MCPH1 sequesters condensin II

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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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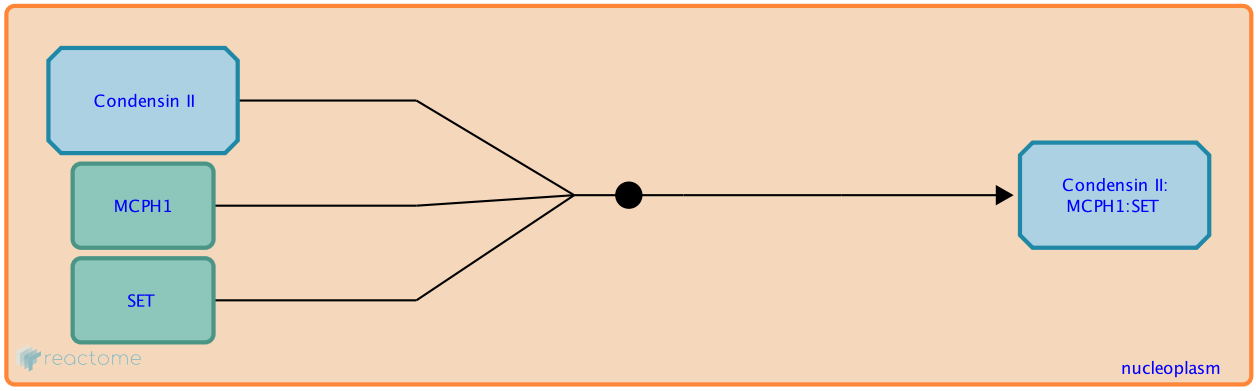
Stable identifier: R-HSA-2429719

Type: binding

Compartments: nucleoplasm



MCPH1 (microcephalin) binds condensin II complex through direct interaction with NCAPG2 and possibly NCAPD3 condensin II subunits (Wood et al. 2008, Yamashita et al. 2011). MCPH1 binding sequesters condensin II by preventing loading of condensin II on chromatin. Simultaneous binding of MCPH1 to the SET oncogene may contribute to condensin II sequestering (Leung et al. 2011). Mutations in MCPH1 are a cause of microchephaly inhereted in an autosomally recessive manner. MCPH1 deficient cells show premature chromosome condensation (PCC) phenotype, with metaphase-like chromosomes apparent in prophase, before nuclear envelope breakdown (Wood et al. 2008).

Literature references

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Editions

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