



## 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: 78

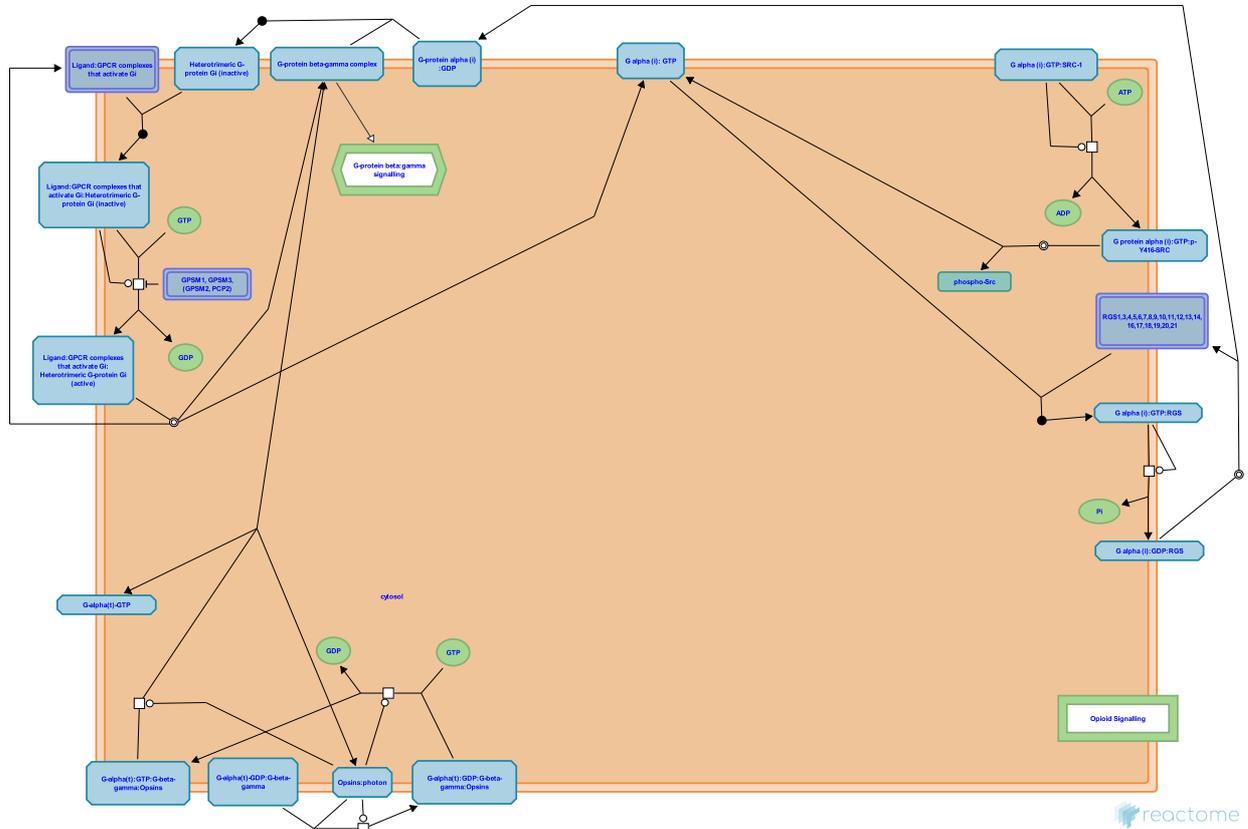
This document contains 2 pathways and 12 reactions ([see Table of Contents](#))

## G alpha (i) signalling events ↗

**Stable identifier:** R-MMU-418594

**Compartments:** plasma membrane

**Inferred from:** G alpha (i) signalling events (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## Liganded Gi-activating GPCRs bind inactive heterotrimeric G-protein Gi ↗

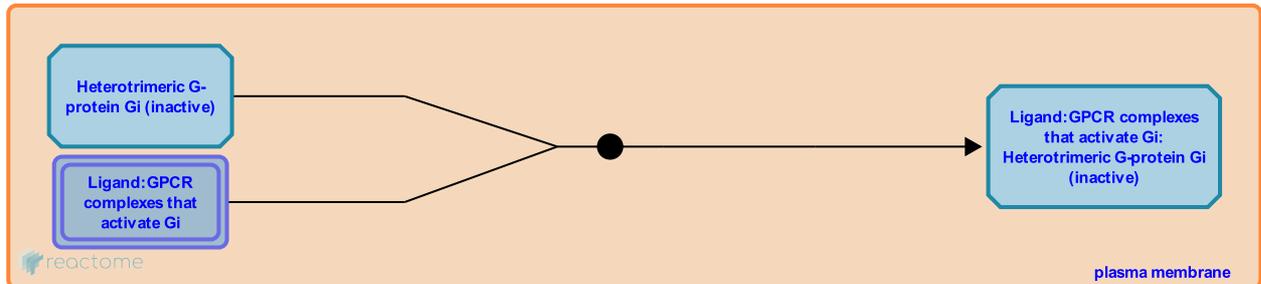
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-749456

**Type:** binding

**Compartments:** plasma membrane

**Inferred from:** [Liganded Gi-activating GPCRs bind inactive heterotrimeric G-protein Gi \(Homo sapiens\)](#)



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:** [Liganded Gi-activating GPCR acts as a GEF for Gi](#)

## Liganded Gi-activating GPCR acts as a GEF for Gi ↗

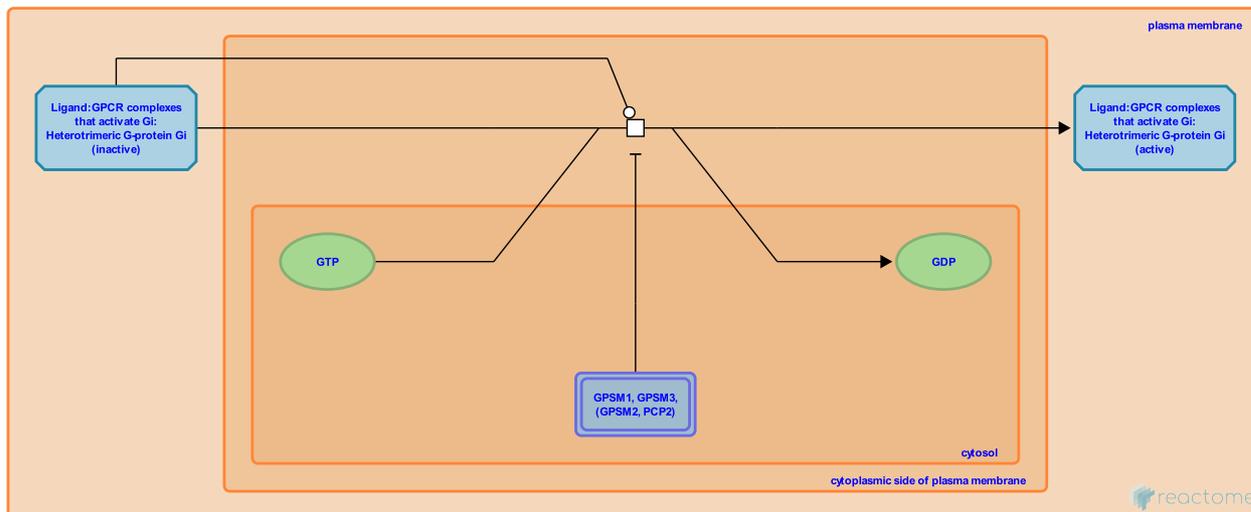
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-380073

**Type:** transition

**Compartments:** cytoplasmic side of plasma membrane

**Inferred from:** Liganded Gi-activating GPCR acts as a GEF for Gi (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Preceded by:** [Liganded Gi-activating GPCRs bind inactive heterotrimeric G-protein Gi](#)

**Followed by:** [The Ligand:GPCR:Gi complex dissociates](#)

## The Ligand:GPCR:Gi complex dissociates ↗

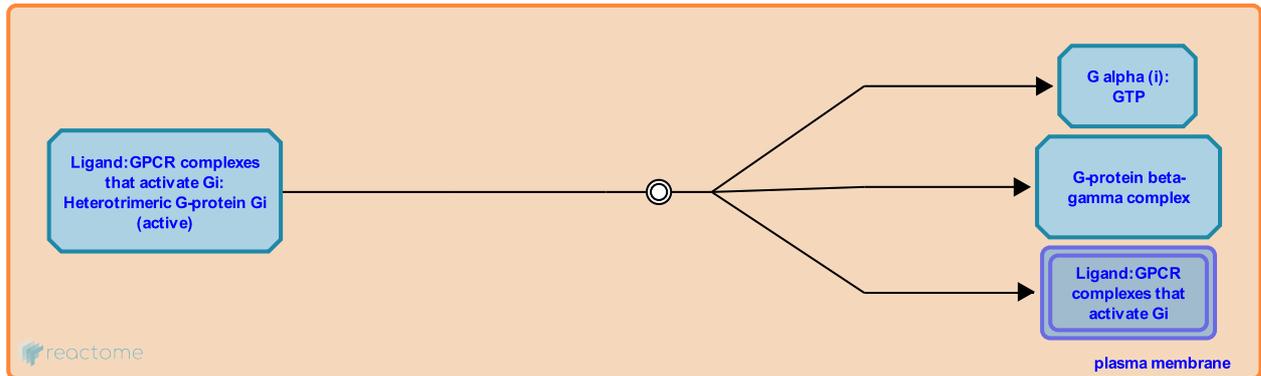
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-749454

**Type:** dissociation

**Compartments:** plasma membrane, extracellular region

**Inferred from:** [The Ligand:GPCR:Gi complex 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.

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**Preceded by:** [Liganded Gi-activating GPCR acts as a GEF for Gi](#)

**Followed by:** [Active G alpha \(i\)-i1/i2/i3 binds RGS proteins](#)

## Opsins act as GEFs for G alpha-t ↗

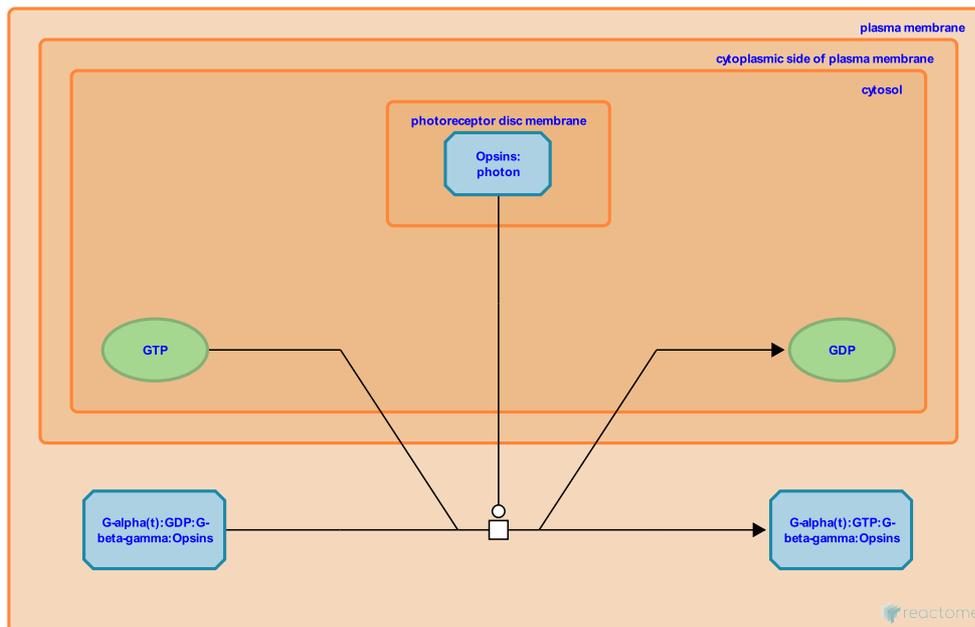
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-420883

**Type:** transition

**Compartments:** plasma membrane, cytosol

**Inferred from:** Opsins act as GEFs for G alpha-t (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Preceded by:** Opsins binds G alpha-t

**Followed by:** G-alpha(t):G-beta-gamma:Opsins complex dissociates to active G-alpha(t)

## Inactive G alpha (i) reassociates with G beta:gamma ↗

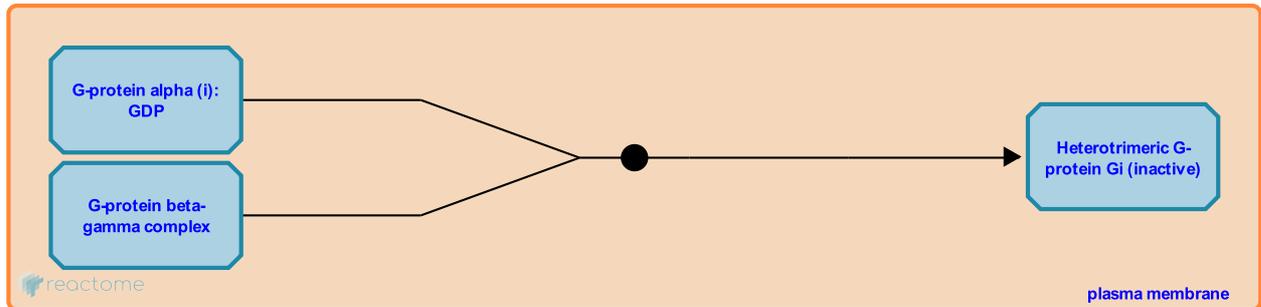
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-751001

**Type:** binding

**Compartments:** plasma membrane

**Inferred from:** [Inactive G alpha \(i\) reassociates with G 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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## G protein alpha (i)-SRC complex catalyzes SRC to p-Y416-SRC ↗

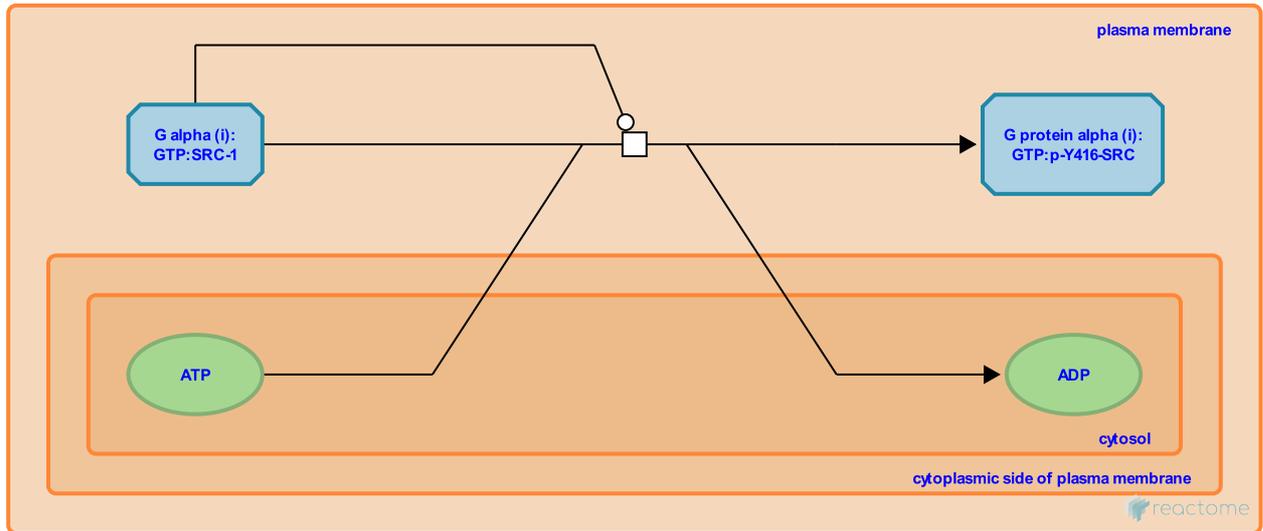
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-8964242

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** G protein alpha (i)-SRC complex catalyzes SRC to p-Y416-SRC (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Followed by:** G protein alpha (i)-SRC complex dissociates to G protein alpha (i) and Active SRC

## G protein alpha (i)-SRC complex dissociates to G protein alpha (i) and Active SRC ↗

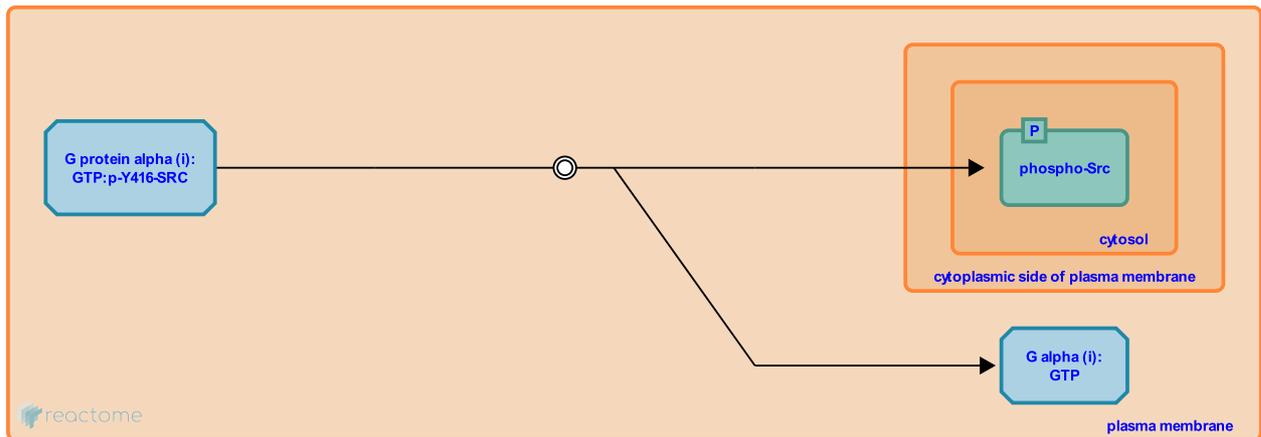
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-8964329

**Type:** dissociation

**Compartments:** plasma membrane, cytosol

**Inferred from:** G protein alpha (i)-SRC complex dissociates to G protein alpha (i) and Active SRC (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Preceded by:** G protein alpha (i)-SRC complex catalyzes SRC to p-Y416-SRC

## Active G alpha (i)-i1/i2/i3 binds RGS proteins ↗

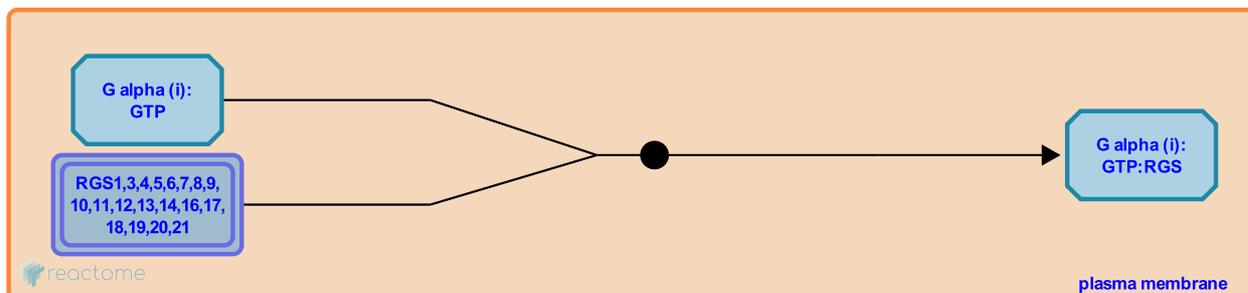
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-8982019

**Type:** binding

**Compartments:** plasma membrane, cytosol

**Inferred from:** [Active G alpha \(i\)-i1/i2/i3 binds RGS proteins \(Homo sapiens\)](#)



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

**Preceded by:** [The Ligand:GPCR:Gi complex dissociates](#)

**Followed by:** [G alpha \(i\)-i1/i2/i3 in G \(i\):RGS complex is inactivated](#)

## G alpha (i)-i1/i2/i3 in G (i):RGS complex is inactivated ↗

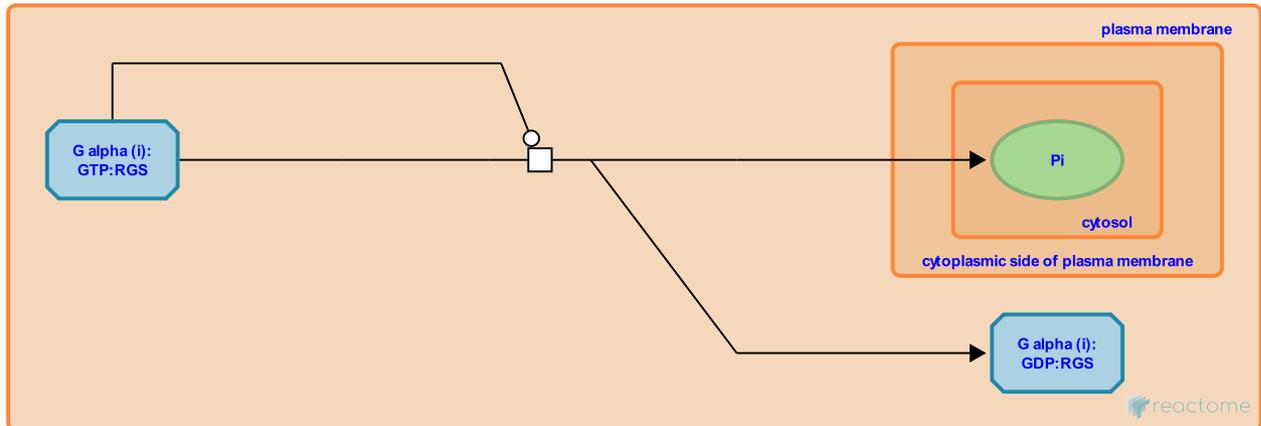
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-8982020

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** [G alpha \(i\)-i1/i2/i3 in G \(i\):RGS complex is inactivated \(Homo sapiens\)](#)



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

**Preceded by:** [Active G alpha \(i\)-i1/i2/i3 binds RGS proteins](#)

**Followed by:** [G alpha \(i\):RGS dissociates to inactive G alpha \(i\)-i1/i2/i3](#)

## G alpha (i):RGS dissociates to inactive G alpha (i)-i1/i2/i3 ↗

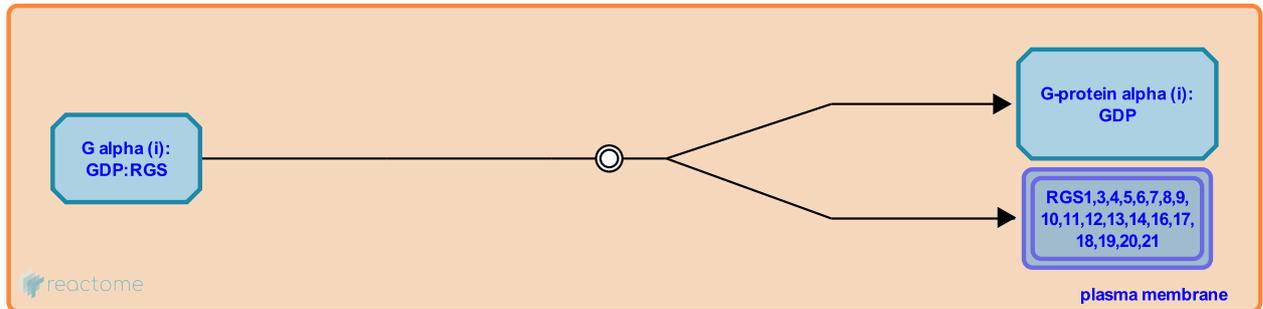
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-8982012

**Type:** dissociation

**Compartments:** plasma membrane, cytosol

**Inferred from:** [G alpha \(i\):RGS dissociates to inactive G alpha \(i\)-i1/i2/i3 \(Homo sapiens\)](#)



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

**Preceded by:** [G alpha \(i\)-i1/i2/i3 in G \(i\):RGS complex is inactivated](#)

## Opsins binds G alpha-t ↗

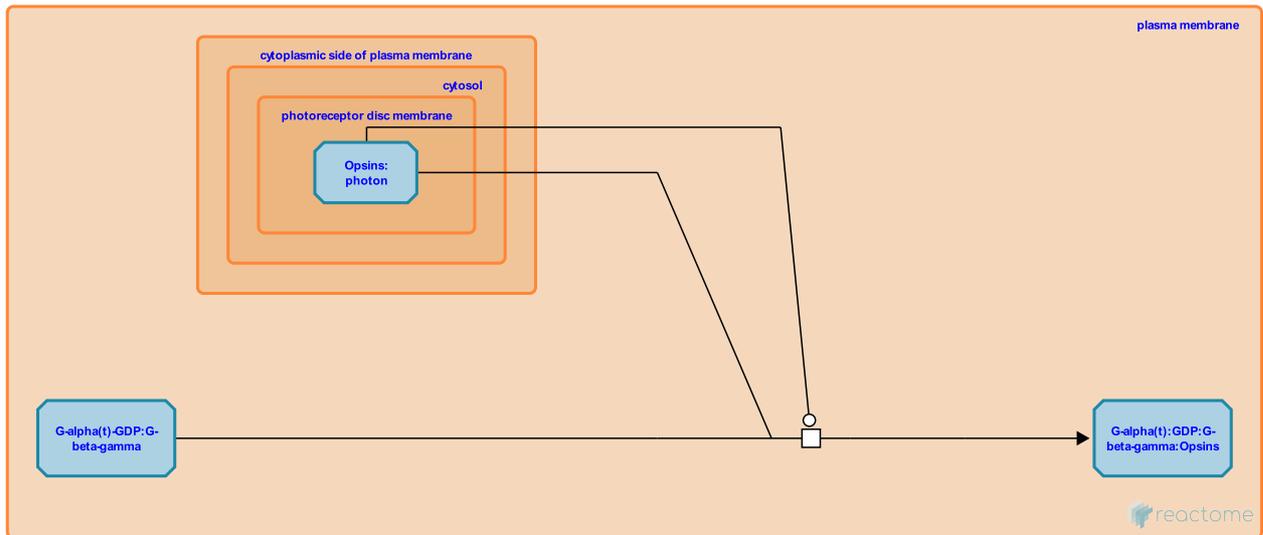
**Location:** [G alpha \(i\) signalling events](#)

**Stable identifier:** R-MMU-8982637

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** [Opsins binds G alpha-t \(Homo sapiens\)](#)



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

**Followed by:** [Opsins act as GEFs for G alpha-t](#)

## G-alpha(t):G-beta-gamma:Opsins complex dissociates to active G-alpha(t) ↗

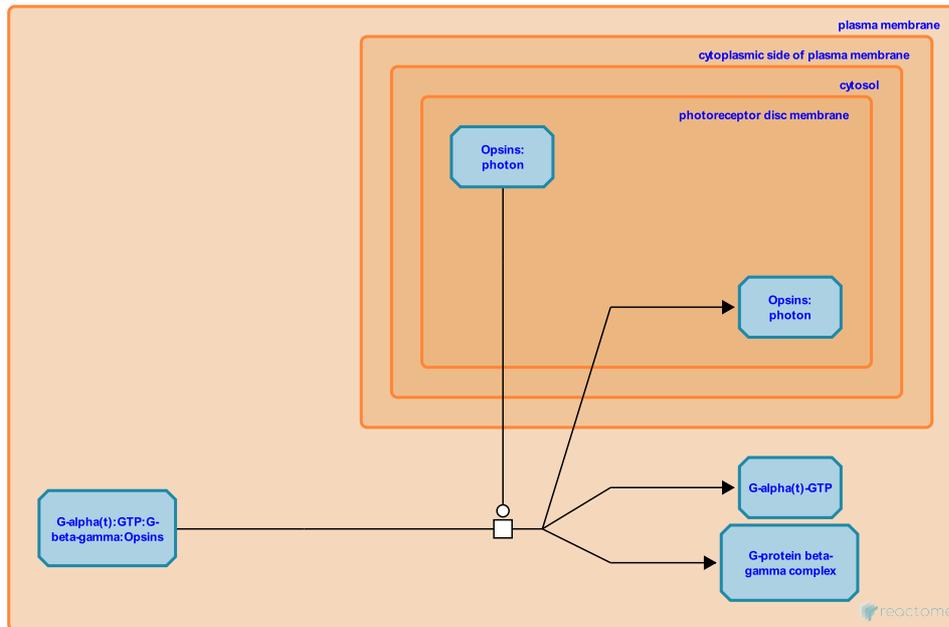
**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-8982640

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** G-alpha(t):G-beta-gamma:Opsins complex dissociates to active G-alpha(t) (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.](/electronic_inference_compara.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

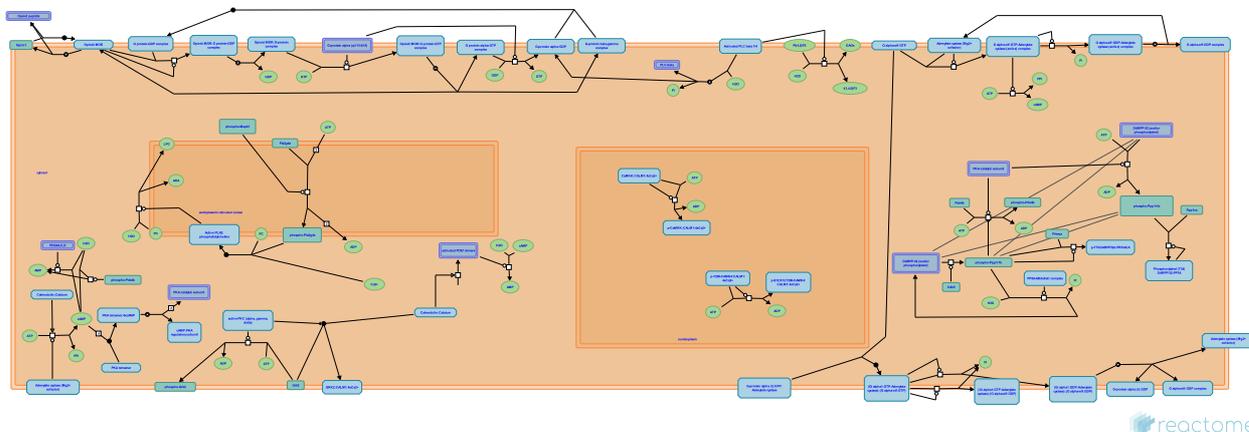
**Preceded by:** Opsins act as GEFs for G alpha-t

## Opioid Signalling ↗

**Location:** G alpha (i) signalling events

**Stable identifier:** R-MMU-111885

**Inferred from:** Opioid Signalling (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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