates

Followed by: p-SLP-76 binds VAV, SLP-76 stimulates PLC gamma 2

SLP-76 stimulates PLC gamma 2 ↗

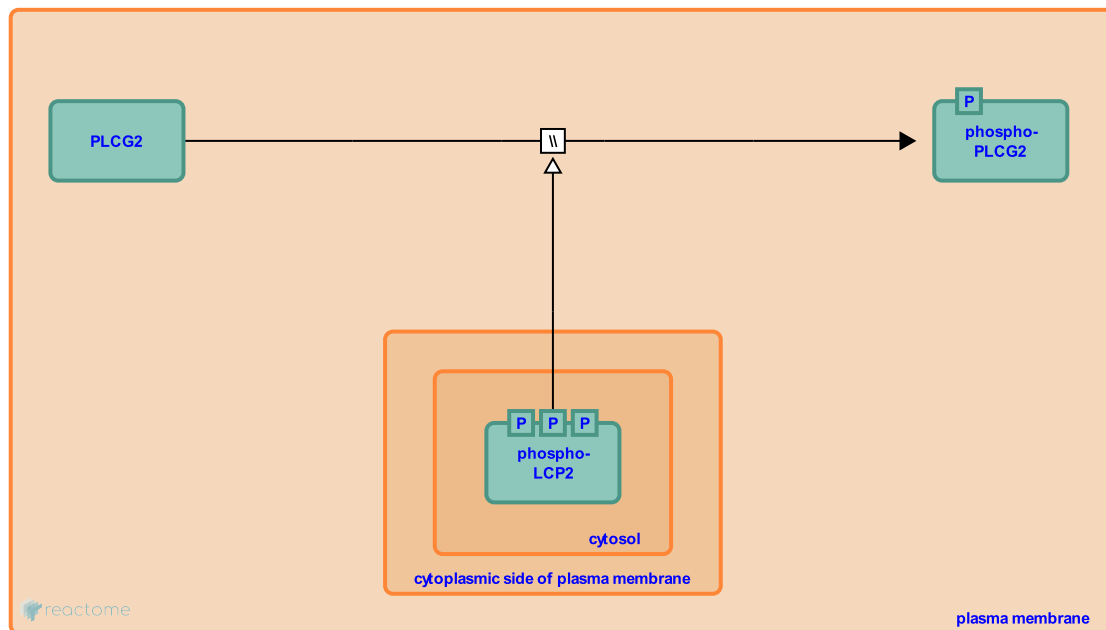
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-429497

Type: omitted

Compartments: plasma membrane

Inferred from: SLP-76 stimulates PLC gamma 2 (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: Syk activation leads to SLP-76 activation

Followed by: PLC gamma 2-mediated PIP2 hydrolysis

p-SLP-76 binds VAV ↗

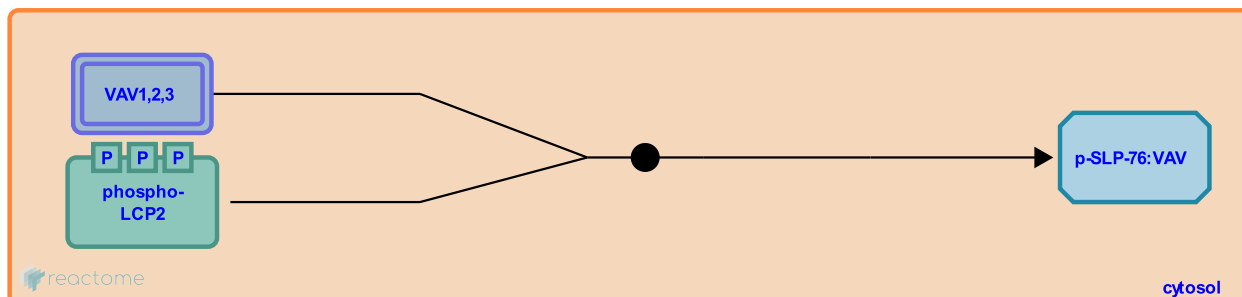
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-430158

Type: binding

Compartments: cytosol

Inferred from: p-SLP-76 binds VAV (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: Syk activation leads to SLP-76 activation

PLC gamma 2-mediated PIP2 hydrolysis ↗

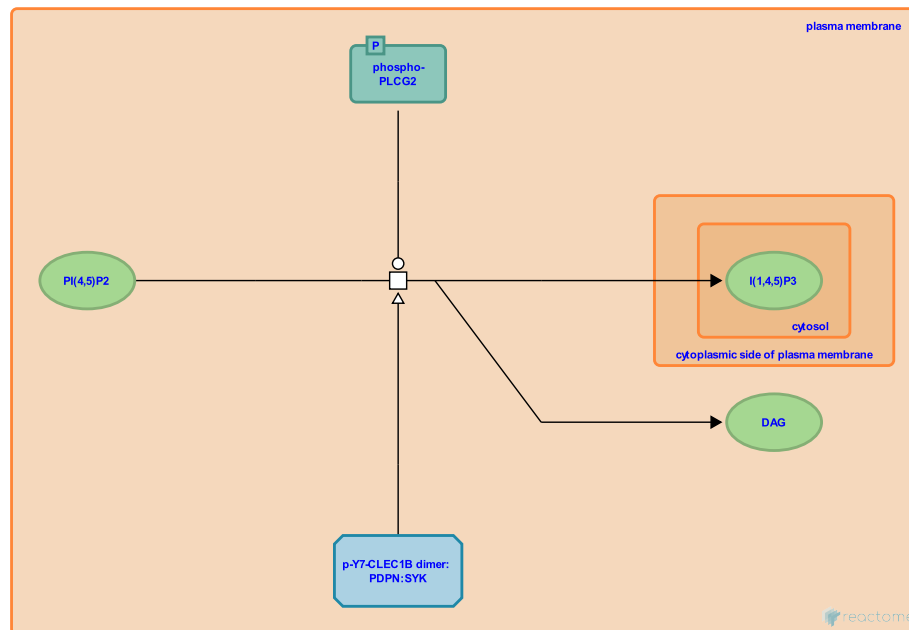
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-114689

Type: transition

Compartments: plasma membrane, cytosol

Inferred from: PLC gamma 2-mediated PIP2 hydrolysis (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: SLP-76 stimulates PLC gamma 2

GPVI stimulates PI3K beta, gamma ↗

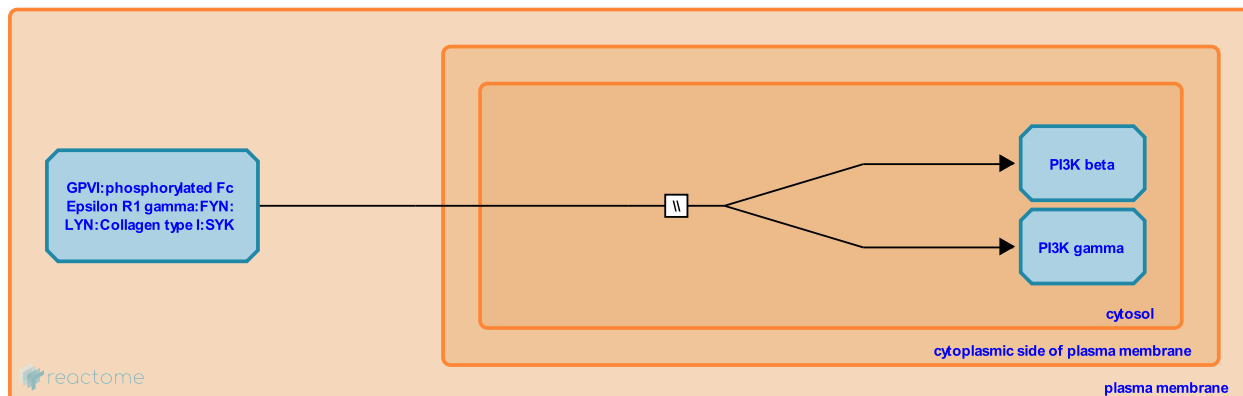
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-437118

Type: omitted

Compartments: cytosol

Inferred from: [GPVI stimulates PI3K beta, gamma \(Homo sapiens\)](#)



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: [Binding of Syk tyrosine kinase](#)

Followed by: [PI3K alpha, beta, gamma convert PIP2 to PIP3](#)

PI3K alpha, beta, gamma convert PIP2 to PIP3 ↗

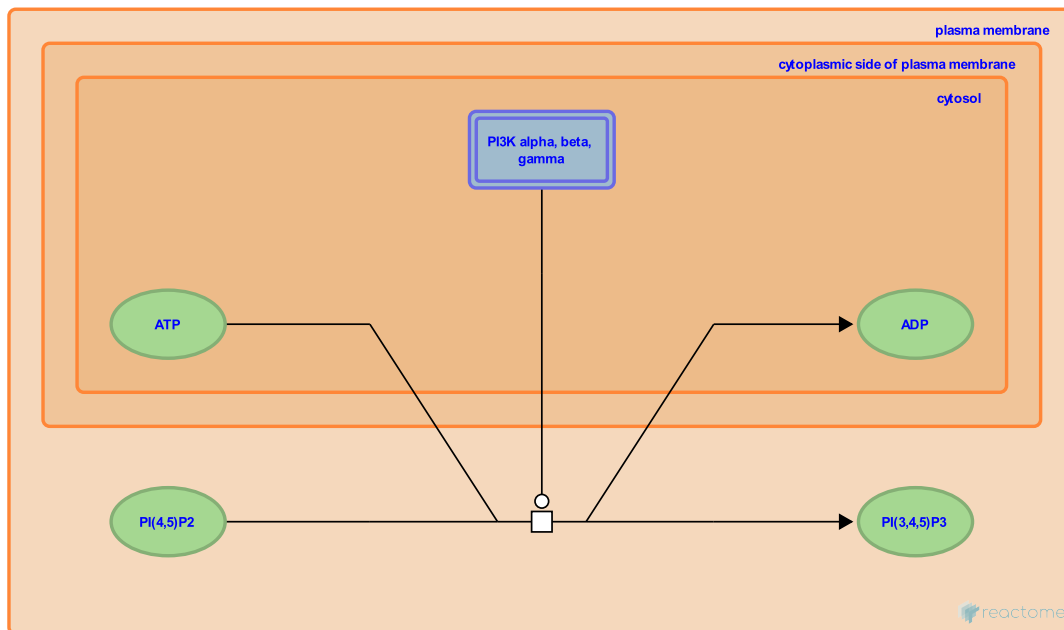
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-437162

Type: transition

Compartments: plasma membrane, cytosol

Inferred from: [PI3K alpha, beta, gamma convert PIP2 to PIP3 \(Homo sapiens\)](#)



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: [GPVI stimulates PI3K beta, gamma](#)

Followed by: [PIP3 recruits PDPK1 to the membrane](#)

PIP3 recruits PDPK1 to the membrane ↗

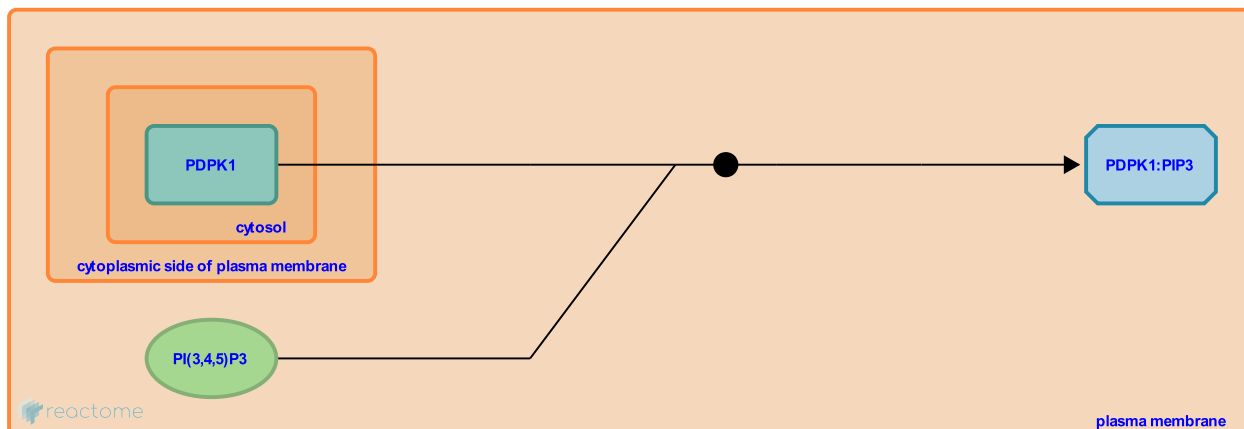
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-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.

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

Preceded by: [PI3K alpha, beta, gamma convert PIP2 to PIP3](#)

G6B binds PTPN6,PTPN11 ↗

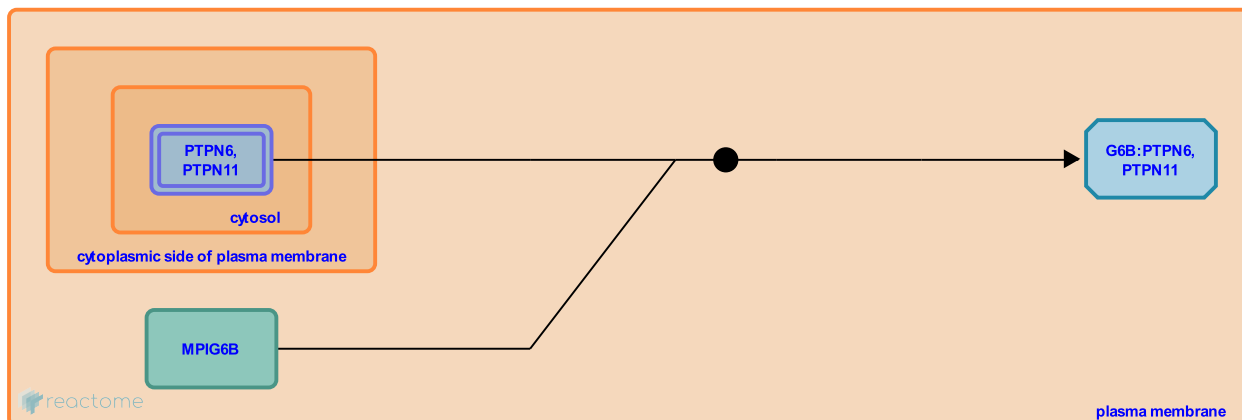
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-5684169

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: [G6B binds PTPN6,PTPN11 \(Homo sapiens\)](#)



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>

CLEC1B dimer binds PDPN ↗

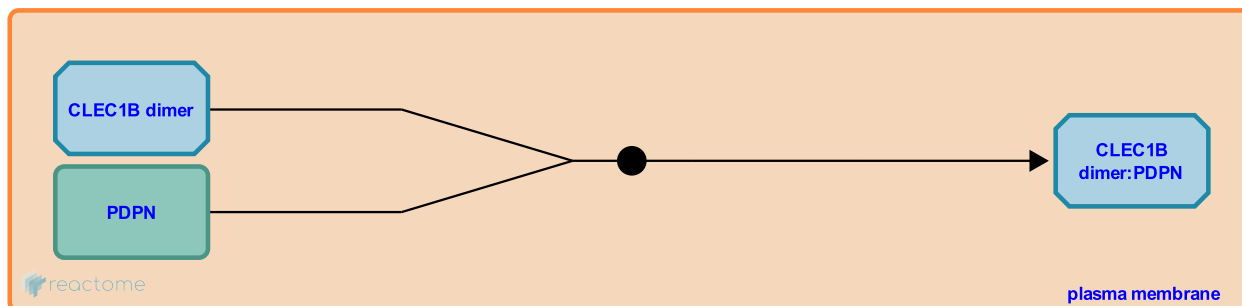
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-5684836

Type: binding

Compartments: plasma membrane

Inferred from: CLEC1B dimer binds PDPN (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Followed by: Unknown kinase phosphorylates CLEC1B dimer:PDPN

Unknown kinase phosphorylates CLEC1B dimer:PDPN ↗

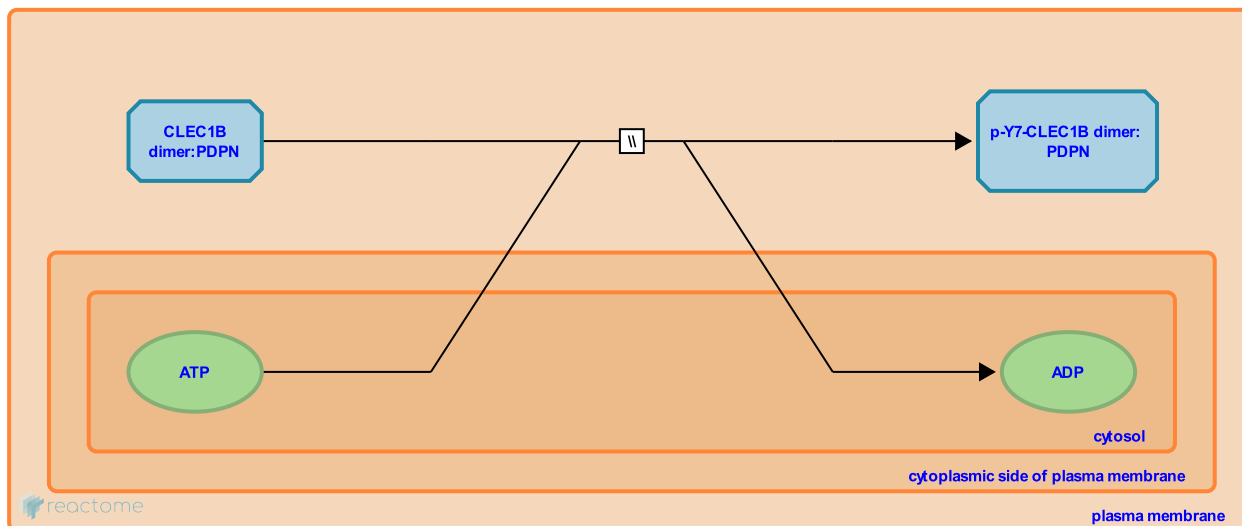
Location: [GPVI-mediated activation cascade](#)

Stable identifier: R-SSC-5684806

Type: omitted

Compartments: plasma membrane, cytosol

Inferred from: [Unknown kinase phosphorylates CLEC1B dimer:PDPN \(Homo sapiens\)](#)



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: [CLEC1B dimer binds PDPN](#)

Followed by: [p-Y7-CLEC1B dimer:PDPN binds SYK](#)

p-Y7-CLEC1B dimer:PDPN binds SYK ↗

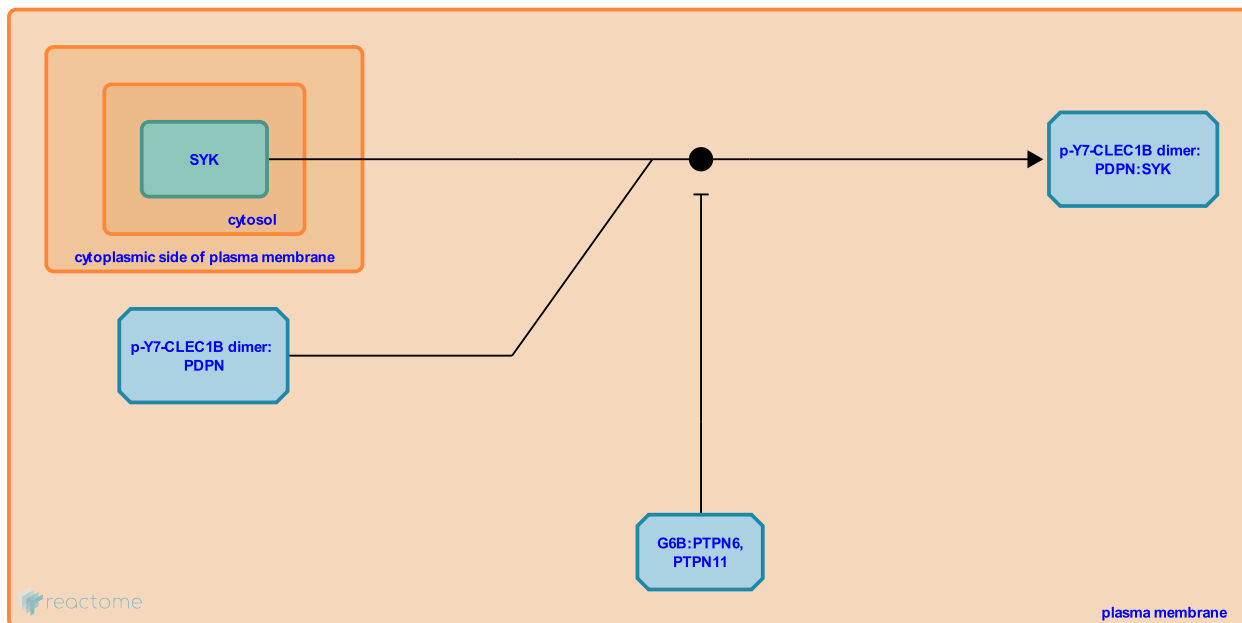
Location: GPVI-mediated activation cascade

Stable identifier: R-SSC-5684801

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: p-Y7-CLEC1B dimer:PDPN binds SYK (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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

Preceded by: Unknown kinase phosphorylates CLEC1B dimer:PDPN

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