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ProductInformation

ANTI-VESICULAR MONOAMINE TRANSPORTER (VMAT-2)
Developed in Guinea Pig,
Whole Antiserum

Product Number **V6637**

Product Description

Anti-Vesicular Monoamine Transporter (VMAT-2) is developed in guinea pig using a synthetic peptide (YTQNNVQSYPIGDDEESESD) as immunogen. This sequence corresponds to amino acids from the cloned rat VMAT-2.

Anti-Vesicular Monoamine Transporter recognizes VMAT-2 in neurons containing noradrenaline, dopamine, serotonin and histamine in the central and peripheral nervous system. The antibody reacts with rat VMAT-2. Anti-VMAT-2 can be used to detect VMAT-2 using immunohistochemistry (frozen sections) and immunoflourescence.

Vesicular monoamine transporters (VMATs) translocate monoamines (ie., catecholamines, serotonin, histamine) from the cytoplasm into secretory vesicles of endocrine cells and neurons. In central neurons, monoamine neurotransmitter uptake is mediated by VMATs and stored within two distinct classes of regulated secretory vesicles; small synaptic vesicles and large dense core vesicles (DCVs).[1] VMAT acts as an electrochemical antiporter of proteins and monoamines using a protein electrochemical gradient.

Recent studies have cloned two homologous, but distinct VMAT genes from rat, bovine and human adrenal glands.[2] Sequence analysis of these transporters predicts 12 transmembrane segments with both extremities lying on the cytoplasmic side. They posses N-glycosylation sites as well as phosphorylation sites in the cytoplasmic domains. In rat, VMAT-1 is expressed in adrenal glands while VMAT-2 is expressed in the brain. In contrast, VMAT-1 and VMAT-2 are both expressed in bovine adrenal glands.[2] In humans, central, peripheral and enteric neurons express only VMAT –2. VMAT-1 is found exclusively in neuroendocrine including chromaffin and entero-chromaffin cells. Both VMAT-1 and VMAT-2 are coexpressed in all chromaffin cells of adrenal medulla.

Recent studies have suggested that VMAT-1 may be specifically addressed to transport monoamines to DCVs whereas VMAT-2 may be addressed to transport monoamines to small synaptic vesicles.[3]

Components

Anti-Vesicular Monoamine Transporter (VMAT-2) is supplied as whole antiserum containing 0.1% sodium azide.

Precautions and Disclaimer

This product contains sodium azide. A material safety data sheet (MSDS) has been sent to the attention of the safety officer at your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

The recommended dilution for immunohistochemistry is 1:5,000 using frozen tissue fixed in 4% paraformalde-hyde and 0.4% picric acid in 0.16 M sodium phosphate buffer, pH 6.9 using a Cy3-conjugated secondary antibody.

Note: In order to obtain best results and assay sensitivities to different techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

1. Nirenburg, M. J., et al., The vesicular monoamine transporter 2 is present in small synaptic vesicles and preferentially localizes to large dense core vesicles in rat solitary tract nuclei. Proc. Natl. Acad. Sci. USA, **92,** 8773-8777 (1995).
2. Henry, H. J., et al., Biochemistry and molecular biology of the vesicular monoamine transporter from chromaffin granules. J. Exp. Med., **196,** 251-262 (1994).
3. Erickson JD, et al., Distinct pharmacological properties and distribution in neurons and endocrine cells of two isoforms of the human vesicular monoamine transporter. Proc. Natl. Acad. Sci. USA, **93**, 5166-5171 (1996).

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