Ubiquitination of Cyclin A by APC/C:Cdc20 complex

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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
Ubiquitination of Cyclin A by APC/C:Cdc20 complex

Stable identifier: R-HSA-174104

Type: transition

Compartments: cytosol

Rape et al. have recently demonstrated that the order in which APC/C targeted proteins are degraded is determined by the processivity of multiubiquitination of these substrates. Processive substrates acquire a polyubiquitin chain upon binding to the APC/C once and are degraded. Distributive substrates bind, dissociate and reassociate with the APC/C multiple times before acquiring an ubiquitin chain of sufficient length to insure degradation. In addition, distributive substrates that dissociate from the APC/C with short ubiquitin chains are targeted for deubiquitination (Rape et al., 2006). Paradoxically, although the multiubiquitination of cyclin A is distributive and later substrates of APC-Cdc20 such as Securin are processive (Rape et al., 2006), Cyclin A is degraded prior to Securin and Cyclin B. The mechanisms insuring this order have not yet be determined.

Literature references