

# TH (6A477): sc-73151

## 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 (6A477) is a mouse monoclonal antibody raised against tyrosine hydroxylase purified from pheochromocytoma cells of rat origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> 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 (6A477) 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<sup>6</sup> 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: PC-12 cell lysate: sc-2250, mouse brain extract: sc-2253 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. Singh, M., et al. 2021. 22(R)-hydroxycholesterol for dopaminergic neuronal specification of MSCs and amelioration of Parkinsonian symptoms in rats. *Cell Death Discov.* 7: 13.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **TH (F-11): sc-25269** for TH antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.