SANTA CRUZ BIOTECHNOLOGY, INC.

DDC (8E8): sc-293287

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Localisation 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.

CHROMOSOMAL LOCATION

Genetic locus: DDC (human) mapping to 7p12.1; Ddc (mouse) mapping to 11 A1.

SOURCE

DDC (8E8) is a mouse monoclonal antibody raised against amino acids 1-480 representing full length DDC of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DDC (8E8) is recommended for detection of DDC of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DDC siRNA (h): sc-60515, DDC siRNA (m): sc-60516, DDC shRNA Plasmid (h): sc-60515-SH, DDC shRNA Plasmid (m): sc-60516-SH, DDC shRNA (h) Lentiviral Particles: sc-60515-V and DDC shRNA (m) Lentiviral Particles: sc-60516-V.

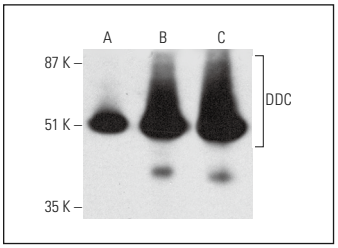
Molecular Weight of DDC: 50 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, Hep G2 cell lysate: sc-2227 or SHP-77 whole cell lysate: sc-364258.

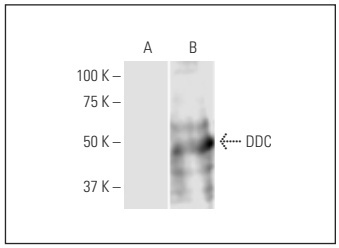
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



DDC (8E8): sc-293287. Western blot analysis of DDC expression in Hep G2 (**A**), SHP-77 (**B**) and PC-12 (**C**) whole cell lysates.



DDC (8E8): sc-293287. Western blot analysis of DDC expression in non-transfected (**A**) and DDC transfected (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Montioli, R., et al. 2020. New variants of AADC deficiency expand the knowledge of enzymatic phenotypes. Arch. Biochem. Biophys. 682: 108263.
2. Scagliotti, V., et al. 2021. Dynamic expression of imprinted genes in the developing and postnatal pituitary gland. Genes 12: 509.
3. Longo, C., et al. 2021. Compound heterozygosis in AADC deficiency: a complex phenotype dissected through comparison among heterodimeric and homodimeric AADC proteins. Mol. Genet. Metab. 134: 147-155.
4. Mpekoulis, G., et al. 2021. Association of hepatitis C virus replication with the catecholamine biosynthetic pathway. Viruses 13: 2139.
5. Vo, V.T.A., et al. 2022. Iron commensalism of mesenchymal glioblastoma promotes ferroptosis susceptibility upon dopamine treatment. Commun. Biol. 5: 593.
6. Byrne, D.J., et al. 2022. Brief sensory deprivation triggers plasticity of dopamine-synthesising enzyme expression in genetically labelled olfactory bulb dopaminergic neurons. Eur. J. Neurosci. 56: 3591-3612.
7. Sakai, K., et al. 2023. A cortisol-secreting adrenal adenoma combined with a micro-pheochromocytoma: case report and literature review. Clin. Med. Insights Endocrinol. Diabetes 16: 11795514221148556.

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.