

PTPN11 binds CBL

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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: 88

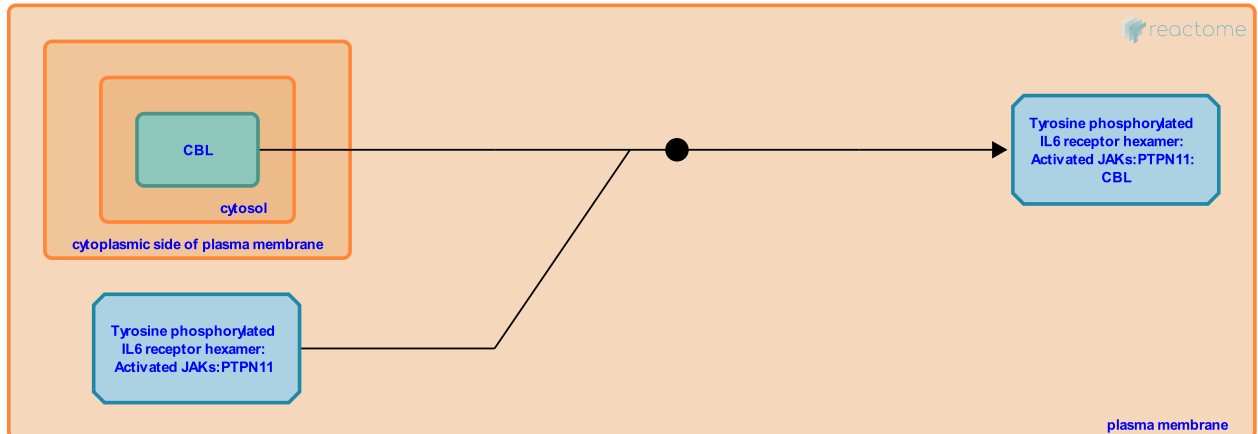
This document contains 1 reaction ([see Table of Contents](#))

PTPN11 binds CBL [↗](#)

Stable identifier: R-HSA-1112690

Type: binding

Compartments: plasma membrane, cytosol



SHP2 binds CBL in response to IL-6 stimulation in 293T cells and contributes to the ubiquitination of gp130 (Tanaka et al. 2008).

IL-6 stimulation induced lysosome-dependent degradation of gp130, which correlated with an increase in its K63-linked polyubiquitination. This stimulation-dependent ubiquitination was mediated by CBL, an E3 ligase, which was recruited to gp130 in a tyrosine-phosphorylated SHP2-dependent manner. IL-6 induced a rapid translocation of gp130 from the cell surface to endosomal compartments. The vesicular sorting molecule Hrs contributed to the lysosomal degradation of gp130 by directly recognizing its ubiquitinated form. Deficiency of either Hrs or CBL suppressed gp130 degradation, leading to a prolonged and amplified IL-6 signal.

Literature references

Murakami, M., Tanaka, Y., Sugamura, K., Hirano, T., Tanaka, K., Ishii, N. et al. (2008). c-Cbl-dependent monoubiquitination and lysosomal degradation of gp130. *Mol Cell Biol*, 28, 4805-18. [↗](#)

Editions

2010-12-10	Edited	Jupe, S.
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