SANTA CRUZ BIOTECHNOLOGY, INC.

DDC siRNA (h): sc-60515

BACKGROUND

DOPA decarboxylase (DDC), also designated aromatic-L-amino-acid decarboxylase (AADC) belongs to the group II decarboxylase family of proteins. DDC, which can form a homodimer, is an important protein in the catecholamine biosynthesis pathway. DDC acts as a catalyst in the decarboxylation of L-5-hydroxytryptophan to serotonin, L-3,4-dihydroxyphenylalanine (DOPA) to dopamine and L-tryptophan to tryptamine. Defects in the gene encoding for DDC may cause the autosomal recessive disorder AADC deficiency. AADC deficiency is an early onset inborn error in neurotransmitter metabolism which can lead to catecholamine and serotonin deficiency. This causes poor feeding, psychomotor and developmental delays, lethargy, ptosis, gastrointestinal disturbances and hypothermia.

REFERENCES

1. Scherer, L.J., et al. 1992. Human DOPA decarboxylase: localization to human chromosome 7p11 and characterization of hepatic cDNAs. Genomics 13: 469-471.
2. Sumi-Ichinose, C., et al. 1992. Molecular cloning of genomic DNA and chromosomal assignment of the gene for human aromatic L-amino acid decarboxylase, the enzyme for catecholamine and serotonin biosynthesis. Biochemistry 31: 2229-2238.
3. Craig, S.P., et al. 1992. Localization of the gene for human aromatic L-amino acid decarboxylase (DDC) to chromosome 7p13→p11 by *in situ* hybridisation. Cytogenet. Cell Genet. 61: 114-116.
4. Le Van Thai, A., et al. 1993. Identification of a neuron-specific promoter of human aromatic L-amino acid decarboxylase gene. Brain Res. Mol. Brain Res. 17: 227-238.
5. Vassilacopoulou, D., et al. 2004. Identification and characterization of a novel form of the human L-DOPA decarboxylase mRNA. Neurochem. Res. 29: 1817-1823.
6. Chang, Y.T., et al. 2004. Levodopa-responsive aromatic L-amino acid decarboxylase deficiency. Ann. Neurol. 55: 435-438.
7. Ma, J.Z., et al. 2005. Haplotype analysis indicates an association between the DOPA decarboxylase (DDC) gene and nicotine dependence. Hum. Mol. Genet. 14: 1691-1698.

CHROMOSOMAL LOCATION

Genetic locus: DDC (human) mapping to 7p12.1.

PRODUCT

DDC siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DDC shRNA Plasmid (h): sc-60515-SH and DDC shRNA (h) Lentiviral Particles: sc-60515-V as alternate gene silencing products.

For independent verification of DDC (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60515A, sc-60515B and sc-60515C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCL, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DDC siRNA (h) is recommended for the inhibition of DDC expression in human 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 µM in 66 µl. 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.

GENE EXPRESSION MONITORING

DDC (8E8): sc-293287 is recommended as a control antibody for monitoring of DDC gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-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) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DDC gene expression knockdown using RT-PCR Primer: DDC (h)-PR: sc-60515-PR (20 µl, 540 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Shinka, T., et al. 2011. Serotonin synthesis and metabolism-related molecules in a human prostate cancer cell line. Oncol. Lett. 2: 211-215.

RESEARCH USE

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