SIGMA ®

ProductInformation

Anti-GABA$_A$ α4, N-Terminus
Developed in Rabbit, Affinity Isolated Antibody

Product Number **G 0170**

Product Description
Anti-phospho-GABA$_A$ α4 N-terminus antibody is developed in rabbit using a synthetic peptide from the N-terminus of the rat GABA$_A$ receptor α4 subunit coupled to KLH as immunogen. The antiserum is affinity purified with peptide coupled to thiopropylsepharose.

The antibody specifically detects GABA$_A$ receptor α4 subunit (protein with apparent molecular mass of 64 kDa) in rat brain membrane fractions. It has been used in immunoblotting and immunoprecipitation applications.

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 αs, four βs and four γs, plus alternative splicing variants of some of these subunits, have been identified. 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 requiredfor benzodiazepine modulation. The various effects of the benzodiazepines in brain may also be mediated via different α subunits of the receptor. Lastly, phosphorylation of β subunits of the receptor has been shown to modulate GABA$_A$-R function.

Reagent
The antibody is supplied in 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol.

Storage/Stability
Store at −20 °C. Due to the presence of 50% glycerol the antibody will remain in solution. For extended storage, centrifuge the vial briefly before opening and prepare working aliquots. The antibody is stable for at least 24 months when stored appropriately. Defrosted aliquots in use should be stored at 4 °C, refreeze always with liquid nitrogen or similar. Avoid repeated freezing and thawing.

Product Profile
The supplied reagent is sufficient for 10 immunoblots.

A recommended working dilution of 1:1000 – 1:2000 is determined by immunoblotting specific for the 64kD GABA$_A$ Receptor α$_4$-Subunit in rat brain lysate.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

Results

Anti- α$_4$ subunit of the GABA$_A$-R
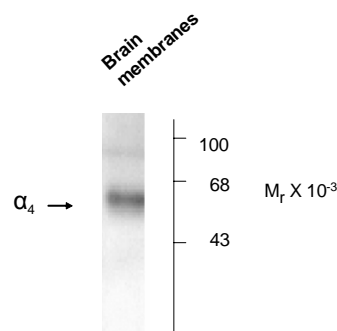
Immunoblot analysis of rat brain (hippocampal) lysates using approximately 5 – 7 µg of tissue per slot. Blots were incubated with anti-GABA$_A$-R, α4-Subunit, N-Terminus diluted 1:1000 overnight at 4°C. The antibody labelled the ~64k α4 subunit of the GABA$_A$-R.

References

1. Zezula, J., et al., Separation of α_1, α_2 and α_3 subunits of the $GABA_A$-benzodiazepine receptor complex by immunoaffinity chromatography. Brain Res, **563,** 325-8 (1991).

2. Bencsits, E., et al., A significant part of native γ-aminobutyric $acid_A$ receptors containing α_4 subunits do not contain γ or δ subunits. J. Biol. Chem. **274,** 19613-19616 (1999).

3. Kittler, J.T., et.al., Mechanisms of $GABA_A$ receptor assembly and trafficking - Implications for the modulation of inhibitory neurotransmission. Mol. Neurobiol. **26,** 2251–268 (2002).

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