Mg2+ binds GRIN1:GRIN2 NMDA receptors

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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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Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968. ↗

Reactome database release: 88

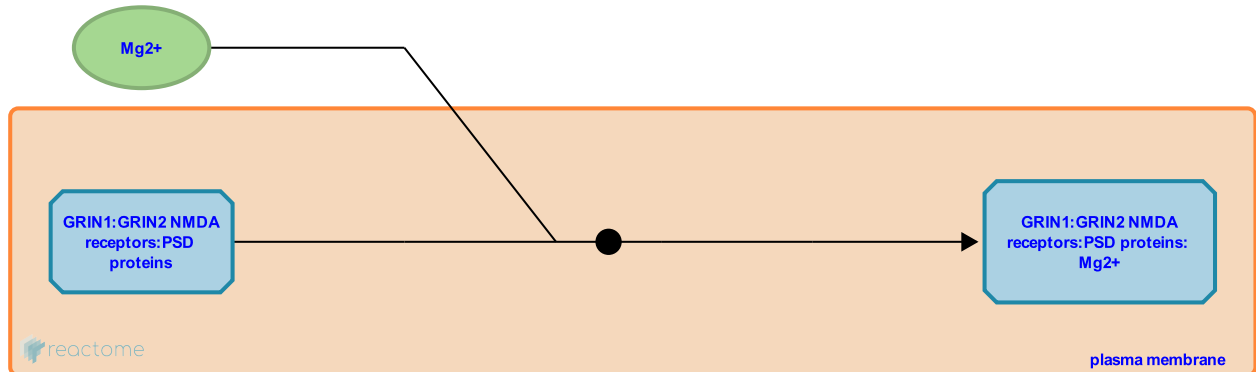This document contains 1 reaction (see Table of Contents)

Mg2+ binds GRIN1:GRIN2 NMDA receptors ↗

Stable identifier: R-HSA-9614185

Type: binding

Compartments: plasma membrane, extracellular region

Inferred from: Mg2+ binds Grin1:Grin2 NMDA receptors (Rattus norvegicus)

The pore of the NMDA receptor is blocked by binding of Mg2+ ions. The strength of the block depends on the subunit composition of the NMDA receptor, as both the GluN1 (GRIN1, NR1) subunit and GluN2 (GRIN2, NR2) subunits interact with Mg2+ (Nowak et al. 1984, Mayer et al. 1984, Wollmuth et al. 1998, Vargas-Caballero and Robinson 2004, Siegler Retchless et al. 2012, Schwartz et al. 2012, Clarke et al. 2013, reviewed by Iacobucci and Popescu 2017).

Editions

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