

PRODUCT INFORMATION

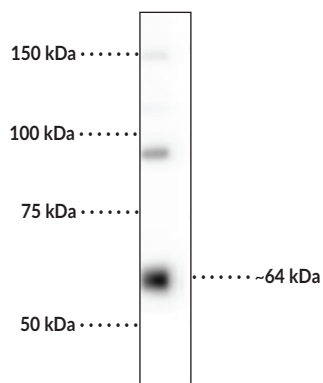


GABA_A Receptor α_4 Subunit Polyclonal Antibody Item No. 29270

Overview and Properties

Contents:	This vial contains 100 μ l of affinity-purified pooled rabbit serum polyclonal antibody.
Synonyms:	Gamma-aminobutyric Acid (GABA) A Receptor, α_4 , Gamma-aminobutyric Acid Receptor Subunit α_4 , GABA _A Receptor Subunit α_4
Immunogen:	Fusion protein from the cytoplasmic loop of the α_4 subunit of the rat GABA _A receptor
Molecular Weight:	~64 kDa
Species Reactivity:	(+) Mouse, rat
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	\geq 1 year
Storage Buffer:	10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 μ g/ml BSA, and 50% glycerol
Host:	Rabbit
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC is 1:300 and 1:1,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



WB of rat hippocampal lysate showing specific immunolabeling of the ~64 kDa α_4 subunit of the GABA_A receptor.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

GABA_A receptors are ligand-gated chloride channels that mediate the effects of the inhibitory neurotransmitter GABA in the CNS.^{1,2} They are postsynaptic heteropentameric receptors that contains protein subunits from the following isoforms: α_{1-6} , β_{1-4} , γ_{1-3} , δ , ϵ , π , θ , and ρ_{1-3} , arranged around a central pore. Phasic inhibitory synaptic transmission is regulated by $\alpha_1\beta_2\gamma_2$ subunit-containing GABA_A receptors, the major isoform found in the brain.^{2,3} The α subunit of GABA_A receptors interfaces with a β subunit to form the GABA binding site that initiates GABA-induced action potentials and forms the benzodiazepine binding site with the γ subunit. The GABA_A receptor α_4 subunit is found at high levels in the thalamus and hippocampal dentate gyrus, with moderate levels in the cortex and low levels in other brain regions.⁴ Knockdown of *Gabrar4*, which encodes the α_4 subunit isoform, inhibits tonic inhibition in thalamic relay neurons and prevents sedative effects induced by the GABA_A receptor agonist gaboxadol (Item No. 16355) or ethanol in mice. *Gabrar4* knockout also inhibits the development of tolerance in a rat model of chronic intermittent ethanol administration.⁵ Cayman's GABA_A Receptor α_4 Subunit Polyclonal Antibody can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes the GABA_A receptor α_4 subunit at approximately 64 kDa from mouse and rat samples.

References

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2. Hirose, S. Mutant GABA_A receptor subunits in genetic (idiopathic) epilepsy. *Genetics of epilepsy*. Steinlein, O., editor, 1st edition, Elsevier (2014).
3. Wongsamitkul, N., Maldifassi, M.C., Simeone, X., et al. α subunits in GABA_A receptors are dispensable for GABA and diazepam action. *Sci. Rep.* **7(1)**, 15498 (2017).
4. Jia, F., Pignataro, L., and Harrison, N.L. GABA_A receptors in the thalamus: α_4 subunit expression and alcohol sensitivity. *Alcohol* **41(3)**, 177-185 (2007).
5. Olsen, R.W. and Liang, J. Role of GABA_A receptors in alcohol use disorders suggested by chronic intermittent ethanol (CIE) rodent model. *Mol. Brain* **10(1)**, 45 (2017).

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