

Product Information

Anti-VACHT (N-terminal)

produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200560**

Product Description

Anti-VACHT (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to an N-terminal sequence of rat VACHT (GeneID: 60422), conjugated to KLH. The corresponding sequence is identical in mouse VACHT and highly conserved in human VACHT (single amino acid substitution). The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-VACHT (N-terminal) specifically recognizes human, rat and mouse VACHT. The antibody may be used in several immunochemical techniques including immunoblotting (~70 kDa) and immunofluorescence. The antibody may be suitable for immunohistochemistry. Detection of VACHT by immunoblotting is specifically inhibited by the immunizing peptide.

Neurotransmitter transporters play a key role in neural signaling in the central and peripheral nervous system. Vesicular Acetylcholine Transporter (VACHT, SLC18A3), is required in cholinergic neurons for the selective transport of acetylcholine (ACh) into synaptic vesicles. VACHT belongs to the SLC18 family of proton/neurotransmitter antiporters and shares a high degree of homology to vesicular monoamine transporters (VMATs).¹ VACHT is a 12-transmembrane domain protein and it depends on the activity of a V-type H⁺-ATPase to accumulate ACh in synaptic vesicles. Cloning of the VACHT gene has revealed a single genetic locus encoding both VACHT and ChAT, providing a unique genomic arrangement suggesting that these genes may be co-regulated. VACHT is expressed in all major cholinergic neurons in the central and peripheral nervous system and is mainly localized in small synaptic vesicles in cholinergic nerve terminals.²⁻⁴ Knockdown of VACHT in the hippocampus has been shown to cause behavior changes, learning deficits, specific deficits in spatial memory and LTP.⁵ VACHT provides a specific marker for cholinergic neurons, for the study of cholinergic transmission in experimental models of Alzheimer's disease and other nervous system disorders.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~1.0 mg/mL.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet 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, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1.5-3.0 µg/mL is recommended using extracts of mouse brain (S1 fraction) and of HEK-293T cells over-expressing human VACHT.

Immunofluorescence: a working concentration of 1-2 µg/mL is recommended using PC12 cells treated with rat NGF.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Weihe, E., et al., *Proc. Natl. Acad. Sci. USA*, **93**, 3547-3552 (1996).
2. Arvidsson, U., *J. Comp. Neurol.*, **378**, 454-467 (1997).
3. Gilmore, M.L., et al., *J. Neurosci.*, **16**, 2179-2190 (1996).

4. Schafer, M.K.H., et al., *J. Mol. Neurosci.*, **6**, 225-235 (1995).

5. Martyn, A.C., et al., *Proc. Natl. Acad. Sci. USA*, **109**, 17651-17656 (2012).

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