

(2S)-pristanoyl-CoA + O₂ => trans-2,3-dehydropristanoyl-CoA + H₂O₂ (ACOX3)

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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

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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

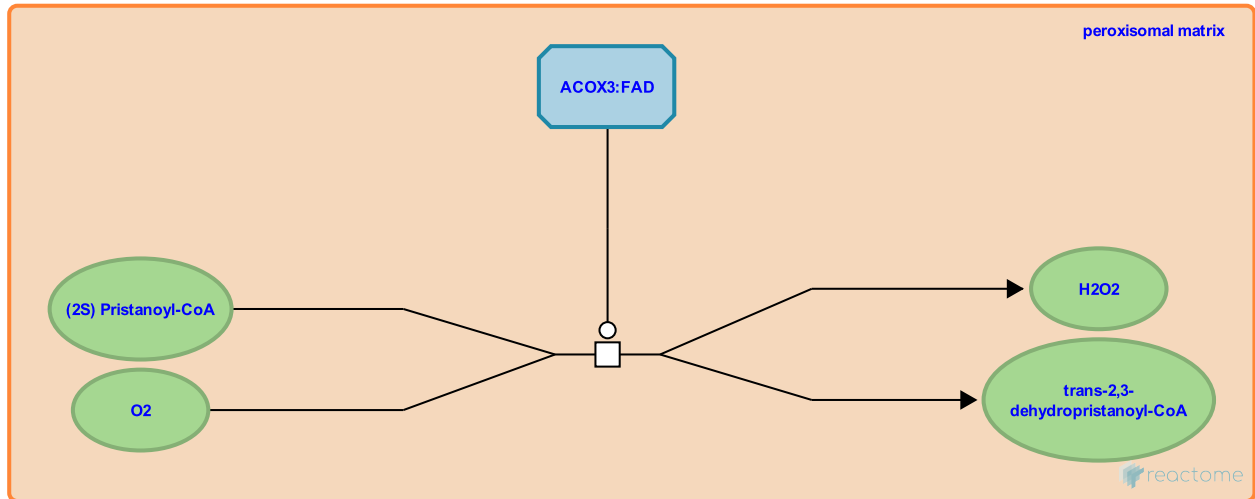
This document contains 1 reaction ([see Table of Contents](#))

(2S)-pristanoyl-CoA + O2 => trans-2,3-dehydropristanoyl-CoA + H2O2 (ACOX3) ↗

Stable identifier: R-HSA-389891

Type: transition

Compartments: peroxisomal matrix



Peroxisomal ACOX3 catalyzes the reaction of (2S)-pristanoyl-CoA and O₂ to form trans-2,3-dehydropristanoyl-CoA and H₂O₂. ACOX3 protein and enzyme activity have been observed in prostate tumors, but are undetectable in normal prostate tissue as well as in liver and kidney (where ACOX2 catalyzes the oxidation of pristanoyl-CoA) (Zha et al. 2005; Vanhooren et al. 1997). The physiological consequences of this differential gene expression are unknown.

Literature references

Zha, S., Ferdinandusse, S., Hicks, JL., Denis, S., Dunn, TA., Wanders, RJ. et al. (2005). Peroxisomal branched chain fatty acid beta-oxidation pathway is upregulated in prostate cancer. *Prostate*, 63, 316-23. ↗

Vanhooren, JC., Marynen, P., Mannaerts, GP., Van Veldhoven, PP. (1997). Evidence for the existence of a pristanoyl-CoA oxidase gene in man. *Biochem J*, 325, 593-9. ↗

Editions

2009-02-27	Reviewed	Jassal, B.
2009-03-16	Authored	D'Eustachio, P.
2009-03-18	Edited	D'Eustachio, P.