PRODUCT INFORMATION

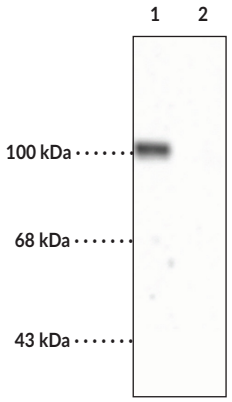
GluR1 (Phospho-Ser845) Polyclonal Antibody

Item No. 10601

Overview and Properties

Contents: This vial contains affinity-purified IgG polyclonal antibody from pooled serum.
Synonyms: AMPA-selective Glutamate Receptor 1, GluR-1, GluR-A, GluA1
Immunogen: Phosphopeptide corresponding to amino residues surrounding the phospho-Ser^{845} of rat GluR1
Molecular Weight: ~100 kDa
Cross Reactivity: (+) GluR1 (phosphor-Ser^{845}); (-) Non-phosphorylated GluR1
Species Reactivity: (+) Mouse, rat, turtle
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥1 year
Storage Buffer: 10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 µg/ml BSA, and 50% glycerol
Host: Rabbit
Applications: Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC and WB is 1:1,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: - λ-Ptase
Lane 2: + λ-Ptase

WB of rat hippocampal lysate showing specific immunolabeling of the ~100 kDa GluR1 protein phosphorylated at Ser^{845} in the first lane (-). Phosphospecificity is shown in the second lane (+) where immunolabeling is completely eliminated by blot treatment with lambda phosphatase (λ-Ptase, 1200 units for 30 min).

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Description

GluR1 is a subunit of the AMPA ionotropic glutamate receptor, which is responsible for fast excitatory synaptic transmission in the CNS.[1] AMPA receptors are composed of four subunits, GluR1, GluR2, GluR3, and GluR4, which combine into heterotetramers to form a cation-permeable pore in the plasma membrane. Each subunit has two isoforms with the primary isoform designated as flip and a second isoform generated through alternative splicing designated as flop.[2,3] The GluR1 flip and flop isoforms do not affect desensitization or channel opening and closing kinetics.[3] GluR1 can be phosphorylated by PKA at serine 845 (Ser^{845}), which increases the peak open probability of the ion channel, and dephosphorylation is required for AMPA receptor endocytosis.[1] GluR1 (phospho-Ser^{845}) levels increase in the ventromedial prefrontal cortex (vmPFC) and nucleus accumbens (NAc) following cocaine-cue extinction.[4] Levels of GluR1 (phospho-Ser^{845}) are reduced following NMDA receptor activation in rat hippocampal slices and by amyloid-β (Aβ) oligomers in primary mouse neurons.[5,6] Cayman's GluR1 (Phospho-Ser^{845}) Polyclonal Antibody can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes Glur1 (phosphor-Ser^{845}) at approximately 100 kDa from mouse, rat, and turtle samples.

References

1. Banke, T.G., Bowie, D., Lee, H.-K., *et al.* Control of GluR1 AMPA receptor function by cAMP-dependent protein kinase. *J. Neurosci.* **20(1)**, 89-102 (2000).
2. Sommer, B., Keinänen, K., Verdoorn, T.A., *et al.* Flip and flop: A cell-specific functional switch in glutamate-operated channels of the CNS. *Science* **249(4976)**, 1580-1585 (1990).
3. Pei, W., Huang, Z., Wang, C., *et al.* Flip and flop: A molecular determinant for AMPA receptor channel opening. *Biochemistry* **48(17)**, 3767-3777 (2009).
4. Dhonnchadha, B.Á.N., Lin, A., Leite-Morris, K.A., *et al.* Alterations in expression and phosphorylation of GluA1 receptors following cocaine-cue extinction learning. *Behav. Brain Res.* **238**, 119-123 (2013).
5. Ai, H., Yang, W., Ye, M., *et al.* Differential regulation of AMPA receptor GluA1 phosphorylation at serine 831 and 845 associated with activation of NMDA receptor subpopulations. *Neurosci. Lett.* **497(2)**, 94-98 (2011).
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