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ProductInformation

Anti-$GABA_A$ Receptor (α6 subunit), Cytosolic Loop
Developed in Rabbit, Affinity Isolated Antibody

Product Number **G 0295**

Product Description

Anti-$GABA_A$ Receptor (α6 subunit), cytosolic loop, is developed in rabbit using a fusion protein with the amino acid sequence representing the cytosolic loop of the rat $GABA_A$ receptor (α6 subunit) as immunogen. The antiserum is purified by affinity chromatography on columns containing the antigen fusion protein.

The antibody specifically detects 56-57 kDa $GABA_A$ receptor α6 subunit in rat brain membrane fractions. The antibody does not recognize any other $GABA_A$-R subunits as reactivity is eliminated in α_6 knockout brain. It has been used in immunoblotting applications.

γ-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 required for 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 of 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 at –20 °C. Defrosted aliquots in use should be stored at 4 °C. Avoid repeated freezing and thawing.

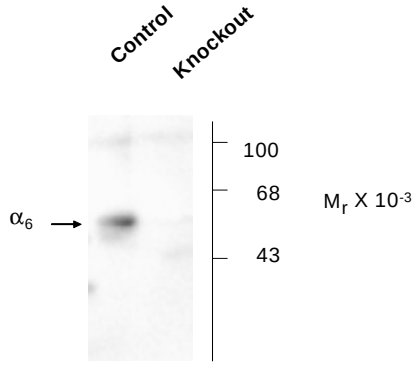
Product Profile

A recommended working dilution of 1:1000 is determined by immunoblotting and dot blot on rat brain membrane fraction.

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

Results

Anti-α_6 subunit of the $GABA_A$-R



Immunoblot analysis of forebrain lysates from wildtype and α_6 knockout animals, using approximately 5 – 7 µg of tissue per slot. Blots were incubated with anti-$GABA_A$-R α_6 subunit diluted 1:1000 overnight at 4°C. The antibody labelled the ~56-57 kDa α_6 subunit of the $GABA_A$-R in the wild type but not in the α_6 knockout animals.

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,** 325-328 (1991).

2. Nusser, Z., et al., Alterations in the expression of $GABA_A$ receptor subunits in cerebellar granule cells after the disruption of the α_6 subunit gene., Eur. Neurosci., **11**, 1685-1697. (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** 225- 268 (2002).

AH/JK/PHC 07/04