SANTA CRUZ BIOTECHNOLOGY, INC.

choactase (E-7): sc-55557

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 NFκB binding site is located within the nerve growth factor-responsive enhancer element that is recognized by the NFκB protein p49, but not p65 or p50. Decreased choactase expression and increased NFκB 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.

REFERENCES

1. Oda, Y., et al. 1992. A complementary DNA for human choline acetyltransferase induces two forms of enzyme with different molecular weights in cultured cells. Brain Res. Mol. Brain Res. 16: 287-294.
2. Misawa, H., et al. 1997. Human choline acetyltransferase mRNAs with different 5'-region produce a 69 kDa major translation product. Brain Res. Mol. Brain Res. 44: 323-333.

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 µg IgG_1 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 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-55557 HRP), 200 µg/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 µg/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 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

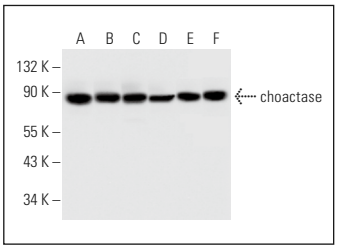
choactase (E-7) is recommended for detection of all isoforms of choactase of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 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.

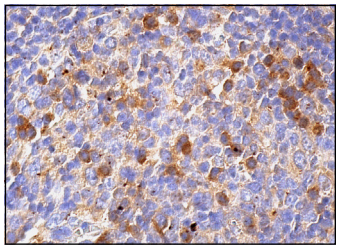
Molecular Weight of choactase: 69/82 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, IMR-32 cell lysate:: sc-2409 or Jurkat whole cell lysate: sc-2204.

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

1. 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.
2. 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.
3. Wu, R., et al. 2019. A novel m^6A reader Prrc2a controls oligodendroglial specification and myelination. Cell Res. 29: 23-41.
4. 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.
5. Toan, N.K., et al. 2021. Choline acetyltransferase induces the functional regeneration of the salivary gland in aging SAMP1/$KI^{-/-}$ mice. Int. J. Mol. Sci. 22: 404.

RESEARCH USE

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