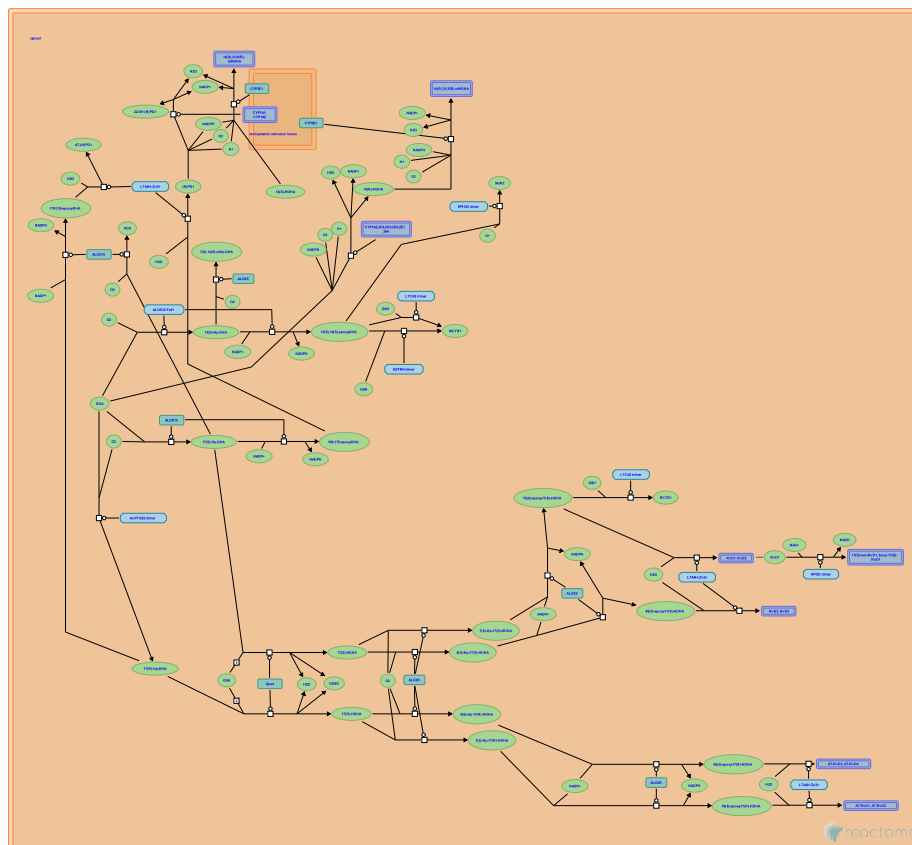


# Biosynthesis of DHA-derived SPMs



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

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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/about/reactome-textbook/).

20/05/2024

## 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. [↗](#)

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. [↗](#)

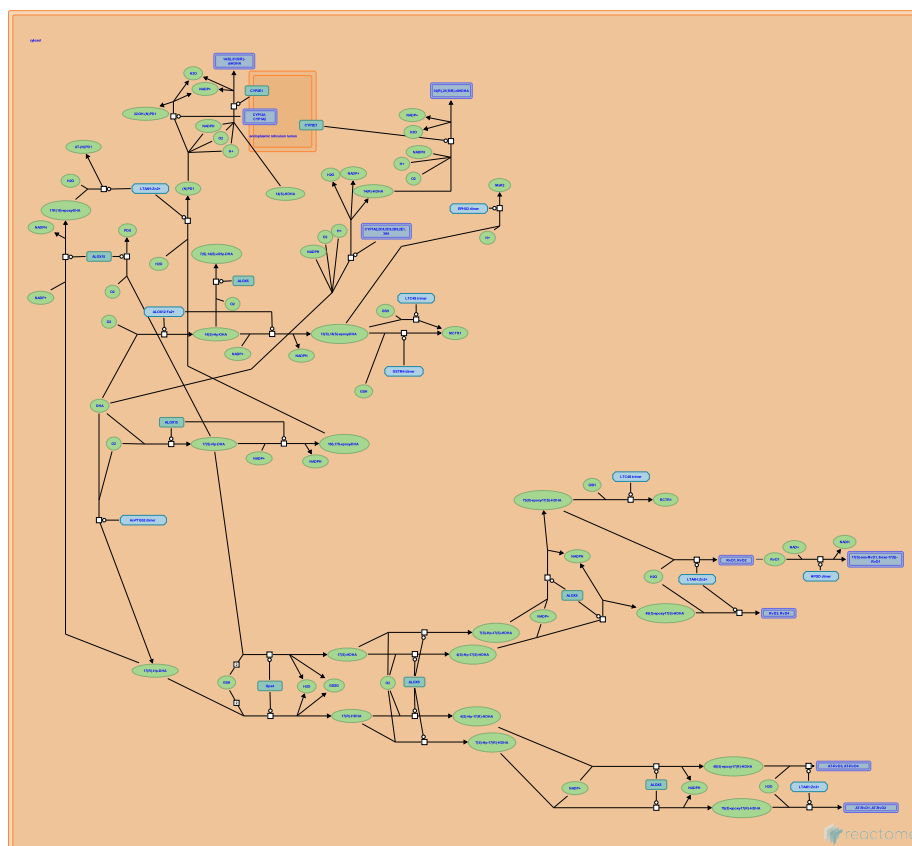
Reactome database release: 88

This document contains 6 pathways and 5 reactions ([see Table of Contents](#))

## Biosynthesis of DHA-derived SPMs ↗

**Stable identifier:** R-RNO-9018677

**Inferred from:** Biosynthesis of DHA-derived SPMs (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>

## Ac-PTGS2 dimer oxidises DHA to 17(R)-Hp-DHA ↗

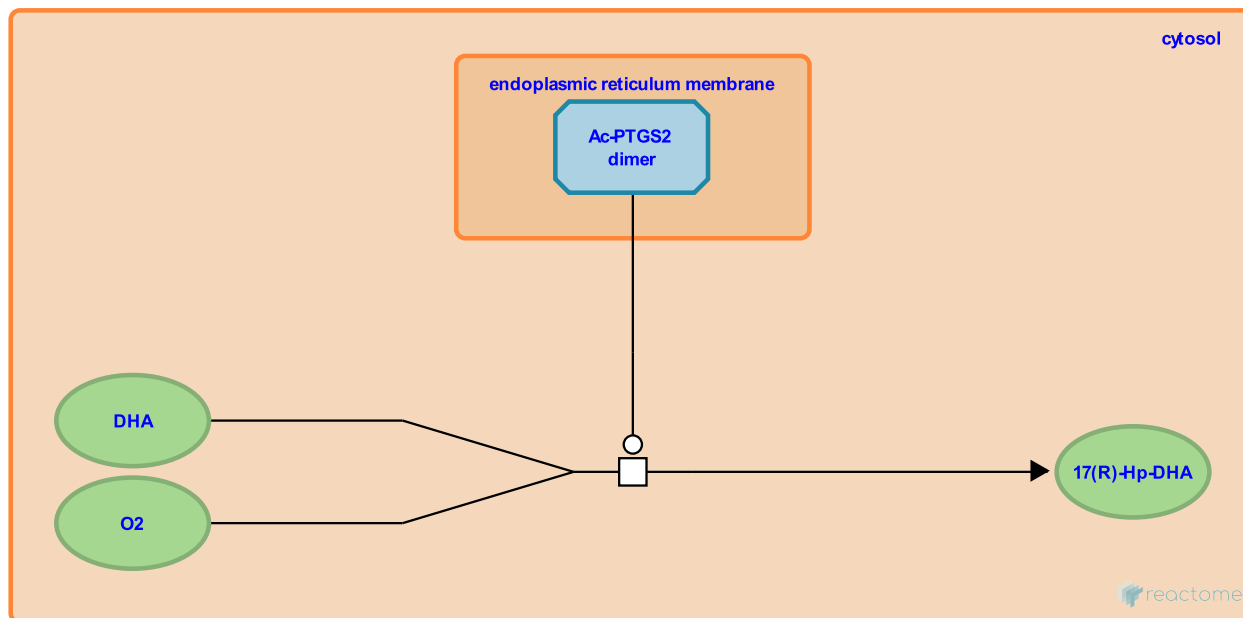
**Location:** [Biosynthesis of DHA-derived SPMs](#)

**Stable identifier:** R-RNO-9020261

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [Ac-PTGS2 dimer oxidises DHA to 17\(R\)-Hp-DHA \(Homo sapiens\)](#)



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>

## ALOX15 oxidises DHA to 17(S)-Hp-DHA ↗

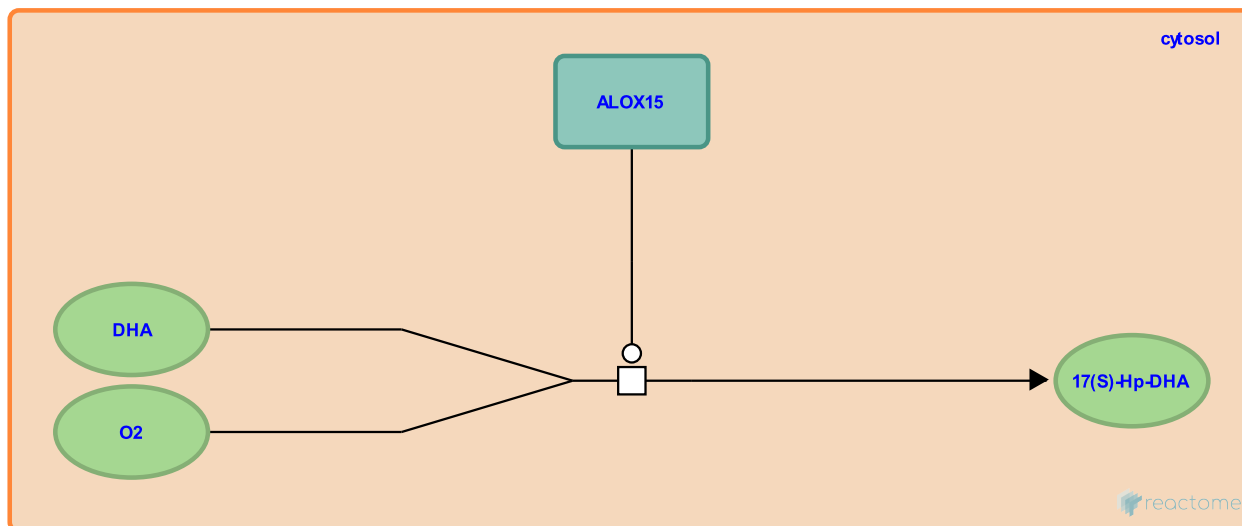
**Location:** [Biosynthesis of DHA-derived SPMs](#)

**Stable identifier:** R-RNO-9020275

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [ALOX15 oxidises DHA to 17\(S\)-Hp-DHA \(Homo sapiens\)](#)



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:** [ALOX15 dehydrogenates 17\(S\)-Hp-DHA to 16S,17S-epoxy-DHA](#)

## ALOX15 dehydrogenates 17(S)-Hp-DHA to 16S,17S-epoxy-DHA ↗

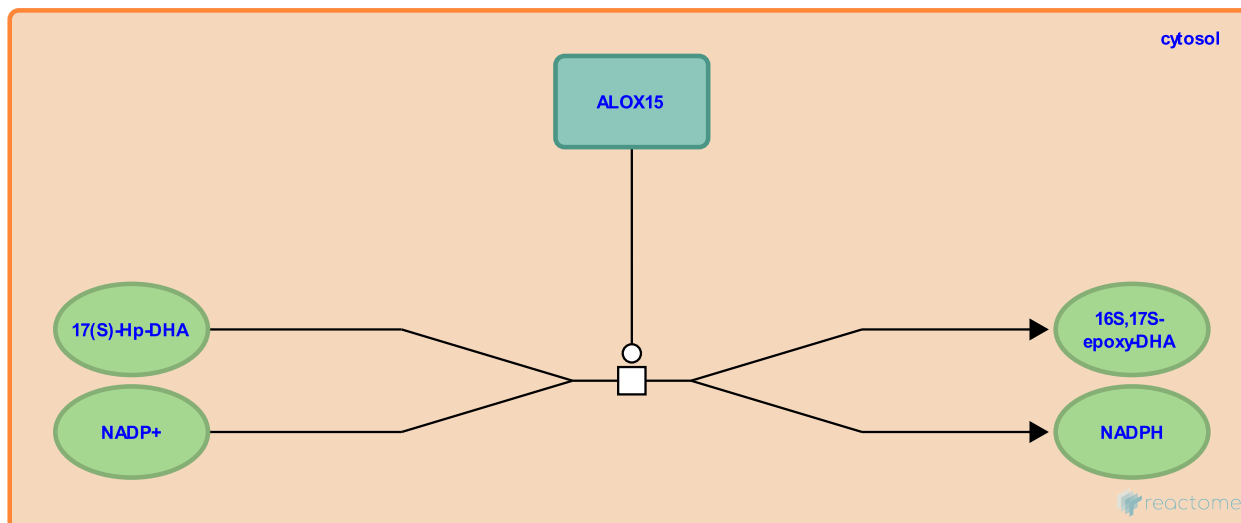
**Location:** [Biosynthesis of DHA-derived SPMs](#)

**Stable identifier:** R-RNO-9024881

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [ALOX15 dehydrogenates 17\(S\)-Hp-DHA to 16S,17S-epoxy-DHA \(Homo sapiens\)](#)



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:** [ALOX15 oxidises DHA to 17\(S\)-Hp-DHA](#)

## ALOX12:Fe2+ oxidises DHA to 14(S)-Hp-DHA ↗

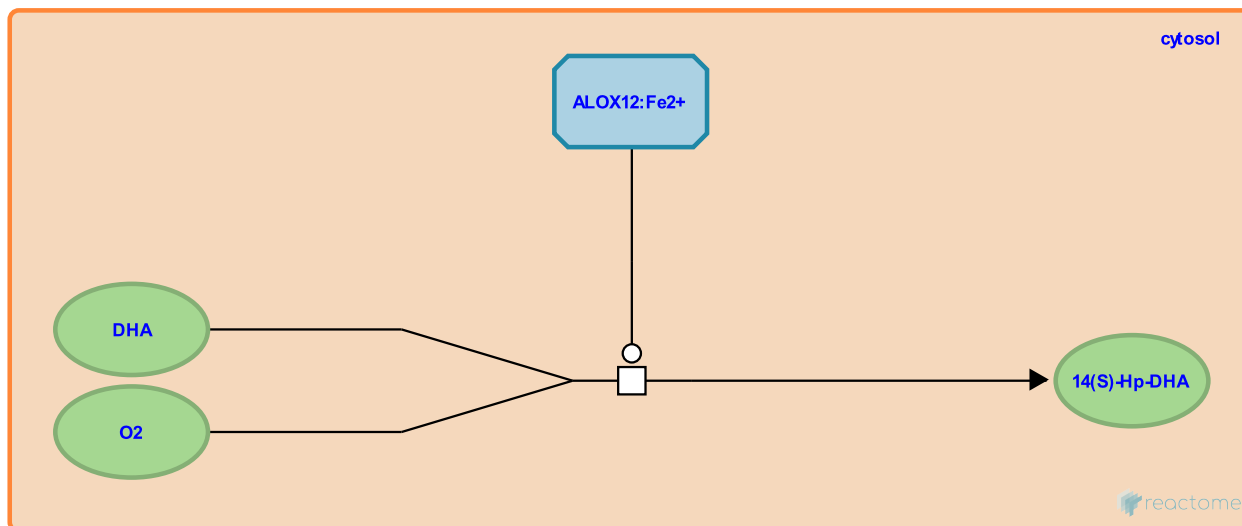
**Location:** [Biosynthesis of DHA-derived SPMs](#)

**Stable identifier:** R-RNO-9020274

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [ALOX12:Fe2+ oxidises DHA to 14\(S\)-Hp-DHA \(Homo sapiens\)](#)



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:** [ALOX12:Fe2+ dehydrogenates 14\(S\)-Hp-DHA to 13\(S\),14\(S\)-epoxy-DHA](#)

## ALOX12:Fe2+ dehydrogenates 14(S)-Hp-DHA to 13(S),14(S)-epoxy-DHA ↗

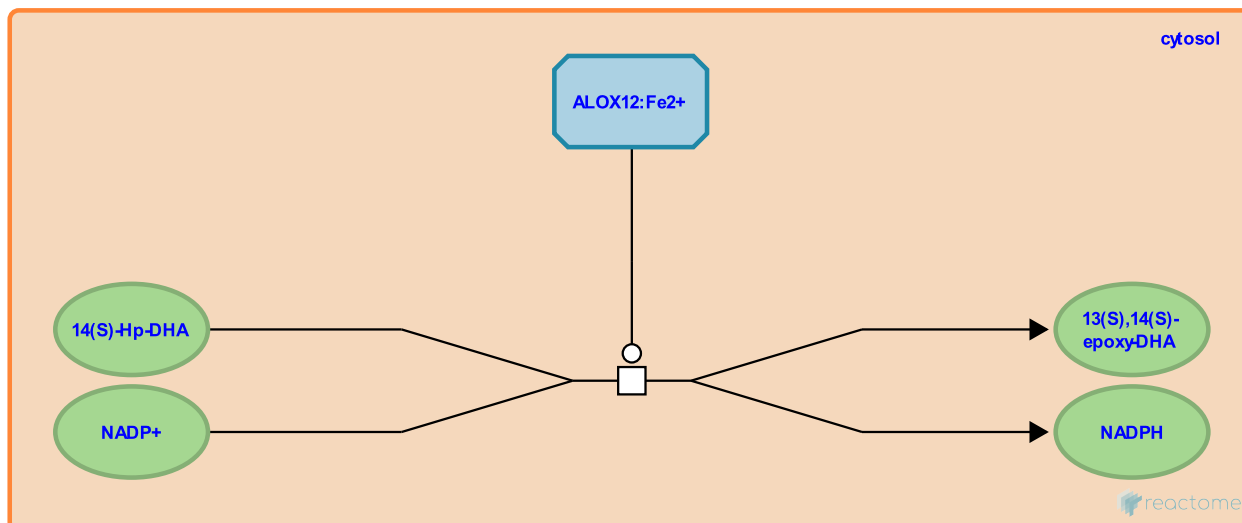
**Location:** [Biosynthesis of DHA-derived SPMs](#)

**Stable identifier:** R-RNO-9024983

**Type:** transition

**Compartments:** cytosol

**Inferred from:** [ALOX12:Fe2+ dehydrogenates 14\(S\)-Hp-DHA to 13\(S\),14\(S\)-epoxy-DHA \(Homo sapiens\)](#)



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:** [ALOX12:Fe2+ oxidises DHA to 14\(S\)-Hp-DHA](#)

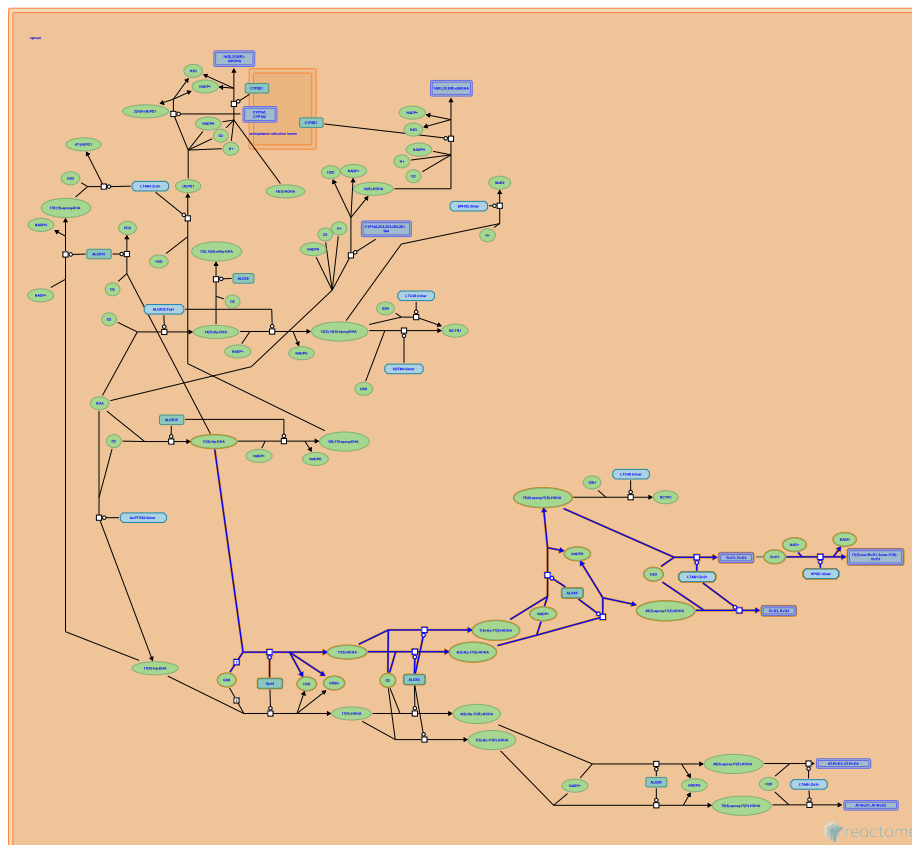


## Biosynthesis of D-series resolvins [↗](#)

**Location:** Biosynthesis of DHA-derived SPMs

**Stable identifier:** R-RNO-9018676

**Inferred from:** Biosynthesis of D-series resolvins (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>

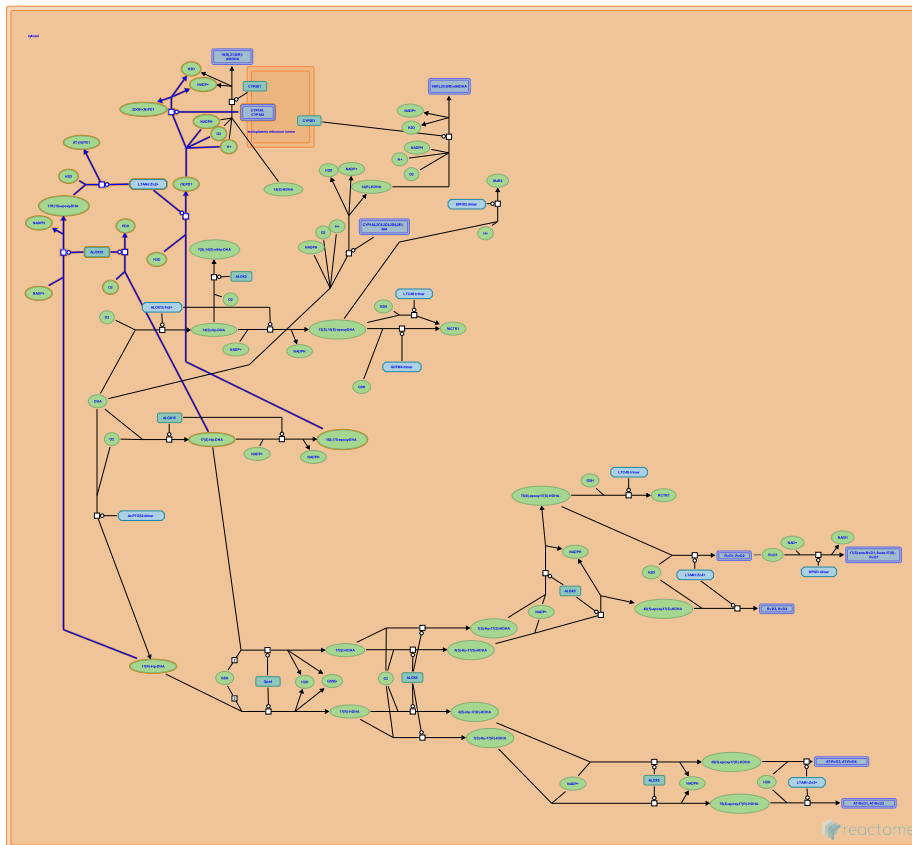


## Biosynthesis of protectins [↗](#)

**Location:** Biosynthesis of DHA-derived SPMs

**Stable identifier:** R-RNO-9018681

**Inferred from:** Biosynthesis of protectins (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/parologue (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.

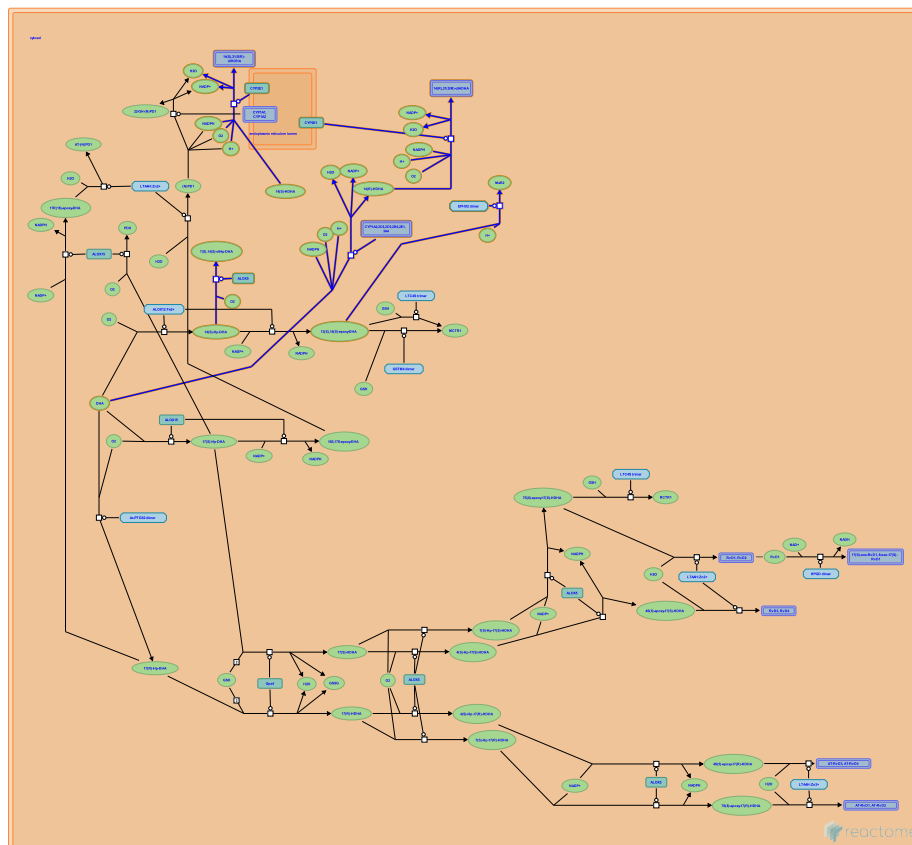
[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## Biosynthesis of maresins [↗](#)

**Location:** Biosynthesis of DHA-derived SPMs

**Stable identifier:** R-RNO-9018682

**Inferred from:** Biosynthesis of maresins (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.

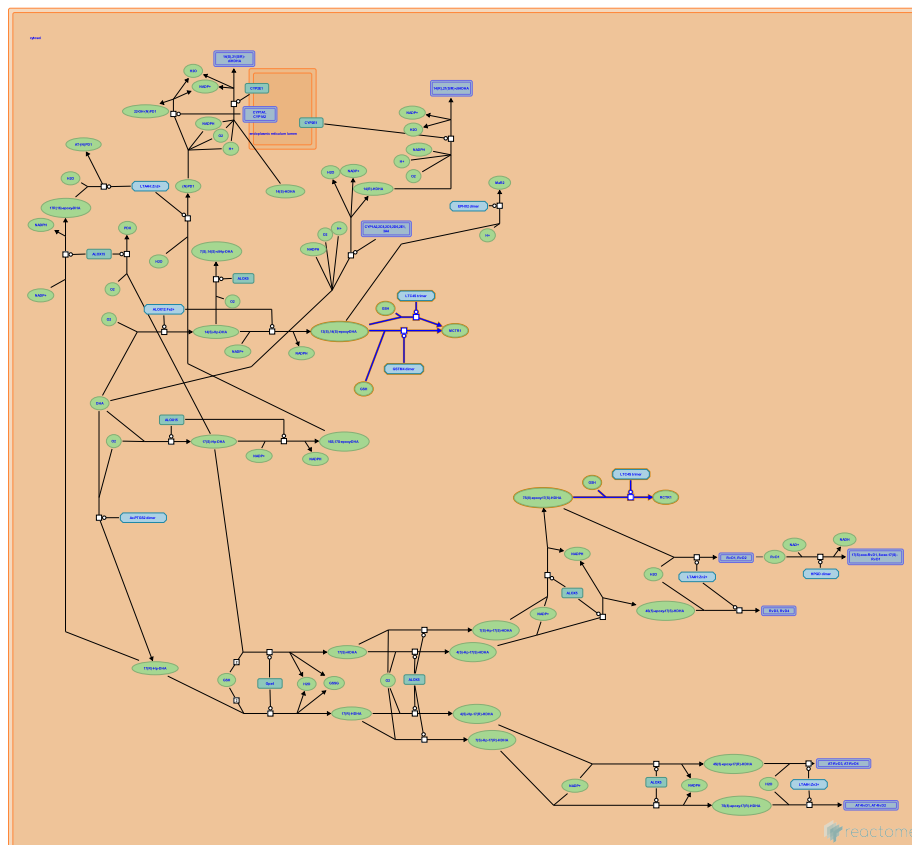
[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## Biosynthesis of DHA-derived sulfido conjugates ↗

**Location:** Biosynthesis of DHA-derived SPMs

**Stable identifier:** R-RNO-9026395

**Inferred from:** Biosynthesis of DHA-derived sulfido conjugates (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/docs/event_inference.html) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

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