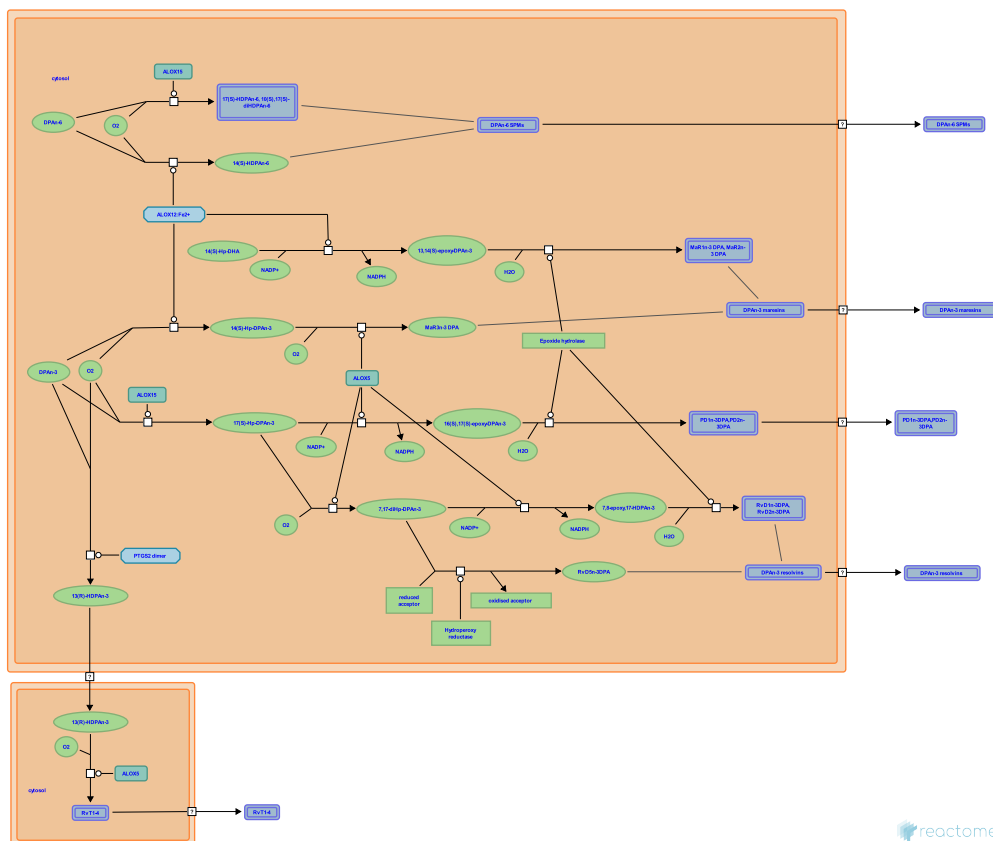


# Biosynthesis of DPA-derived SPMs



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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).

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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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Reactome database release: 88

This document contains 3 pathways ([see Table of Contents](#))

**Stable identifier:** R-HSA-9018683



The biosynthesis of SPMs derived from the two isomers of DPA, DPAn-6 (cis-4,7,10,13,16-docosapentaenoic acid) and DPAn-3 (cis-7,10,13,16,19-docosapentaenoic acid), is described here. The only difference between the two isomers is the position of the first double bond;  $\omega$ -3 for DPAn-3 and  $\omega$ -6 for DPAn-6. The products of these isomers were characterised by analogy in structure and action to docosahexaenoic acid (DHA)-derived and eicosapentaenoic acid (EPA)-derived resolvins, protectins and maresins (Serhan et al. 2002, Bannenberg & Serhan 2010, Serhan et al. 2015).

Serhan, CN., Bannenberg, G. (2010). Specialized pro-resolving lipid mediators in the inflammatory response: An update. *Biochim. Biophys. Acta*, 1801, 1260-73. [↗](#)

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## Editions

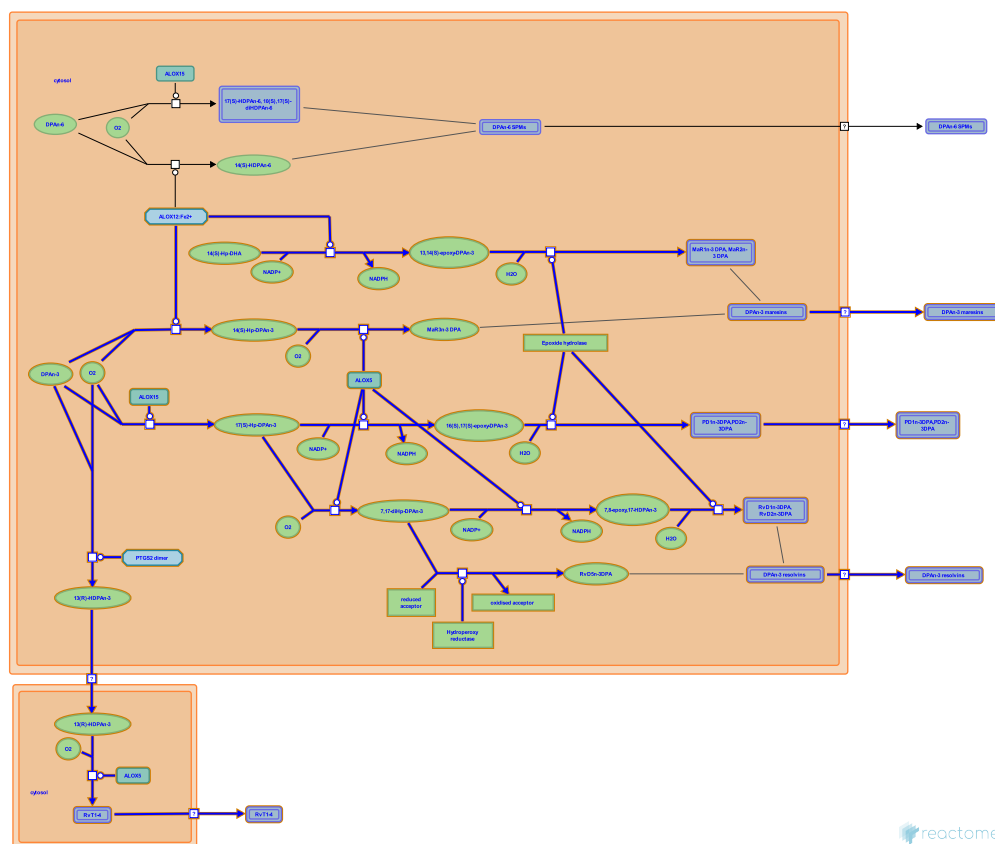
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## Biosynthesis of DPAn-3 SPMs ↗

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

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The polyunsaturated fatty acid (PUFA)  $\omega$ -3 cis-7,10,13,16,19-docosapentaenoic acid (DPAn-3) is an intermediate in the biosynthesis of docosahexaenoic acid (DHA) from eicosapentaenoic acid (EPA) and is also a precursor for the production of novel bioactive mediators. The proposed biosynthesis of specialised proresolving mediators (SPMs) derived from DPAn-3 is described here (Dalli et al. 2013, Hansen et al. 2017, Vik et al. 2017). The products of the  $\omega$ -3 isomer were characterised based on DHA (docosahexaenoic acid) derived resolvins, protectins and maresins (Serhan et al. 2002, Bannenberg & Serhan 2010). The same biosynthetic route as DHA-derived SPMs is probably how DPAn-3 products are also formed (Dalli et al. 2013).

## Literature references

- Serhan, CN., Colas, RA., Dalli, J. (2013). Novel n-3 immunoresolvents: structures and actions. *Sci Rep*, 3, 1940. ↗
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## Editions

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# Table of Contents

Introduction	1
❖ Biosynthesis of DPA-derived SPMs	2
❖ Biosynthesis of DPAn-6 SPMs	4
❖ Biosynthesis of DPAn-3 SPMs	5
Table of Contents	6