

VGLUT 1

Cat.No. 135 304; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: 1 : 5000 (AP staining) IP: yes ICC: 1 : 1000 up to 1 : 5000 IHC: 1 : 500 up to 1 : 1000 IHC-P/FFPE: 1 : 200 EM: yes
Immunogen	Recombinant protein corresponding to AA 456 to 560 from rat VGLUT1 (UniProt Id: Q62634)
Reactivity	Reacts with: rat (Q62634), mouse (Q3TXX4), human (Q9P2U7), cow. Other species not tested yet.
Specificity	Specific for VGLUT 1. (K.O. verified)
matching control	135-3P
Remarks	VGLUT 1 aggregates after boiling, making it necessary to run SDS-PAGE only with non-boiled samples.

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

The vesicular glutamate transporter 1 **VGLUT 1**, also referred to as **BNPI** and **SLC17A7**, was originally identified as a brain specific phosphate transporter. Like the related VGLUT 2, VGLUT 1 is both necessary and sufficient for uptake and storage of glutamate and thus comprises the sole determinant for a glutamatergic phenotype. Both VGLUTs are different from the plasma membrane transporters in that they are driven by a proton electrochemical gradient across the vesicle membrane.

VGLUT 1 and VGLUT 2 show complementary expression patterns. Together, they are currently the best markers for glutamatergic nerve terminals and glutamatergic synapses.

Selected References SYSY Antibodies

Quantitative comparison of glutamatergic and GABAergic synaptic vesicles unveils selectivity for few proteins including MAL2, a novel synaptic vesicle protein.

Grønberg M, Pavlos NJ, Brunk I, Chua JJ, Münster-Wandowski A, Riedel D, Ahnert-Hilger G, Urlaub H, Jahn R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2010) 30(1): 2-12. **ICC, IHC, EM**

Expression of vesicular glutamate transporters VGLUT1 and VGLUT2 in the rat dental pulp and trigeminal ganglion following inflammation.

Yang ES, Jin MU, Hong JH, Kim YS, Choi SY, Kim TH, Cho YS, Bae YC
PLoS one (2014) 9(10): e109723. **WB, IHC**

Vesicular glutamate transporter 1 (VGLUT1)- and VGLUT2-immunopositive axon terminals on the rat jaw-closing and jaw-opening motoneurons.

Park SK, Ko SJ, Paik SK, Rah JC, Lee KJ, Bae YC
Brain structure & Function (2018) : . **IHC, EM; tested species: rat**

Expression of vesicular glutamate transporters in transient receptor potential ankyrin 1 (TRPA1)-positive neurons in the rat trigeminal ganglion.

Kim YS, Kim SK, Lee JS, Ko SJ, Bae YC
Brain research (2018) : . **WB, IHC; tested species: rat**

Blockade of adenosine A2A receptors recovers early deficits of memory and plasticity in the triple transgenic mouse model of Alzheimer's disease.

Silva AC, Lemos C, Gonçalves FQ, Pliássova AV, Machado NJ, Silva HB, Canas PM, Cunha RA, Lopes JP, Agostinho P
Neurobiology of disease (2018) : . **WB, ICC; tested species: mouse**

Reduced Glutamate Release in Adult BTBR Mouse Model of Autism Spectrum Disorder.

Wei H, Ma Y, Ding C, Jin G, Liu J, Chang Q, Hu F, Yu L
Neurochemical research (2016) 41(11): 3129-3137. **WB, EM**

Inhibition of IL-6 trans-signaling in the brain increases sociability in the BTBR mouse model of autism.

Wei H, Ma Y, Liu J, Ding C, Jin G, Wang Y, Hu F, Yu L
Biochimica et biophysica acta (2016) 1862(10): 1918-25. **WB, IHC; tested species: mouse**

An essential role of acetylcholine-glutamate synergy at habenular synapses in nicotine dependence.

Frahm S, Antolin-Fontes B, Görllich A, Zander JF, Ahnert-Hilger G, Ibañez-Tallón I
eLife (2015) 4: e11396. **WB, IHC**

Netrin-1 promotes excitatory synaptogenesis between cortical neurons by initiating synapse assembly.

Goldman JS, Ashour MA, Magdesian MH, Tritsch NX, Harris SN, Christofi N, Chemali R, Stern YE, Thompson-Steckel G, Gris P, Glasgow SD, et al.

The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 33(44): 17278-89. **ICC, IHC; tested species: mouse, rat**

Splice-specific roles of glycine receptor alpha3 in the hippocampus.

Eichler SA, Förster B, Smolinsky B, Jüttner R, Lehmann TN, Fählng M, Schwarz G, Legendre P, Meier JC
The European journal of neuroscience (2009) 30(6): 1077-91. **ICC, IHC; tested species: mouse**

The development of synaptic transmission is time-locked to early social behaviors in rats.

Naskar S, Narducci R, Balzani E, Cwetsch AW, Tucci V, Cancedda L
Nature communications (2019) 10(1): 1195. **IHC; tested species: rat**

Spinal motor circuit synaptic plasticity after peripheral nerve injury depends on microglia activation and a CCR2 mechanism.

Rotterman TM, Akhter ET, Lane AR, MacPherson KP, Garcia VV, Tansey MG, Alvarez FJ
The Journal of neuroscience : the official journal of the Society for Neuroscience (2019) : . **IHC; tested species: mouse**

Autism and Schizophrenia-Associated CYFIP1 Regulates the Balance of Synaptic Excitation and Inhibition.

Davenport EC, Szulc BR, Drew J, Taylor J, Morgan T, Higgs NF, López-Doménech G, Kittler JT
Cell reports (2019) 26(8): 2037-2051.e6. **ICC; tested species: mouse**

Pentraxin 3 regulates synaptic function by inducing AMPA receptor clustering via ECM remodeling and β1-integrin.

Fossati G, Pozzi D, Canzi A, Mirabella F, Valentino S, Morini R, Ghirardini E, Filipello F, Moretti M, Gotti C, Annis DS, et al.
The EMBO journal (2018) : . **WB; tested species: mouse**

Critical roles of αII spectrin in brain development and epileptic encephalopathy.

Wang Y, Ji T, Nelson AD, Glanowska K, Murphy GG, Jenkins PM, Parent JM
The Journal of clinical investigation (2018) 128(2): 760-773. **ICC; tested species: mouse**

VGLUT1 Binding to Endophilin or Intersectin1 and Dynamin Phosphorylation in a Diurnal Context.

Richter K, Schmutz I, Darna M, Zander JF, Chavan R, Albrecht U, Ahnert-Hilger G
Neuroscience (2018) 371: 29-37. **WB; tested species: mouse**

Synaptotagmin 7 Mediates Both Facilitation and Asynchronous Release at Granule Cell Synapses.

Turecek J, Regehr WG
The Journal of neuroscience : the official journal of the Society for Neuroscience (2018) 38(13): 3240-3251. **IHC; tested species: mouse**