reactome

18SE pre-rRNA in pre-40S particles is nucleolytically processed during translocation from the nucleus to the cytosol

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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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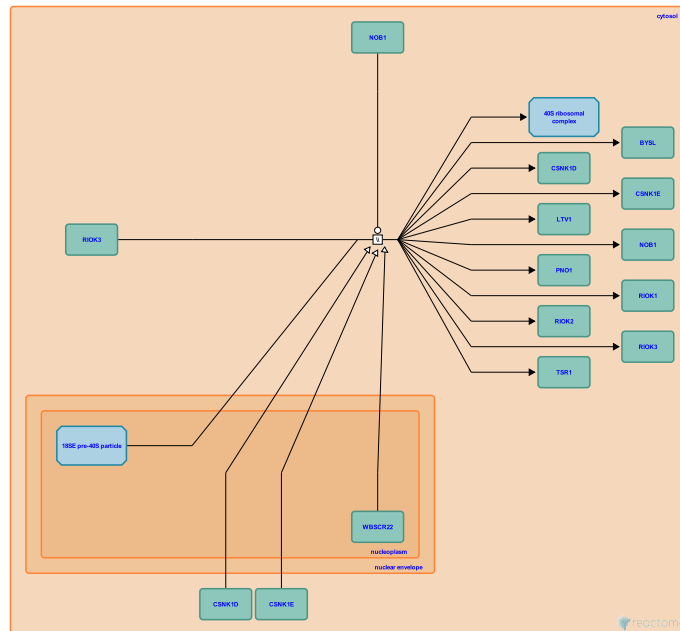
Reactome database release: 75

This document contains 1 reaction (see Table of Contents)

18SE pre-rRNA in pre-40S particles is nucleolytically processed during translocation from the nucleus to the cytosol ↗

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Exonuclease activity of the exosome (Preti et al. 2013) and endonuclease activity of NOB1 (inferred from yeast, Pertschy et al. 2009) process the 3' end of precursor rRNA (pre-rRNA) 18SE to yield mature 18S rRNA. During the processing, pre-rRNA 18SE is bound in the pre-40S ribosome subunit, which contains ribosomal proteins and processing factors such as NOB1 and BYSL. The pre-40S subunit is exported from the nucleus to the cytosol where processing factors are released and recycled back to the nucleus. The kinases RIOK1, RIOK2, CSNK1D and CSNK1E are associated with the pre-40S rRNA subunit in both the nucleus and cytosol and their kinase activity is required for recycling of processing factors back to the nucleus (Zemp et al. 2009, Zemp et al. 2014). RIOK1 and RIOK2 are also required for 18SE processing (Widmann et al. 2012, Zemp et al. 2009). RIOK3 (RIO3) is a cytosolic kinase that associates with the pre-40S ribosomal particle after export from the nucleus and is required for release of processing factors (Baumas et al. 2012).

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Editions

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