

# Interaction of SHP-1 or SHP-2 with phospho PD-1

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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: 74

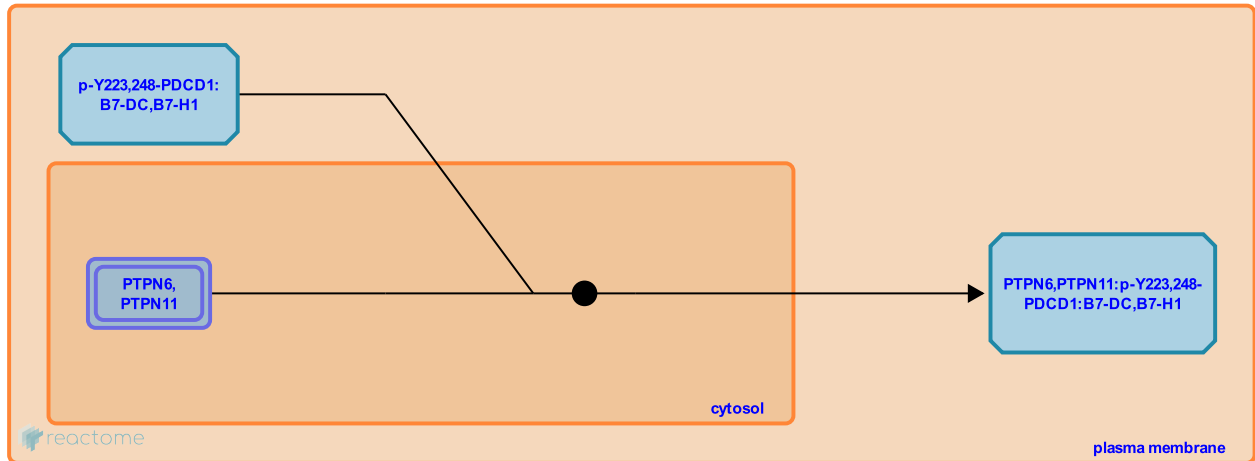
This document contains 1 reaction ([see Table of Contents](#))

## Interaction of SHP-1 or SHP-2 with phospho PD-1 [↗](#)

**Stable identifier:** R-HSA-389759

**Type:** binding

**Compartments:** cytosol, plasma membrane



Once phosphorylated, SH2-domain containing tyrosine phosphatases SHP-1 and SHP-2 bind to the ITIM and ITSM motifs of PD-1. The association between SHP-1 and PD-1 appears to be weaker than the interaction of PD-1 with SHP-2.

### Literature references

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Keir, ME., Butte, MJ., Freeman, GJ., Sharpe, AH. (2008). PD-1 and its ligands in tolerance and immunity. *Annu Rev Immunol*, 26, 677-704. [↗](#)

### Editions

2008-12-16	Authored, Edited	Garapati, P V.
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