

choactase (E-7): sc-55557

BACKGROUND

Choline acetyltransferase (also designated choactase, choline O-acetyltransferase) synthesizes acetylcholine in cholinergic neurons. Multiple choactase mRNAs with different 5'-noncoding regions are expressed as R-, N1-, N2-, S- and M-types. N1-, N2- and R-type mRNAs produce a single short enzyme, while M-type mRNA produces both long and short enzymes. The long enzyme is targeted to the nuclei of cells, whereas the short protein is found in cytoplasm. A novel NF κ B binding site is located within the nerve growth factor-responsive enhancer element that is recognized by the NF κ B protein p49, but not p65 or p50. Decreased choactase expression and increased NF κ B activity are associated with aging and Alzheimer's disease, indicating that p49 is a negative regulator of choactase expression and suggesting a possible mechanism for aging-associated declines in cholinergic function. Phosphorylation of choactase has been shown to enhance choactase catalytic activity. Specifically, Serine 440 is found to be the phosphorylation site in a recombinant human short choactase by protein kinase C and is involved in regulation of the enzyme catalytic activity and binding to subcellular membranes.

CHROMOSOMAL LOCATION

Genetic locus: CHAT (human) mapping to 10q11.23; Chat (mouse) mapping to 14 B.

SOURCE

choactase (E-7) is a mouse monoclonal antibody raised against amino acids 561-655 mapping near the C-terminus of choactase of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

choactase (E-7) is available conjugated to agarose (sc-55557 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55557 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55557 PE), fluorescein (sc-55557 FITC), Alexa Fluor[®] 488 (sc-55557 AF488), Alexa Fluor[®] 546 (sc-55557 AF546), Alexa Fluor[®] 594 (sc-55557 AF594) or Alexa Fluor[®] 647 (sc-55557 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-55557 AF680) or Alexa Fluor[®] 790 (sc-55557 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

choactase (E-7) is recommended for detection of all isoforms of choactase of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

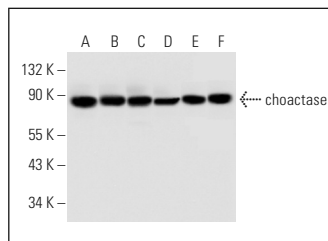
Suitable for use as control antibody for choactase siRNA (h): sc-41919, choactase siRNA (m): sc-41920, choactase shRNA Plasmid (h): sc-41919-SH, choactase shRNA Plasmid (m): sc-41920-SH, choactase shRNA (h) Lentiviral Particles: sc-41919-V and choactase shRNA (m) Lentiviral Particles: sc-41920-V.

Molecular Weight of choactase: 69/82 kDa.

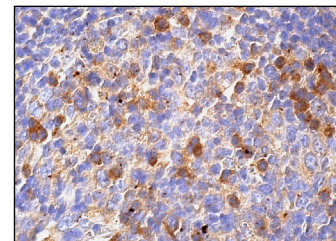
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



choactase (E-7): sc-55557. Western blot analysis of choactase expression in SK-N-SH (A), HeLa (B), IMR-32 (C), Jurkat (D), Ramos (E) and HEK293 (F) whole cell lysates.



choactase (E-7): sc-55557. Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing cytoplasmic staining of subset of cells in germinal center.

SELECT PRODUCT CITATIONS

- Zhou, L.H., et al. 2008. Differences in c-Jun and nNOS expression levels in motoneurons following different kinds of axonal injury in adult rats. *Brain Cell Biol.* 36: 213-227.
- Zhao-Shea, R., et al. 2010. Dopamine D2-receptor activation elicits akinesia, rigidity, catalepsy, and tremor in mice expressing hypersensitive α 4 nicotinic receptors via a cholinergic-dependent mechanism. *FASEB J.* 24: 49-57.
- Shao, J., et al. 2012. Phosphatidylcholine-specific phospholipase C/heat shock protein 70 (Hsp70)/transcription factor B-cell translocation gene 2 signaling in rat bone marrow stromal cell differentiation to cholinergic neuron-like cells. *Int. J. Biochem. Cell Biol.* 44: 2253-2260.
- Freeling, J.L. and Li, Y. 2015. Age-related attenuation of parasympathetic control of the heart in mice. *Int. J. Physiol. Pathophysiol. Pharmacol.* 7: 126-135.
- Coyle, D., et al. 2016. Altered neurotransmitter expression profile in the ganglionic bowel in Hirschsprung's disease. *J. Pediatr. Surg.* 51: 762-769.
- Xue, Y.C., et al. 2018. Enteroviral infection leads to transactive response DNA-binding protein 43 pathology *in vivo*. *Am. J. Pathol.* 188: 2853-2862.
- Wu, R., et al. 2019. A novel m⁶A reader Prcc2a controls oligodendroglial specification and myelination. *Cell Res.* 29: 23-41.
- Menzie-Suderam, J.M., et al. 2020. Granulocyte-colony stimulating factor gene therapy as a novel therapeutics for stroke in a mouse model. *J. Biomed. Sci.* 27: 99.
- Toan, N.K., et al. 2021. Choline acetyltransferase induces the functional regeneration of the salivary gland in aging SAMP1/K1^{-/-} mice. *Int. J. Mol. Sci.* 22: 404.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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