

**BACKGROUND**

The PSD-95/SAP 90 family of proteins, which are known to bind to and cluster various membrane proteins, are involved in the organization of synaptic structure. SynGAP (for synaptic GTPase activating protein), a novel synaptic RasGAP, is a brain-specific protein abundant in the cortex, hippocampus and olfactory bulb. SynGAP interacts with all three PDZ domains within PSD-95/SAP 90 proteins. SynGAP represents one of three classes of mammalian RasGAPs and is specifically localized to excitatory synapses possessing NMDA receptors. SynGAP may be involved in the regulation of BDNF as well as Ras signaling. Its activity is inhibited by phosphorylation by CaMKII which could result in the activation of the MAP kinase pathway.

**REFERENCES**

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- Komiyama, N.H., et al. 2002. SynGAP regulates ERK/MAPK signaling, synaptic plasticity, and learning in the complex with postsynaptic density 95 and NMDA receptor. *J. Neurosci.* 22: 9721-9732.
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- Krapivinsky, G., et al. 2004. SynGAP-MUPP1-CaMKII synaptic complexes regulate p38 MAP kinase activity and NMDA receptor-dependent synaptic AMPA receptor potentiation. *Neuron* 43: 563-574.
- Vazquez, L.E., et al. 2004. SynGAP regulates spine formation. *J. Neurosci.* 24: 8862-8872.

**CHROMOSOMAL LOCATION**

Genetic locus: Syngap1 (mouse) mapping to 17 A3.3.

**SOURCE**

SynGAP (R-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of SynGAP of rat 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-8572 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

**APPLICATIONS**

SynGAP (R-19) is recommended for detection of SynGAP of mouse and rat 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).

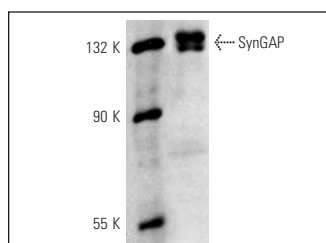
Suitable for use as control antibody for SynGAP siRNA (m): sc-42284, SynGAP shRNA Plasmid (m): sc-42284-SH and SynGAP shRNA (m) Lentiviral Particles: sc-42284-V.

Molecular Weight of SynGAP: 135 kDa.

Positive Controls: mouse brain extract: sc-2253.

**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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/ 2.0 ml). 3) 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.

**DATA**

SynGAP (R-19): sc-8572. Western blot analysis of SynGAP expression in mouse brain extract.

**SELECT PRODUCT CITATIONS**

- Vinade, L., et al. 2003. Affinity purification of PSD-95-containing post-synaptic complexes. *J. Neurochem.* 87: 1255-1261.
- Trinidad, J.C., et al. 2006. Comprehensive identification of phosphorylation sites in postsynaptic density preparations. *Mol. Cell Proteomics* 5: 914-922.

**STORAGE**

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

**RESEARCH USE**

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