SANTA CRUZ BIOTECHNOLOGY, INC.

ND1 (3H3): sc-293243

BACKGROUND

NADH:ubiquinone oxidoreductase (complex I) is an extremely complicated multiprotein complex located in the inner mitochondrial membrane. Human complex I is important for energy metabolism because its main function is to transport electrons from NADH to ubiquinone, which is accompanied by translocation of protons from the mitochondrial matrix to the intermembrane space. Human complex I appears to consist of 41 subunits. A small number of complex I subunits are the products of mitochondrial genes (subunits 1-7), while the remainder are nuclear encoded and imported from the cytoplasm. NADH dehydrogenase subunit 1 (ND1) binds rotenone and rotenone analogs and might be involved in electron transfer to ubiquinone. Mutations in the ND1 gene may be implicated in several disorders, including Leber hereditary optic neuropathy, Alzheimer disease, and Parkinson disease.

REFERENCES

1. Ton, C., et al. 1997. Identification and primary structure of five human NADH-ubiquinone oxidoreductase subunits. Biochem. Biophys. Res. Commun. 241: 589-594.
2. Loeffen, J.L., et al. 1998. cDNA of eight nuclear encoded subunits of NADH:ubiquinone oxidoreductase: human complex I cDNA characterization completed. Biochem. Biophys. Res. Commun. 253: 415-422.
3. Smeitink, J., et al. 1998. Molecular characterization and mutational analysis of the human B17 subunit of the mitochondrial respiratory chain complex I. Hum. Genet. 103: 245-250.
4. Conn, K.J., et al. 2001. Decreased expression of the NADH:ubiquinone oxidoreductase (complex I) subunit 4 in 1-methyl-4-phenylpyridinium-treated human neuroblastoma SH-SY5Y cells. Neurosci. Lett. 306: 145-148.
5. Kim, S.H., et al. 2001. The reduction of NADH ubiquinone oxidoreductase 24 and 75 kDa subunits in brains of patients with Down syndrome and Alzheimer's disease. Life Sci. 68: 2741-2750.
6. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 516000. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Jove, M., et al. 2004. Impaired expression of NADH dehydrogenase subunit 1 and PPARγ coactivator-1 in skeletal muscle of ZDF rats: restoration by troglitazone. J. Lipid Res. 45: 113-123.

SOURCE

ND1 (3H3) is a mouse monoclonal antibody raised against amino acids 21-71 of ND1 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.

STORAGE

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

APPLICATIONS

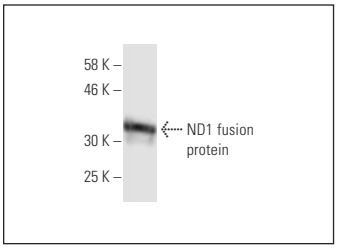
ND1 (3H3) is recommended for detection of ND1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of ND1: 36 kDa.

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



ND1 (3H3): sc-293243. Western blot analysis of human recombinant ND1 fusion protein.

SELECT PRODUCT CITATIONS

1. Suliman, H., et al. 2021. Annexin A1 tripeptide mimetic increases sirtuin-3 and augments mitochondrial function to limit ischemic kidney injury. Front. Physiol. 12: 683098.
2. Suliman, H.B., et al. 2022. Nuclear respiratory factor-1 negatively regulates TGF-β1 and attenuates pulmonary fibrosis. iScience 25: 103535.
3. Sato, T., et al. 2022. A novel ND1 mitochondrial DNA mutation is maternally inherited in growth hormone transgenesis in amago salmon *(Oncorhynchus masou ishikawae).* Sci. Rep. 12: 6720.

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.