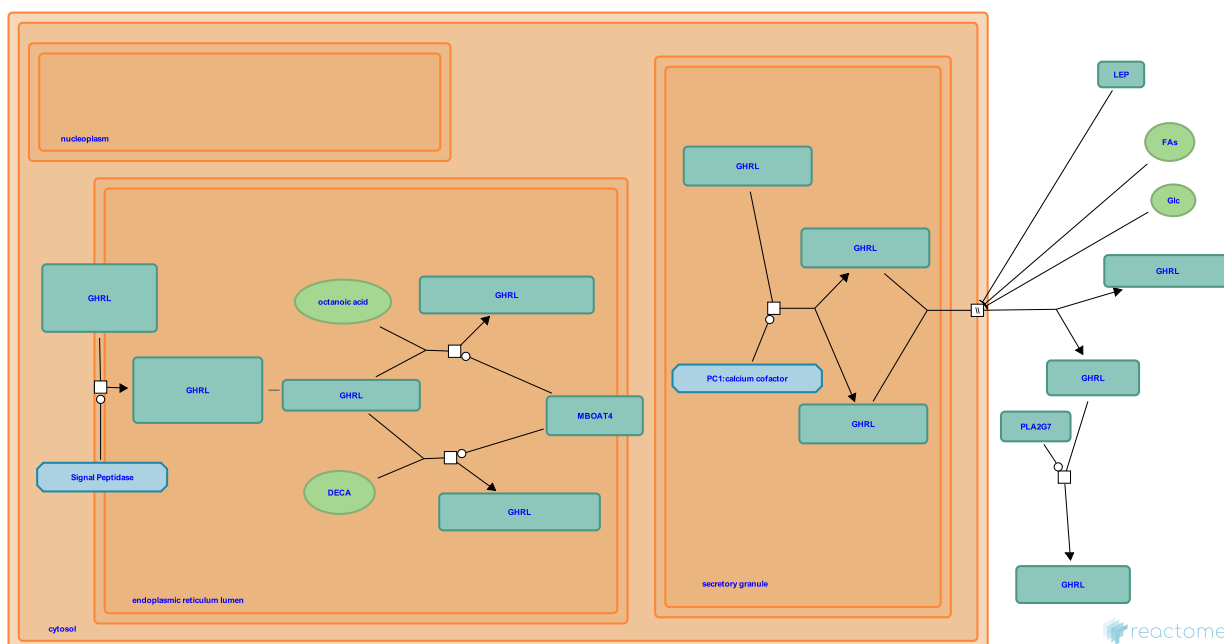


Synthesis, secretion, and deacylation of Ghrelin



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

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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: 74

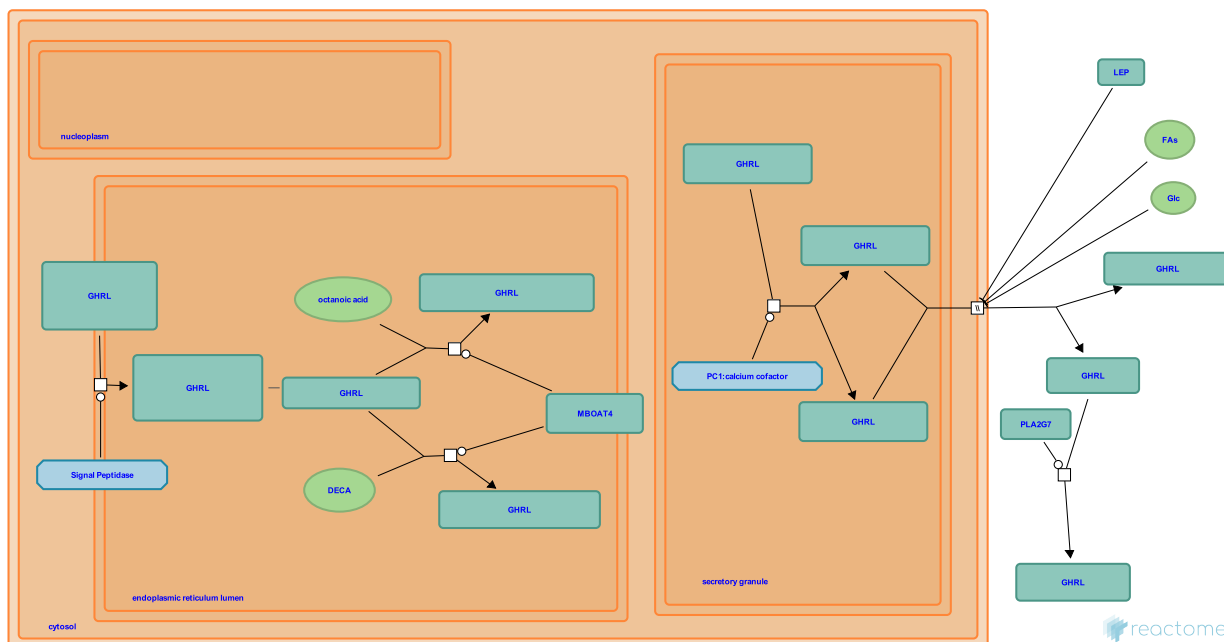
This document contains 1 pathway and 6 reactions ([see Table of Contents](#))

Synthesis, secretion, and deacylation of Ghrelin ↗

Stable identifier: R-SSC-422085

Compartments: nucleoplasm, cytosol, endoplasmic reticulum lumen, endoplasmic reticulum membrane, secretory granule lumen, extracellular region

Inferred from: [Synthesis, secretion, and deacylation of Ghrelin \(Homo sapiens\)](#)



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>

Cleavage of the signal peptide of Preproghrelin ↗

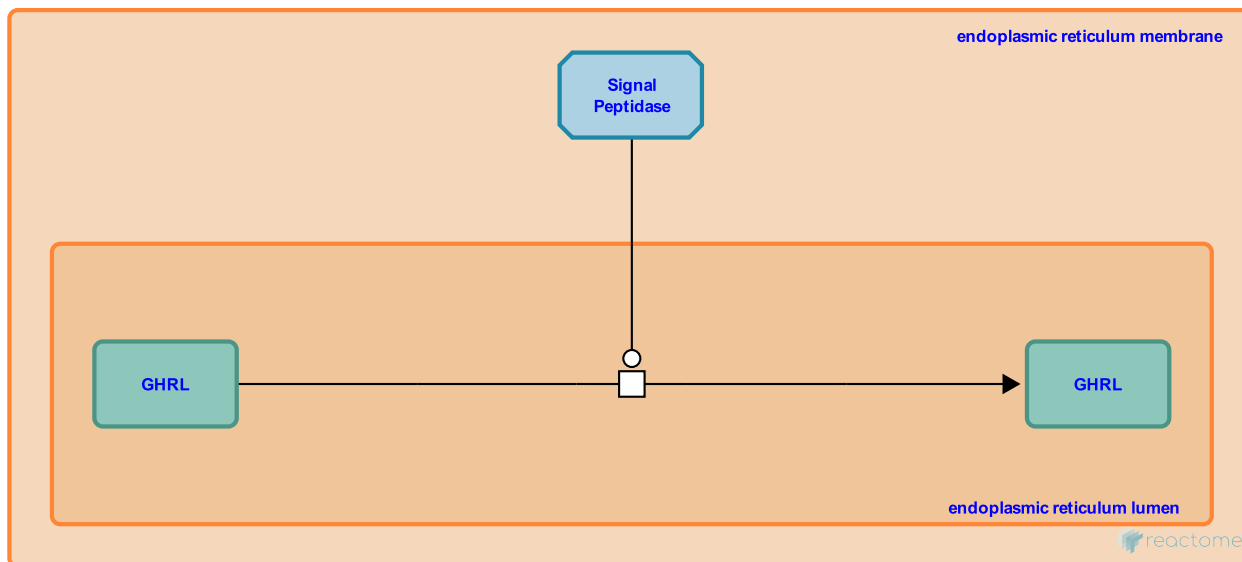
Location: [Synthesis, secretion, and deacylation of Ghrelin](#)

Stable identifier: R-SSC-422051

Type: transition

Compartments: endoplasmic reticulum lumen, endoplasmic reticulum membrane

Inferred from: [Cleavage of the signal peptide of Preproghrelin \(Homo sapiens\)](#)



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: [Ghrelin O-acyltransferase octanoylates Proghrelin](#), [Ghrelin O-acyltransferase decanoylates Proghrelin](#)

Ghrelin O-acyltransferase octanoylates Proghrelin ↗

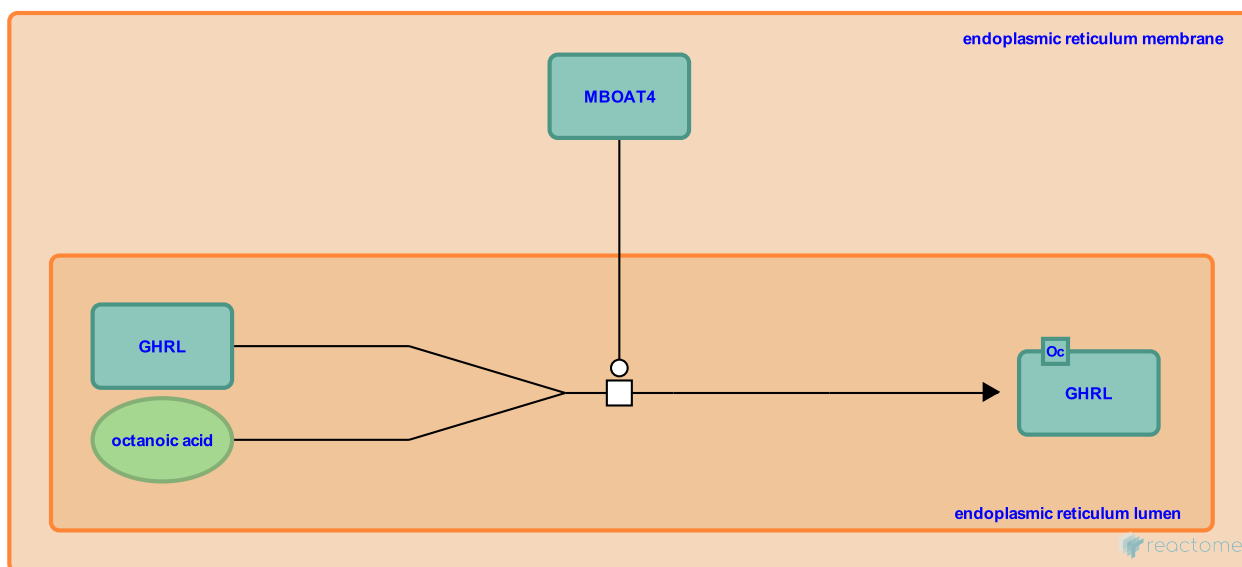
Location: [Synthesis, secretion, and deacylation of Ghrelin](#)

Stable identifier: R-SSC-422104

Type: transition

Compartments: endoplasmic reticulum lumen, endoplasmic reticulum membrane

Inferred from: [Ghrelin O-acyltransferase octanoylates Proghrelin \(Homo sapiens\)](#)



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: [Cleavage of the signal peptide of Preproghrelin](#)

Followed by: [PCSK1 hydrolyzes acyl Proghrelin to acyl Ghrelin](#)

Ghrelin O-acyltransferase decanoylates Proghrelin ↗

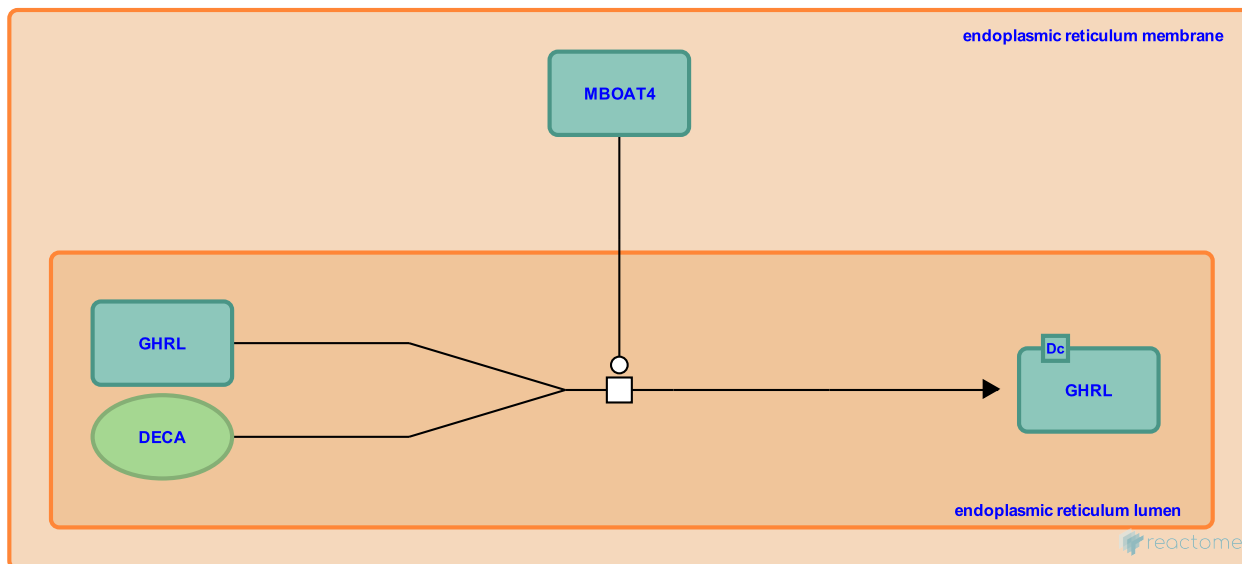
Location: [Synthesis, secretion, and deacylation of Ghrelin](#)

Stable identifier: R-SSC-422017

Type: transition

Compartments: endoplasmic reticulum lumen, endoplasmic reticulum membrane

Inferred from: [Ghrelin O-acyltransferase decanoylates Proghrelin \(Homo sapiens\)](#)



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: [Cleavage of the signal peptide of Preproghrelin](#)

Followed by: [PCSK1 hydrolyzes acyl Proghrelin to acyl Ghrelin](#)

PCSK1 hydrolyzes acyl Proghrelin to acyl Ghrelin ↗

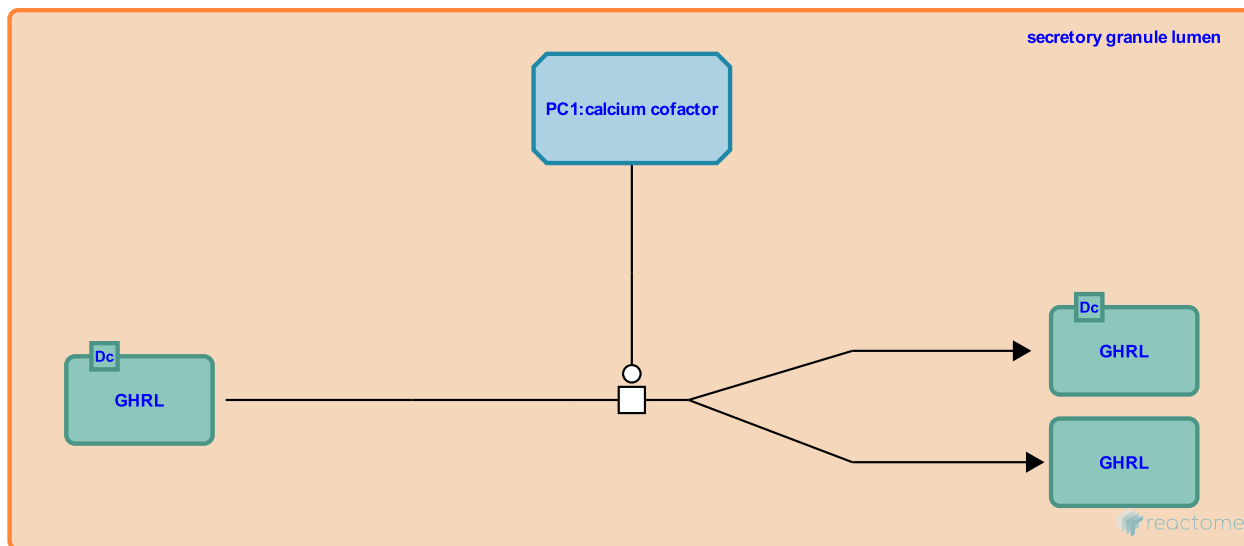
Location: [Synthesis, secretion, and deacylation of Ghrelin](#)

Stable identifier: R-SSC-422021

Type: transition

Compartments: secretory granule lumen

Inferred from: [PCSK1 hydrolyzes acyl Proghrelin to acyl Ghrelin \(Homo sapiens\)](#)



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: [Ghrelin O-acyltransferase decanoylates Proghrelin](#), [Ghrelin O-acyltransferase octanoylates Proghrelin](#)

Followed by: [Acyl Ghrelin and C-Ghrelin are secreted](#)

Acyl Ghrelin and C-Ghrelin are secreted [↗](#)

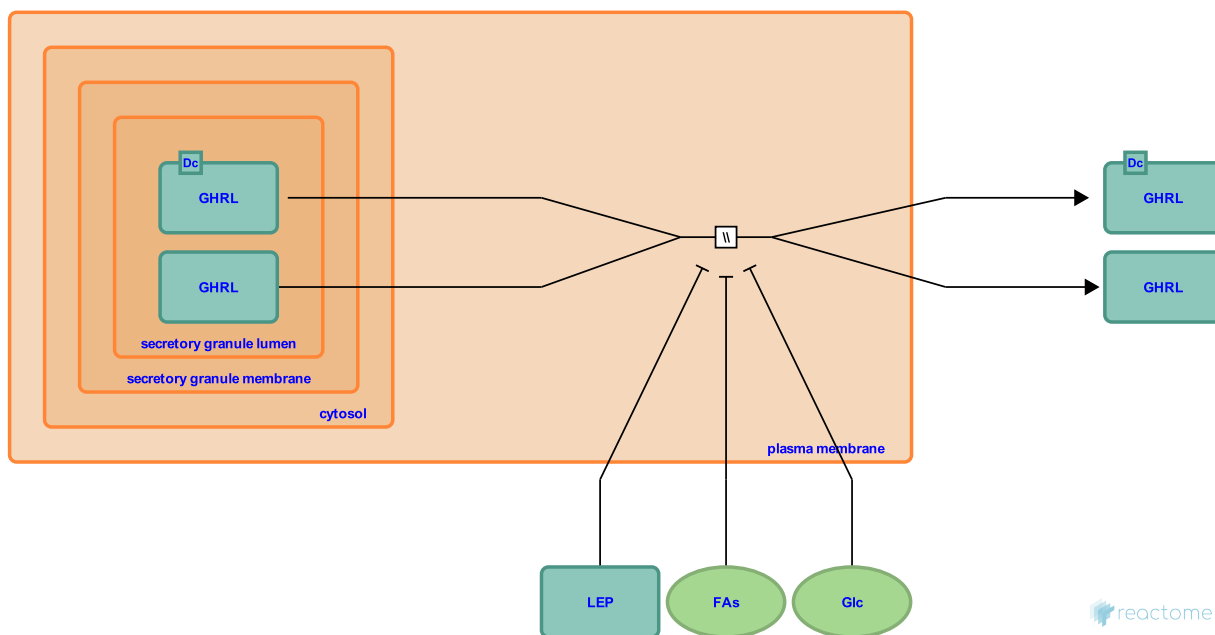
Location: Synthesis, secretion, and deacylation of Ghrelin

Stable identifier: R-SSC-422048

Type: omitted

Compartments: plasma membrane

Inferred from: [Acyl Ghrelin and C-Ghrelin are secreted \(Homo sapiens\)](#)



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: [PCSK1 hydrolyzes acyl Proghrelin to acyl Ghrelin](#)

Followed by: [Platelet-activating factor acetylhydrolase \(PLA2G7\) hydrolyzes acyl Ghrelin](#)

Platelet-activating factor acetylhydrolase (PLA2G7) hydrolyzes acyl Ghrelin ↗

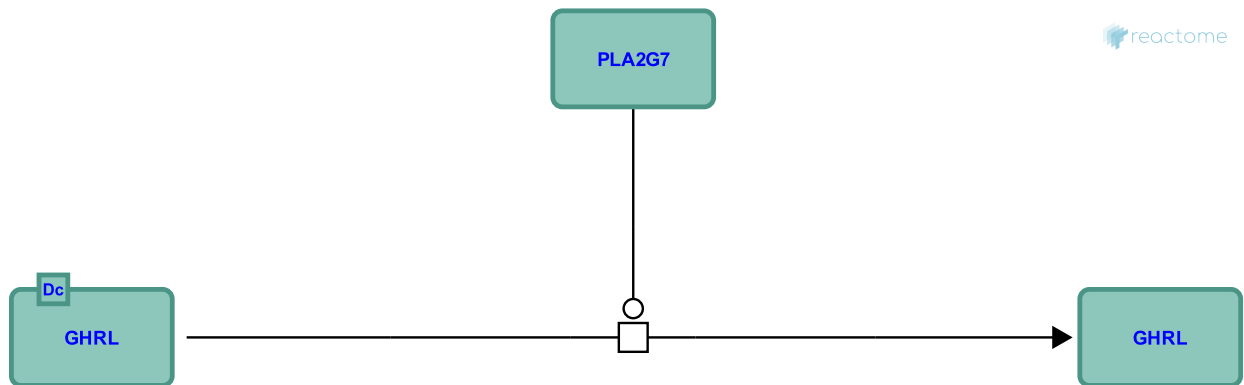
Location: [Synthesis, secretion, and deacylation of Ghrelin](#)

Stable identifier: R-SSC-9023619

Type: transition

Compartments: extracellular region

Inferred from: [Platelet-activating factor acetylhydrolase \(PLA2G7\) hydrolyzes acyl Ghrelin \(Homo sapiens\)](#)



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: [Acyl Ghrelin and C-Ghrelin are secreted](#)

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