PRODUCT INFORMATION

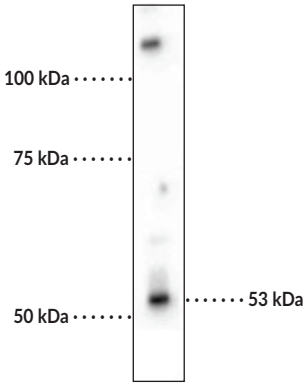
$GABA_A$ Receptor β_3 Subunit Polyclonal Antibody

Item No. 29275

Overview and Properties

Contents:	This vial contains 100 µl of affinity-purified rabbit polyclonal antibody.
Synonyms:	GABRB3, Gamma-aminobutyric Acid Receptor Subunit β_3
Immunogen:	Fusion protein from the cytoplasmic loop of the β_3 subunit of the rat $GABA_A$ receptor
Molecular Weight:	~53 kDa
Species Reactivity:	(+) Mouse, rat
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 µg/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 brain lysate showing specific immunolabeling of the ~53 kDa β_3-subunit of the $GABA_A$ receptor.

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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 contain 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 β subunit of $GABA_A$ receptors interfaces with an α subunit to form the GABA binding site that initiates GABA-induced action potentials and forms the benzodiazepine binding site with the γ subunit. β_3 subunit-containing $GABA_A$ receptors are widely expressed in the cerebral cortex, cerebellum, olfactory bulb, and hippocampus.[4] Phosphorylation of the β_3 subunit by PKA or PKC inhibits binding of the β_3 subunit with the clathrin adaptor protein AP2 and reduces $GABA_A$ receptor endocytosis.[5] Mutations in *GABRB3*, which encodes the β_3 subunit isoform, have been found in patients with childhood absence epilepsy (CAE), infantile spasms (IS), and Lennox-Gastaut syndrome (LGS).[2] Cayman's $GABA_A$ Receptor β_3 Subunit Polyclonal Antibody can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes the $GABA_A$ receptor β_3 subunit at approximately 53 kDa from rat and mouse samples.

References

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2. Hirose, S. Mutant $GABA_A$ receptor subunits in genetic (idiopathic) epilepsy. *Prog. Brain Res.* **213**, 55-85 (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. Miralles, C.P., Li, M., Mehta, A.K., *et al.* Immunocytochemical localization of the β_3 subunit of the γ-aminobutyric $acid_A$ receptor in the rat brain. *J. Comp. Neurol.* **413(4)**, 535-548 (1999).
5. Vithlani, M., Moss, S.J., and Terunuma, M. The dynamic modulation of $GABA_A$ receptor trafficking and its role in the formation of inhibitory synapses. *Physiol. Rev.* **91(3)**, 1009-1022 (2011).

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