

Resolution of sister chromatids

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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

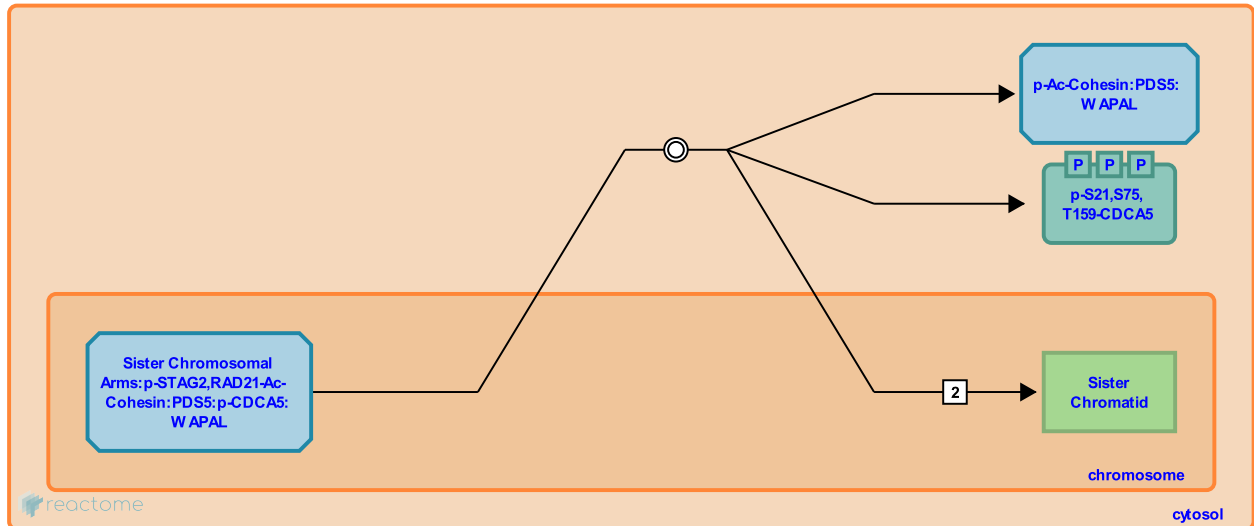
This document contains 1 reaction ([see Table of Contents](#))

Resolution of sister chromatids [↗](#)

Stable identifier: R-HSA-2467794

Type: dissociation

Compartments: chromosome, cytosol



Cohesin complexes dissociate from chromosomal arms in prometaphase, leading to sister chromatid resolution. Sister chromatid resolution involves separation of sister chromosomal arms while cohesion at sister centromeres persists (Losada et al. 1998, Hauf et al. 2001, Hauf et al. 2005). Cohesin and CDCA5 (Sororin) simultaneously dissociate from chromosomal arms in prometaphase (Nishiyama et al. 2010, Zhang et al. 2011). This process, triggered by CDK1-mediated phosphorylation of CDCA5 (Dreier et al. 2011, Zhang et al. 2011) and PLK1-mediated phosphorylation of the STAG2 cohesin subunit (Hauf et al. 2005), is controlled by WAPAL (Gandhi et al. 2006, Kueng et al. 2006, Shintomi and Hirano 2009). WAPAL controls cohesion of sister chromatids likely through competing with CDCA5 for binding to cohesin-associated PDS5 (PDS5A and PDS5B) (Nishiyama et al. 2010). While the interaction of WAPAL with PDS5 depends on CDCA5 (Nishiyama et al. 2010), WAPAL maintains its association with cohesin through interaction with cohesin subunits (Kueng et al. 2006, Shintomi and Hirano 2009).

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Editions

2012-10-02	Authored	Orlic-Milacic, M.
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