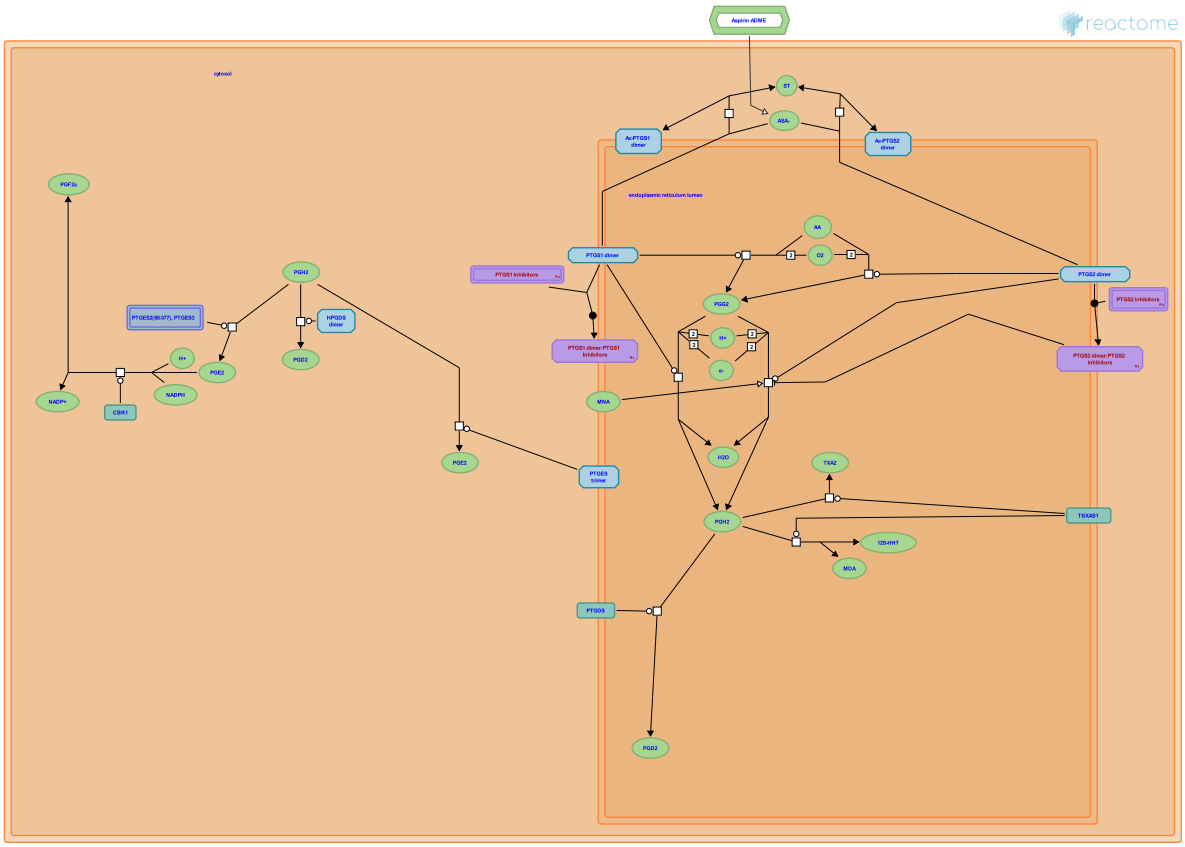
# Synthesis of Prostaglandins (PG) and Thromboxanes (TX)



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18/05/2024

# 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. ↗

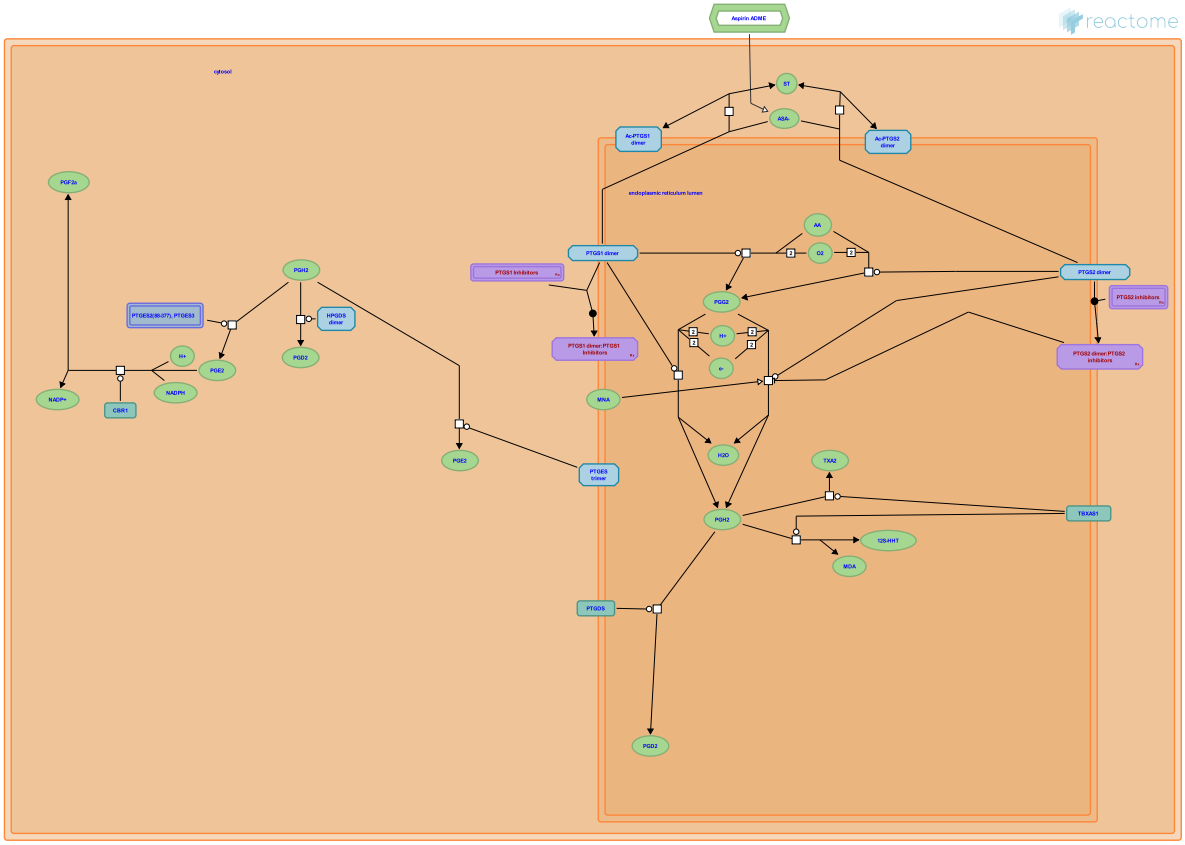
Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

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. ↗

## Synthesis of Prostaglandins (PG) and Thromboxanes (TX) ↗

**Stable identifier:** R-GGA-2162123

**Inferred from:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX) (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

## PTGS2 dimer binds PTGS2 inhibitors ↗

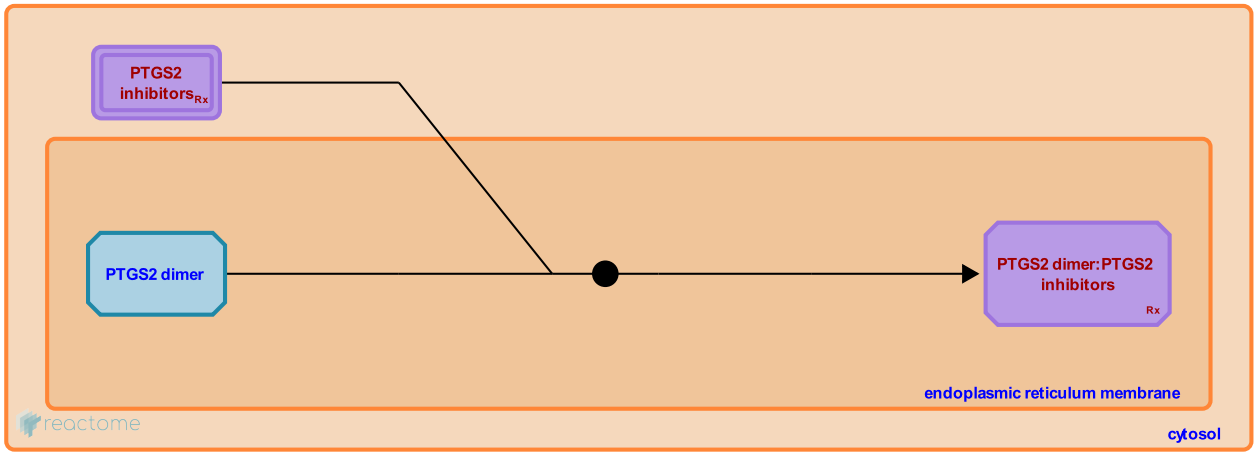
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2309779

**Type:** binding

**Compartments:** endoplasmic reticulum membrane, cytosol

**Inferred from:** PTGS2 dimer binds PTGS2 inhibitors (Homo sapiens)

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## ASA- acetylates PTGS1 ↗

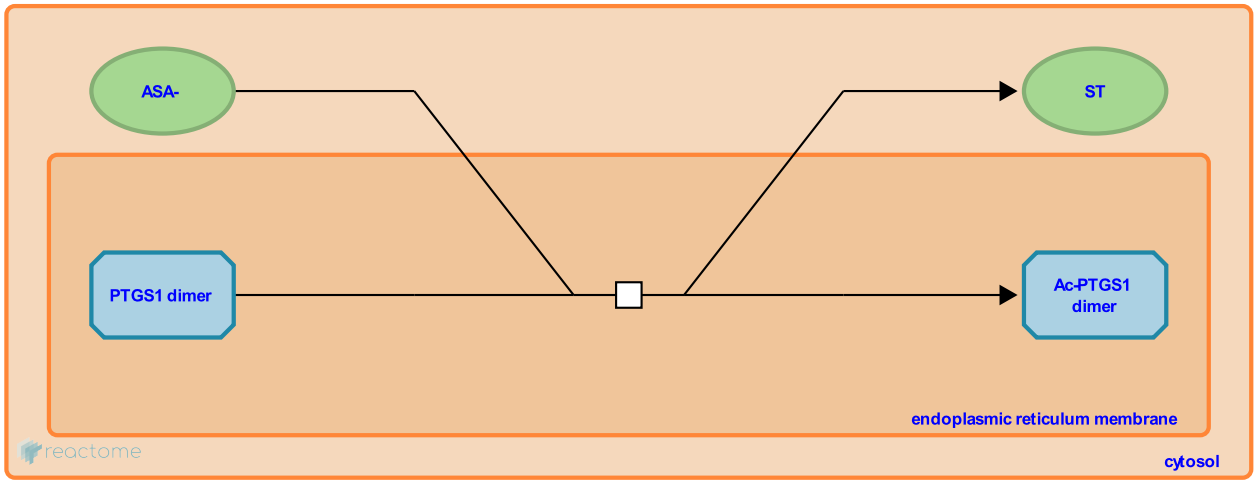
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2314678

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, cytosol

**Inferred from:** ASA- acetylates PTGS1 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

## ASA- acetylates PTGS2 ↗

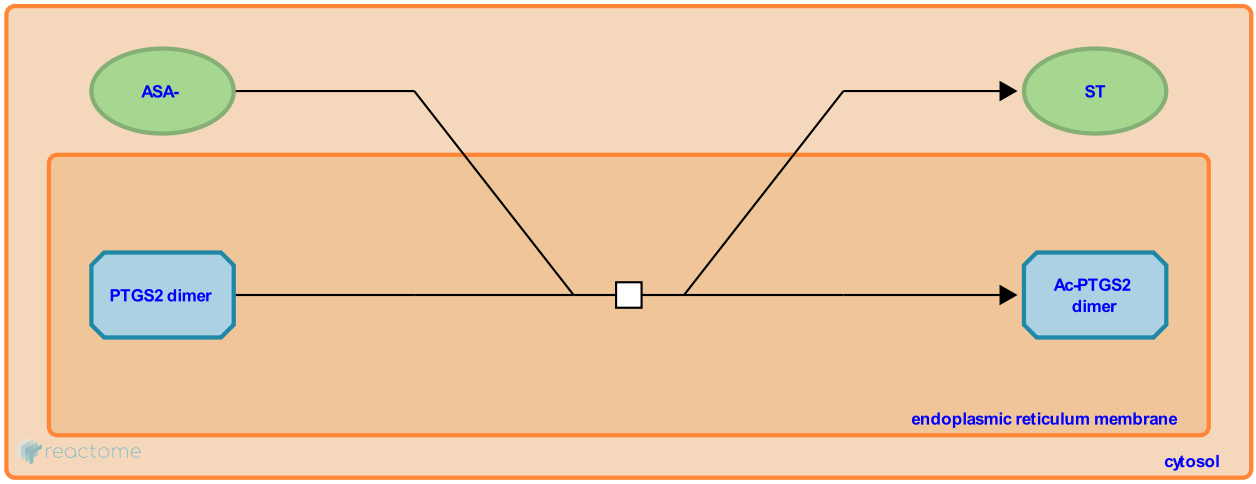
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2314686

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, cytosol

**Inferred from:** ASA- acetylates PTGS2 (Homo sapiens)

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## Arachidonic acid is oxidised to PGG2 by PTGS1 ↗

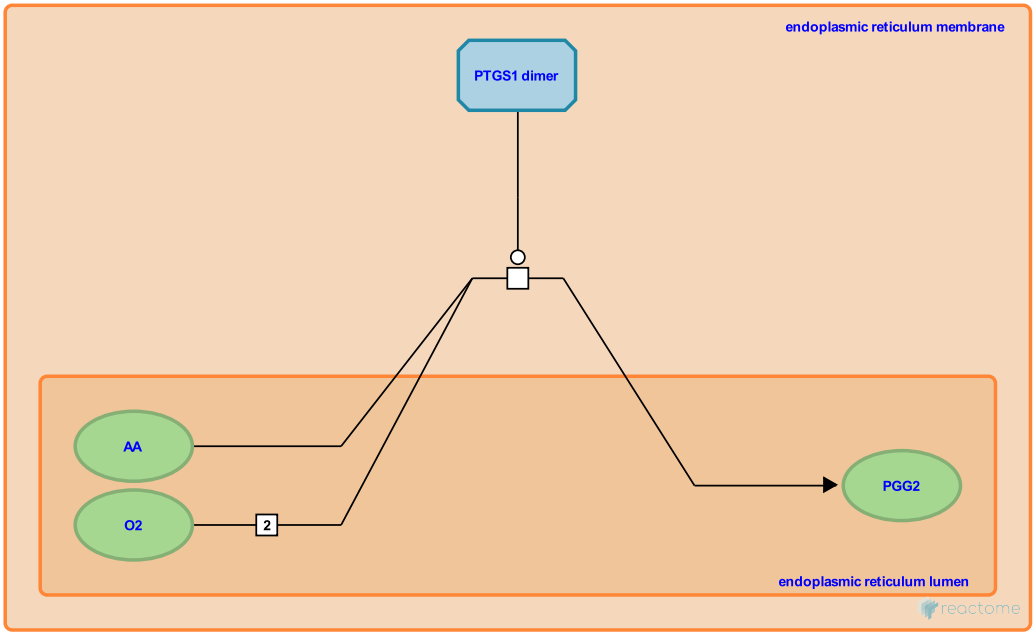
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-140355

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** Arachidonic acid is oxidised to PGG2 by PTGS1 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

**Followed by:** PGG2 is reduced to PGH2 by PTGS1

## PTGS1 dimer binds PTGS1 Inhibitors ↗

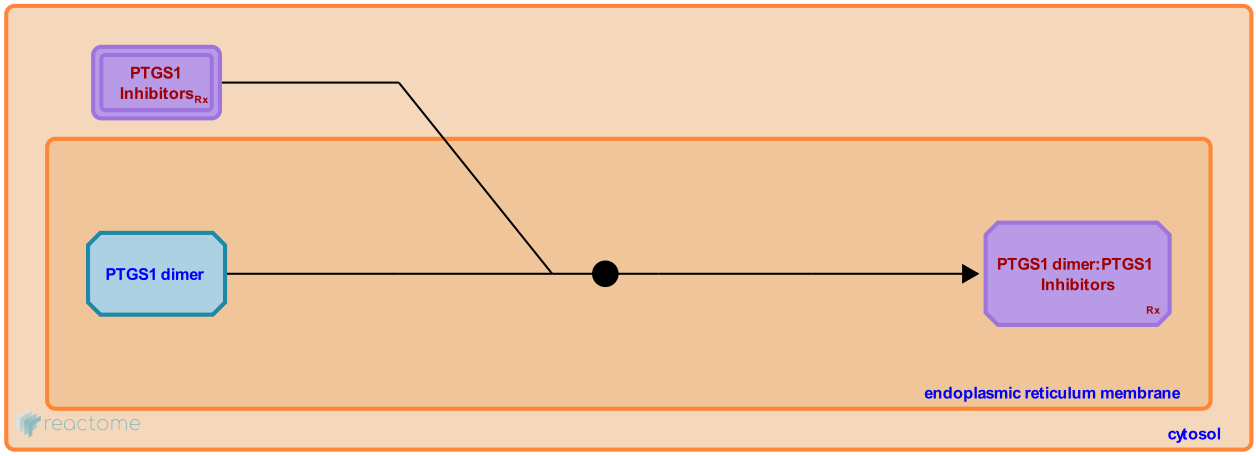
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-9677320

**Type:** binding

**Compartments:** endoplasmic reticulum membrane, cytosol

**Inferred from:** PTGS1 dimer binds PTGS1 Inhibitors (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

## Arachidonic acid is oxidised to PGG2 by PTGS2 ↗

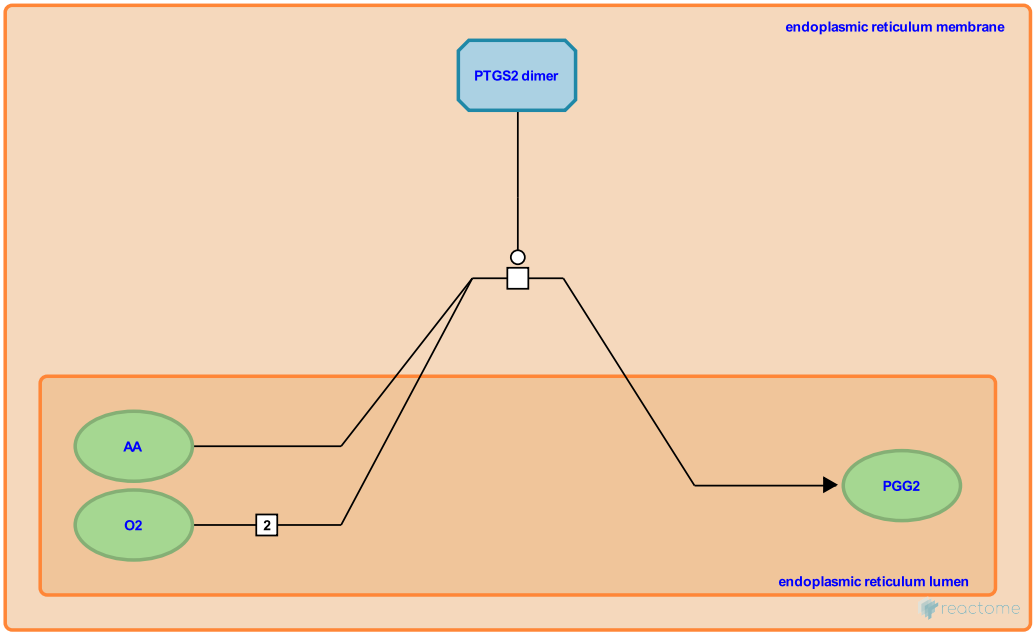
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2309787

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** Arachidonic acid is oxidised to PGG2 by PTGS2 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

**Followed by:** PGG2 is reduced to PGH2 by PTGS2

## PGG2 is reduced to PGH2 by PTGS1 ↗

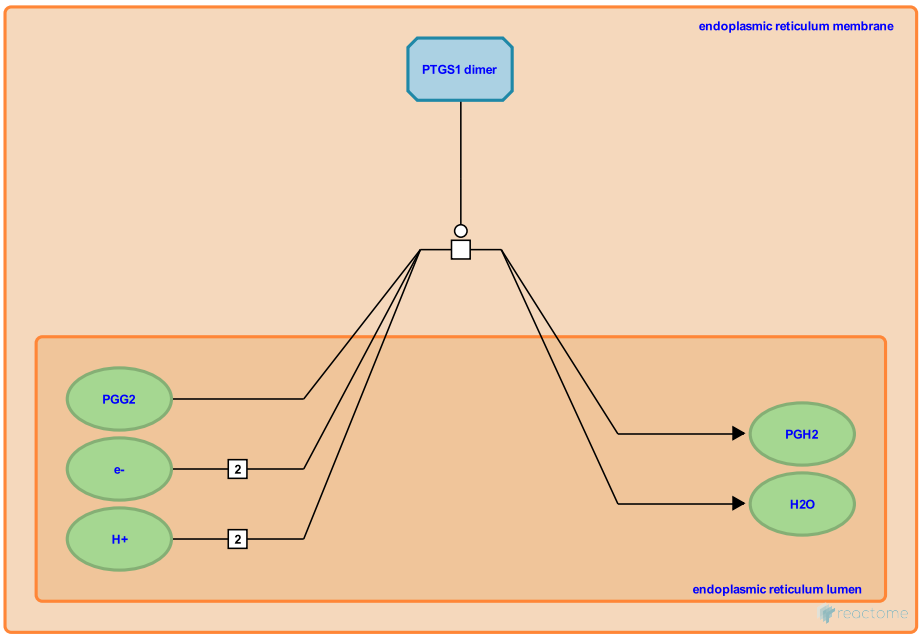
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-140359

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** PGG2 is reduced to PGH2 by PTGS1 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

**Preceded by:** Arachidonic acid is oxidised to PGG2 by PTGS1

**Followed by:** PGH2 is degraded to 12S-HHT and MDA by TBXAS1, PGH2 is isomerised to PGD2 by PTGDS, TBXAS1 isomerises PGH2 to TXA2

## PGG2 is reduced to PGH2 by PTGS2 ↗

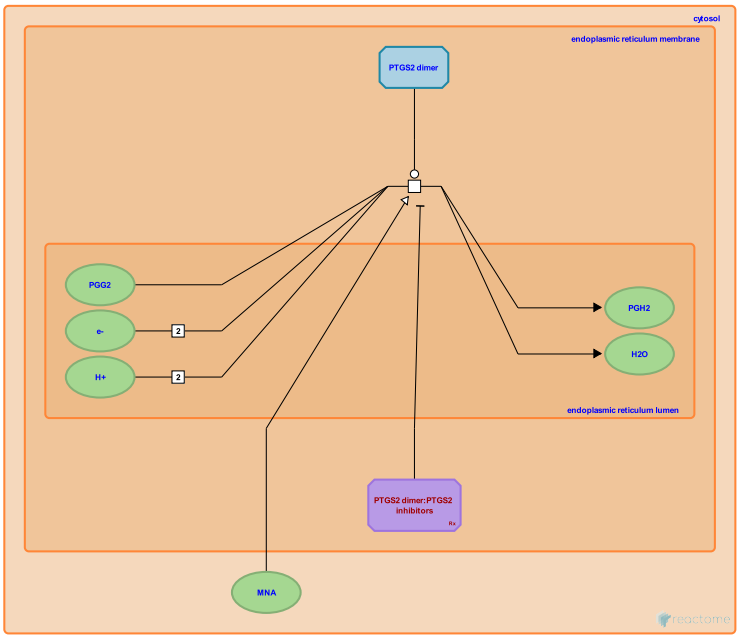
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2309773

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** PGG2 is reduced to PGH2 by PTGS2 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

**Preceded by:** Arachidonic acid is oxidised to PGG2 by PTGS2

**Followed by:** PGH2 is degraded to 12S-HHT and MDA by TBXAS1, PGH2 is isomerised to PGD2 by PTGDS, TBXAS1 isomerises PGH2 to TXA2

## PGH2 is isomerised to PGE2 by PTGES ↗

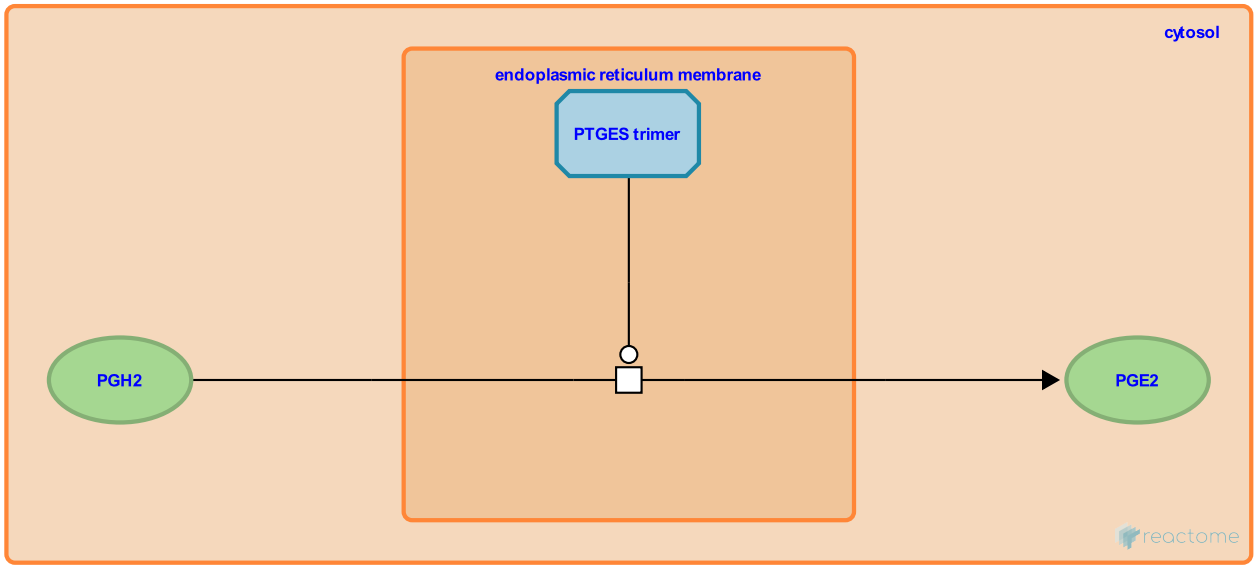
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2161660

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, cytosol

**Inferred from:** PGH2 is isomerised to PGE2 by PTGES (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

## Prostaglandin E synthase isomerizes PGH2 to PGE2 ↗

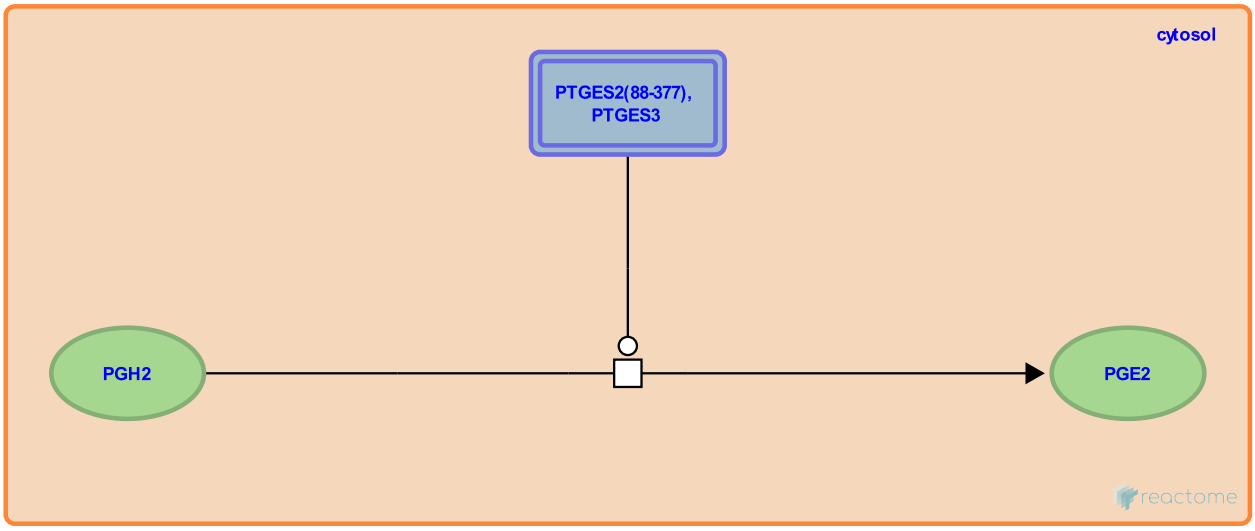
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-265295

**Type:** transition

**Compartments:** cytosol

**Inferred from:** Prostaglandin E synthase isomerizes PGH2 to PGE2 (Homo sapiens)

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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

## PGE2 is converted to PGF2a by CBR1 ↗

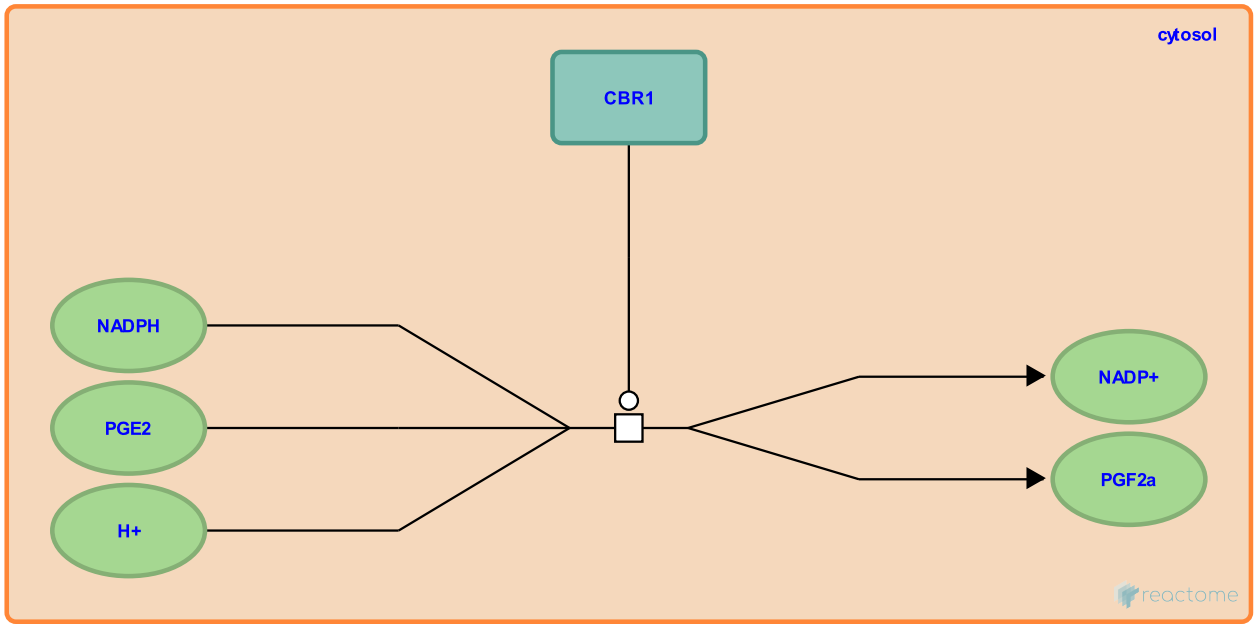
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2161651

**Type:** transition

**Compartments:** cytosol

**Inferred from:** PGE2 is converted to PGF2a by CBR1 (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

## PGH2 is isomerised to PGD2 by PTGDS ↗

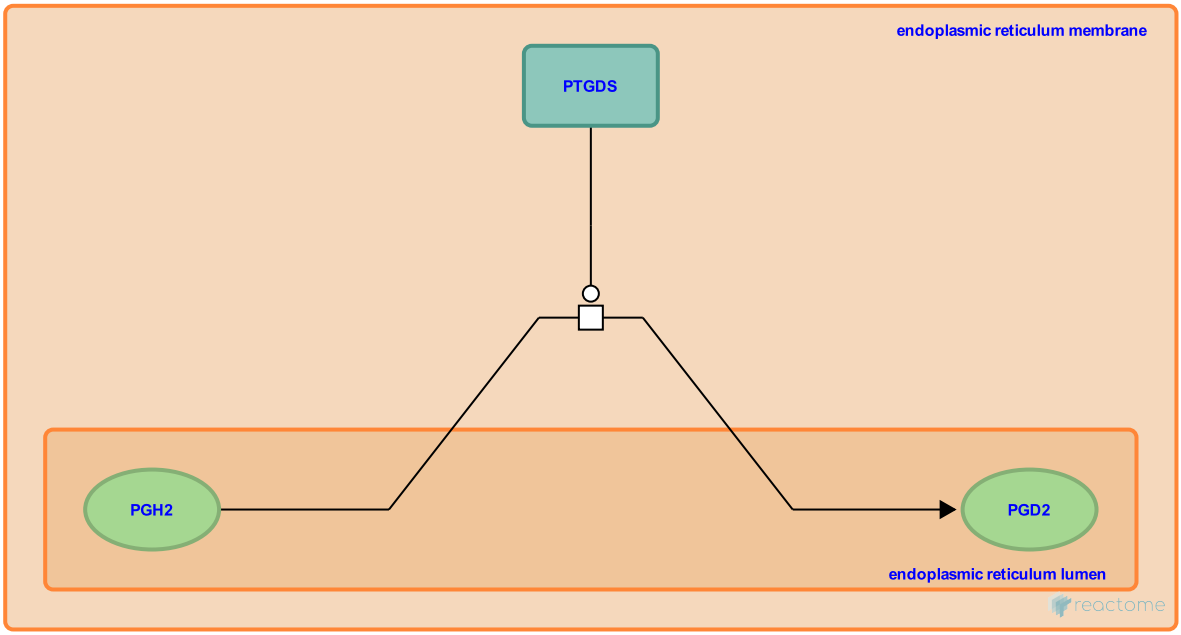
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2161620

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** PGH2 is isomerised to PGD2 by PTGDS (Homo sapiens)

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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:** PGG2 is reduced to PGH2 by PTGS2, PGG2 is reduced to PGH2 by PTGS1

## PGH2 is isomerised to PGD2 by HPGDS ↗

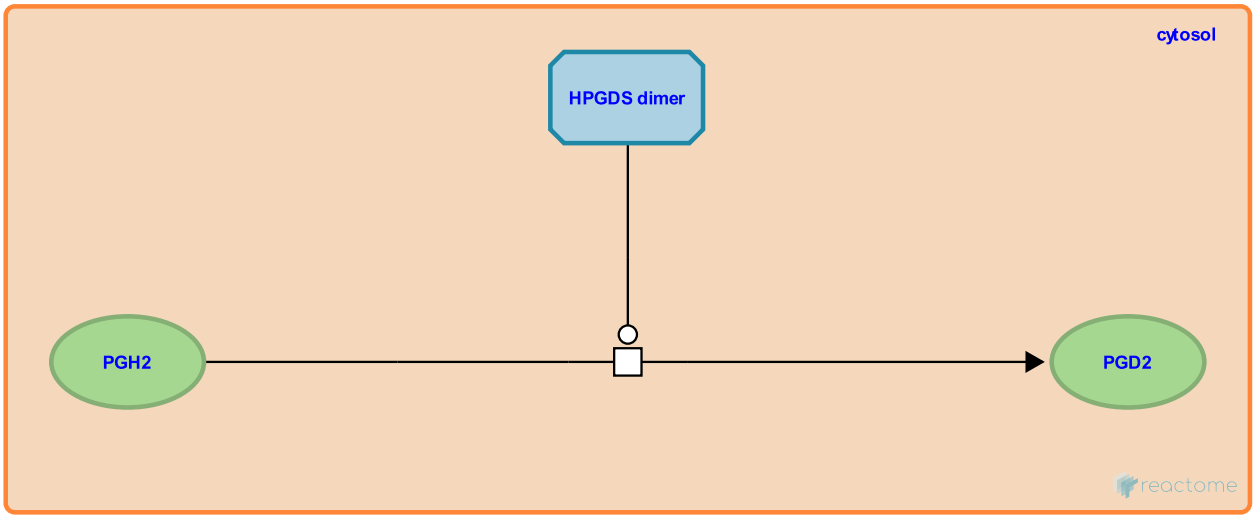
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2161701

**Type:** transition

**Compartments:** cytosol

**Inferred from:** PGH2 is isomerised to PGD2 by HPGDS (Homo sapiens)

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## TBXAS1 isomerises PGH2 to TXA2 ↗

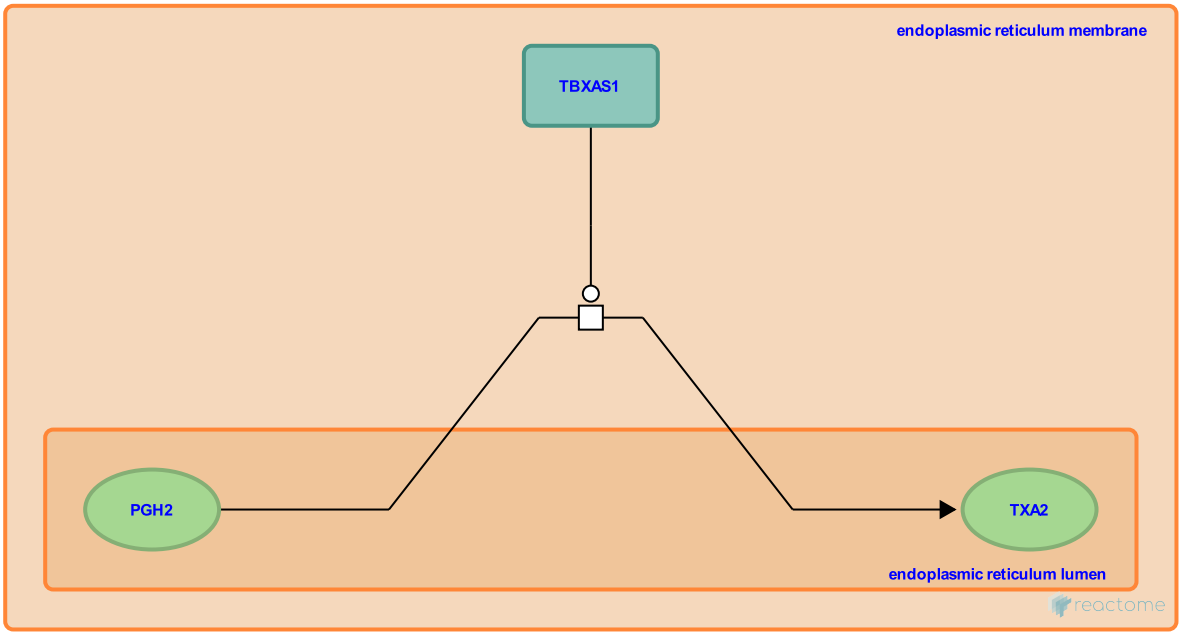
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-76500

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** TBXAS1 isomerises PGH2 to TXA2 (Homo sapiens)

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More details and caveats of the event inference in Reactome. For details on PANTHER see also: http://www.pantherdb.org/about.jsp

**Preceded by:** PGG2 is reduced to PGH2 by PTGS2, PGG2 is reduced to PGH2 by PTGS1

## PGH2 is degraded to 12S-HHT and MDA by TBXAS1 ↗

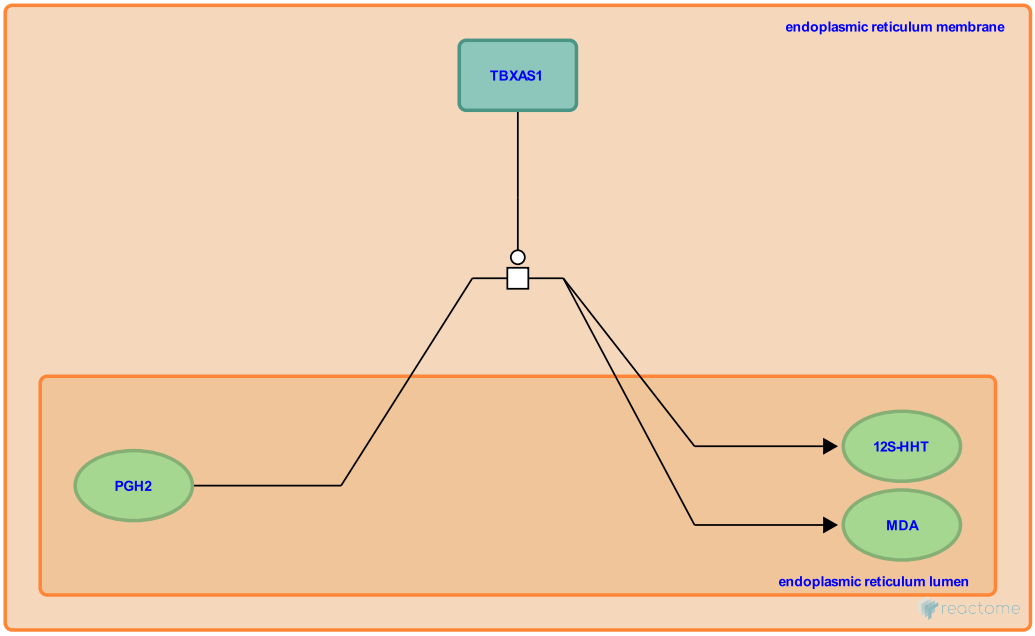
**Location:** Synthesis of Prostaglandins (PG) and Thromboxanes (TX)

**Stable identifier:** R-GGA-2161613

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

**Inferred from:** PGH2 is degraded to 12S-HHT and MDA by TBXAS1 (Homo sapiens)

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**Preceded by:** PGG2 is reduced to PGH2 by PTGS2, PGG2 is reduced to PGH2 by PTGS1

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