

PLK1 phosphorylates NUDC

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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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Reactome database release: 88

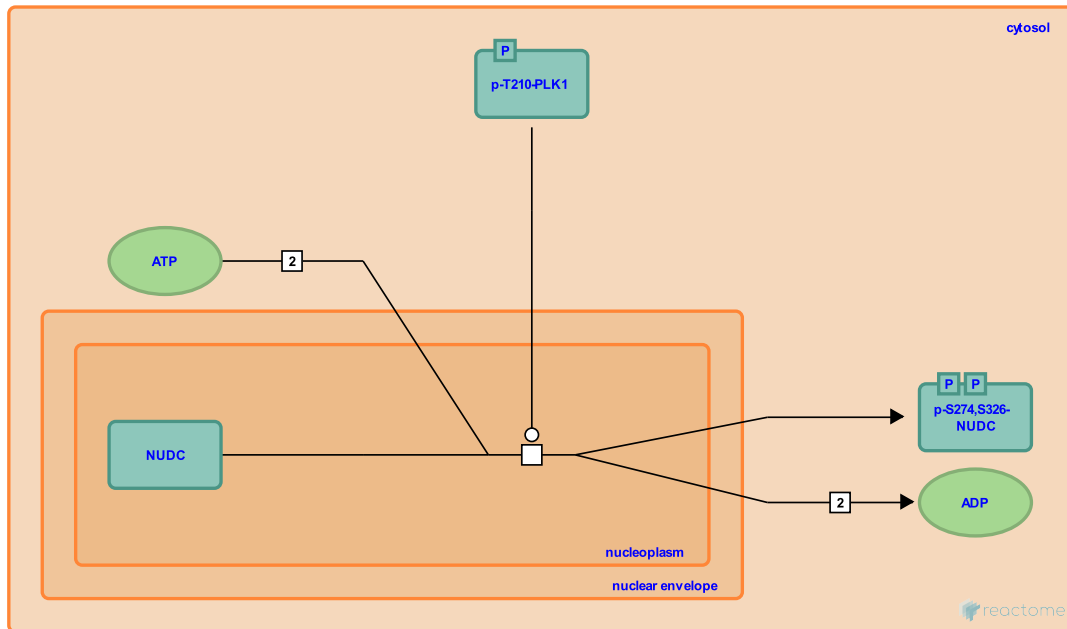
This document contains 1 reaction ([see Table of Contents](#))

PLK1 phosphorylates NUDC [↗](#)

Stable identifier: R-HSA-156682

Type: transition

Compartments: nucleoplasm



The polo-like kinase PLK1 phosphorylates NUDC on serine residues S274 and S326. PLK1-mediated phosphorylation of NUDC is required for both mitotic spindle formation and cytokinesis (Zhou et al. 2003). Interaction of NUDC with dynactin and dynein complexes is also important for its role in mitosis (Aumais et al. 2003). In interphase cells, NUDC is acetylated on lysine residue K39 by an unknown protein acetyl transferase. Deacetylation of NUDC, possibly by HDAC3, at the beginning of mitosis is required for mitotic progression. The interaction of NUDC with PLK1 does not depend on the acetylation status of NUDC (Chuang et al. 2013).

Literature references

Caldwell, GA., Caldwell, KA., Lin, SH., Luo, W., Aumais, JP., Nishino, M. et al. (2003). Role for NudC, a dynein-associated nuclear movement protein, in mitosis and cytokinesis. *J Cell Sci*, 116, 1991-2003. [↗](#)

Aumais, JP., Liu, X., Zhou, T., Yu-Lee, LY., Erikson, RL. (2003). A role for Plk1 phosphorylation of NudC in cytokinesis. *Dev Cell*, 5, 127-38. [↗](#)

Editions

2019-06-25	Authored	Orlic-Milacic, M.
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