Syndecan-2 binds TRAPPC4

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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

Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics, 18*, 142. ↗

Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

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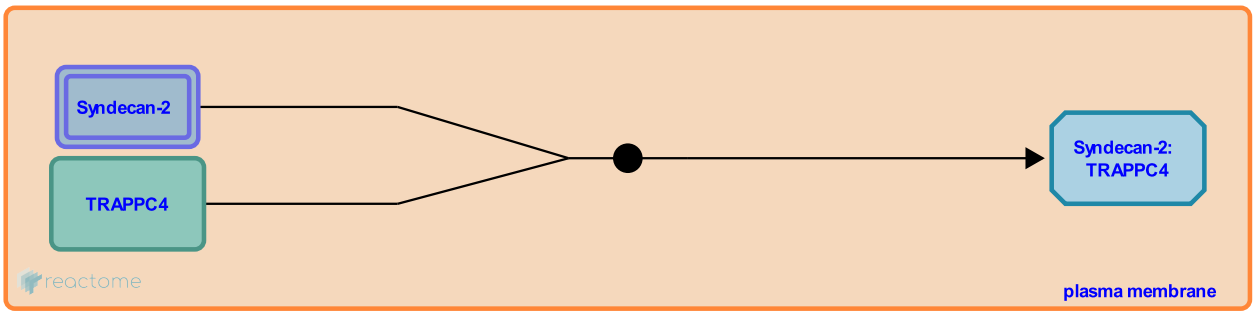
Syndecan-2 binds TRAPPC4 ↗

Stable identifier: R-HSA-2750177

Type: binding

Compartments: plasma membrane

Inferred from: Syndecan-2 binds Trappc4 (Mus musculus)



Syndecans have attached heparan sulfate (HS) and to a lesser extent chondroitin sulfate (CS) chains. These allow interactions with a large number of proteins. Various enzymes involved in post-translational HS chain modifications produce unique binding motifs that selectively recognize different proteins (Tkachenko et al. 2005). Syndecan-null mice have subtle phenotypes when compared with mice deficient in HS chain synthesis or modification (Echtermeyer et al. 2001, Ishiquro et al. 2001, Götte et al. 2002). GPI-anchored glypicans and matrix HSPGs such as perlecan may compensate for the absence of syndecans.

Syndecans are also signalling molecules, interacting with cytoplasmic proteins. Syndecan-2 binds Trafficking protein particle complex subunit 4 (TRAPPC4), also known as synbindin. It appears to be involved with postsynaptic membrane trafficking (Ethell et al. 2000). Syndecan-2 expression promotes dendritic spine maturation in neurons, and requires the C2 domain (Ethell et al. 2000), suggesting that syndecan-2 and synbindin recruit intracellular vesicles to postsynaptic sites. More recently TRAPPC4 was shown to be a component of the Transport Protein Particle, involved in endoplasmic reticulum-to-Golgi transport (Fan et al. 2009).

Editions

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