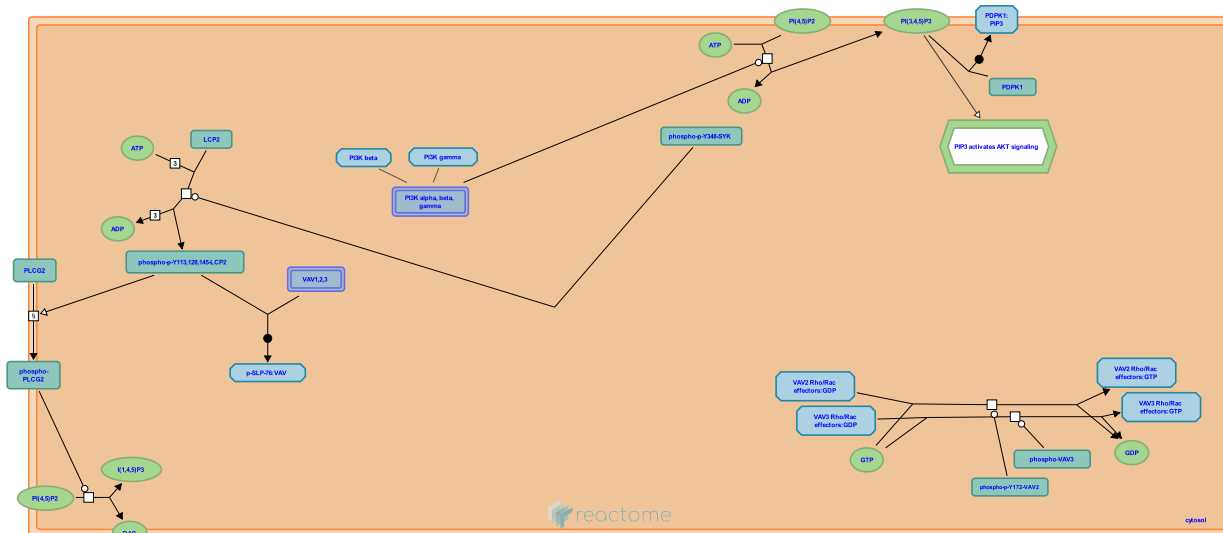


# GPVI-mediated activation cascade



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

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of [Creative Commons Attribution 4.0 International \(CC BY 4.0\) License](https://creativecommons.org/licenses/by/4.0/). For more information see our [license](#).

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](#).

30/04/2024

## 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. [↗](#)
- 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. [↗](#)

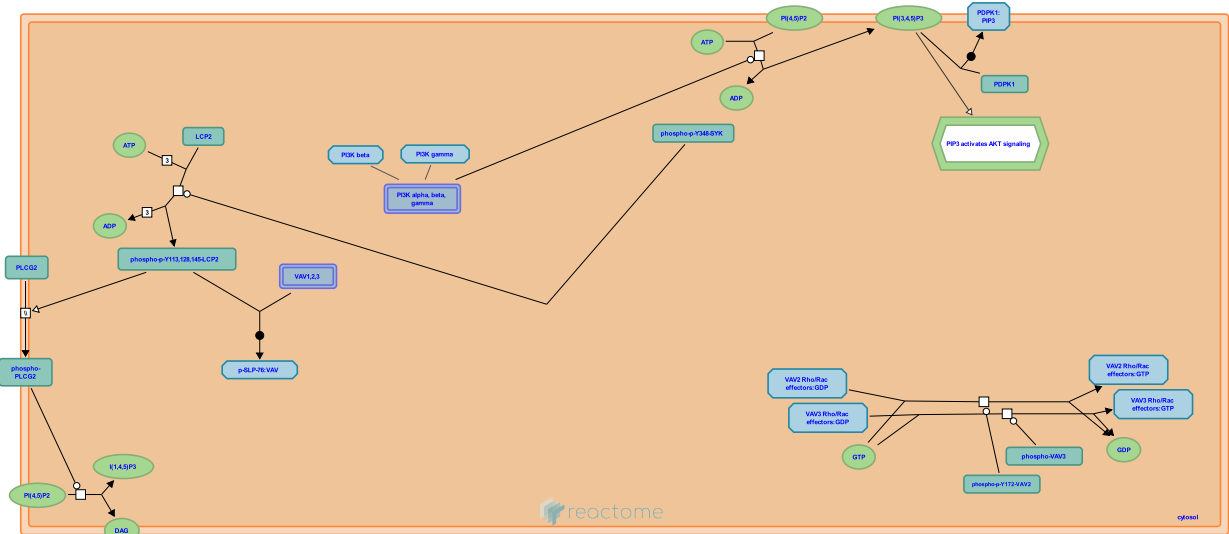
Reactome database release: 88

This document contains 1 pathway and 8 reactions ([see Table of Contents](#))

## GPVI-mediated activation cascade ↗

Stable identifier: R-GGA-114604

Inferred from: GPVI-mediated activation cascade (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.](https://www.reactome.org) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## VAV2 is a GEF for Rho/Rac family kinases ↗

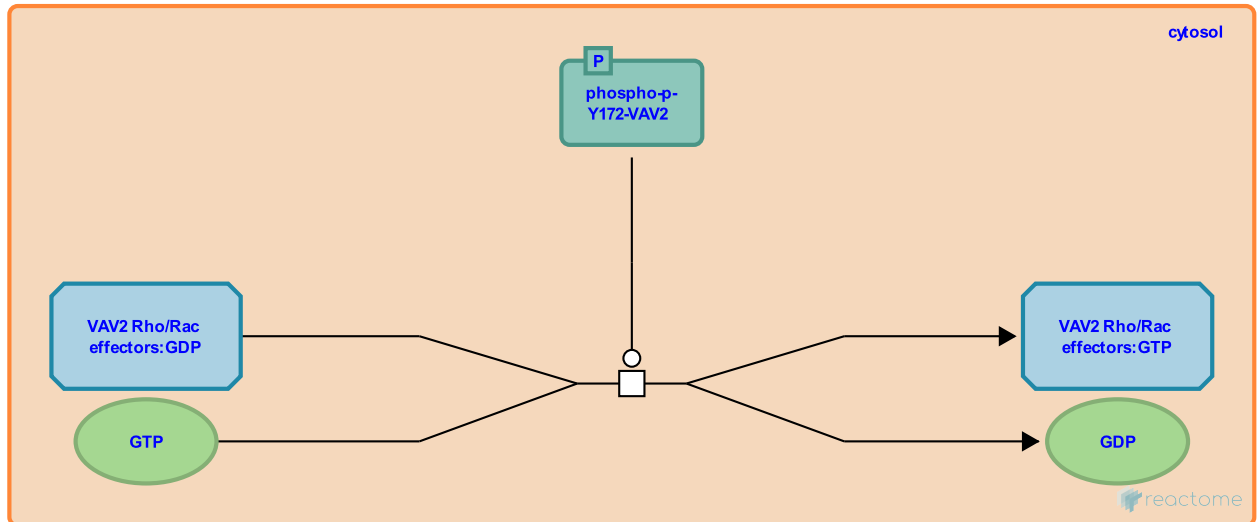
**Location:** GPVI-mediated activation cascade

**Stable identifier:** R-GGA-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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## VAV3 is a GEF for Rho/Rac family kinases ↗

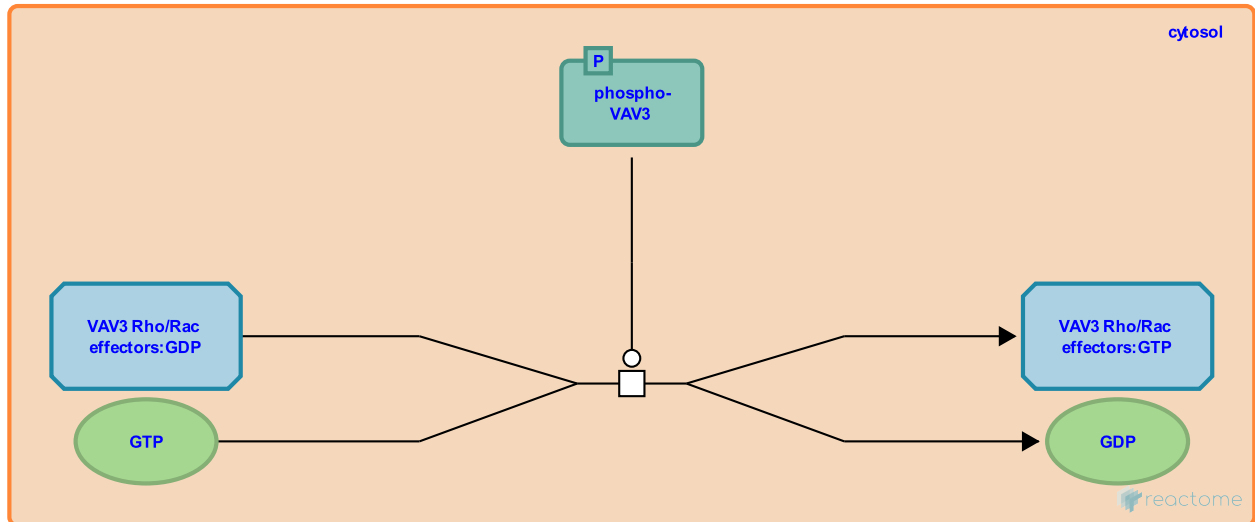
**Location:** GPVI-mediated activation cascade

**Stable identifier:** R-GGA-442314

**Type:** transition

**Compartments:** cytosol

**Inferred from:** VAV3 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.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## Syk activation leads to SLP-76 activation ↗

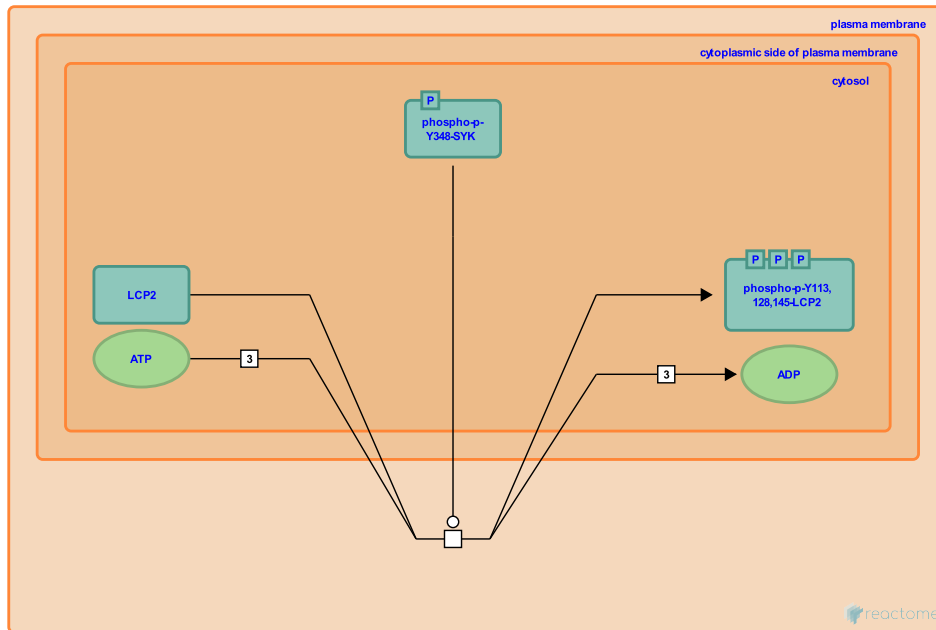
**Location:** GPVI-mediated activation cascade

**Stable identifier:** R-GGA-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>

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

## SLP-76 stimulates PLC gamma 2 ↗

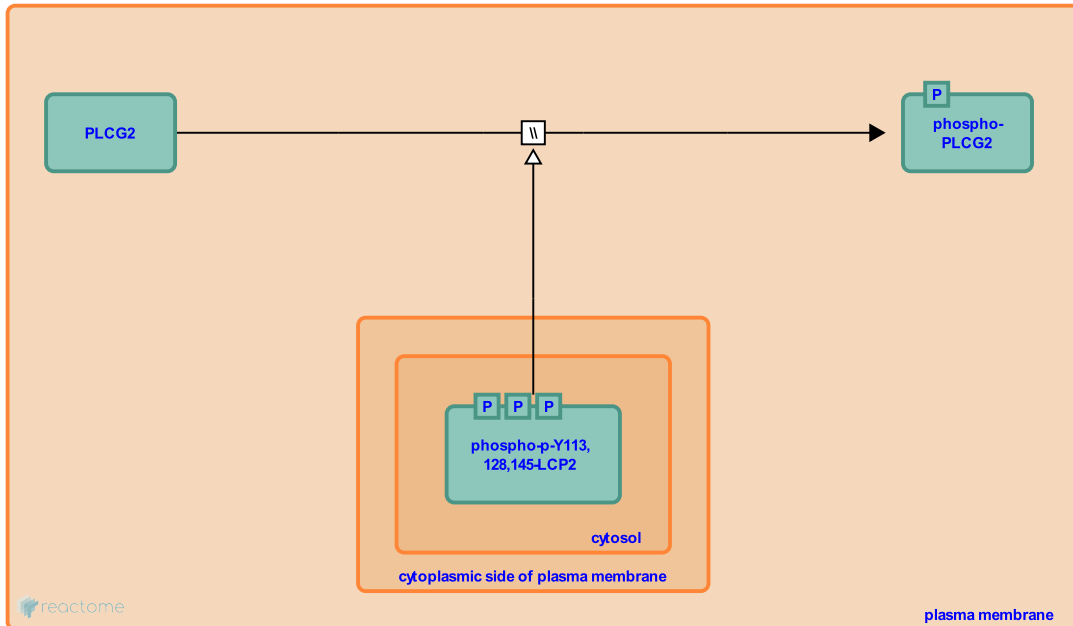
**Location:** GPVI-mediated activation cascade

**Stable identifier:** R-GGA-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 ↗

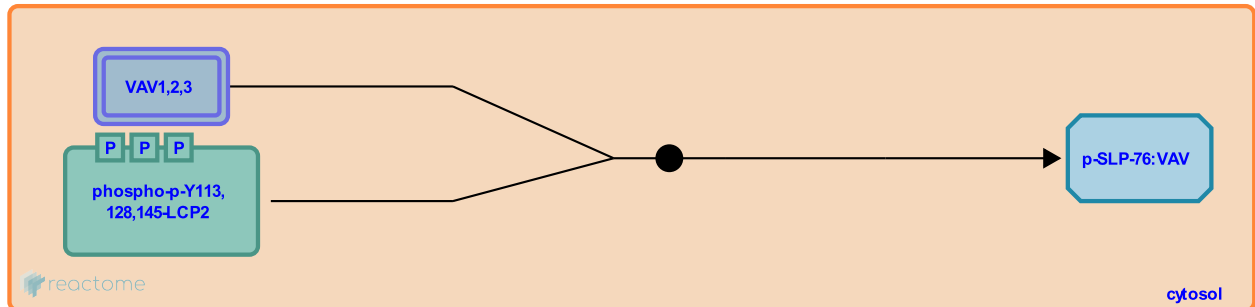
**Location:** GPVI-mediated activation cascade

**Stable identifier:** R-GGA-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 ↗

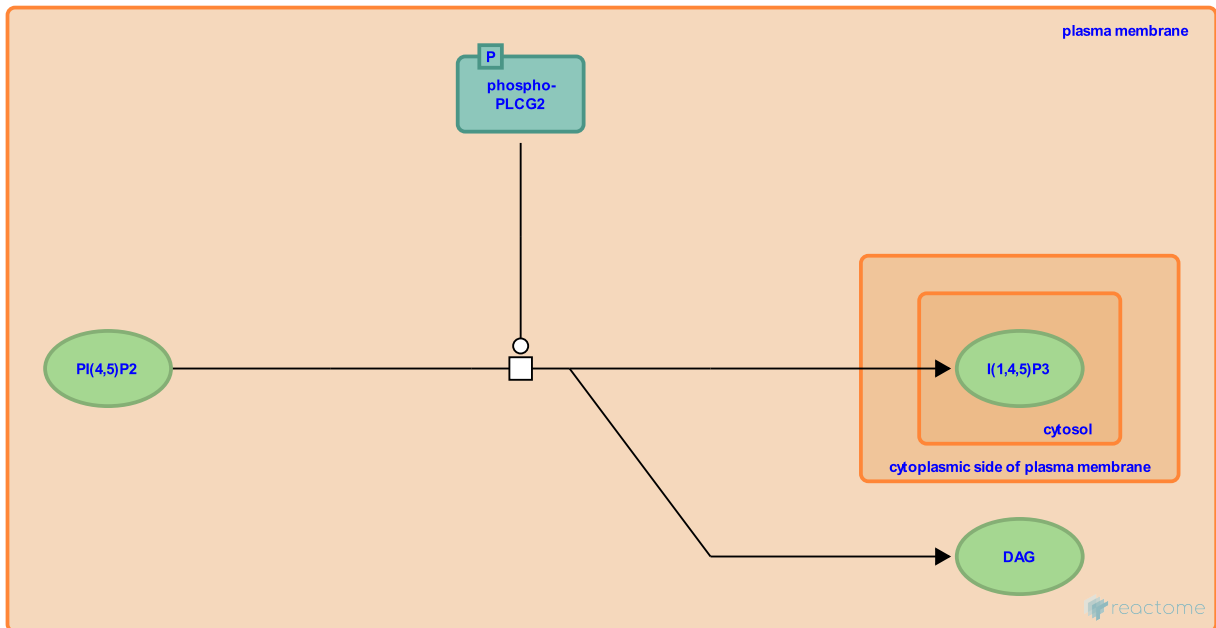
**Location:** [GPVI-mediated activation cascade](#)

**Stable identifier:** R-GGA-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.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Preceded by:** [SLP-76 stimulates PLC gamma 2](#)

## PI3K alpha, beta, gamma convert PIP2 to PIP3 ↗

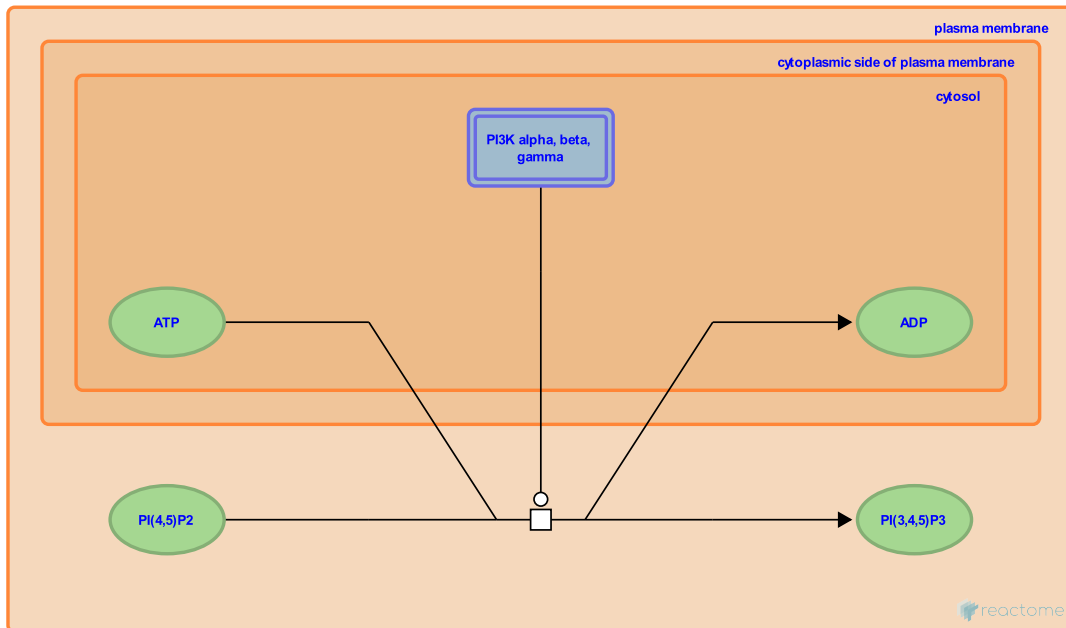
**Location:** [GPVI-mediated activation cascade](#)

**Stable identifier:** R-GGA-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>

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

## PIP3 recruits PDPK1 to the membrane ↗

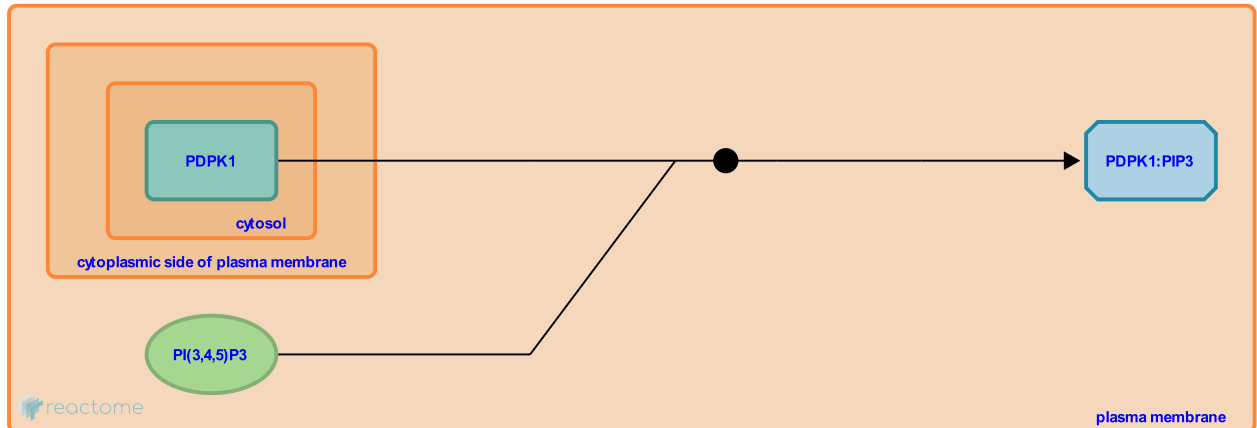
**Location:** [GPVI-mediated activation cascade](#)

**Stable identifier:** R-GGA-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](#)

# Table of Contents

Introduction	1
☒ GPVI-mediated activation cascade	2
↳ VAV2 is a GEF for Rho/Rac family kinases	3
↳ VAV3 is a GEF for Rho/Rac family kinases	4
↳ Syk activation leads to SLP-76 activation	5
☒ SLP-76 stimulates PLC gamma 2	6
↳ p-SLP-76 binds VAV	7
↳ PLC gamma 2-mediated PIP2 hydrolysis	8
↳ PI3K alpha, beta, gamma convert PIP2 to PIP3	9
↳ PIP3 recruits PDK1 to the membrane	10
Table of Contents	11