

Annealing of 3'-end of unwound transfer RNA primer with genomic RNA

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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: 77

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

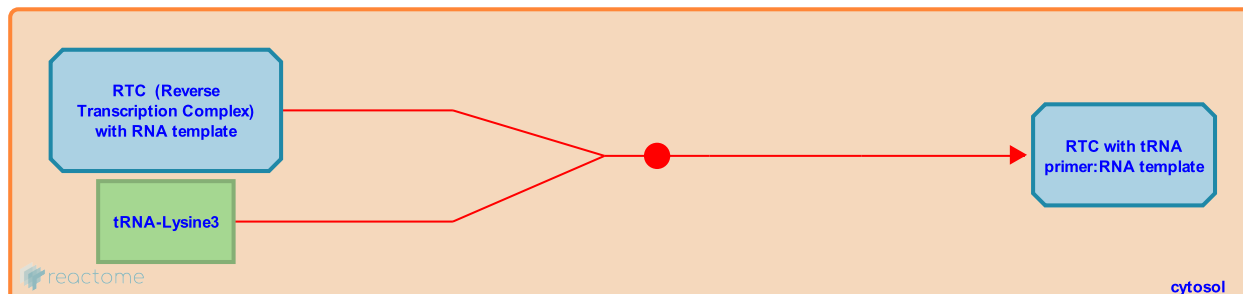
Annealing of 3'-end of unwound transfer RNA primer with genomic RNA ↗

Stable identifier: R-HSA-164527

Type: binding

Compartments: cytosol

Diseases: Human immunodeficiency virus infectious disease



Retroviruses use cellular tRNAs as primers for reverse transcription of the viral genomic RNA (Mak and Kleiman 1997). The primer tRNA is selectively packaged during assembly of retrovirus particles. In the case of HIV-1, lysine tRNAs are preferentially incorporated during retroviral packaging, and lysine tRNA 3, the specific isoacceptor form that serves as a primer for reverse transcription, anneals to the PBS (primer binding site) within the U5 region of the viral genomic RNA. This association appears to be mediated by the viral reverse transcriptase (RT) protein, possibly its "thumb" and "connection" domains (Jiang et al. 1993; Mak et al. 1994; Mishima and Steitz 1995).

Literature references

- Jiang, M., Mak, J., Ladha, A., Cohen, E., Klein, M., Rovinski, B. et al. (1993). Identification of tRNAs incorporated into wild-type and mutant human immunodeficiency virus type 1. *J Virol*, 67, 3246-53. ↗
- Mak, J., Jiang, M., Wainberg, MA., Hammarskjold, ML., Rekosh, D., Kleiman, L. (1994). Role of Pr160gag-pol in mediating the selective incorporation of tRNA(Lys) into human immunodeficiency virus type 1 particles. *J Virol*, 68, 2065-72. ↗

Editions

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