Cyclin E:CDK2-mediated phosphorylation of RB1

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06/05/2024

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

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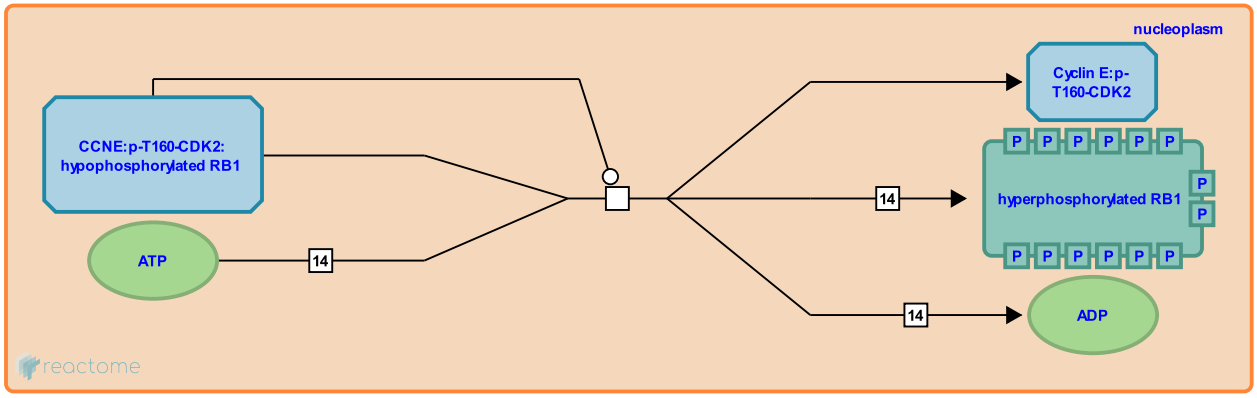
Stable identifier: R-HSA-188390

Type: transition

Compartments: nucleoplasm



Cyclin E (CCNE1 or CCNE2) forms a complex with CDK2 and collaborates with the cyclin D-dependent kinases CDK4 and CDK6 in phosphorylating RB1 (Kelly et al.1998, Adams et al.1999). CDK4/CDK6-mediated monophosphorylation of RB1 is a pre-requisite for hyperphosphorylation and full inactivation of RB1 mediated by the CCNE:CDK2 complex (Connell-Crowley et al. 1997, Lundberg and Weinberg 1998, Brown et al. 1999, Harbour et al. 1999, Yu et al. 2000, Ezhevsky et al. 2001), with monophosphorylated RB1 being phosphorylated on 14 CDK sites out of 16 predicted sites (Narasimha et al. 2014).

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Editions

2006-09-19	Authored	Pagano, M.
2006-10-06	Reviewed	Coqueret, O.
2006-10-10	Edited	Matthews, L.
2020-05-07	Revised	Orlic-Milacic, M.
2020-05-17	Reviewed	Dick, FA.
2020-05-18	Edited	Orlic-Milacic, M.