

TYRP1 oxidises DHICA to IQCA

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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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Reactome database release: 88

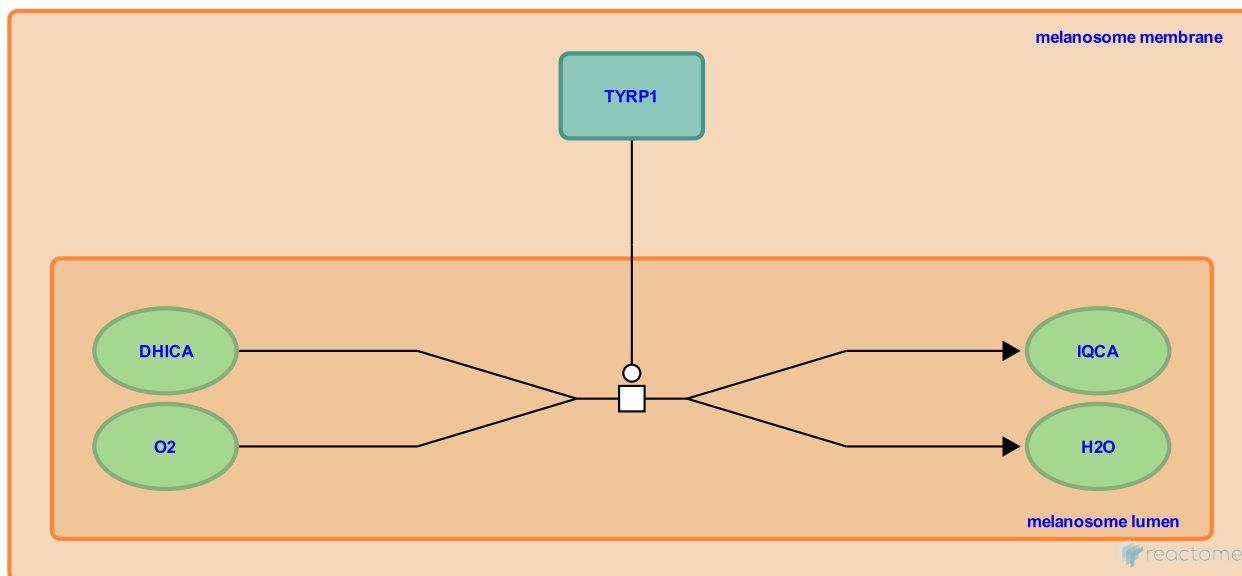
This document contains 1 reaction ([see Table of Contents](#))

TYRP1 oxidises DHICA to IQCA [↗](#)

Stable identifier: R-HSA-8878581

Type: transition

Compartments: melanosome membrane, melanosome lumen



5,6-dihydroxyindole-2-carboxylic acid oxidase (TYRP1, aka gp75, CAS2, TRP-1) is an abundant protein in the melanosome membrane which, amongst other functions, can oxidise 5,6-dihydroxyindole-2-carboxylic acid (DHICA) into the corresponding 5,6-indolequinone-2-carboxylic acid (IQCA), thus promoting the incorporation of DHICA units into eumelanin (Olivares et al. 2001). Oculocutaneous albinism (OCA) is an autosomal recessive disorder caused by either complete lack of or a reduction of melanin biosynthesis in melanocytes. Mutations in TYRP1 cause OCA3, aka Rufous oculocutaneous albinism. Tyrosinase activity is normal and patients have only a moderate reduction of melanin. Darker-skinned sufferers have bright copper-red colouration of the skin and hair (Kamaraj & Purohit 2014, Rooryck et al. 2006).

Literature references

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Editions

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