# TRNT1 polymerizes CCA at the 3' end of pre-tRNA

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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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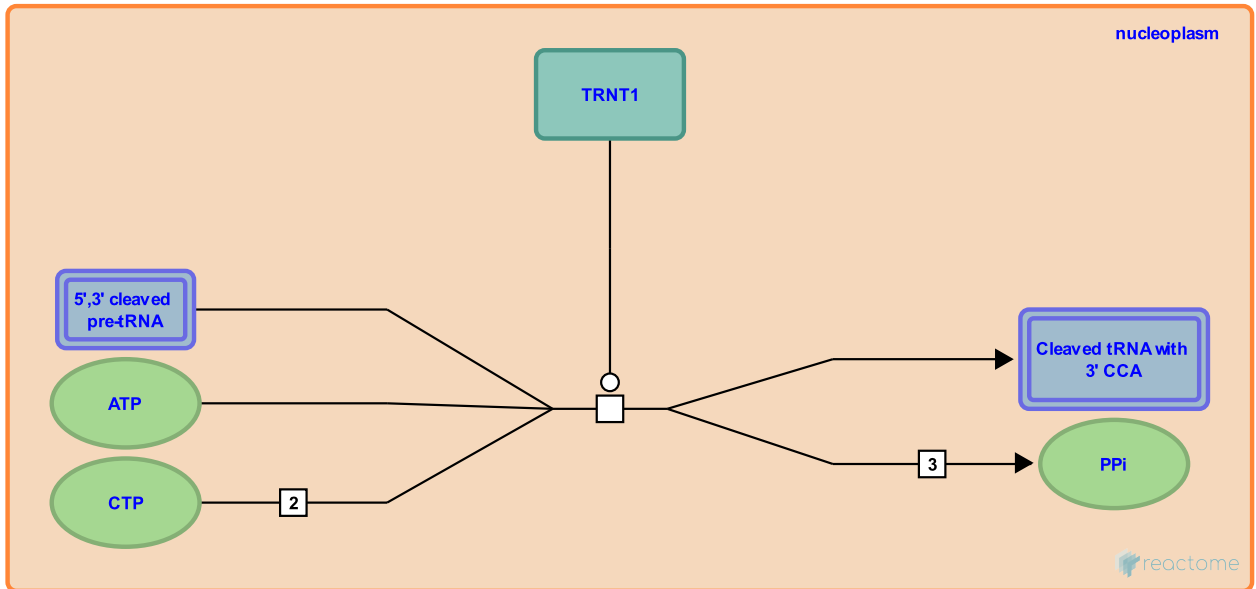
Reactome database release: 88

This document contains 1 reaction (see Table of Contents)

# TRNT1 polymerizes CCA at the 3' end of pre-tRNA ↗

**Stable identifier:** R-HSA-5696807

**Type:** transition

**Compartments:** nucleoplasm



TRNT1 (CCA-adding enzyme) polymerizes the non-templated nucleotides CCA onto the 3' end (acceptor arm) of tRNAs (Reichert et al. 2001, Lizano et al. 2007, Lizano et al. 2008). In contrast to some eubacterial tRNA genes, eukaryotic tRNA genes do not encode CCA at the 3' end. The added CCA sequence is determined by the structural properties of the TRNT1 protein itself rather than by any nucleic acid template (Augustin et al. 2003, Ernst et al. 2015, Kuhn et al. 2015, see also the structure of the bacterial enzyme in Li et al. 2002). After polymerization of a single CCA motif, conformational change of the enzyme ejects the tRNA before additional nucleotides can be polymerized (Kuhn et al. 2015). Aberrant RNA with two CCA motifs is targeted for destruction.

## Literature references

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## Editions

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