Revision 4

Store at -20C

#5306

AMPA Receptor 2 (GluA2) (D39F2) Rabbit mAb

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	100	Rabbit IgG	#P42262	2891

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, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

AMPA Receptor 2 (GluA2) (D39F2) Rabbit mAb detects endogenous levels of total GluA2 protein. The antibody is not predicted to recognize other AMPA receptor subunits (e.g. GluA1, GluA3 or GluA4) based on sequence homology of the antigen.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human GluA2 protein.

Background

AMPA- (α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid), kainate-, and NMDA- (N-methyl-D-aspartate) receptors are the three main families of ionotropic glutamate-gated ion channels. AMPA receptors (AMPARs) are comprised of four subunits (GluR 1-4), which assemble as homo- or hetero-tetramers to mediate the majority of fast excitatory transmissions in the central nervous system. AMPARs are implicated in synapse formation, stabilization, and plasticity (1). In contrast to GluR 2-containing AMPARs, AMPARs that lack GluR 2 are permeable to calcium (2). Post-transcriptional modifications (alternative splicing, nuclear RNA editing) and post-translational modifications (glycosylation, phosphorylation) result in a very large number of permutations, fine-tuning the kinetic properties of AMPARs. Research studies have implicated activity changes in AMPARs in a variety of diseases including Alzheimer's, amyotrophic lateral sclerosis (ALS), stroke, and epilepsy (1).
Src family tyrosine kinases phosphorylate the GluR 2 subunit of AMPA receptors at Tyr876, which increases the interaction with GRIP1/2 but not PICK1. In addition, Tyr876 is important for AMPA- and NMDA-induced GluR 2 internalization (3). The phosphorylation sites at Tyr869, Tyr873 and Tyr876 were identified at Cell Signaling Technology (CST) using PhosphoScan®, CST's MS/MS platform for phosphorylation site discovery (4). Phosphorylation of GluR 2 at Tyr869, Tyr873 and Tyr876 was observed in extracts isolated from ischemic rat brain. These sites were independently found in a large-scale identification of tyrosine phosphorylation sites from murine brain (5).

Background References

1. Palmer, C.L. et al. (2005) *Pharmacol Rev* 57, 253-77.
2. Cull-Candy, S. et al. (2006) *Curr Opin Neurobiol* 16, 288-97.
3. Hayashi, T. and Huganir, R.L. (2004) *J Neurosci* 24, 6152-60.
4. Rush, J. et al. (2005) *Nat Biotechnol* 23, 94-101.
5. Ballif, B.A. et al. (2008) *J Proteome Res* 7, 311-8.

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

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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