

APC/C:Cdc20 mediated degradation of Cyc-

lin B



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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the <u>Reactome Textbook</u>.

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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

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This document contains 1 pathway and 3 reactions (see Table of Contents)

APC/C:Cdc20 mediated degradation of Cyclin B *オ*

Stable identifier: R-HSA-174048

Compartments: cytosol



The degradation of cyclin B1, which appears to occur at the mitotic spindle, is delayed until the metaphase /anaphase transition by the spindle assembly checkpoint and is required in order for sister chromatids to separate (Geley et al. 2001;Hagting et al, 2002).

Literature references

Peters, JM., Gannon, J., Geley, S., Kramer, E., Gieffers, C., Hunt, T. (2001). Anaphase-promoting complex/cyclosomedependent proteolysis of human cyclin A starts at the beginning of mitosis and is not subject to the spindle assembly checkpoint. J Cell Biol, 153, 137-48.

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2006-01-30	Edited	Matthews, L.
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Association of Cyclin B:Cdc2 with Cdc20:APC/C complex 7

Location: APC/C:Cdc20 mediated degradation of Cyclin B

Stable identifier: R-HSA-174120

Type: binding

Compartments: cytosol



Cyclin B is believed to be recognized by the APC/C:Cdc20 complex through its D-box sequence.

Followed by: Ubiquitination of Cyclin B by phospho-APC/C:Cdc20 complex

Literature references

Peters, JM., Gannon, J., Geley, S., Kramer, E., Gieffers, C., Hunt, T. (2001). Anaphase-promoting complex/cyclosomedependent proteolysis of human cyclin A starts at the beginning of mitosis and is not subject to the spindle assembly checkpoint. J Cell Biol, 153, 137-48.

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Ubiquitination of Cyclin B by phospho-APC/C:Cdc20 complex 7

Location: APC/C:Cdc20 mediated degradation of Cyclin B

Stable identifier: R-HSA-174227

Type: transition

Compartments: cytosol



At the beginning of this reaction, 1 molecule of 'Cdc20:phospho-APC/C:Cyclin B:Cdc2 complex', and 3 molecules of 'ubiquitin' are present. At the end of this reaction, 1 molecule of 'multiubiquitinated Cyclin B:Cdc2:Cdc20:phospho-APC/C complex' is present.

This reaction takes place in the 'cytosol' and is mediated by the 'ubiquitin-protein ligase activity' of 'Cdc20:Phospho-APC/C'.

Preceded by: Association of Cyclin B:Cdc2 with Cdc20:APC/C complex

Followed by: Degradation of multiubiquitinated Cyclin B

Literature references

Peters, JM., Gannon, J., Geley, S., Kramer, E., Gieffers, C., Hunt, T. (2001). Anaphase-promoting complex/cyclosomedependent proteolysis of human cyclin A starts at the beginning of mitosis and is not subject to the spindle assembly checkpoint. J Cell Biol, 153, 137-48.

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Degradation of multiubiquitinated Cyclin B 7

Location: APC/C:Cdc20 mediated degradation of Cyclin B

Stable identifier: R-HSA-174157

Type: omitted

Compartments: cytosol



Mulitubiquitinated Cyclin B is targeted for degradation by the 26S proteasome.

Preceded by: Ubiquitination of Cyclin B by phospho-APC/C:Cdc20 complex

Literature references

Peters, JM., Gannon, J., Geley, S., Kramer, E., Gieffers, C., Hunt, T. (2001). Anaphase-promoting complex/cyclosomedependent proteolysis of human cyclin A starts at the beginning of mitosis and is not subject to the spindle assembly checkpoint. J Cell Biol, 153, 137-48.

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