Synaptic Systems

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GABA-A receptor α1

Cat.No. 224 203; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 (see remarks) **IHC**: 1 : 1000 up to 1 : 5000 (see remarks) **IHC-P/FFPE**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 28 to 43 from rat GABA-A receptor α1 (UniProt Id: P62813)
Reactivity	Reacts with: rat (P62813), mouse (P62812). Other species not tested yet.
Specificity	Specific for GABA-A receptor α1. (K.O. verified)
matching control	224-2P
Remarks	**WB**: This protein aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples. **ICC**: This antibody is PFA fixation sensitive, use only mild fixation (2% PFA).Best results are obtained by application on living cells. After washingcells with bound antibodies, they can be fixed and visualized with secondaryreagents. **IHC**: For best results use the protocol of Schneider Gasser et al., 2006.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Gamma-**a**mino**b**utyric **a**cid type **A** (**GABA-A**) receptors mediate the majority of inhibitory neurotransmission in the brain. These receptor proteins are ligand gated chloride ion channels and consist of a pentameric combination of different subunits (**alpha**, beta, gamma, delta, epsilon and rho). The resulting heterogenous population of GABA-A receptor subtypes are expressed throughout the brain with specific cellular and subcellular expression patterns.

Selected References SYSY Antibodies

Different subtypes of GABA-A receptors are expressed in human, mouse and rat T lymphocytes.
Mendu SK, Bhandage A, Jin Z, Birnir B
PloS one (2012) 7(8): e42959. **WB, ICC**

Chronic Toxoplasma infection is associated with distinct alterations in the synaptic protein composition.
Lang D, Schott BH, van Ham M, Morton L, Kulikovskaja L, Herrera-Molina R, Pielot R, Klawonn F, Montag D, Jänsch L, Gundelfinger ED, et al.
Journal of neuroinflammation (2018) 15(1): 216. **WB, IHC; tested species: mouse**

IgSF9b regulates anxiety behaviors through effects on centromedial amygdala inhibitory synapses.
Babaev O, Cruces-Solis H, Piletti Chatain C, Hammer M, Wenger S, Ali H, Karalis N, de Hoz L, Schlüter OM, Yanagawa Y, Ehrenreich H, et al.
Nature communications (2018) 9(1): 5400. **IHC; tested species: mouse**

Iterative expansion microscopy.
Chang JB, Chen F, Yoon YG, Jung EE, Babcock H, Kang JS, Asano S, Suk HJ, Pak N, Tillberg PW, Wassie AT, et al.
Nature methods (2017) 14(6): 593-599. **IHC; tested species: mouse**

Behavioral profiling as a translational approach in an animal model of posttraumatic stress disorder.
Ardi Z, Albrecht A, Richter-Levin A, Saha R, Richter-Levin G
Neurobiology of disease (2016) 88: 139-47. **WB**

Structural and functional characterization of dendritic arbors and GABAergic synaptic inputs on interneurons and principal cells in the rat basolateral amygdala.
Klenowski PM, Fogarty MJ, Belmer A, Noakes PG, Bellingham MC, Bartlett SE
Journal of neurophysiology (2015) 114(2): 942-57. **IHC**

Structure of excitatory synapses and GABAA receptor localization at inhibitory synapses are regulated by neuroplastin-65.
Herrera-Molina R, Sarto-Jackson I, Montenegro-Venegas C, Heine M, Smalla KH, Seidenbecher CI, Beesley PW, Gundelfinger ED, Montag D
The Journal of biological chemistry (2014) 289(13): 8973-88. **ICC; tested species: mouse**

Synaptic recruitment of gephyrin regulates surface GABAA receptor dynamics for the expression of inhibitory LTP.
Petrini EM, Ravasenga T, Hausrat TJ, Iurilli G, Olcese U, Racine V, Sibarita JB, Jacob TC, Moss SJ, Benfenati F, Medini P, et al.
Nature communications (2014) 5: 3921. **IHC; tested species: mouse**

Differential GABAergic and glycinergic inputs of inhibitory interneurons and Purkinje cells to principal cells of the cerebellar nuclei.
Husson Z, Rousseau CV, Broll I, Zeilhofer HU, Dieudonné S
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 34(28): 9418-31. **IHC; tested species: mouse**

Molecular and functional diversity of GABA-A receptors in the enteric nervous system of the mouse colon.
Seifi M, Brown JF, Mills J, Bhandari P, Belelli D, Lambert JJ, Rudolph U, Swinny JD
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 34(31): 10361-78. **IHC; KO verified; tested species: mouse**

Selected General References

The distribution of thirteen GABAA receptor subunit mRNAs in the rat brain. III. Embryonic and postnatal development.
Laurie DJ, Wisden W, Seeburg PH
The Journal of neuroscience : the official journal of the Society for Neuroscience (1992) 12(11): 4151-72.

GABA receptor heterogeneity modulates dendrodendritic inhibition.
Sassoè-Pognetto M, Panzanelli P, Lagier S, Fritschy JM, Lledo PM
Annals of the New York Academy of Sciences (2009) 1170: 259-63.

Synaptogenesis in the cerebellar cortex: differential regulation of gephyrin and GABAA receptors at somatic and dendritic synapses of Purkinje cells.
Viltono L, Patrizi A, Fritschy JM, Sassoè-Pognetto M
The Journal of comparative neurology (2008) 508(4): 579-91.

Compensatory alteration of inhibitory synaptic circuits in cerebellum and thalamus of gamma-aminobutyric acid type A receptor alpha1 subunit knockout mice.
Kralic JE, Sidler C, Parpan F, Homanics GE, Morrow AL, Fritschy JM
The Journal of comparative neurology (2006) 495(4): 408-21.

Postsynaptic clustering of major GABAA receptor subtypes requires the gamma 2 subunit and gephyrin.
Essrich C, Lorez M, Benson JA, Fritschy JM, Lüscher B
Nature neuroscience (1998) 1(7): 563-71.