SANTA CRUZ BIOTECHNOLOGY, INC.

DBH (DBH 41): sc-47707

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Dopamine β-hydroxylase (DBH) catalyzes the conversion of dopamine to noradrenaline in the biosynthesis of catecholamines. DBH is selectively expressed in noradrenergic and adrenergic neurons, as well as in neuroendocrine cells, and it serves as a specific protein marker for noradrenergic processes. The active form of DBH is a homotetramer, which is found in the lumen of synaptic vesicles of corresponding nerve cells, where it localizes to both the membrane and cytosol. DBH is induced by nerve growth factor and Insulin growth factor-1 and is regulated by intracellular second messengers protein kinase A, cyclic AMP, diacyl glycerol and Ca^{2+}. Expression of DBH is transcriptionally mediated by Sp1, CREB and AP-1 proteins including c-Fos, c-Jun and JunD.

REFERENCES

1. Lamouroux, A., et al. 1987. The primary structure of human dopamine-β-hydroxylase: insights into the relationship between the soluble and the membrane-bound forms of the enzyme. EMBO J. 6: 3931-3937.
2. Kobayashi, K., et al. 1989. Human dopamine β-hydroxylase gene: two mRNA types having different 3'-terminal regions are produced through alternative polyadenylation. Nucleic Acids Res. 17: 1089-1102.
3. McMahon, A., et al. 1990. Rat dopamine β-hydroxylase: molecular cloning and characterization of the cDNA and regulation of the mRNA by reserpine. J. Neurosci. Res. 25: 395-404.

CHROMOSOMAL LOCATION

Genetic locus: DBH (human) mapping to 9q34.2; Dbh (mouse) mapping to 2 A3.

SOURCE

DBH (DBH 41) is a mouse monoclonal antibody raised against purified DBH from adrenal medulla homogenate of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DBH (DBH 41) is recommended for detection of DBH of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with rabbit, guinea pig, cat or bovine DBH.

Suitable for use as control antibody for DBH siRNA (h): sc-35179, DBH siRNA (m): sc-35180, DBH shRNA Plasmid (h): sc-35179-SH, DBH shRNA Plasmid (m): sc-35180-SH, DBH shRNA (h) Lentiviral Particles: sc-35179-V and DBH shRNA (m) Lentiviral Particles: sc-35180-V.

Molecular Weight of DBH cleaved form: 78 kDa.

Molecular Weight of DBH amphiphilic form: 84 kDa.

Positive Controls: PC-12 cell lysate: sc-2250 or rat adrenal gland tissue extract.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Kato, K., et al. 2013. Short-term hypoxia transiently increases dopamine β-hydroxylase immunoreactivity in glomus cells of the rat carotid body. J. Histochem. Cytochem. 61: 55-62.
2. Johnson, M.E., et al. 2015. Investigation of tyrosine hydroxylase and BDNF in a low-dose rotenone model of Parkinson's disease. J. Chem. Neuroanat. 70: 33-41.
3. Sanna, M.D., et al. 2018. Activation of ERK/CREB pathway in noradrenergic neurons contributes to hypernociceptive phenotype in H4 receptor knockout mice after nerve injury. Neuropharmacology 128: 340-350.
4. Senthilkumaran, M., et al. 2018. The effects of recurrent hypoglycaemia and opioid antagonists on the adrenal catecholamine synthetic capacity in a rat model of HAAF. Auton. Neurosci. 210: 76-80.
5. Xiao, L.Y., et al. 2018. Acupuncture rescues cognitive impairment and upregulates dopamine-β-hydroxylase expression in chronic cerebral hypoperfusion rats. Biomed Res. Int. 2018: 5423961.
6. Ferizovic, H., et al. 2020. The fatty acid amide hydrolase inhibitor URB597 modulates splenic catecholamines in chronically stressed female and male rats. Int. Immunopharmacol. 85: 106615.
7. Jankovic, M., et al. 2020. Inhibition of the fatty acid amide hydrolase changes behaviors and brain catecholamines in a sex-specific manner in rats exposed to chronic unpredictable stress. Physiol. Behav. 227: 113174.
8. Ferizovic, H., et al. 2022. Effects of fatty acid amide hydroxylase inhibitor URB597 on the catecholaminergic activity of the adrenal medulla in stressed male and female rats. Pharmacology 107: 81-89.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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