Cooperation of PDCL (PhLP1) and TRiC/CCT in G-protein beta folding

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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: 72

This document contains 1 pathway and 11 reactions (see Table of Contents)
The chaperonin complex TRiC/CCT is needed for the proper folding of all five G-protein beta subunits (Wells et al. 2006). TRiC/CCT cooperates with the phosducin-like protein PDCL (commonly known as PhLP or PhLP1), which interacts with both TRiC/CCT and G-protein beta subunits 1-5 (GNB1, GNB2, GNB3, GNB4, GNB5) (Dupre et al. 2007, Howlett et al. 2009). PDCL enables completion of G-protein beta folding by TRiC/CCT, promotes release of folded G-protein beta subunits 1-4 (GNB1, GNB2, GNB3, GNB4) from the chaperonin complex, and facilitates the formation of the heterodimeric G-protein beta:gamma complex between G-protein beta subunits 1-4 and G-protein gamma subunits 1-12 (Lukov et al. 2005, Lukov et al. 2006, Howlett et al. 2009, Lai et al. 2013, Plimpton et al. 2015, Xie et al. 2015). In the case of G-protein beta 5 (GNB5), PDCL stabilizes the interaction of GNB5 with the TRiC/CCT and promotes GNB5 folding, thus positively affecting formation of GNB5 dimers with RGS family proteins (Howlett et al. 2009, Lai et al. 2013, Tracy et al. 2015). However, over-expression of PDCL interferes with formation of GNB5:RGS dimers as PDCL and RGS proteins bind to the same regions of the GNB5 protein (Howlett et al. 2009).

**Literature references**


**Editions**

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TRiC/CCT binds unfolded G-protein beta subunit

**Location:** Cooperation of PDCL (PhLP1) and TRiC/CCT in G-protein beta folding

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