NMDA receptor complex:DLG2,DLG3,DLG4:SPAR binds PDLIM5

Garapati, P V., Washbourne, P.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

01/10/2020

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

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. ↗

Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

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. ↗

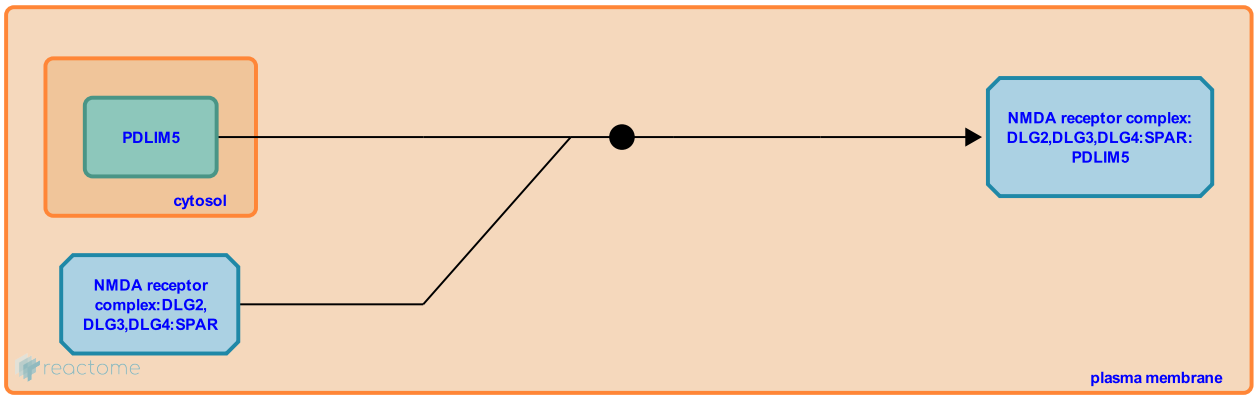
NMDA receptor complex:DLG2,DLG3,DLG4:SPAR binds PDLIM5 ↗

Stable identifier: R-HSA-6794354

Type: binding

Compartments: plasma membrane, cytosol

Inferred from: Pdlim5 binds Spar (Rattus norvegicus)



Spine-Associated RapGAP (SPAR) interacts with a PDZ-LIM domain family protein called PDZ and LIM domain 5 (PDLIM5), formerly known as Enigma Homolog (ENH). PDLIM5 is expressed postsynaptically in excitatory pyramidal neurons of the hippocampus and associates with SPAR protein in the brain. In hippocampal neurons, PDLIM5 promotes decreased dendritic spine size, opposite to the effect of SPAR overexpression that causes spine head enlargement.

Single nucleotide polymorphisms in PDLIM5 have been associated with schizophrenia, depression, and bipolar disorder (Kato et al. 2005, Li et al. 2008, Liu et al. 2008), although the physiological functions of PDLIM5 are not well understood.

Editions

2015-09-04	Authored, Edited	Garapati, P V.
2015-11-09	Reviewed	Washbourne, P.