reactome

Activation of Ca impermeable AMPA 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

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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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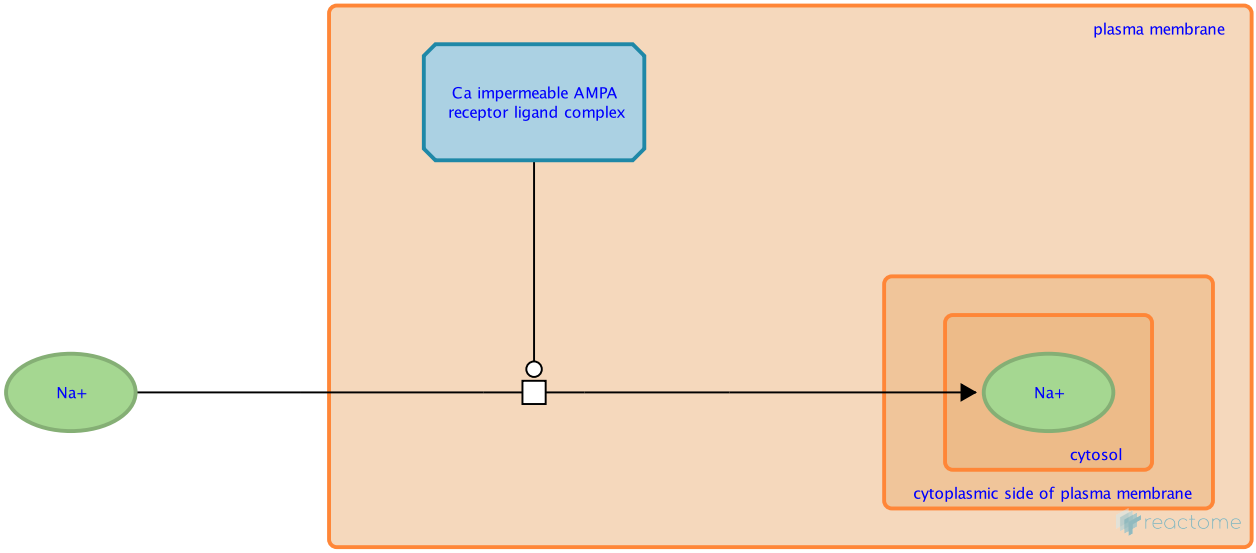
Stable identifier: R-HSA-399711

Type: transition

Compartments: plasma membrane



Each AMPA receptor subunit binds one glutamate molecule in the ligand binding site in the N terminus. Each receptor is capable of binding four glutamate molecules however, channel opens when two sites are occupied by the ligand and the current increases with increased ligand binding. Ca impermeable AMPA receptors containing GluR2 subunit conduct Na currents upon activation by either glutamate binding or agonist, AMPA (alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid) binding. The Na currents mainly lead to depolarization of the membrane leading to activation of voltage gated channels such as NMDA receptors that require both agonist binding and depolarization for their activation.

Literature references

Kott, S., Werner, M., Körber, C., Hollmann, M. (2007). Electrophysiological properties of AMPA receptors are differentially modulated depending on the associated member of the TARP family. *J Neurosci, 27,* 3780-9.

Editions

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