

Product Specification Sheet

VGLUT1 (BNPI) Antibodies

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| Cat # VGLUT12-P | Human VGLUT1 control/blocking peptide #2 | SIZE: 100 ug |
| Cat # VGLUT12 -S | Rabbit Anti-Human VGLUT1 antiserum # 2 | SIZE: 100 ul |
| Cat # VGLUT12 -A | Rabbit Anti-Human VGLUT1 IgG #2, aff pure | SIZE: 100 ug |

Glutamate is the main excitatory neurotransmitter in the brain. To date five glutamate Transporters have been cloned: **GLAST (EAAT1), GLT1 (EAAT2), EAAC1 (EAAT3), EAAT4, and EAAT5**. These transporters are believed to be critical in reducing potentially toxic extracellular concentration of glutamate by rapid uptake into nerve terminals and glial cells. Most recently, vesicular type transporters for glutamate, termed **VGLUTs (VGLUT1/BNPI, VGLUT2/DNPI, and EAT-4)**, have been cloned and characterized that are related to phosphate transporters. Although neurons exhibit Na-dependent Pi transport, the biological role of Pi uptake is not clear. Proximal tubules in the kidney reabsorb Pi in the glomeruli by the action of a group of phosphate transporters (**Type 1-NaPi** related, **type 2-NaPi-2** related, and **type 3-viral receptor-related**). These receptors show weak (~20% identity) between various subtypes. A distinct type of **brain specific Na⁺-dependent phosphate (Pi) transporter (BNPI)**, originally characterized as a plasma membrane transporter has been localized in a subset of glutamatergic neurons (amygdala, cerebellar cortex, and hippocampus) and identified as **VGLUT1** (rat and human 560 aa; ~60 kDa, ~30% homology with type-1 Pi-transporters & ~75-80% homology with VGLUT2). Interestingly, a sequence induced by subtoxic levels of NMDA in cerebellar granules also belongs to this family of transporters. BNPI/VGLUT1 expression is restricted to the brain, where it is predominantly located in synaptic vesicles. VGLUT1 shows strong sequence homology (~48%) to **EAT-4**, a C. elegans protein that appears to have specific presynaptic role in glutamatergic transmission.

Source of Antigen and Antibodies

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| Antigen | 18aa peptide from human VGLUT1 (1); Designation (#VGLUT12-P, control/blocking peptide) conjugated to KLH. Epitope location ~ N-terminus |
| Ab Host/type | Rabbit, Polyclonal unpurified antiserum (#VGLUT12-S) and IgG, purified over antigen-agarose (Cat # VGLUT12-A) |
| 2-Ab | Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available). |
| -ve control | # 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control |

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer:** PBS+0.1% BSA

Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..

Long-term: at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20°C or below.

Shipping: 4°C for solutions and room temp for powder

Recommended Usage

Western Blotting 1:1K-5K for antiserum and 1-10 ug/ml for affinity pure antibody using Chemiluminescence technique. VGLUT1 is ~60 kDa protein.

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: not tested.

Specificity & Cross-reactivity

Human VGLUT12-P peptide is 95% conserved in rat VGLUT1. No significant sequence homology of VGLUT12-P is observed with VGLUT2, EAT-4, or other NaPi-related (Type-1 to Type-III) transporters. Antibody crossreactivity in various species is not established. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at:the web site).

General References: (1) Aihara Y et al (2000) J. Neurochem. 74, 2622-2625; Bellocchio EE et al (2000) Science 289, 957-960; Bellocchio EE (1998) J. Neurosci. 18, 8648; Ni B (1996) J. Neurochem. 66, 2227-2238; Takamori S (2000) Nature 407, 189-194

(2) Citations of ADI's Antibodies (see web site for updated list)

Kofalvi A 2005, J. Neurosci., 25: 2874 – 2884, WB, IF
McGahan MC, 2005, AJP Cell Physiol, WB
**This product is for In vitro research use only.*

VGLUT12-S-A-P

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