rRNA modification in the mitochondrion

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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


Reactome database release: 79

This document contains 1 pathway and 5 reactions (see Table of Contents)
Five modified nucleotides have been detected in the 12S rRNA: 5-methylcytidine-841 catalyzed by NSUN4, 6-dimethyladenosine-936 catalyzed by TFB1M, 6-dimethyluridine-429, and 4-methylcytidine-839 (reviewed in Van Haute et al. 2015). Four modified nucleotides have been detected in 16S rRNA: 2'-O-methylguanosine-1145 catalyzed by MRM1, 2'-O-methylguanosine-1370 catalyzed by RNMTL1 (MRM3), 2'-O-methyluridine-1369 catalyzed by FTSJ2 (MRM2), and pseudouridine-1397. 2'-O-methyluridine-1369 and 2'-O-methylguanosine-1370 occur in the A-loop of rRNA which is located at the peptidyl transferase center of the large subunit. Here the modified residues play a role in interaction with the aminoacyl site of tRNA. Knockouts of TFB1M and NSUN4 are lethal in mice and mutations in TFB1M may be related to aminoglycoside-induced deafness (reviewed in Van Haute et al. 2015).

**Literature references**


**Editions**

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NSUN4 methylates cytidine-841 of 12S rRNA yielding 5-methylcytidine-841

Location: rRNA modification in the mitochondrion

Stable identifier: R-HSA-6793057