

## Product Specification Sheet

### VGLUT2 (DNPI) Antibodies

<b>Cat # VGLUT22-P</b>	Rat VGLUT2 control/blocking peptide #2	<b>SIZE:</b> 100 ug
<b>Cat # VGLUT22-S</b>	Rabbit Anti-Rat VGLUT2 antiserum # 2	<b>SIZE:</b> 100 ul
<b>Cat # VGLUT22-A</b>	Rabbit Anti-Rat VGLUT2 IgG #2, 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). A novel transporter **VGLUT2/DNPI** (Differentiation-associated **Na-Pi** cotransporter, ~75% homology with VGLUT1; human/rat/mouse VGLUT2 582 aa) has also been implicated in vesicular glutamate transport. It is expressed in only a subset of neurons. It is also localized to synaptic vesicles, at synapses exhibiting classical excitatory features. VGLUT2 mRNA is found in brain regions that lack VGLUT1.

### Source of Antigen and Antibodies

<b>Antigen</b>	20 AA synthetic peptide ( <b>designated VGLUT22-P; control peptide</b> ) was synthesized, conjugated to KLH <b>Epitope location</b> ~ C-terminus
<b>Ab Host/type</b>	Rabbit, polyclonal, Unpurified antiserum ( <b>cat # VGLUT22-S</b> ), and Aff pure IgG1 ( <b>cat # VGLUT22-A</b> ) purified over the antigen column
<b>2-ab</b>	Cat # 20320, <b>goat anti-rabbit IgG-HRP</b> (AP, biotin, FITC conjugates also available)
<b>-ve control</b>	# 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. VGLUT2 is ~65 kDa protein (1).

**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 VGLUT22-P peptide is 90% conserved in mouse and 70% in human VGLUT2. No significant sequence homology of VGLUT22-P is observed with VGLUT1, 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) Bai L et al (2001) JBC 276, 36764-36769; Hayashi M et al (2001) JBC 276, 43400-43406; Herzog E et al (2001) J. Neurosci. RC181, 1-6;

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

### Related material available from ADI

Anti-GLAST, EAAC1, GLT1, EAAT4, EAAT5, GTRAP41, VGLUT22, VGLUT1/BNPI, VGLUT-2/DNPI & GABA Transporters (GAT1-3)

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

VGLUT22-S-A-P

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### India Contact:

### Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi - 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444  
Email: [customerservice@lifetechindia.com](mailto:customerservice@lifetechindia.com) Website: [www.lifetechindia.com](http://www.lifetechindia.com)