RANBP2 SUMOylates CDCA8 (Borealin) and PIAS3 SUMOylates AURKB (Aurora-B)

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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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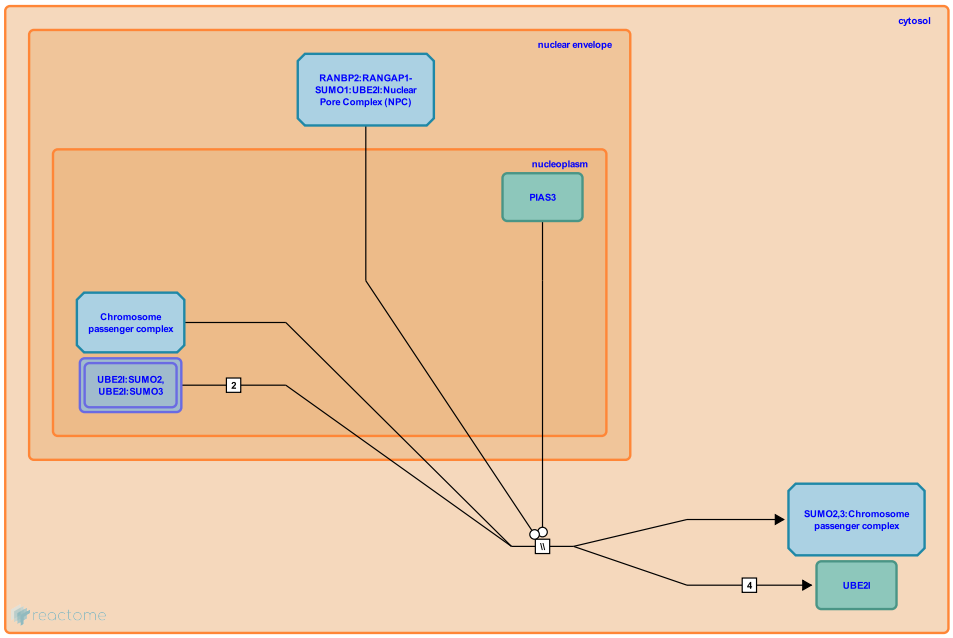
Stable identifier: R-HSA-4655355

Type: omitted

Compartments: cytosol, nucleoplasm



During early mitosis (before metaphase) RANBP2 in the RANBP2:RANGAP-SUMO:UBC9 complex SUMOylates CDCA8 (Borealin) with SUMO2,3 at unknown lysine residues (Klein et al. 2009, Fernandez-Miranda et al. 2010, Ban et al. 2011, Werner et al. 2012, Hendriks et al. 2014). CDCA8 can also be SUMOylated with SUMO1 but SUMO2,3 is observed to predominate in vivo. At this time PIAS3 also SUMOylates AURKB (Aurora-B) at lysine-202 with SUMO2,3. The SUMOylated complex is observed in the cytosol after the nuclear envelope has broken down. As inferred from mouse, failure to SUMOylate AURKB causes defective centromeric function and abnormal chromosome segregation (Fernandez-Miranda et al. 2010).

Literature references

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Editions

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