

TPH2 siRNA (m): sc-61700

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

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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 (mouse) mapping to 10 D2.

PROTOCOLS

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

PRODUCT

TPH2 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TPH2 shRNA Plasmid (m): sc-61700-SH and TPH2 shRNA (m) Lentiviral Particles: sc-61700-V as alternate gene silencing products.

For independent verification of TPH2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61700A, sc-61700B and sc-61700C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TPH2 siRNA (m) is recommended for the inhibition of TPH2 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TPH2 gene expression knockdown using RT-PCR Primer: TPH2 (m)-PR: sc-61700-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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