

Nucleolar Chromatin Remodeling Complex (NoRC) binds intergenic spacer of rRNA gene

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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

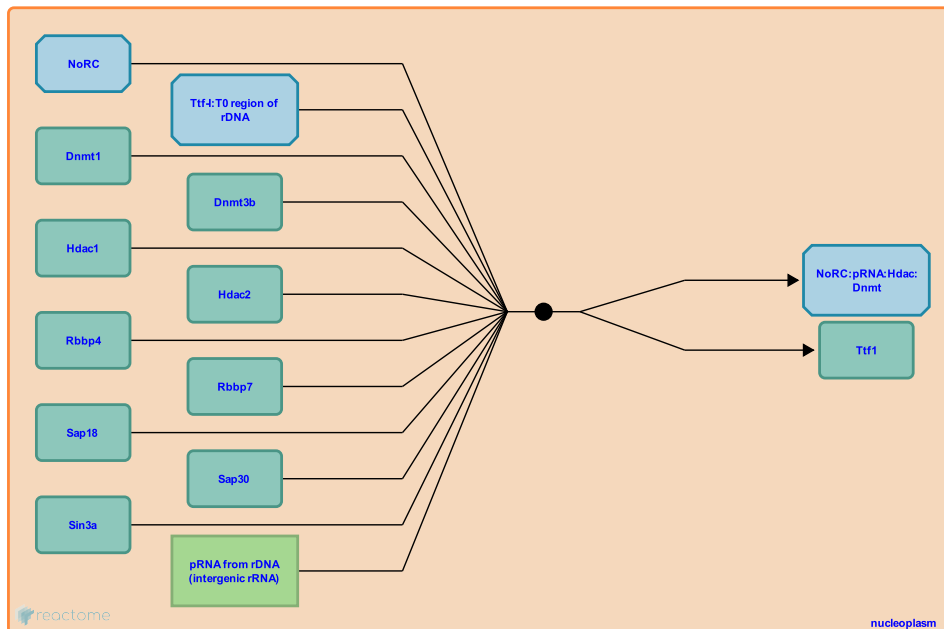
This document contains 1 reaction ([see Table of Contents](#))

Nucleolar Chromatin Remodeling Complex (NoRC) binds intergenic spacer of rRNA gene [↗](#)

Stable identifier: R-MMU-573336

Type: binding

Compartments: nucleoplasm



The Nucleolar Remodeling Complex (NoRC) comprises Tip5 (Baz2a) and the chromatin remodeller SNF2h (Smarca5) (Strohner et al. 2001). Promoter-associated RNA (pRNA) transcribed from the intergenic spacer region is bound by Tip5 and is required to direct the complex to the main promoter of the rRNA gene, possibly by triple helix formation by pRNA and the rDNA (Mayer et al. 2006, Santoro et al. 2010). The PHD domain of Tip5 binds histone H4 acetylated at lysine-16 (Zhou and Grummt 2005). Transcription Termination Factor-I (Ttf-I) binds to a promoter-proximal terminator (T0 site) in the rDNA and interacts with the Tip5 subunit of NoRC (Nemeth et al. 2004, Strohner et al. 2004, Santoro and Grummt 2005). NoRC also interacts with the SIN3-HDAC complex, Hdac1, Hdac2, Dnmt1, and Dnmt3b (Santoro et al. 2002, Zhou and Grummt 2005, Santoro and Grummt 2005). Dnmt3b binds to the triple helix formed by pRNA and the rDNA (Schmitz et al. 2010). Hdac1, Dnmt1, and Dnmt3b have been shown to be required for proper DNA methylation of silenced rRNA gene copies. Binding of pRNA to the rDNA causes displacement of TTF-I (Schmitz et al. 2010).

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Editions

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