SANTA CRUZ BIOTECHNOLOGY, INC.

TH (3G298): sc-73152

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 upregulate 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.
3. Haavik, J., et al. 1998. Tyrosine hydroxylase and Parkinson's disease. Mol. Neurobiol. 16: 285-309.
4. Trocme, C., et al. 1998. CRE and TRE sequences of the rat tyrosine hydroxylase promoter are required for TH basal expression in adult mice but not in the embryo. Eur. J. Neurosci. 10: 508-521.
5. Zaheer, A., et al. 1998. Overexpression of glia maturation factor (GMF) in PC12 pheochromocytoma cells activates p38 MAP kinase, MAPKAP kinase-2 and tyrosine hydroxylase. Biochem. Biophys. Res. Commun. 250: 278-282.
6. Yamakuni, T., et al. 1998. A novel protein containing Cdc10/Swi6 motifs regulates expression of mRNA encoding catecholamine biosynthesizing enzymes. J. Biol. Chem. 273: 27051-27054.
7. Boundy, V.A., et al. 1998. Regulation of tyrosine hydroxylase promoter activity by chronic morphine in TH9.0-LacZ transgenic mice. J. Neurosci. 18: 9989-9995.

CHROMOSOMAL LOCATION

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

SOURCE

TH (3G298) is a mouse monoclonal antibody raised against tyrosine hydroxylase purified from pheochromocytoma cells of rat 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.

STORAGE

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

APPLICATIONS

TH (3G298) 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) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for TH siRNA (h): sc-36662, TH siRNA (m): sc-36661, TH siRNA (r): sc-270461, TH shRNA Plasmid (h): sc-36662-SH, TH shRNA Plasmid (m): sc-36661-SH, TH shRNA Plasmid (r): sc-270461-SH, TH shRNA (h) Lentiviral Particles: sc-36662-V, TH shRNA (m) Lentiviral Particles: sc-36661-V and TH shRNA (r) Lentiviral Particles: sc-270461-V.

Molecular Weight of TH: 60 kDa.

Positive Controls: mouse brain extract: sc-2253, PC-12 cell lysate: sc-2250 or PC-12 + NGF cell lysate: sc-3808.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Wang, J., et al. 2017. Dopamine and serotonin contribute to *Paecilomyces hepiali* against chronic unpredictable mild stress induced depressive behavior in Sprague Dawley rats. Mol. Med. Rep. 16: 5675-5682.
2. Li, X., et al. 2017. Dopaminergic dysfunction in mammalian dopamine neurons induced by simazine neurotoxicity. Int. J. Mol. Sci. 18: E2404.
3. Turac, G., et al. 2018. The effect of recombinant tyrosine hydroxylase expression on the neurogenic differentiation potency of mesenchymal stem cells. Neurospine 15: 42-53.
4. Yang, Y.J., et al. 2020. Fasudil promotes α-synuclein clearance in an AAV-mediated α-synuclein rat model of Parkinson's disease by autophagy activation. J. Parkinsons Dis. E-published.

RESEARCH USE

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