

# Rabbit Anti-GABA<sub>A</sub> Receptor ( $\gamma_2$ Subunit) Certificate of Analysis

## ORDERING INFORMATION

**Catalog Number:** PPS072

**Lot Number:** 1639284

**Size:** 50  $\mu$ L (sufficient for 10 mini-blots)

**Storage:**  $\leq -20^\circ\text{C}$

**Specificity:** Bovine, human, mouse, and rat  
~44 - 47 kDa  $\gamma_2$ -subunit of the  
GABA<sub>A</sub> Receptor

**Immunogen:** Peptide representing a  
sequence that is specific for the  
 $\gamma_2$ -subunit of rat GABA<sub>A</sub>  
Receptor

**Ig Type:** rabbit serum

**Applications:** Western blot

## Description

GABA<sub>A</sub> ( $\gamma$ -aminobutyric acid-type A) receptors are members of the cysteine-loop family of neurotransmitter-gated ion channels. GABA binding to A-type receptors induces anion-selective ion channel opening. These receptors are the principal fast inhibitory neurotransmitter receptors in the CNS. GABA<sub>A</sub> receptors are heteropentamer combinations of seven subunit types;  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\theta$ , and  $\pi$ . Three subunits,  $\alpha$ ,  $\beta$ , and  $\gamma$ , have at least three separate gene products in mammals, and typical GABA<sub>A</sub> receptors have some combination of an  $\alpha$ ,  $\beta$  and  $\gamma$  subunit. The rat  $\gamma_2$  isoform is a 48 kDa, 436 amino acid (aa), 4 transmembrane protein with two terminal extracellular regions. The ligand-binding region is in the N-terminus (aa 30 - 233). The  $\gamma_2$  subunit is part of the most common GABA<sub>A</sub> receptor combination in the mammalian brain ( $\alpha_1\beta_2\gamma_2$ ). GABA binds at  $\alpha$ - $\beta$  interfaces, while benzodiazepine binds to  $\alpha$ - $\gamma$  interfaces. There are two splice forms, the longest that contains a consensus phosphorylation site in the second cytoplasmic domain, and a short form that shows an absence of this site through a deletion of aa 376 - 383. PKC phosphorylates the long form at S381, while both the short and long forms are phosphorylated at S365. Phosphorylation blocks receptor activity.  $\gamma_2$  subunits are also palmitoylated at multiple sites on cysteines that lie between aa 415 - 461, facilitating membrane trafficking.

## Formulation

50  $\mu$ L of unpurified rabbit serum.

## Storage

For long-term storage,  $\leq -20^\circ\text{C}$  is recommended. Product is stable at  $\leq -20^\circ\text{C}$  for at least 1 year.

## Specificity

This antibody is specific for the ~44 - 47 kDa doublet due to alternative splicing of the  $\gamma_2$  subunit of the GABA<sub>A</sub> Receptor in Western blots of rat brain lysates.

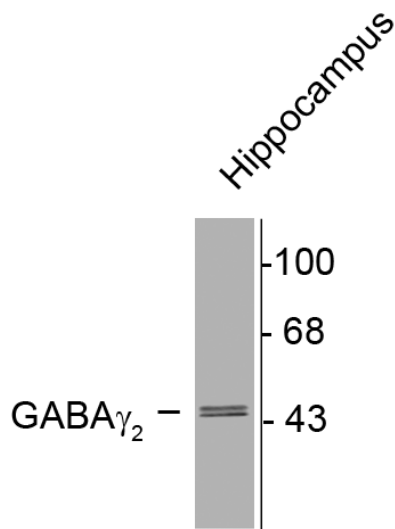
## Applications

**Western blot** - 1:1000

**Optimal dilutions should be determined by each laboratory for each application.**

## References

1. Darlison, M.G. *et al.* (2005) Cell. Mol. Neurobiol. **25**:607.
2. Akabas, M.H. (2004) Int. Rev. Neurobiol. **62**:1.
3. Song, M. and R.O. Messing (2005) Cell. Mol. Life Sci. **62**:119.
4. Krishek, B.J. *et al.* (1994) Neuron **12**:1081.
5. Keller, C.A. *et al.* (2004) J. Neurosci. **24**:5881.
6. Moss, S.J. *et al.* (1992) J. Biol. Chem. **267**:14470.



Western blot of rat brain lysate showing specific immunolabeling of the approximately 44 - 47 kDa  $\gamma_2$  subunit of the GABA<sub>A</sub> R.

Diane Wotta

Quality & Regulatory Affairs

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