isocitrate + NAD+ => alpha-ketoglutarate + CO2 + NADH + H+ [IDH3]

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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


Reactome database release: 73

This document contains 1 reaction (see Table of Contents)
isocitrate + NAD+ \rightarrow \text{alpha-ketoglutarate} + \text{CO}_2 + \text{NADH} + \text{H}^+ \text{ [IDH3]} \nudge{up}

**Stable identifier:** R-HSA-70967

**Type:** transition

**Compartments:** mitochondrial matrix

Mitochondrial isocitrate dehydrogenase IDH3 catalyzes the irreversible reaction of isocitrate and NAD+ to form alpha ketoglutarate, CO2, and NADH + H+. The enzyme is a heteromer containing four polypeptide chains, two IDH3A, one IDH3B, and one IDH3G, and two Mn++. (Dange and Colman 2010). It is activated by ADP (Soundar et al. 2003, 2006; Bzymek and Colman 2007). This is the first of four oxidation reactions in the citric acid cycle, and the first decarboxylation.

**Literature references**


**Editions**

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