

Dehydrogenase dehydrogenates 17-HD- PAn-3 to 17-oxo-DPAn-3

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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

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- 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. [↗](#)
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Reactome database release: 88

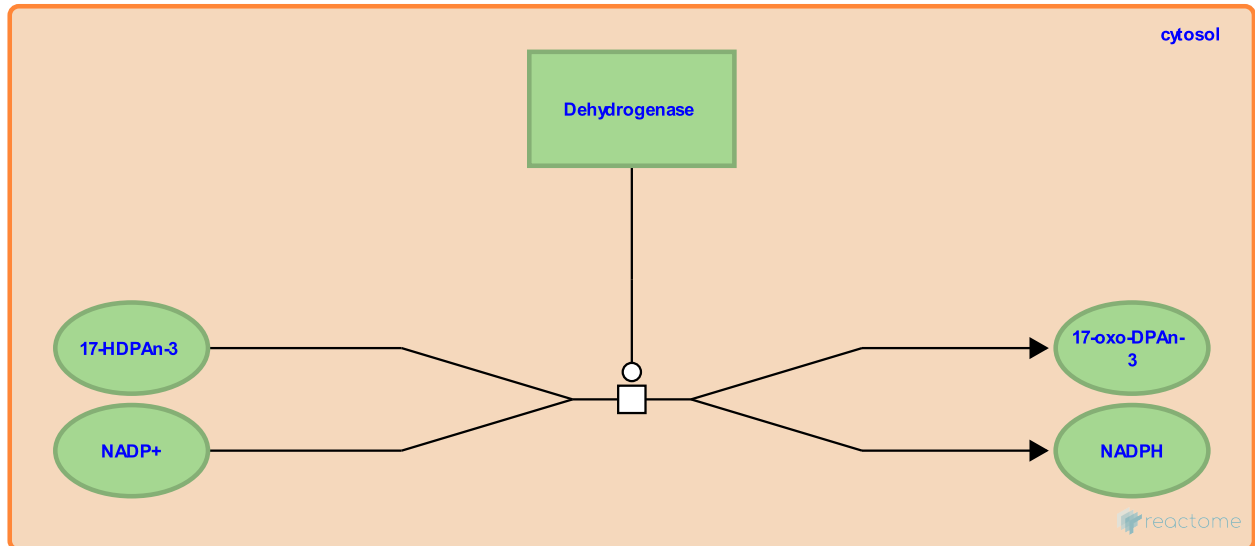
This document contains 1 reaction ([see Table of Contents](#))

Dehydrogenase dehydrogenates 17-HDPAn-3 to 17-oxo-DPAn-3 [↗](#)

Stable identifier: R-HSA-9027600

Type: transition

Compartments: cytosol



In activated macrophages, an unknown dehydrogenase abstracts hydrogen from 17-hydroxy-docosapentaenoic acid (17-HDPAn-3) to form the electrophilic oxo (EFOX) derivative 17-oxo-DPAn-3 (Groeger et al. 2010). Potential candidates are cellular dehydrogenases such as 3 α -hydroxysteroid dehydrogenases (3 α -HSDs), which can convert 13- and 17-HDHA into corresponding EFOXs in the presence of NAD(P)⁺ *in vitro* (supplementary data, Groeger et al. 2010) or 5- and 15-hydroxyeicosanoid dehydrogenases (5- and 15-HEDH, Wendell et al. 2015), which convert LOX products to 5- and 15-oxoETE (Erlemann et al. 2007). 17-oxo-DPAn-3 can act as a peroxisome proliferator-activated receptor- γ (PPAR γ) agonist and inhibit pro-inflammatory cytokine and nitric oxide production, confirming its anti-inflammatory actions (Groeger et al. 2010).

Literature references

Cipollina, C., Schopfer, FJ., Cole, MP., Rudolph, V., Freeman, BA., Groeger, AL. et al. (2010). Cyclooxygenase-2 generates anti-inflammatory mediators from omega-3 fatty acids. *Nat. Chem. Biol.*, 6, 433-41. [↗](#)

Editions

2017-11-03	Authored, Edited	Jassal, B.
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