

## Product Specification Sheet

### VGLUT1 (BNPI) Antibodies

<b>Cat # VGLUT11-P</b>	Rat VGLUT1 control/blocking peptide	<b>SIZE:</b> 100 ug
<b>Cat # VGLUT11 -S</b>	Chicken Anti-Rat VGLUT1 antiserum	<b>SIZE:</b> 100 ul
<b>Cat # VGLUT11 -A</b>	Chicken Anti-Rat VGLUT1 IgG, aff pure	<b>SIZE:</b> 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<sup>+</sup>-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

<b>Antigen</b>	A 19 AA synthetic peptide ( <b>designated VGLUT11-P; control peptide</b> ) was synthesized, conjugated to KLH <b>Epitope location</b> Within the C-terminus of rat <b>VGLUT1</b>
<b>Ab Host/type</b>	Chicken polyclonal Unpurified antiserum ( <b>cat # VGLUT11-S</b> ), and Aff pure IgG1 ( <b>cat # VGLUT11-A</b> ) purified over the antigen column
<b>2-ab</b>	<b>Cat # 60320</b> , goat anti-chicken IgG-HRP (AP, biotin, FITC conjugates also available)
<b>-ve control</b>	<b># 20010-1</b> , Chicken (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

The rat VGLUT11-P peptide is 93% conserved in human VGLUT1. No significant sequence homology of VGLUT11-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 et al (1998) J. Neurosci. 18, 8648; Ni B et al (1996) J. Neurochem. 66, 2227-2238; Takamori S et al (2000) Nature 407, 189-194

*\*This product is for In vitro research use only.*

### Related material available from ADI

Anti-GLAST, EAAC1, GLT1, EAAT4, EAAT5, GTRAP41, VGLUT11, VGLUT1/BNPI, VGLUT-2/DNPI & GABA Transporters (GAT1-3)

Ant-NaPi-I, NaPi-II, NaPi-III, GTRAP41, GTRAP48

VGLUT11-S-A-P 71224S

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