SANTA CRUZ BIOTECHNOLOGY, INC.

p-GluR-1 (Ser 845): sc-16314

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glutamate receptors mediate most excitatory neurotransmission in the brain and play an important role in neural plasticity, neural development and neurodegeneration. Ionotropic glutamate receptors are categorized into NMDA receptors and kainate/AMPA receptors, both of which contain glutamate-gated, cation-specific ion channels. Kainate/AMPA receptors are co-localized with NMDA receptors in many synapses and consist of seven structurally related subunits designated GluR-1 to -7. The kainate/AMPA receptors are primarily responsible for the fast excitatory neurotransmission by glutamate, whereas the NMDA receptors are functionally characterized by a slow kinetic and a high permeability for Ca^{2+} ions. The NMDA receptors consist of five subunits: four ε subunits (ε 1, 2, 3 and 4) and one ζ subunit. The ζ subunit is expressed throughout the brainstem whereas the four ε subunits display limited distribution. Serine 831 is specifically phosphorylated by CaM kinase II and is the major site of CaM kinase II phosphorylation on GluR-1. In addition, treatment of hippocampal slice preparations with phorbol esters and forskolin increase the phosphorylation of Serine 831 and 845, respectively, indicating that protein kinase C and protein kinase A phosphorylate these residues in hippocampal slices. GluR-1 phosphorylation is critical for synaptic plasticity, and that identical stimulation conditions recruit different signal-transduction pathways depending on synaptic history.

REFERENCES

1. Choi, D.W., et al. 1990. The role of glutamate neurotoxicity in hypoxic-ischemic neuronal death. Annu. Rev. Neurosci. 13: 171-182.
2. Nakanishi, S. 1992. Molecular diversity of glutamate receptors and implications for brain function. Science 258: 597-603.
3. Stern, P., et al. 1992. Fast and slow components of unitary EPSCs on stellate cells elicited by focal stimulation in slices of rat visual cortex. J. Physiol. 449: 247-278.

CHROMOSOMAL LOCATION

Genetic locus: GRIA1 (human) mapping to 5q31.1; Gria1 (mouse) mapping to 11 B1.3.

SOURCE

p-GluR-1 (Ser 845) is available as either goat (sc-16314) or rabbit (sc-16314-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Ser 845 of GluR-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16314 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

p-GluR-1 (Ser 845)-R is recommended for detection of Ser 845 phosphorylated GluR-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-GluR-1 (Ser 845) is also recommended for detection of correspondingly phosphorylated Ser on GluR-1 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for GluR-1 siRNA (h): sc-35485, GluR-1 siRNA (m): sc-35486, GluR-1 shRNA Plasmid (h): sc-35485-SH, GluR-1 shRNA Plasmid (m): sc-35486-SH, GluR-1 shRNA (h) Lentiviral Particles: sc-35485-V and GluR-1 shRNA (m) Lentiviral Particles: sc-35486-V.

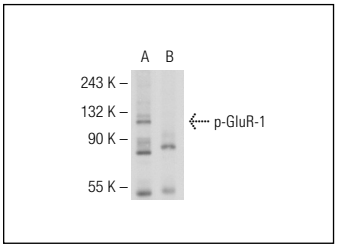
Molecular Weight of p-GluR-1: 106 kDa.

Positive Controls: mouse brain extract: sc-2253, rat hippocampal tissue or mouse cerebellum extract: sc-2403.

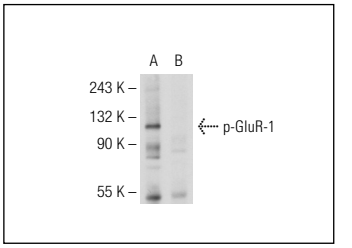
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



p-GluR-1 (Ser 845)-R: sc-16314-R. Western blot analysis of GluR-1 phosphorylation in untreated (**A**) and lambda protein phosphatase treated (**B**) mouse brain tissue extracts.



p-GluR-1 (Ser 845)-R: sc-16314-R. Western blot analysis of GluR-1 phosphorylation in untreated (**A**) and lambda protein phosphatase treated (**B**) mouse cerebellum tissue extracts.

RESEARCH USE

For research use only, not for use in diagnostic procedures.