ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Vesicular Monoamine Transporter 2 (VMAT2) Antibodies

Cat # VMAT21-S	Rabbit Anti-Rat VMAT2 Antiserum # 1 ,	**SIZE**: 100 ul
Cat # VMAT21-A	Rabbit Anti-Rat VMAT2, Ig G (affinity pure) , 100 ug	**SIZE**: 100 ul
Cat # VMAT21-P	Rat VMAT21 Control peptide,	**SIZE**: 100 ug

The regulated exocytotic release of neurotransmitters in response to neural activity requires storage within intracellular vesicles. In the nervous system, these vesicles are the synaptic vesicles that are derived from the endosomal compartment, whereas in endocrine cells larger secretory granules, such as the chromaffin granules of adrenal medulla, are derived from the trans golgi networks. For classical transmitters that are synthesized in the cytoplasm or appear there after removal form the synapses by plasma membrane reuptake, storage depends upon the active transport into the vesicles. Several distinct transport activities have been identified for monoamines, acetylcholine, glutamate, GABA and glycine. Vesicular monoamine transporters (VMATs) catalyze transport and storage of monoamines, serotonin, dopamine, norepinephrine, epinephrine, and histamine.

Recently, cDNA cloning by functional expression has identified two homologous but distinct VMAT genes from rat, bovine, and human adrenal glands. **VMAT1** (previously termed CGAT for chromaffin granule amine transporter) is primarily expressed in adrenal glands, and it displays low sensitivity to inhibition by TBZ. It has about 3-fold lower affinity for most monoamines and about 100-fold less for histamine than the VMAT2. VMAT1 also has a lower turnover number than VMAT2. **VMAT2**, previously termed SVAT (synaptic vesicle amine transporter), is primarily found in monoaminergic cell bodies of the central nervous system and also in stomach but not in adrenals. Tetrabenazine and psychostimulants such as methamphetamine inhibits VMAT2 much more potently than VMAT1. Thus the VMATs show considerable differences in physiological and pharmacological properties. VMATs are predicted to contain 12 membrane spanning domains with a large hydrophilic loop and N-glycosylation sites between domain I and II. Both N and C-terminus are predicted to be cytoplasmic. Rat VMAT1 is a 521 aa transmembrane protein with 12 transmembrane domain (1). Rat VMAT2 is 515 aa.

Source of Antigen and Antibodies

Antigen	13aa peptide of Rat VMAT2 **Designated (VMAT21-P or control peptide) conjugated to KLH; Epitope location~ C-terminal, Cytoplasmic domain**
Ab Host/type	Rabbit, polyclonal Unpurified antiserum (cat #VMAT21-S) Aff pure IgG (**cat #VMAT21-A**) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 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 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 -20OC and powder at 4oC or -20oC..

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

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

ELISA (1:100K; using 50-100 ng control peptide/well).

Histochemistry & Immunofluorescence: Not tested. we recommend the use of affinity purified antibody at 2-20 ug/ml in formaldehyde fixed tissue. An antibody made to this VAT11-P has been used to label cholinergic cell bodies in the septum and nucleus basalis and cholinergic fiber (2).

Specificity & Cross-reactivity

An antibody made to rat VMAT21-P do not recognize VMAT1 in transfected cells (2). The rat VMAT2 sequence is 92% homologous with hVMAT2 (12/13 aa; with just 1 conservative amino acid change) (4). VMAT21-P has no appreciable homology with VMAT1. 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:

Liu, Y et al (1992) Cell 70, 539-551; Erickson, JD et al (1992) Proc. Natl. Acad. Sci. 89, 10993-10997, Peter D et al (1995) J. Neurosci. 15, 6179-6188; Nirenberg MJ et al (1995) Proc. Natl. Acad. Sci. 92, 8773-8777, Liu Y et al (1994) J Cell Biol. 127, 1419-1433, Suratt CK (1993) FEBS Lett. 318, 325-330; Erickson JD and Eiden LE (1993) J Neurochem. 61, 2314-2317, Nirenberg MJ et al (1996) J Neurosci. 16, 4135-4145, Erickson JD et al (1996) Proc. Natl. Acad. Sci. 93, 5166-5171.

*This product is for In vitro research use only.

VMAT21-S-A-P 71208A

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