

#5540 Store at -20C

# SynGAP (D78B11) Rabbit mAb



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<b>Applications:</b> W, IP	<b>Reactivity:</b> M R	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 140	<b>Source/Isotype:</b> Rabbit IgG	<b>UniProt ID:</b> #Q96PV0	<b>Entrez-Gene Id:</b> 8831
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## Product Usage Information

### Application

Western Blotting  
Immunoprecipitation

### Dilution

1:1000  
1:50

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

## Specificity/Sensitivity

SynGAP (D78B11) Rabbit mAb detects endogenous levels of total SynGAP protein.

## Species predicted to react based on 100% sequence homology

Human

## Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide surrounding Arg732 of human SynGAP protein.

## Background

SynGAP is a synaptic GTPase-activating protein selectively expressed in the brain and found at higher concentrations, specifically at excitatory synapses in the mammalian forebrain. SynGAP has a PH domain, a C2 domain, and a highly conserved RasGAP domain, which negatively regulates both Ras activity and its downstream signaling pathways. SynGAP interacts with the PDZ domains of SAP102, as well as PSD95, a postsynaptic scaffolding protein that couples SynGAP to NMDA receptors (1). SynGAP is phosphorylated by Ca<sup>2+</sup>/calmodulin-dependent protein kinase II (CaMKII) at Ser765 and Ser1123, among other sites (2,3). Phosphorylation of SynGAP results in stimulation of the GTPase activity of Ras, and PSD95-dependent CaMKII phosphorylation of SynGAP increases after transient brain ischemia (1,4). SynGAP is implicated in NMDAR- and CaMKII-dependent regulation of AMPAR trafficking and plays an important role in synaptic plasticity (3,5). SynGAP is critical during neuronal development as mice lacking SynGAP protein die postnatally. Furthermore, SynGAP mutant mice have reduced long-term potentiation (LTP) and perform poorly in spatial memory tasks (6).

## Background References

1. Kim, J.H. et al. (1998) *Neuron* 20, 683-91.
2. Oh, J.S. et al. (2004) *J Biol Chem* 279, 17980-8.
3. Krapivinsky, G. et al. (2004) *Neuron* 43, 563-74.
4. Song, B. et al. (2004) *Brain Res* 1005, 44-50.
5. Komiyama, N.H. et al. (2002) *J Neurosci* 22, 9721-32.
6. Kim, J.H. et al. (2003) *J Neurosci* 23, 1119-24.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Western Blot Buffer

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween@ 20 at 4°C with gentle shaking, overnight.

## Applications Key

**W:** Western Blotting **IP:** Immunoprecipitation

## Cross-Reactivity Key

**M:** Mouse **R:** Rat

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