SANTA CRUZ BIOTECHNOLOGY, INC.

TH (H-196): sc-14007

BACKGROUND

The enzyme tyrosine hydroxylase (TH), also designated tyrosine 3-monooxygenase (TY3H), catalyzes the conversion of tyrosine to L-DOPA, which is the rate limiting step in the biosynthesis of catecholamines such as dopamine, adrenalin and noradrenalin. TH is thought to play a role in the pathogenesis of Parkinson's disease, which is associated with reduced dopamine levels. Two transcription factor binding sites in the proximal region of the TH gene, the TPA-responsive element (TRE) and the c-AMP responsive element (CRE), have been implicated in the complex regulation of the TH gene. TH is also known to be upregulated by the glia maturation factor (GMF), a Cdc 10/SWI6 motif-containing protein called V-1, and a variety of additional compounds.

REFERENCES

1. Stull, N.D., et al. 1996. Acidic fibroblast growth factor and catecholamines synergistically up-regulate tyrosine hydroxylase activity in developing and damaged dopamine neurons in culture. J. Neurochem. 67: 1519-1524.
2. Nagatsu, T., et al. 1998. Catecholamine synthesis and release. Overview Adv. Pharmacol. 42: 1-14.

CHROMOSOMAL LOCATION

Genetic locus: TH (human) mapping to 11p15.5; Th (mouse) mapping to 7 F5.

SOURCE

TH (H-196) is a rabbit polyclonal antibody raised against amino acids 1-196 of TH of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

TH (H-196) is recommended for detection of TH of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 TH siRNA (h): sc-36662, TH siRNA (m): sc-36661, TH shRNA Plasmid (h): sc-36662-SH, TH shRNA Plasmid (m): sc-36661-SH, TH shRNA (h) Lentiviral Particles: sc-36662-V and TH shRNA (m) Lentiviral Particles: sc-36661-V.

Molecular Weight of TH: 60 kDa.

Positive Controls: mouse brain extract: sc-2253, rat adrenal gland extract: sc-364802 or PC-12 cell lysate: sc-2250.

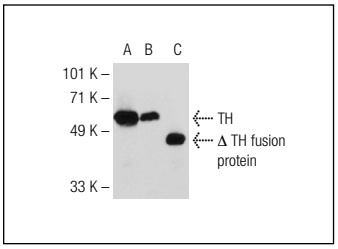
STORAGE

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

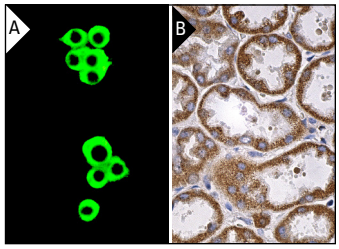
RESEARCH USE

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

DATA



TH (H-196): sc-14007. Western blot analysis of TH expression in rat adrenal gland (**A**) and mouse brain (**B**) tissue extracts and truncated human recombinant TH fusion protein (**C**).



TH (H-196): sc-14007. Immunofluorescence staining of methanol-fixed PC-12 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing granular cytoplasmic staining of cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. Chao, H.J., et al. 2005. The conditioned enhancement of neutrophil activity is catecholamine dependent. J. Neuroimmunol. 158: 159-169.
2. Milosevic, J., et al. 2005 . Low atmospheric oxygen avoids maturation, senescence and cell death of murine mesencephalic neural precursors. J. Neurochem. 92: 718-729.
3. Costa, C., et al. 2008. Electrophysiology and pharmacology of striatal neuronal dysfunction induced by mitochondrial complex I inhibition. J. Neurosci. 28: 8040-8052.
4. van Roon-Mom, W.M., et al. 2008. Mutant huntingtin activates Nrf2-responsive genes and impairs dopamine synthesis in a PC12 model of Huntington's disease. BMC Mol. Biol. 9: 84.
5. Gauthier, M.A., et al. 2008. Covalent arylation of metallothionein by oxidized dopamine products: a possible mechanism for zinc-mediated enhan-cement of dopaminergic neuron survival. Neurotox. Res. 14: 317-328.
6. Rana, O.R., et al. 2009. Regulation of nerve growth factor in the heart: the role of the calcineurin-NFAT pathway. J. Mol. Cell. Cardiol. 46: 568-578.
7. Rana, O.R., et al. 2010. Mechanical stretch induces nerve sprouting in rat sympathetic neurocytes. Auton. Neurosci. 155: 25-32.
8. Paillé, V., et al. 2010. Distinct levels of dopamine denervation differentially alter striatal synaptic plasticity and NMDA receptor subunit composition. J. Neurosci. 30: 14182-14193.
9. Clewes, O., et al. 2011. Human epidermal neural crest stem cells (hEPI-NCSC)-characterization and directed differentiation into osteocytes and melanocytes. Stem Cell Rev. 7: 799-814.
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