SANTA CRUZ BIOTECHNOLOGY, INC.

# TH (A-1): sc-374047


The Power to Question

## 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 cAMP 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 Cdc10/Swi6 motif-containing protein called V-1, and a variety of additional compounds.

## CHROMOSOMAL LOCATION

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

## SOURCE

TH (A-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 500-526 at the C-terminus of TH 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.

TH (A-1) is available conjugated to agarose (sc-374047 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374047 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374047 PE), fluorescein (sc-374047 FITC), Alexa Fluor® 488 (sc-374047 AF488), Alexa Fluor® 546 (sc-374047 AF546), Alexa Fluor® 594 (sc-374047 AF594) or Alexa Fluor® 647 (sc-374047 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374047 AF680) or Alexa Fluor® 790 (sc-374047 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374047 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

TH (A-1) is recommended for detection of TH 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) 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 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.

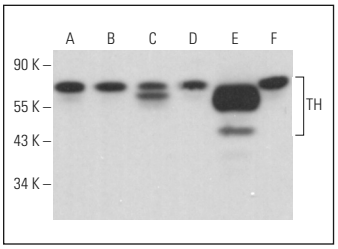
Molecular Weight of TH: 60 kDa.

Positive Controls: EOC 20 whole cell lysate: sc-364187, human kidney extract: sc-363764 or PC-3 cell lysate: sc-2220.

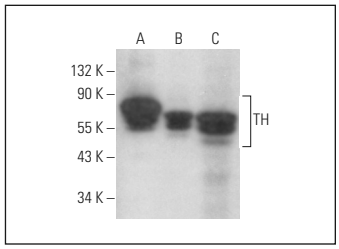
## STORAGE

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

## DATA




TH (A-1): sc-374047. Western blot analysis of TH expression in MCF7 (**A**), SUP-T1 (**B**), IMR-32 (**C**), SK-N-SH (**D**), BE (2)-M17 (**E**) and EOC 20 (**F**) whole cell lysates.




TH (A-1): sc-374047. Western blot analysis of TH expression in PC-3 whole cell lysate (**A**) and human adrenal gland (**B**) and human kidney (**C**) tissue extracts.

## SELECT PRODUCT CITATIONS

1. Li, H., et al. 2012. Neuroprotective effects of tert-butylhydroquinone on paraquat-induced dopaminergic cell degeneration in C57BL/6 mice and in PC12 cells. Arch. Toxicol. 86: 1729-1740.
2. Sun, C., et al. 2013. Cholinergic neuron-like cells derived from bone marrow stromal cells induced by tricyclodecane-9-yl-xanthogenate promote functional recovery and neural protection after spinal cord injury. Cell Transplant. 22: 961-975.
3. Luo, J., et al. 2014. A calcineurin- and NFAT-dependent pathway is involved in α-synuclein-induced degeneration of midbrain dopaminergic neurons. Hum. Mol. Genet. 23: 6567-6574.
4. Sampaolo, S., et al. 2017. First study on the peptidergic innervation of the brain superior sagittal sinus in humans. Neuropeptides 65: 45-55.
5. Yan, J., et al. 2017. Quantitative proteomics in A30P*A53T α-synuclein transgenic mice reveals upregulation of Sel1l. PLoS ONE 12: e0182092.
6. Wang, Q., et al. 2017. Paraquat and MPTP induce neurodegeneration and alteration in the expression profile of microRNAs: the role of transcription factor Nrf2. NPJ Parkinsons Dis. 3: 31.
7. Herrera-Soto, A., et al. 2017. On the role of DT-diaphorase inhibition in aminochrome-induced neurotoxicity *in vivo*. Neurotox. Res. 32: 134-140.
8. Yokoi, F., et al. 2020. Decreased number of striatal cholinergic interneurons and motor deficits in dopamine receptor 2-expressing-cell-specific Dyt1 conditional knockout mice. Neurobiol. Dis. 134: 104638.
9. Yan, J., et al. 2022. Cdk5 phosphorylation-induced SIRT2 nuclear translocation promotes the death of dopaminergic neurons in Parkinson's disease. NPJ Parkinsons Dis. 8: 46.

## RESEARCH USE

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