SANTA CRUZ BIOTECHNOLOGY, INC.

p-TH (Ser 31): sc-135714

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The enzyme tyrosine hydroxylase (TH), also designated tyrosine 3-monooxygenase (TY3H), catalyzes the conversion of tyrosine to L-DOPA. This is the rate limiting step in the biosynthesis of catecholamines such as dopamine, adrenalin and noradrenalin. Protein Kinase A (PKA) mediated phosphophorylation at Serine 40 causes increased TH catalytic activity. Expressed mainly in the brain and adrenal glands, TH may play a role in the pathogenesis of Parkinson's disease and the associated reduction in dopamine levels. The human tyrosine hydroxylase gene maps to 11p15. The phosphorylation of mouse and rat TH on Ser 31 by p35 leads to an increase in TH activity and stability.

REFERENCES

1. Craig, S., et al. 1986. Localization of the human tyrosine hydroxylase gene to 11p15: gene duplication and evolution. Cytogenet. Cell Genet. 1-2: 29-32.
2. Haycock, J.W., et al. 1992. ERK1 and ERK2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at serine-31 *in situ*. Proc. Natl. Acad. Sci. U.S.A. 89: 2365-2369.
3. Nagatsu, T., et al. 1998. Catecholamine synthesis and release. Overview Adv. Pharmacol. 42: 1-14.
4. Haavik, J., et al. 1998. Tyrosine hydroxylase and Parkinson's disease. Mol. Neurobiol. 16: 285-309.
5. Lew, J., et al. 1999. Increased site-specific phosphorylation of tyrosine hydroxylase accompanies stimulation of enzymatic activity induced by cessation of dopamine neuronal activity. Mol. Pharmacol. 2: 202-209.
6. SWISS-PROT/TrEMBL (P07101). World Wide Web URL: http://www.expasy.ch/sprot/sprot-top.html
7. Moy, L.Y. et al. 2004. Cyclin-dependent kinase 5 phosphorylates serine 31 of tyrosine hydroxylase and regulates its stability. J. Biol. Chem. 279: 54487-54493.

CHROMOSOMAL LOCATION

Genetic locus: Th (mouse) mapping to 7 F5.

SOURCE

p-TH (Ser 31) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 31 of TH of rat origin.

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

APPLICATIONS

p-TH (Ser 31) is recommended for detection of Ser 31 phosphorylated TH of mouse and rat origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500).

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

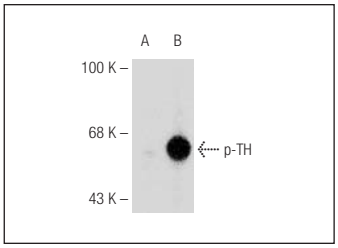
Molecular Weight of p-TH: 60 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, okadaic acid treated PC-12 whole cell lysate or KCl-stimulated PC-12 whole cell lysate.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



p-TH (Ser 31): sc-135714. Western blot analysis of TH phosphorylation in untreated (**A**) and okadaic acid-treated (**B**) PC-12 whole cell lysates.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.