Doubly neddylated UBA3:NAE1 binds AcM-UBE2M

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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: 83

This document contains 1 reaction (see Table of Contents)

https://reactome.org
Doubly neddylated UBA3:NAE1 binds AcM-UBE2M

Stable identifier: R-HSA-8951751

Type: binding

Compartments: cytosol

When NAE1:UBA3 is doubly loaded with NEDD8 (one molecule covalently attached to the catalytic cysteine and the other bound in the adenylation site), the E1 enzyme is competent to interact with either of its E2 enzymes, UBE2F and UBE2M (also known as UBC12). Three binding interfaces contribute to the interaction of the E1 and E2 enzymes. When doubly neddylated, the "ubiquitin" folding domain of NAE1 reorients and, in conjunction with the adenylation domain, forms a cryptic E2-binding site. The adenylation domain also makes contact with the amino terminus of either E2 enzyme. UBE2M additionally interacts directly with the NEDD8 molecule covalently attached to the E1 catalytic cysteine (Huang et al, 2004; Huang et al, 2007; reviewed in Enchev et al, 2015). UBE2M is the E2 responsible for transfer of NEDD8 to RBX1-containing E3 ligase complexes, such as those formed with cullins 1, 2, 3 and 4. In contrast, UBE2F is the E2 for the CUL5:RBX2-containing E3 ligase (Huang et al, 2009).

Literature references


Editions

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