

## Product datasheet for **TA328823**

### Gria1 Rabbit Polyclonal Antibody

#### Product data:

Product Type:	Primary Antibodies
Applications:	IHC, WB
Recommended Dilution:	WB: 1:200-1:2000; IHC: 1:100-1:3000
Reactivity:	Human, Mouse, Rat
Host:	Rabbit
Clonality:	Polyclonal
Immunogen:	Peptide RTSDSRDHTRVDWKR(C), corresponding to amino acid residues 271-285 of rat AMPA Receptor 1. Extracellular, N-terminus.
Formulation:	Lyophilized. Concentration before lyophilization ~0.8mg/ml (lot dependent, please refer to CoA along with shipment for actual concentration). Buffer before lyophilization: phosphate buffered saline (PBS), pH 7.4, 1% BSA, 0.05% NaN <sub>3</sub> .
Reconstitution Method:	Add 50 ul double distilled water (DDW) to the lyophilized powder.
Purification:	Affinity purified on immobilized antigen.
Conjugation:	Unconjugated
Storage:	Store at -20°C as received.
Stability:	Stable for 12 months from date of receipt.
Gene Name:	glutamate ionotropic receptor AMPA type subunit 1
Database Link:	<a href="#">NP_113796</a> <a href="#">Entrez Gene 2890 Human</a> <a href="#">Entrez Gene 14799 Mouse</a> <a href="#">Entrez Gene 50592 Rat</a> <a href="#">P19490</a>



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**Background:**

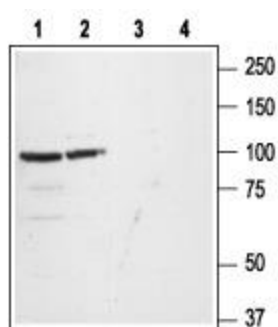
AMPA receptors are members of the glutamate receptor family of ion channels that also include the NMDA and Kainate receptors. The three subfamilies are named after the original synthetic agonists that were identified as selective ligands of each family. The  $\alpha$ -amino-3-hydroxy-5-methyl-4-isoazolepropionic acid (AMPA) receptor subfamily includes four members AMPA1-AMPA4 that are also known as GluR1-GluR4 respectively. The functional AMPA channel is believed to be a tetramer, with most neuronal AMPA receptors being actually heterotetramers composed of AMPA1 plus AMPA2 or AMPA2 plus AMPA3, although homotetramers can also be found. AMPA receptors are permeable to cations  $\text{Na}^+$  and  $\text{K}^+$  and  $\text{Ca}^{2+}$ . The  $\text{Ca}^{2+}$  permeability is dependent on the presence of AMPA2: whenever this subunit is present, the channel will be impermeable to  $\text{Ca}^{2+}$ . The  $\text{Ca}^{2+}$  permeability of the AMPA2 subunit is determined by the presence of an arginine (R) at a critical site in the pore loop instead of a glutamine (Q) present in the same site in the other AMPA subunits. A post-transcriptional process known as RNA editing determines the presence of this R. Since most AMPA2 subunits in the adult brain have undergone RNA editing and most AMPA receptors contain the AMPA2 subunit, most native AMPA receptors will be impermeable to  $\text{Ca}^{2+}$ . Gating of AMPA receptors by glutamate is extremely fast and therefore the AMPA receptors mediate most excitatory (depolarizing) currents in the brain during basal neuronal activity. The depolarization caused by the activation of post-synaptic AMPA receptors is necessary for the activation of NMDA receptors that will open only in the presence of both glutamate and a depolarized membrane. Synaptic strength, defined as the level of post-synaptic depolarization, can be long term (hence the term long term potentiation, LTP) and therefore induce changes in signaling and protein synthesis in the activated neuron. These changes are associated with memory formation and learning. Changes in synaptic strength are thought to involve rapid movement of the AMPA receptors in and out of the synapses and a great deal of effort has focused in understanding the mechanisms that govern AMPA receptor trafficking.

**Synonyms:**

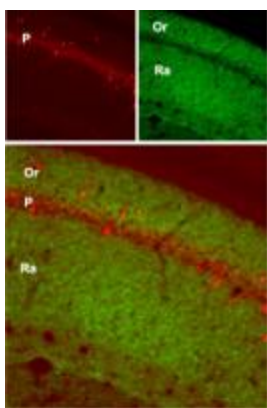
GluA1; GLUH1; GluR-A; gluR-A; GLUR1; GLURA; GluRA; HBGR1; HIPA1

**Note:**

This antibody was tested in live cell imaging. Please see IF/ICC data for detail.

**Product images:**

Western blot analysis of rat (lanes 1 and 3) and mouse (lanes 2 and 4) brain lysates: 1, 2. Anti-AMPA Receptor 1 (GluA1) (extracellular) antibody, (1:200). 3, 4. Anti-AMPA1 Receptor 1 (GluA1) (extracellular) antibody, preincubated with the control peptide antigen.



Expression of AMPA Receptor 1 in mouse hippocampus. Immunohistochemical staining of mouse hippocampus with Anti-AMPA Receptor 1 (GluA1) (extracellular) antibody. AMPA Receptor 1 (green) is present in the stratum oriens (Or) and radiatum (Ra) but not in the pyramidal layer (P). Staining of the same section with mouse anti-parvalbumin (red) identifies the pyramidal layer.