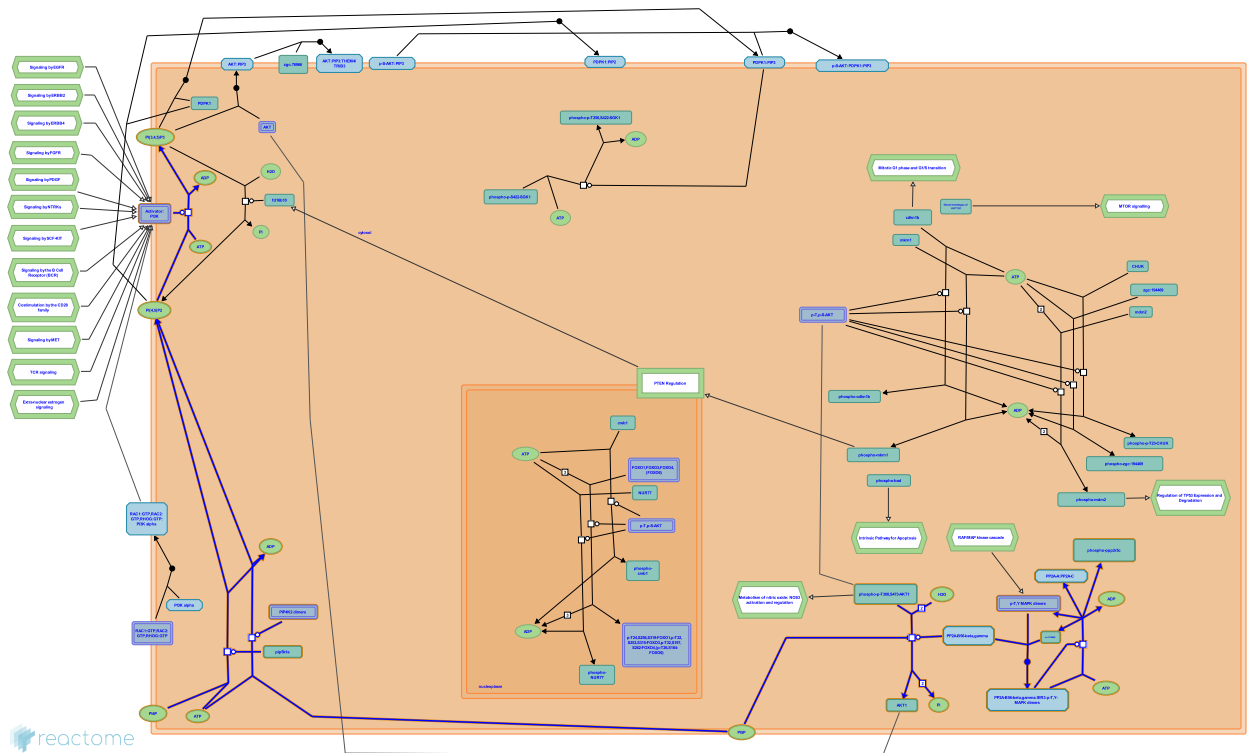


# PI5P, PP2A and IER3 Regulate PI3K/AKT

## Signaling



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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/).

02/05/2024

## 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. [↗](#)
- Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)
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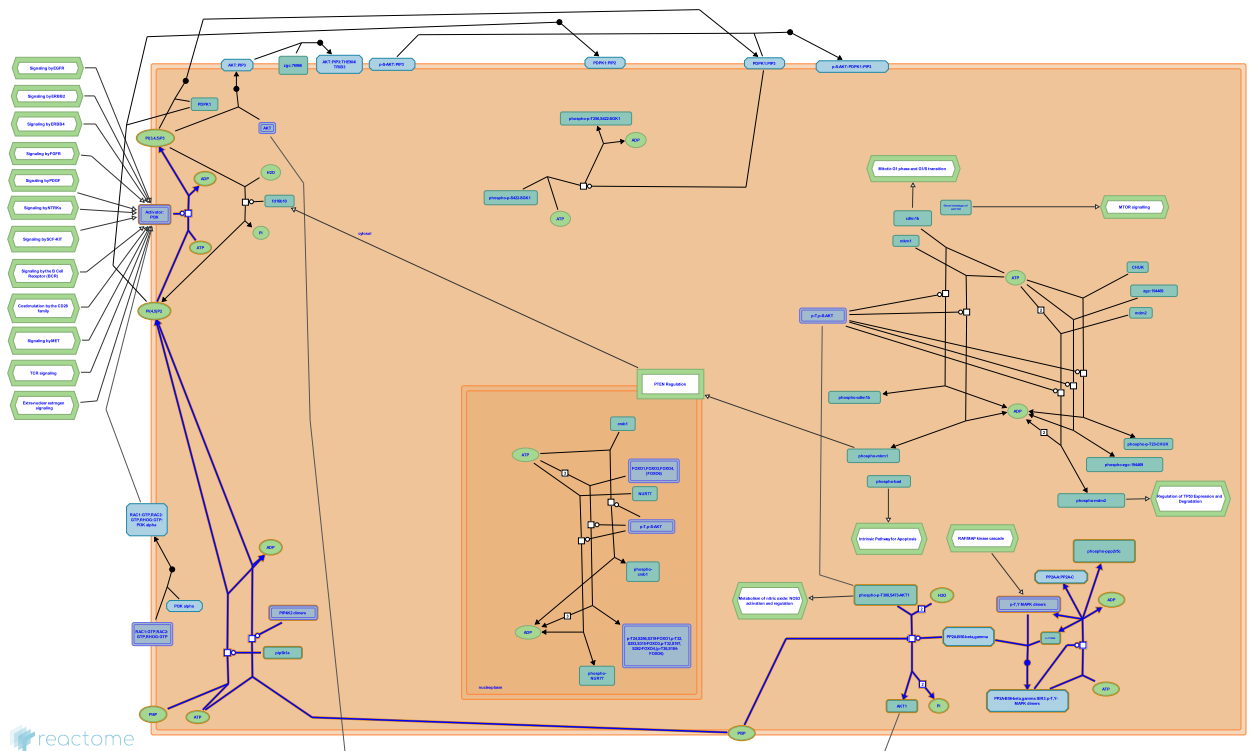
Reactome database release: 88

This document contains 1 pathway and 6 reactions ([see Table of Contents](#))

## PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling ↗

**Stable identifier:** R-DRE-6811558

**Inferred from:** PI5P, PP2A and IER3 Regulate PI3K/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.](http://www.reactome.org) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## PI4P is phosphorylated to PI(4,5)P2 by PIP5K1A-C at the plasma membrane ↗

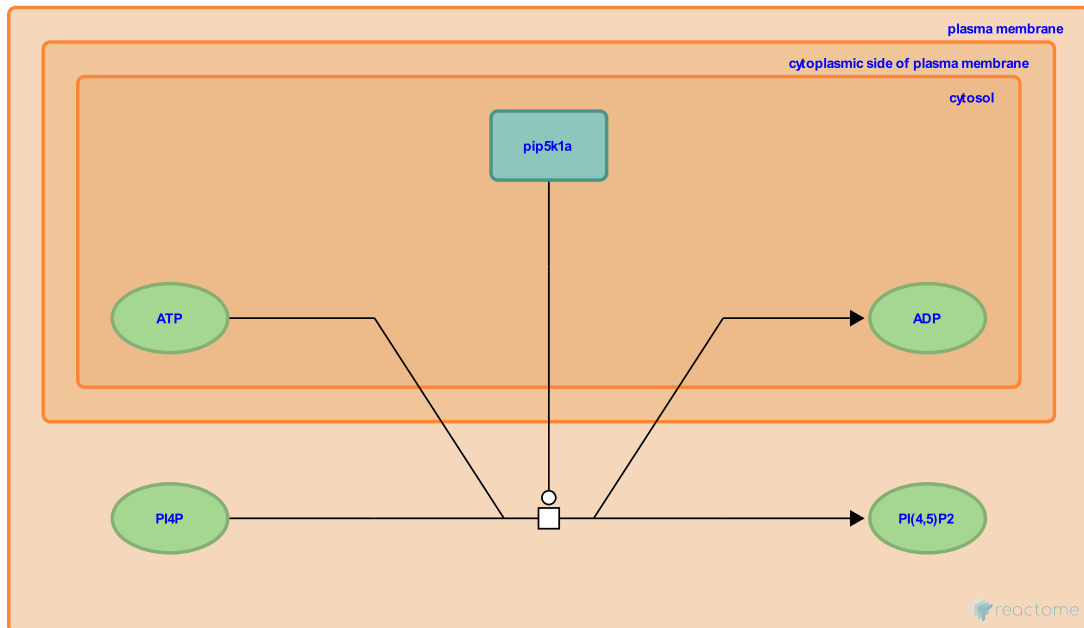
**Location:** PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling

**Stable identifier:** R-DRE-1676082

**Type:** transition

**Compartments:** plasma membrane, cytosol

**Inferred from:** PI4P is phosphorylated to PI(4,5)P2 by PIP5K1A-C at the plasma 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.](https://www.reactome.org) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Followed by:** PI3K phosphorylates PIP2 to PIP3

## PI5P is phosphorylated to PI(4,5)P2 by PIP4K2 dimers at the plasma membrane ↗

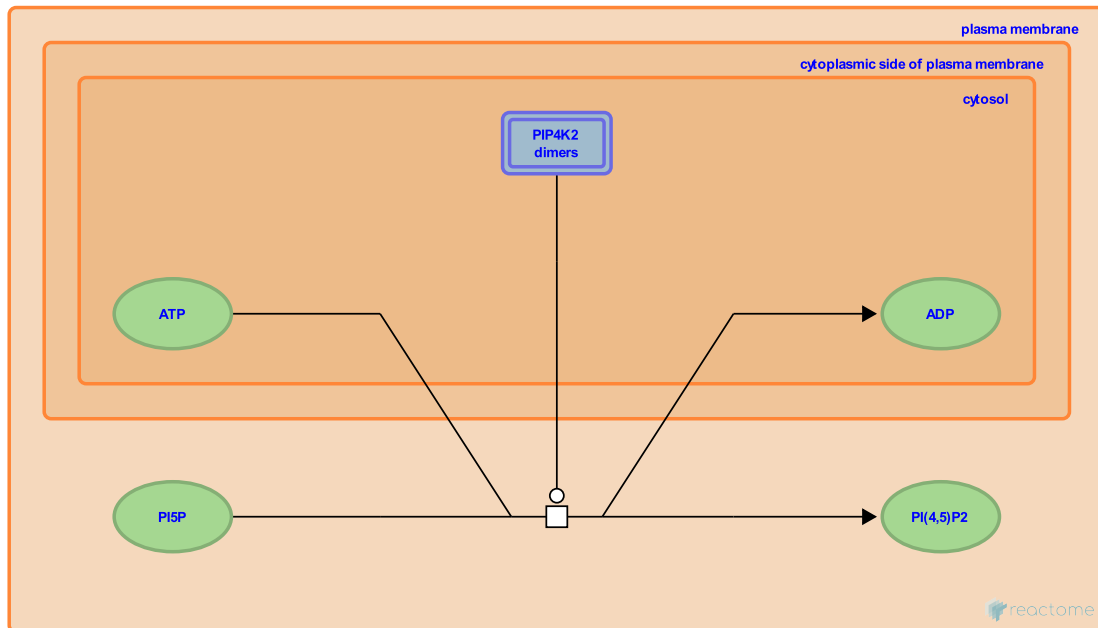
**Location:** [PI5P](#), [PP2A](#) and [IER3](#) Regulate [PI3K/AKT](#) Signaling

**Stable identifier:** R-DRE-1675776

**Type:** transition

**Compartments:** plasma membrane, cytosol

**Inferred from:** [PI5P is phosphorylated to PI\(4,5\)P2 by PIP4K2 dimers at the plasma 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>

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

## PI3K phosphorylates PIP2 to PIP3 ↗

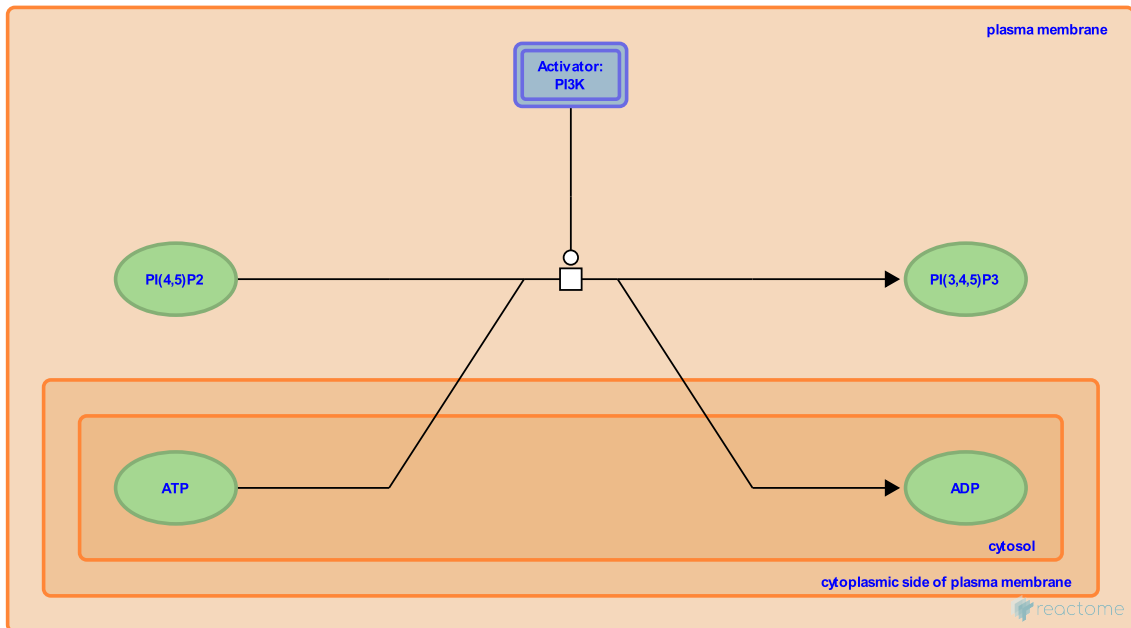
**Location:** PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling

**Stable identifier:** R-DRE-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.

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:** PI4P is phosphorylated to PI(4,5)P2 by PIP5K1A-C at the plasma membrane, PI5P is phosphorylated to PI(4,5)P2 by PIP4K2 dimers at the plasma membrane

## AKT1 dephosphorylation by PP2A-B56-beta,gamma ↗

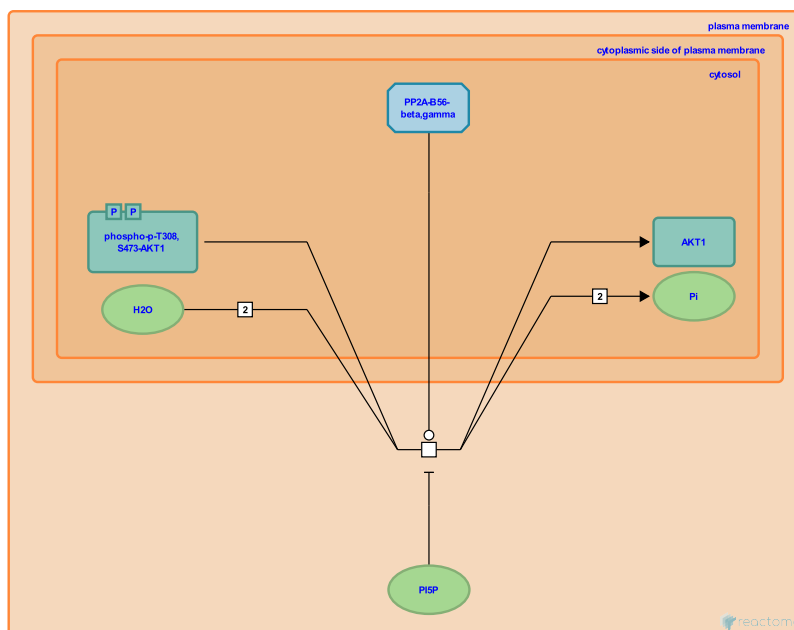
**Location:** PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling

**Stable identifier:** R-DRE-6811504

**Type:** transition

**Compartments:** plasma membrane, cytosol

**Inferred from:** [AKT1 dephosphorylation by PP2A-B56-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>

## IER3 recruits MAPKs to PP2A-B56-beta,gamma ↗

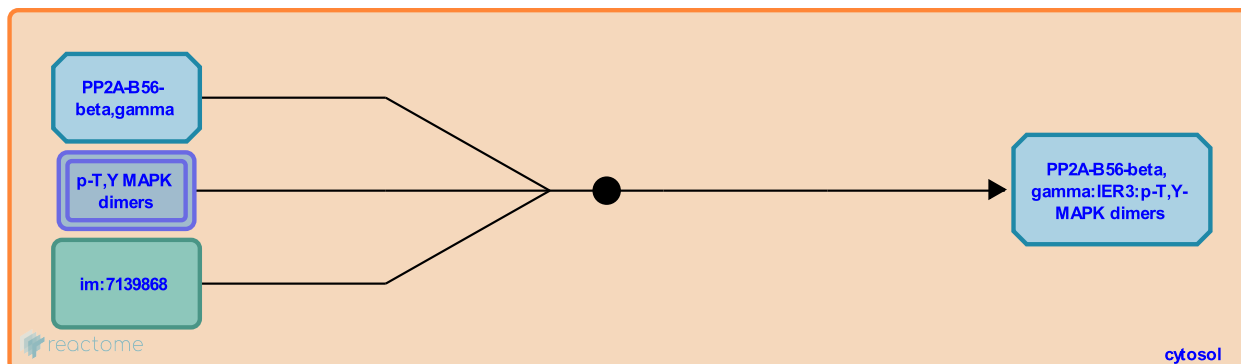
**Location:** PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling

**Stable identifier:** R-DRE-6811472

**Type:** binding

**Compartments:** cytosol

**Inferred from:** IER3 recruits MAPKs to PP2A-B56-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>

**Followed by:** MAPKs phosphorylate PP2A



## MAPKs phosphorylate PP2A ↗

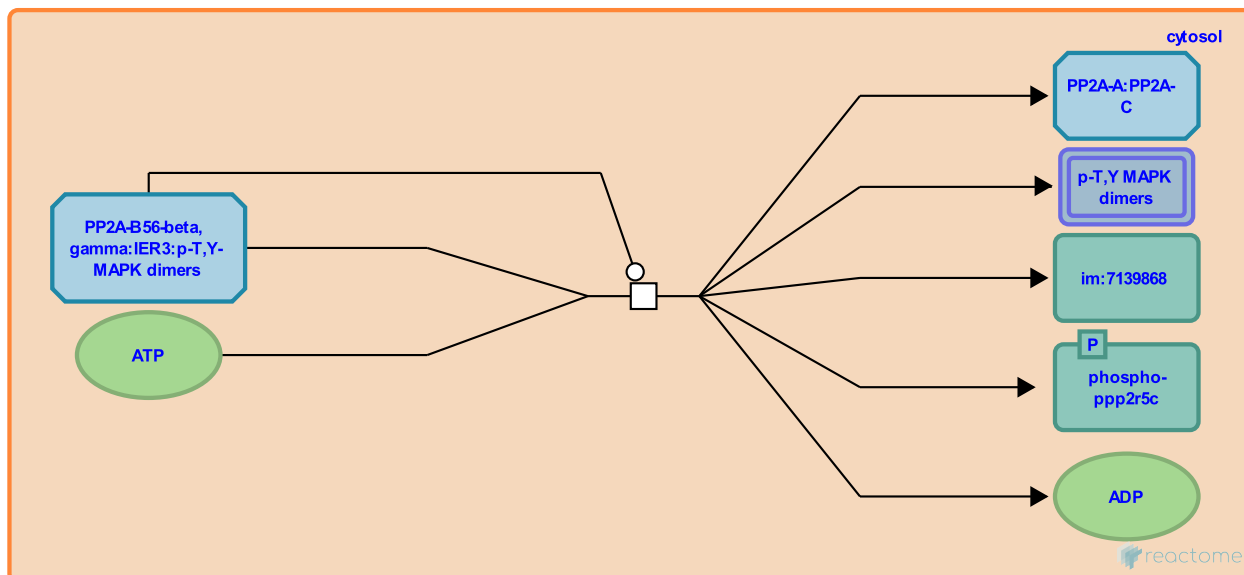
**Location:** PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling

**Stable identifier:** R-DRE-6811454

**Type:** transition

**Compartments:** cytosol

**Inferred from:** MAPKs phosphorylate PP2A (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:** IER3 recruits MAPKs to PP2A-B56-beta,gamma

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