

# SEMA4D interacts with Plexin-B1:ErbB2

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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: 83

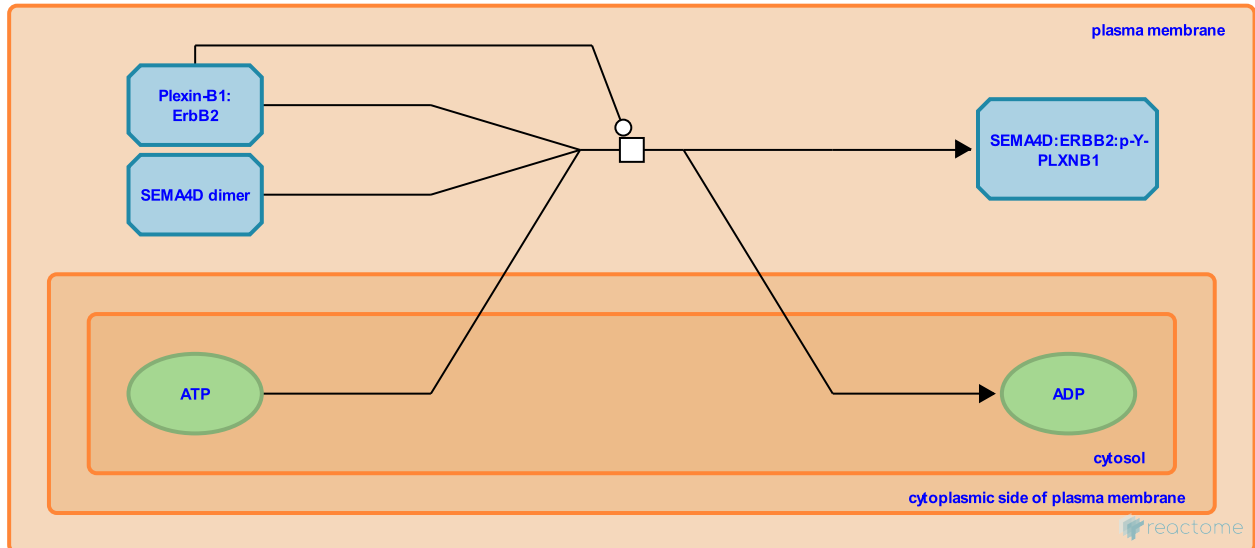
This document contains 1 reaction ([see Table of Contents](#))

## SEMA4D interacts with Plexin-B1:ErbB2 [↗](#)

**Stable identifier:** R-HSA-373750

**Type:** transition

**Compartments:** cytosol, plasma membrane



Sema4D binds Plexin-B1 to induce repulsive or attractive effects in neuronal and nonneuronal cells. Plexins constitute a large family of transmembrane proteins that function as receptors for semaphorins and their interaction governs cell adhesion and migration in a variety of tissues. All B-class plexins can interact with the receptor tyrosine kinases Met and ErbB2. Upon binding of Sema4D to plexin-B1, the kinase activity of ErbB2 is increased resulting in tyrosine phosphorylation of both Plexin-B1 and ErbB2. ErbB2 has been shown to mediate Sema4D-induced growth cone collapse in hippocampal neurons by the activation of RhoA via plexinB1 and PDZRhoGEF/LARG.

Sequence alignment reveals the presence of 13 conserved tyrosine residues (highly conserved sites 1918, 1953, 2038) but the specific tyrosine residues phosphorylated in the cytoplasmic domain of plexins in response to semaphorin stimulation have not yet been identified.

### Literature references

Offermanns, S., Kuner, R., Swiercz, JM. (2004). Plexin-B1/RhoGEF-mediated RhoA activation involves the receptor tyrosine kinase ErbB-2. *J Cell Biol*, 165, 869-80. [↗](#)

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### Editions

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