4Fe-4S cluster assembles on CFD1:NBP35 scaffold

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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: 78

This document contains 1 reaction (see Table of Contents)
**4Fe-4S cluster assembles on CFD1:NBP35 scaffold**

**Stable identifier:** R-SCE-2564822

**Type:** omitted

**Compartments:** cytosol

A [4Fe-4S] cluster is assembled on a scaffold composed of the P-loop NTPases Cfd1 (human NUBP2) and Nbp35 (human NUBP1) in a nucleotide-dependent fashion. The two proteins form a heterotetramer which transiently binds the [4Fe-4S] cluster in a bridged form between two subunits of the complex. The Fe/S cluster is bound to two highly conserved Cys residues in the C-termini of each of these proteins. Nbp35 contains an additional, stably associated [4Fe-4S] cluster at its N-terminus which is essential for function.

Mitochondria play a crucial role in cytosolic and nuclear Fe/S protein biogenesis. They export via a mitochondrial ABC transporter (yeast ATM1, human ABCB7) a still unknown, sulfur-containing compound which is essential for Fe/S cluster assembly in the cytosol.

The general cytosolic iron donor, the multi-domain monothiol glutaredoxin (yeast Grx3-Grx4, human GRX3 or PICOT) plays a crucial role in cytosolic-nuclear Fe/S protein biogenesis. The precise molecular function of the glutaredoxin is still unclear.

**Literature references**


