SANTA CRUZ BIOTECHNOLOGY, INC.

NNT (G-8): sc-390215

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The proccess of cellular respiration is carried out by integral inner mitochondrial membrane proteins that facilitate the harnessing of energy released by the oxidation of NADH. NNT (nicotinamide nucleotide transhydrogenase), also known as mitochondrial NAD(P) transhydrogenase or pyridine nucleotide transhydrogenase, is a 1,086 amino acid multi-pass mitochondrial inner membrane protein. NNT is a homodimer with an N-terminal section belonging to the AlaDH/PNT family and a C-terminal section belonging to the PNT β subunit family. NNT catalyzes the transfer of a hydride ion from NADH to $NADP^+$ and functions as a mitochondrial inner membrane proton pump. Using the energy of the proton gradient created by the electron transport chain, NNT produces high concentrations of NADPH, which is used in free radical detoxification and biosynthesis.

REFERENCES

1. Forsmark-Andree, P., et al. 1996. Oxidative modification of nicotinamide nucleotide transhydrogenase in submitochondrial particles: effect of endogenous ubiquinol. Arch. Biochem. Biophys. 336: 113-120.
2. Arkblad, E.L., et al. 1996. The cDNA sequence of proton-pumping nicotinamide nucleotide transhydrogenase from man and mouse. Biochim. Biophys. Acta 1273: 203-205.

CHROMOSOMAL LOCATION

Genetic locus: NNT (human) mapping to 5p12; Nnt (mouse) mapping to 13 D2.3.

SOURCE

NNT (G-8) is a mouse monoclonal antibody raised against amino acids 787-1086 mapping at the C-terminus of NNT of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NNT (G-8) is recommended for detection of NNT of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). NNT (G-8) is also recommended for detection of NNT in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for NNT siRNA (h): sc-91738, NNT siRNA (m): sc-150013, NNT shRNA Plasmid (h): sc-91738-SH, NNT shRNA Plasmid (m): sc-150013-SH, NNT shRNA (h) Lentiviral Particles: sc-91738-V and NNT shRNA (m) Lentiviral Particles: sc-150013-V.

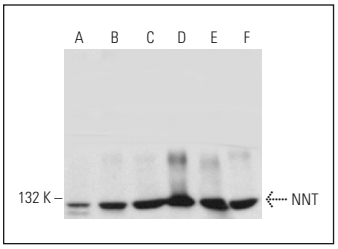
Molecular Weight of NNT: 114 kDa.

Positive Controls: A2058 whole cell lysate: sc-364178, c4 whole cell lysate: sc-364186 or A-673 cell lysate: sc-2414.

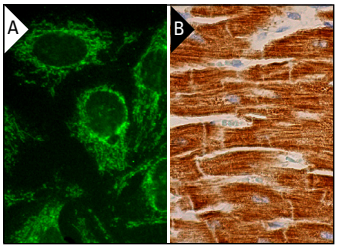
RECOMMENDED SUPPORT REAGENTS

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). 3) 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



NNT (G-8): sc-390215. Western blot analysis of NNT expression in A2058 (**A**), c4 (**B**), Sol8 (**C**), A-673 (**D**) and C2C12 (**E**) whole cell lysates and rat liver tissue extract (**F**).



NNT (G-8): sc-390215. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Usami, M., et al. 2018. Genetic differences in C57BL/6 mouse substrains affect kidney crystal deposition. Urolithiasis 46: 515-522.
2. Francisco, A., et al. 2020. Mitochondrial $NAD(P)^+$ transhydrogenase is unevenly distributed in different brain regions, and its loss causes depressive-like behavior and motor dysfunction in mice. Neuroscience. E-published.

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.