Revision 1

Store at -20C

#13638

Phospho-GKAP (Ser346) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	M R	Endogenous	90-150	Rabbit	#O14490	9229

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

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

Specificity/Sensitivity

Phospho-GKAP (Ser346) Antibody recognizes endogenous levels of GKAP protein only when phosphorylated at Ser346.

Species predicted to react based on 100% sequence homology

Human

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser346 of human GKAP protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Guanylate kinase-associated protein (GKAP, DLGAP1 or SAPAP1) is part of the postsynaptic scaffolding complex that includes the PSD-95, SAP90, and SHANK proteins (1-3). GKAP links the synaptic protein SHANK to a PSD-95 complex that includes NMDA glutamate receptors (3,4). Synaptic activity induces ubiquitination of GKAP protein by the E3 ubiquitin ligase TRIM3, which results in decreased GKAP protein levels through degradation (5,6). GKAP protein turnover is regulated by a CaMKII-dependent, bidirectional mechanism. Synaptic over-excitation leads to CaMKIIα-mediated GKAP phosphorylation at Ser346, which induces polyubiquitination of GKAP and removal of the scaffold protein from synapses. In contrast, during low-level synaptic activity CaMKIIβ phosphorylates GKAP, which triggers dissociation of GKAP from the motor protein complex responsible for GKAP transport to the base of the synapse and its subsequent incorporation into the postsynaptic density (7).

Background References

1. Satoh, K. et al. (1997) *Genes Cells* 2, 415-24.
2. Kim, E. et al. (1997) *J Cell Biol* 136, 669-78.
3. Naisbitt, S. et al. (1999) *Neuron* 23, 569-82.
4. Romorini, S. et al. (2004) *J Neurosci* 24, 9391-404.
5. Ehlers, M.D. (2003) *Nat Neurosci* 6, 231-42.
6. Hung, A.Y. et al. (2010) *PLoS One* 5, e9842.
7. Shin, S.M. et al. (2012) *Nat Neurosci* 15, 1655-66.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

M: Mouse **R:** Rat

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Limited Uses

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