CDK7 phosphorylates serine-5 and serine-7 of heptad repeats in C-terminal domain of RNA polymerase II at snRNA promoter

Hernandez, N., May, B.
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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references


Reactome database release: 82

This document contains 1 reaction (see Table of Contents)

https://www.reactome.org
CDK7 phosphorylates serine-5 and serine-7 of heptad repeats in C-terminal domain of RNA polymerase II at snRNA promoter

Stable identifier: R-HSA-6810233

Type: transition

Compartments: nucleoplasm

CDK7 phosphorylates serine-5 residues of heptad repeats (consensus YSPTSPS) in the C-terminal domain (CTD) of the large subunit (POLR2A) of RNA polymerase II. Serine-7 residues of the heptad repeats are also phosphorylated at promoters of snRNA genes (Egloff et al. 2007) and CDK7 is required for phosphorylation of serine-7 in vivo (Glover-Cutter et al. 2009). P-TEFb and DNA-PK are able to phosphorylate serine-7 in vitro (Glover-Cutter et al. 2009, Egloff et al. 2010). Impairment of CTD phosphorylation does not appear to affect transcription of snRNA genes but rather impairs 3' processing of the pre-snRNA (Medlin et al. 2003, Jacobs et al. 2004).

Literature references


Uguen, P., Murphy, S., Bentley, DL., Taylor, A., Medlin, JE. (2003). The C-terminal domain of pol II and a DRB-sensitive kinase are required for 3' processing of U2 snRNA. *EMBO J.*, 22, 925-34.


Editions

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<th>Action</th>
<th>Author/Editor</th>
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<td>Authored, Edited</td>
<td>May, B.</td>
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<tr>
<td>2016-02-19</td>
<td>Reviewed</td>
<td>Hernandez, N.</td>
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