Calcineurin activates NFAT

May, B., Wienands, J.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of Creative Commons Attribution 4.0 International (CC BY 4.0) License. For more information see our license.

26/05/2020
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: 72

This document contains 1 pathway and 2 reactions (see Table of Contents)
**Calcineurin activates NFAT**

**Stable identifier:** R-HSA-2025928

**Compartments:** cytosol, nucleoplasm

Signaling by the B cell receptor and the T cell receptor stimulate transcription by NFAT factors via calcium (reviewed in Gwack et al. 2007). Cytosolic calcium from intracellular stores and extracellular sources binds calmodulin and activates the protein phosphatase calcineurin. Activated calcineurin dephosphorylates NFATs in the cytosol, exposing nuclear localization sequences on the NFATs and causing the NFATs to be imported into the nucleus where they regulate transcription of target genes in complexes with other transcription factors such as AP-1 and JUN. Calcineurin in the target of the immunosuppressive drugs cyclosporin A and FK-506 (reviewed in Lee and Park 2006).

**Literature references**


**Editions**

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Reviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12-11</td>
<td>Authored, Edited</td>
<td>May, B.</td>
</tr>
<tr>
<td>2012-02-12</td>
<td>Reviewed</td>
<td>Wienands, J.</td>
</tr>
</tbody>
</table>
Calcineurin binds NFATC1,2,3

Location: Calcineurin activates NFAT

Stable identifier: R-HSA-2025890