

# p-GluR-2/3 (Ser 880/Ser 891): sc-17088

## 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 through seven. 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 neurotransmission and a high permeability for  $Ca^{2+}$  ions. The GluR-2/3 protein is phosphorylated at Ser 880 by protein kinase C (PKC), and this phosphorylation event differentially regulates the binding of several PDZ domain-containing proteins, including PICK1. By blocking interactions between GluR-2/3 and PICK1, the phosphorylation of GluR-2/3 by PKC inhibits the expression of long-term depression of cerebral Purkinje cells *in vitro*.

## REFERENCES

- Choi, D.W. and Rothman, S.M. 1990. The role of glutamate neurotoxicity in hypoxic-ischemic neuronal death. *Annu. Rev. Neurosci.* 13: 171-182.
- Nakanishi, S. 1992. Molecular diversity of glutamate receptors and implications for brain function. *Science* 258: 597-603.
- Stern, P., Edwards, F.A. and Sakmann, B. 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.
- Bliss, T.V. and Collingridge, G.L. 1993. A synaptic model of memory: long-term potentiation in the hippocampus. *Nature* 361: 31-39.
- Hollmann, M. and Heinemann, S. 1994. Cloned glutamate receptors. *Annu. Rev. Neurosci.* 17: 31-108.
- Schiffer, H.H., Swanson, G.T. and Heinemann, S.F. 1997. Rat GluR-7 and a carboxy-terminal splice variant, GluR-7b, are functional kainate receptor subunits with a low sensitivity to glutamate. *Neuron* 19: 1141-1146.
- Xia, J., Chung, H.J., Wihler, C., Haganir, R.L. and Linden, D.J. 2000. Cerebellar long-term depression requires PKC-regulated interactions between GluR-2/3 and PDZ domain-containing proteins. *Neuron* 28: 499-510.

## CHROMOSOMAL LOCATION

Genetic locus: GRIA2 (human) mapping to 4q32.1, GRIA3 (human) mapping to Xq25; Gria2 (mouse) mapping to 3 E3, Gria3 (mouse) mapping to X A3.3.

## SOURCE

p-GluR-2/3 (Ser 880/Ser 891) is available as either goat (sc-17088) or rabbit (sc-17088-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Ser 880 and Ser 891 phosphorylated GluR-2 and GluR-3 of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17088 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

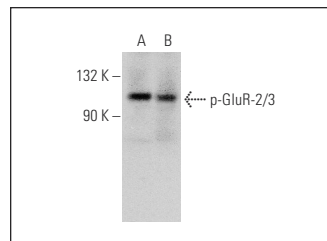
p-GluR-2/3 (Ser 880/Ser 891) is recommended for detection of Ser 880 and Ser 891 phosphorylated GluR-2 and GluR-3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of 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-2/3 (Ser 880/Ser 891) is also recommended for detection of correspondingly phosphorylated GluR-2 and GluR-3 in additional species, including equine, bovine, porcine and avian.

Molecular Weight of p-GluR-2/3: 100/103 kDa.

Positive Controls: Mouse brain extract: sc-2253 or rat brain extract: sc-2392.

## DATA



p-GluR-2/3 (Ser 880/Ser 891): sc-17088. Western blot analysis of GluR-2/3 phosphorylation in rat brain (A) and mouse brain (B) tissue extracts.

## SELECT PRODUCT CITATIONS

- Ménard, C., Patenaude, C. and Massicotte, G. 2005. Phosphorylation of AMPA receptor subunits is differentially regulated by phospholipase  $A_2$  inhibitors. *Neurosci. Lett.* 389: 51-56.
- Grauer, S.M., Pulito, V.L., Navarra, R.L., Kelly, M.P., Kelley, C., Graf, R., Langen, B., Logue, S., Brennan, J., Jiang, L., Charych, E., Egerland, U., Liu, F., Marquis, K.L., Malamas, M., Hage, T., Comery, T.A. and Brandon, N.J. 2009. Phosphodiesterase 10A inhibitor activity in preclinical models of the positive, cognitive, and negative symptoms of schizophrenia. *J. Pharmacol. Exp. Ther.* 331: 574-590.

## STORAGE

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