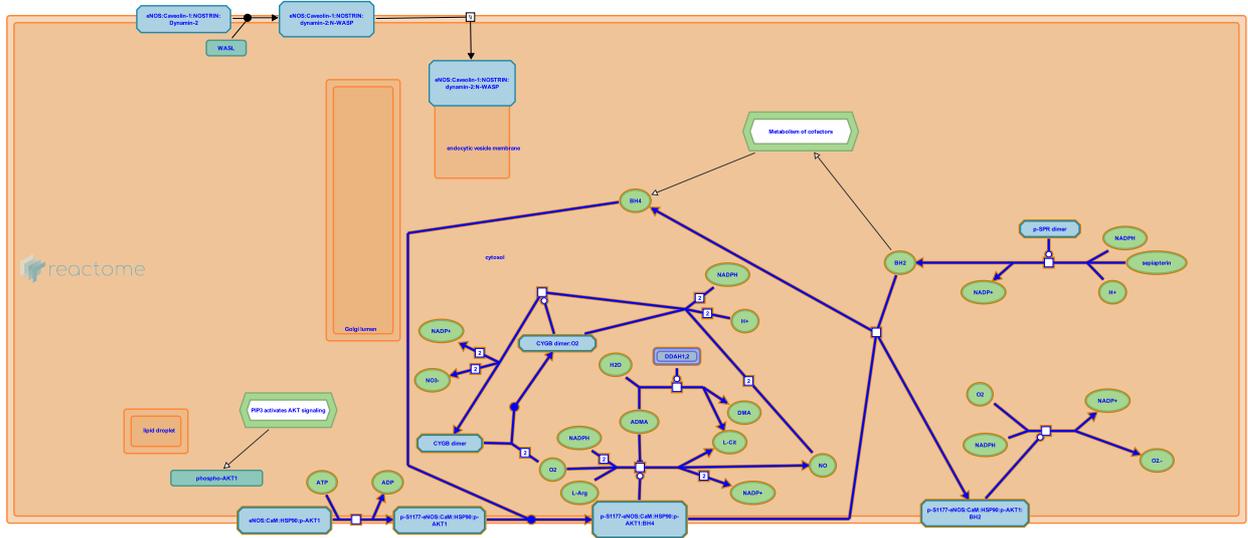


# eNOS activation



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.

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. [↗](#)
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- 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: 75

This document contains 1 pathway and 9 reactions ([see Table of Contents](#))



## AKT1 phosphorylates eNOS ↗

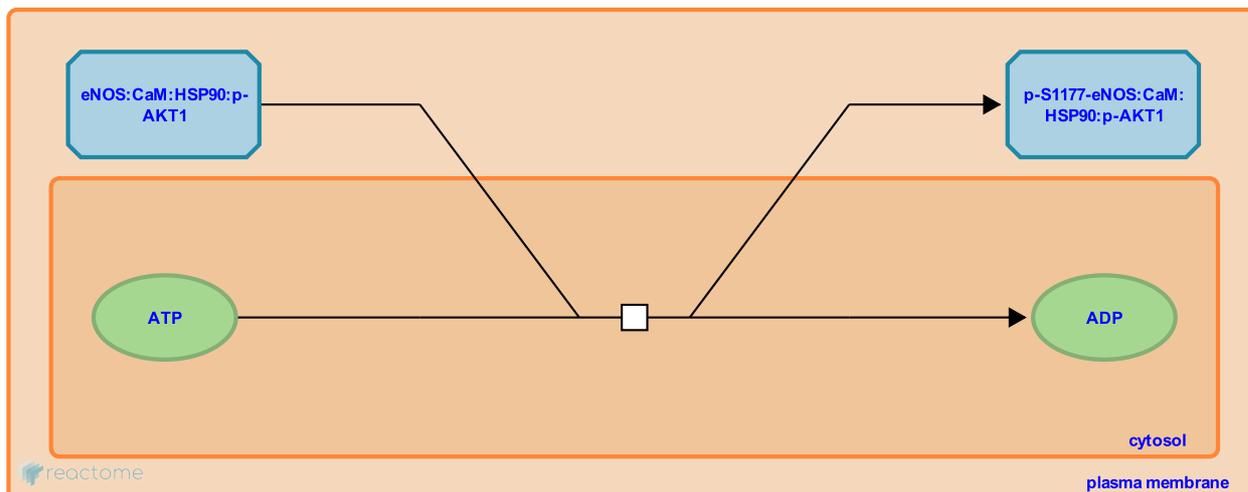
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-202111

**Type:** transition

**Compartments:** cytosol, plasma membrane

**Inferred from:** [AKT1 phosphorylates eNOS \(Homo sapiens\)](#)



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:** [The cofactor BH4 is required for electron transfer in the eNOS catalytic cycle](#)

## The cofactor BH4 is required for electron transfer in the eNOS catalytic cycle ↗

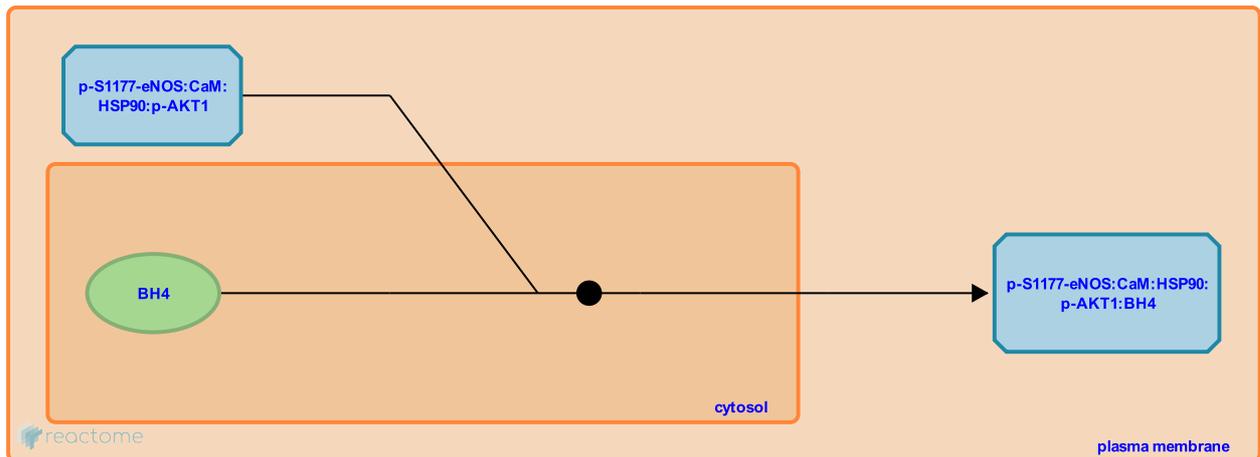
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-1497784

**Type:** binding

**Compartments:** cytosol, plasma membrane

**Inferred from:** [The cofactor BH4 is required for electron transfer in the eNOS catalytic cycle \(Homo sapiens\)](#)



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:** [AKT1 phosphorylates eNOS](#)

**Followed by:** [eNOS synthesizes NO](#)

## eNOS synthesizes NO ↗

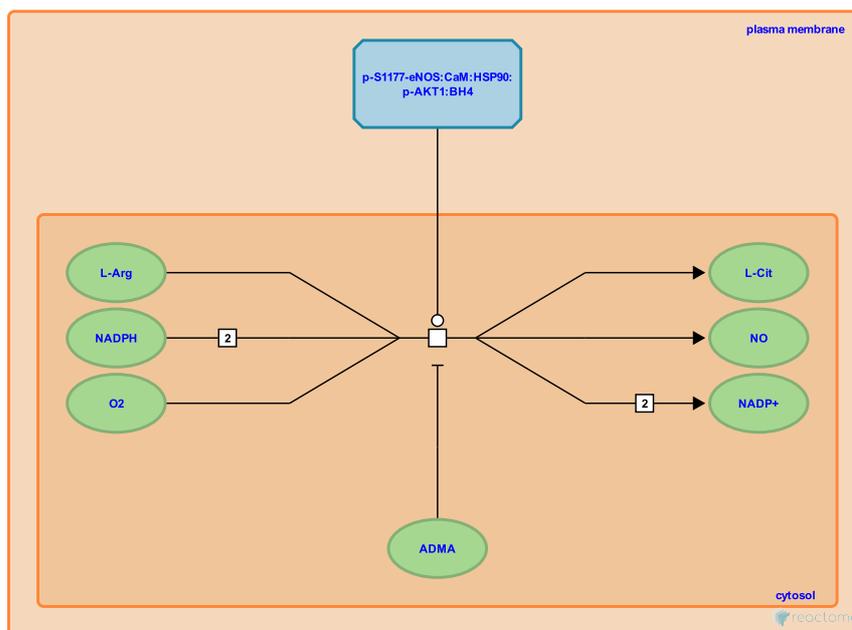
**Location:** eNOS activation

**Stable identifier:** R-CFA-202127

**Type:** transition

**Compartments:** cytosol, plasma membrane

**Inferred from:** eNOS synthesizes NO (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 cofactor BH4 is required for electron transfer in the eNOS catalytic cycle](#)

## Salvage - Sepiapterin is reduced to BH2 [↗](#)

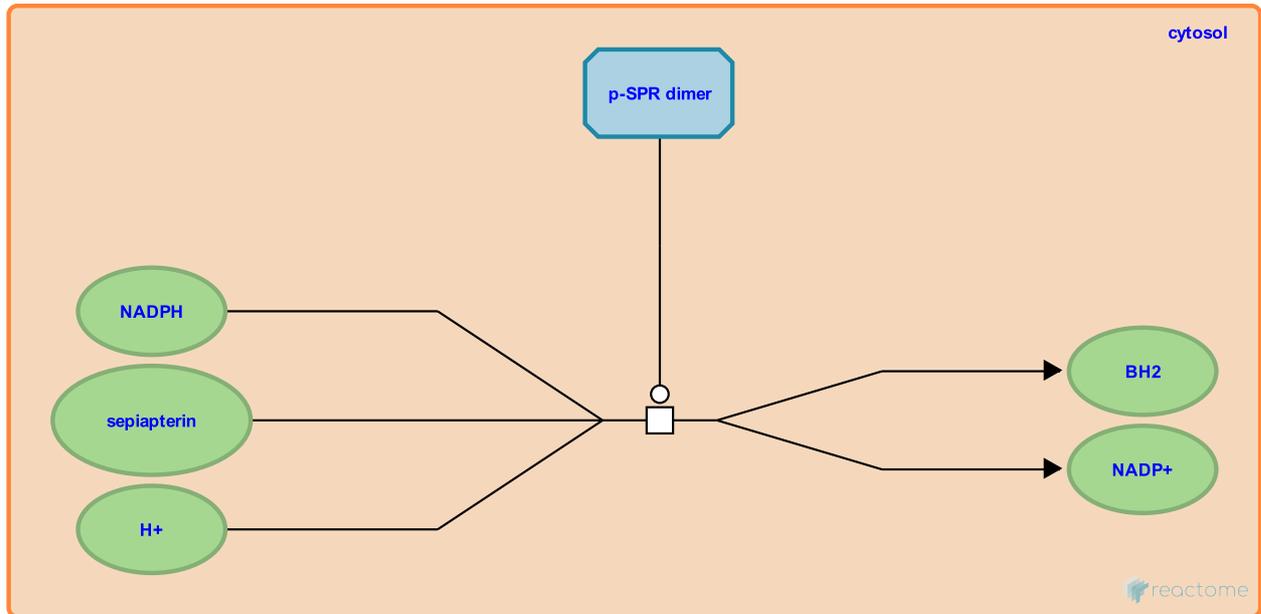
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-1497869

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [Salvage - Sepiapterin is reduced to BH2 \(Homo sapiens\)](#)



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:** [BH2 binding can lead to eNOS uncoupling](#)

## BH2 binding can lead to eNOS uncoupling ↗

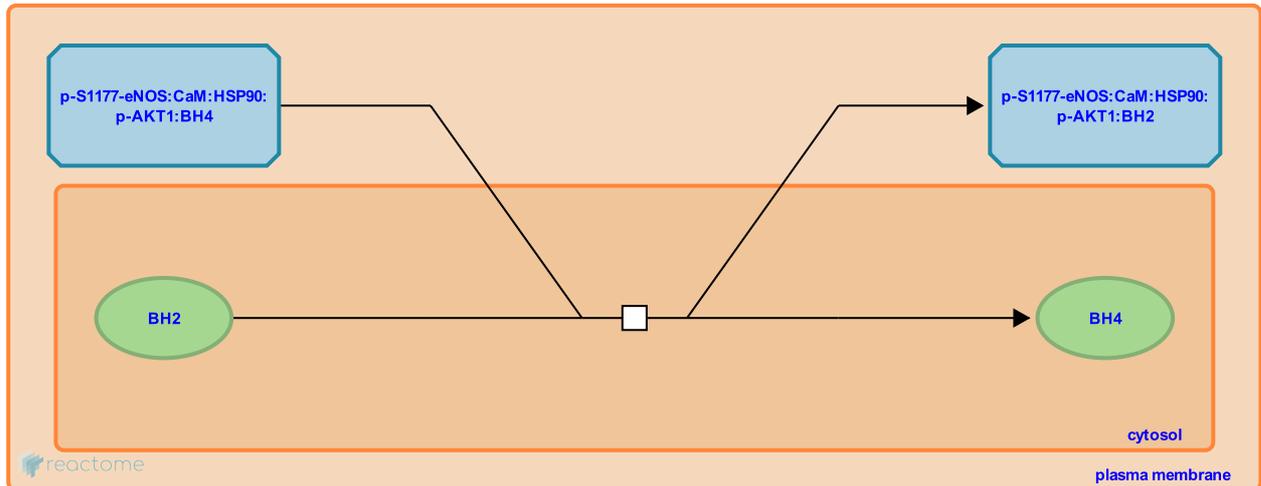
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-1497796

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [BH2 binding can lead to eNOS uncoupling \(Homo sapiens\)](#)



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:** [Salvage - Sepiapterin is reduced to BH2](#)

**Followed by:** [Uncoupled eNOS favours the formation of superoxide](#)

## DDAH1,2 hydrolyses ADMA to DMA and L-Cit ↗

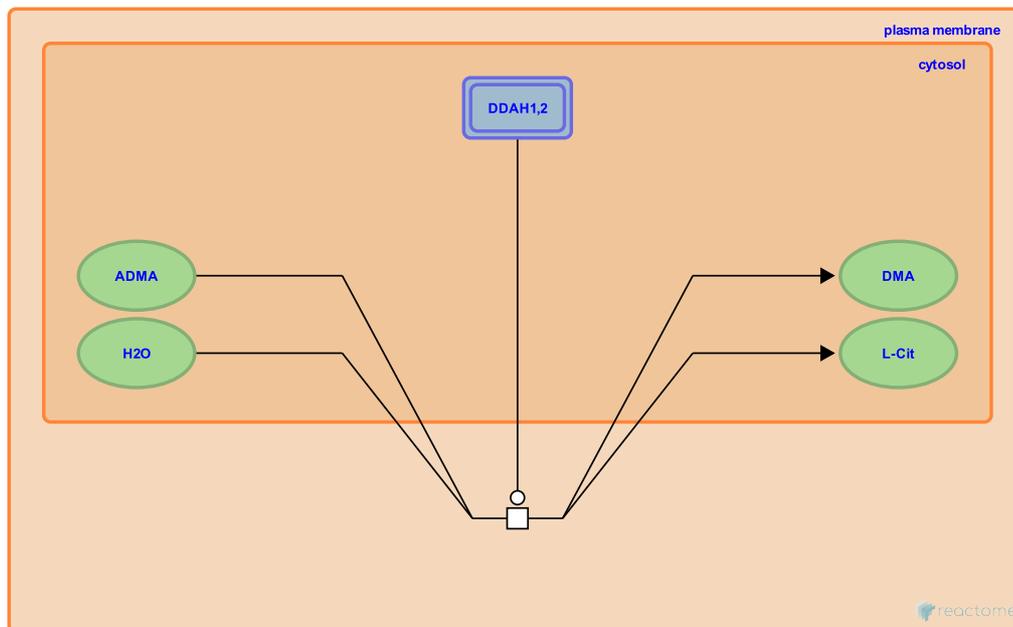
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-5693373

**Type:** transition

**Compartments:** plasma membrane, cytosol

**Inferred from:** [DDAH1,2 hydrolyses ADMA to DMA and L-Cit \(Homo sapiens\)](#)



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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## Uncoupled eNOS favours the formation of superoxide ↗

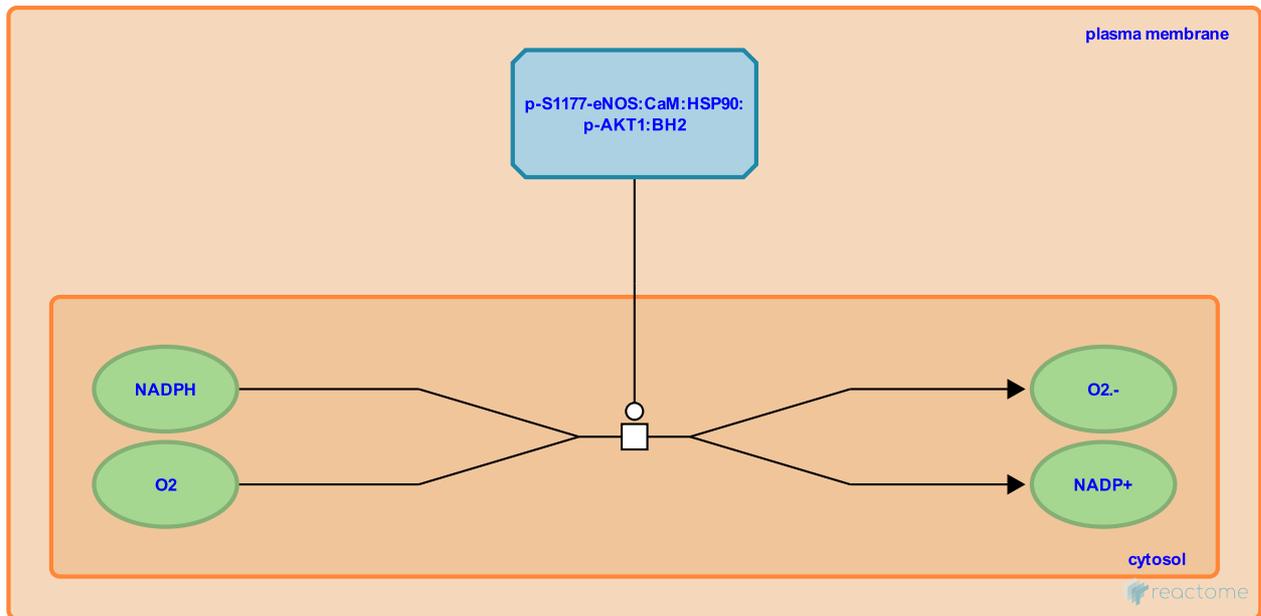
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-1497810

**Type:** transition

**Compartments:** cytosol, plasma membrane

**Inferred from:** [Uncoupled eNOS favours the formation of superoxide \(Homo sapiens\)](#)



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:** [BH2 binding can lead to eNOS uncoupling](#)

## CYGB binds O2 ↗

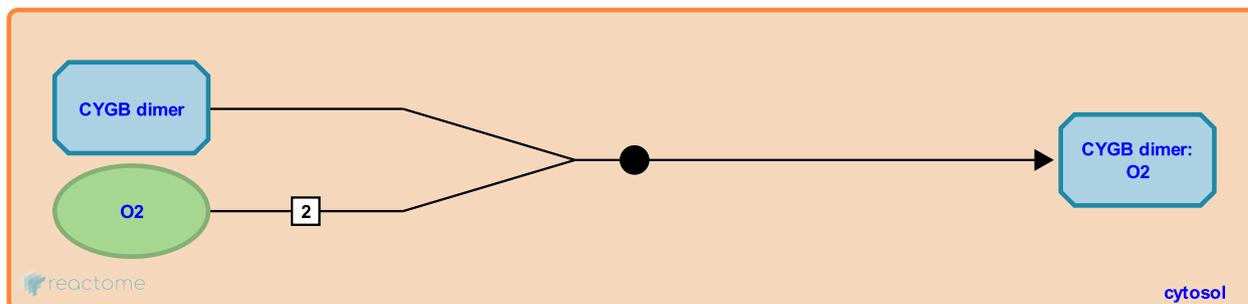
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-5340214

**Type:** binding

**Compartments:** cytosol

**Inferred from:** [CYGB binds O2 \(Homo sapiens\)](#)



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:** [CYGB dioxygenates NO](#)

## CYGB dioxygenates NO ↗

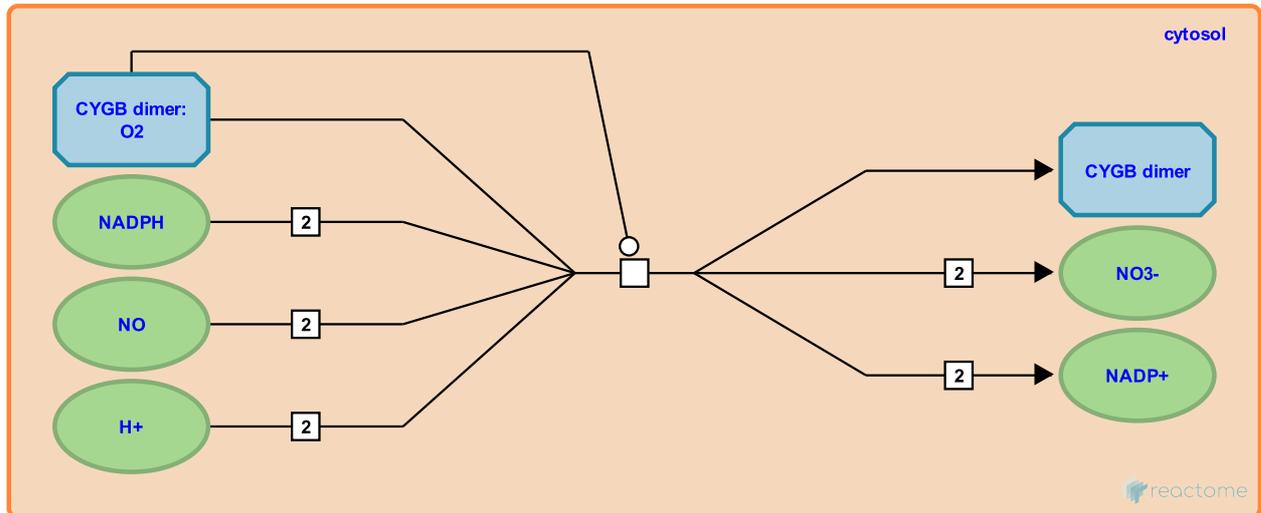
**Location:** [eNOS activation](#)

**Stable identifier:** R-CFA-5340226

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [CYGB dioxygenates NO \(Homo sapiens\)](#)



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:** [CYGB binds O<sub>2</sub>](#)

# Table of Contents

Introduction	1
☒ eNOS activation	2
↳ AKT1 phosphorylates eNOS	3
↳ The cofactor BH4 is required for electron transfer in the eNOS catalytic cycle	4
↳ eNOS synthesizes NO	5
↳ Salvage - Sepiapterin is reduced to BH2	6
↳ BH2 binding can lead to eNOS uncoupling	7
↳ DDAH1,2 hydrolyses ADMA to DMA and L-Cit	8
↳ Uncoupled eNOS favours the formation of superoxide	9
↳ CYGB binds O2	10
↳ CYGB dioxygenates NO	11
Table of Contents	12