

# KA1 (C-20): sc-8917

## 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 GluR-1 to -7, KA1 and KA2. KA1 (also designated EEA1) and KA2 (also designated EEA2) form heteromeric receptors with GluR subunits when coexpressed, forming ion channels with various properties. The kainate/AMPA receptors are primarily responsible for the fast excitatory neuro-transmission by glutamate.

## REFERENCES

- Choi, D.W., et al. 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.
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- Herb, A., et al. 1992. The KA2 subunit of excitatory amino acid receptors shows widespread expression in brain and forms ion channels with distantly related subunits. *Neuron* 8: 775-785.
- 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.
- Hollmann, M., et al. 1994. Cloned glutamate receptors. *Annu. Rev. Neurosci.* 17: 31-108.
- Kamboj, R.K., et al. 1994. Molecular cloning, expression, and pharmacological characterization of humEAA1, a human kainate receptor subunit. *J. Neurochem.* 62: 1-9.
- Schiffer, H.H., et al. 1997. Rat GluR7 and a carboxy-terminal splice variant, GluR7b, are functional kainate receptor subunits with a low sensitivity to glutamate. *Neuron* 19: 1141-1146.

## CHROMOSOMAL LOCATION

Genetic locus: GRIK4 (human) mapping to 11q23.3; Grik4 (mouse) mapping to 9 A5.1

## SOURCE

KA1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of KA1 of human origin.

## STORAGE

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

## 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-8917 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

KA1 (C-20) is recommended for detection of KA1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

KA1 (C-20) is also recommended for detection of KA1 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for KA1 siRNA (h): sc-42493, KA1 siRNA (m): sc-42494, KA1 shRNA Plasmid (h): sc-42493-SH, KA1 shRNA Plasmid (m): sc-42494-SH, KA1 shRNA (h) Lentiviral Particles: sc-42493-V and KA1 shRNA (m) Lentiviral Particles: sc-42494-V.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Chan, S.H., et al. 2002. Up-regulation of glutamate receptors in nucleus tractus solitarius underlies potentiation of baroreceptor reflex by heat shock protein 70. *Mol. Pharmacol.* 61: 1097-1104.
- Kwon, O.J., et al. 2007. Identification of synaptic pattern of kainate glutamate receptor subtypes on direction-selective retinal ganglion cells. *Neurosci. Res.* 58: 255-264.
- Lee, J.G., et al. 2012. Synaptic pattern of KA1 and KA2 upon the direction-selective ganglion cells in developing and adult mouse retina. *Acta Histochem. Cytochem.* 45: 35-45.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.