



PhosphoSolutions®
Antibodies that work™

Colorado Biosciences Park
12635 East Montview Boulevard, #213
Aurora, CO 80045-7337
Tel: (888) 442-7100

Anti-GABA_A Receptor, γ_2 -Subunit

Catalog Number: 832-GG2C

Size: 100 μ l

Product Description: Affinity purified rabbit polyclonal antibody

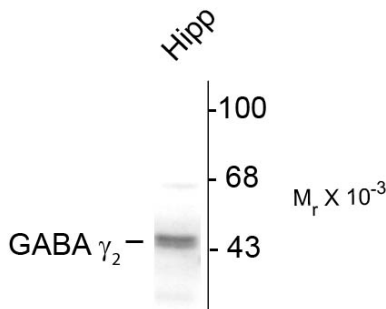
Applications: **WB:** 1:1000 **IHC:** 1:100

Antigen: Fusion protein from the cytoplasmic loop of the γ_2 -subunit of rat GABA_A receptor.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with rat tissue. It is anticipated that the antibody will react with bovine, canine, chicken, human, mouse and non-human primate based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: *Gamma*-aminobutyric acid (GABA) is the primary inhibitory neurotransmitter in the central nervous system, causing a hyperpolarization of the membrane through the opening of a Cl⁻ channel associated with the GABA_A receptor (GABA_A-R) subtype. GABA_A-Rs are important therapeutic targets for a range of sedative, anxiolytic, and hypnotic agents and are implicated in several diseases including epilepsy, anxiety, depression, and substance abuse. The GABA_A-R is a multimeric subunit complex. To date six α s, four β s and four γ s, plus alternative splicing variants of some of these subunits, have been identified (Olsen and Tobin, 1990; Whiting et al., 1999; Ogris et al., 2004). Injection in oocytes or mammalian cell lines of cRNA coding for α - and β -subunits results in the expression of functional GABA_A-Rs sensitive to GABA. However, coexpression of a γ -subunit is required for benzodiazepine modulation. The various effects of the benzodiazepines in brain may also be mediated via different α -subunits of the receptor (McKernan et al., 2000; Mehta and Ticku, 1998; Ogris et al., 2004; Pörtl et al., 2003).

Anti-GABA_A-Receptor, γ_2 -Subunit



Western blot of 10 μ g of rat hippocampal (Hipp) lysate showing specific immunolabeling of the ~46k γ_2 -subunit of GABA_A-R.

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WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation

Packaging: 100 μ l in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 μ g per ml BSA and 50% glycerol. Adequate amount of material to conduct 10-mini Western Blots.

Storage and Stability. For long term storage -20°C is recommended. Stable at -20°C for at least 1 year.

Shipment: Domestic - Blue Ice; International - Blue Ice or Dry Ice.

Purification Method: Prepared from rabbit serum by affinity purification using a column to which the fusion protein immunogen was coupled.

Antibody Specificity: Specific for the ~46k γ_2 -subunit of the GABA_A receptor in Western blots.

Quality Control Tests: Western blots performed on each lot.

References:

- Brandon NJ, Jovanovic JN, Colledge M, Kittler JT, Brandon JM, Scott JD, Moss SJ (2003) A kinase anchoring protein 79/150 facilitates the phosphorylation of GABA_A receptors by cAMP-dependent protein kinase via selective interaction with receptor β -subunits. *Mol Cell Neurosci* 22:87-97.
- McKernan RM, et al. (2000) Sedative but not anxiolytic properties of benzodiazepines are mediated by the GABA_A receptor α_1 -subtype. *Nature Neurosci* 3:587-592.
- Mehta AK, Ticku MK (1998) Prevalence of the GABA_A receptor assemblies containing α_1 -subunit in the rat cerebellum and cerebral cortex as determined by immunoprecipitation: Lack of modulation by chronic ethanol administration. *Mol Brain Res* 67:194-199.
- Ogris W, Pörtl A, Hauer B, Ernst M, Oberto A, Wulff P, Höger H, Wisden W, Sieghart W (2004) Affinity of various benzodiazepine site ligands in mice with a point mutation in the GABA_A receptor γ_2 -subunit. *Biochem Pharmacol* 68:1621-1629.
- Olsen RW, Tobin AJ (1990) Molecular biology of GABA_A receptors. *FASEB* 4:1469-1480.
- Pörtl A, Hauer B, Fuchs K, Tretter V, Sieghart W (2003) Subunit composition and quantitative importance of GABA_A receptor subtypes in the cerebellum of mouse and rat. *J Neurochem* 87:1444-1455.
- Whiting PJ, Bonnert TP, McKernan RM, Farrar S, Le Bourdellès B, Heavens RP, Smith DW, Hewson L, Rigby MR, Sirinathsinghji DJS, Thompson SA, Wafford KA (1999) Molecular and functional diversity of the expanding GABA_A receptor gene family. *Ann NY Acad Sci* 868:645-653.
- Wen-Hai Chou, Dan Wang, Thomas McMahon, Zhan-Heng Qi, Maengseok Song, Chao Zhang, Kevan M. Shokat, and Robert O. Messing (2010) GABA_A Receptor Trafficking Is Regulated by Protein Kinase C δ and the *N*-Ethylmaleimide-Sensitive Factor *J. Neurosci.*, 30: 13955 - 13965.

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