

TPH2 (C-12): sc-48955

BACKGROUND

Phenylalanine hydroxylase (PAH), tyrosine hydroxylase (TH), tryptophan hydroxylase (TPH) and tryptophan hydroxylase 2 (TPH2) comprise a small family of monooxygenases that catalyze the rate-limiting step in the catabolism of aromatic L-amino acids and utilize tetrahydropterine as a cofactor. TPH2 is highly expressed in the central nervous system (CNS), mainly in the brain. TPH2 catalyzes the first step in the biosynthesis of serotonin in the CNS and melatonin in the pineal gland, and may be involved in the pathology of several neuropsychiatric disorders. Glucocorticoid-mediated reduction of TPH2 is associated with the etiology of mood disorders, specifically psychotic major depression, and TPH2 may be related to dysregulation of serotonin neurotransmission in the brain which commonly leads to suicidal behavior.

REFERENCES

1. Brown, S.M., et al. 2005. A regulatory variant of the human tryptophan hydroxylase-2 gene biases amygdala reactivity. *Mol. Psychiatry* 10: 884-888, 805.
2. Sheehan, K., et al. 2005. Tryptophan hydroxylase 2 (TPH2) gene variants associated with ADHD. *Mol. Psychiatry* 10: 944-949.
3. Garriock, H.A., et al. 2005. Lack of association of TPH2 exon XI polymorphisms with major depression and treatment resistance. *Mol. Psychiatry* 10: 976-977.
4. Clark, J.A., et al. 2005. Differential hormonal regulation of tryptophan hydroxylase-2 mRNA in the murine dorsal raphe nucleus. *Biol. Psychiatry* 57: 943-946.
5. De Luca, V., et al. 2005. Promoter polymorphism of second tryptophan hydroxylase isoform (TPH2) in schizophrenia and suicidality. *Psychiatry Res.* 134: 195-198.
6. De Luca, V., et al. 2005. Tryptophan hydroxylase 2 gene expression and promoter polymorphisms in bipolar disorder and schizophrenia. *Psychopharmacology* 183: 378-382.
7. De Luca, V., et al. 2006. The interaction between TPH2 promoter haplotypes and clinical-demographic risk factors in suicide victims with major psychoses. *Genes Brain Behav.* 5: 107-110.
8. De Luca, V., et al. 2006. Gene expression of tryptophan hydroxylase 2 in post-mortem brain of suicide subjects. *Int. J. Neuropsychopharmacol.* 9: 21-25.
9. Zill, P., et al. 2007. Analysis of tryptophan hydroxylase I and II mRNA expression in the human brain: a post-mortem study. *J. Psychiatr. Res.* 41: 168-173.

CHROMOSOMAL LOCATION

Genetic locus: TPH2 (human) mapping to 12q21.1; Tph2 (mouse) mapping to 10 D2.

STORAGE

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

SOURCE

TPH2 (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of TPH2 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.

Blocking peptide available for competition studies, sc-48955 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

TPH2 (C-12) is recommended for detection of TPH2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

TPH2 (C-12) is also recommended for detection of TPH2 in additional species, including equine, canine, porcine and avian.

Suitable for use as control antibody for TPH2 siRNA (h): sc-61699, TPH2 siRNA (m): sc-61700, TPH2 shRNA Plasmid (h): sc-61699-SH, TPH2 shRNA Plasmid (m): sc-61700-SH, TPH2 shRNA (h) Lentiviral Particles: sc-61699-V and TPH2 shRNA (m) Lentiviral Particles: sc-61700-V.

Molecular Weight of TPH2: 56 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Omenetti, A., et al. 2010. Paracrine modulation of cholangiocyte serotonin synthesis orchestrates biliary remodeling in adults. *Am. J. Physiol. Gastrointest. Liver Physiol.* 300: G303-G315.

RESEARCH USE

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

PROTOCOLS

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