Interleukin-15 signaling

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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 17 reactions (see Table of Contents)
The high affinity Interleukin-15 receptor is a heterotrimer of Interleukin-15 receptor subunit alpha (IL15RA), Interleukin-2 receptor subunit beta (IL2RB, CD122) and Cytokine receptor common subunit gamma (IL2RG, CD132). IL2RB and IL2RG are also components of the Interleukin-2 (IL2) receptor. Treatment of human T cells with Interleukin-15 (IL15) results in tyrosine phosphorylation of Tyrosine-protein kinase JAK1 (JAK1, Janus kinase 1) and Tyrosine-protein kinase JAK3 (JAK3, Janus kinase 3) (Johnston et al. 1995, Winthrop 2017). IL15 can signal by a process termed 'trans presentation', where IL15 bound by IL15 on one cell is trans-presented to IL2RB:IL2RG on another cell (Dubois et al. 2002) but can also participate in more 'traditional' cis signaling (Wu et al. 2008, Mishra et al. 2014) where all the three receptors are present on the same cell.

Stimulation of lymphocytes by IL15 release MAPK activation through GAB2/SHP2/SHC (GRB2-associated-binding protein 2/Tyrosine-protein phosphatase non-receptor type 11/SHC transforming protein 1 or 2) cascade activation (Gadina et al. 2000).

**Literature references**


IL15 binds IL15RA

Location: Interleukin-15 signaling

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