

NNT (43-R17): sc-100490

BACKGROUND

The process 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-Andrée, P., Persson, B., Radi, R., Dallner, G. and Ernster, L. 1996. Oxidative modification of nicotinamide nucleotide transhydrogenase in sub-mitochondrial particles: effect of endogenous ubiquinol. *Arch. Biochem. Biophys.* 336: 113-120.
2. Arkblad, E.L., Betsholtz, C. and Rydström, J. 1996. The cDNA sequence of proton-pumping nicotinamide nucleotide transhydrogenase from man and mouse. *Biochim. Biophys. Acta* 1273: 203-205.
3. Zieger, B. and Ware, J. 1997. Cloning and deduced amino acid sequence of human nicotinamide nucleotide transhydrogenase. *DNA Seq.* 7: 369-373.
4. White, S.A., Peake, S.J., McSweeney, S., Leonard, G., Cotton, N.P. and Jackson, J.B. 2000. The high-resolution structure of the NADP(H)-binding component (dIII) of proton-translocating transhydrogenase from human heart mitochondria. *Structure* 8: 1-12.
5. Arkblad, E.L., Egorov, M., Shakhparonov, M., Romanova, L., Polzikov, M. and Rydström, J. 2002. Expression of proton-pumping nicotinamide nucleotide transhydrogenase in mouse, human brain and *C. elegans*. *Comp. Biochem. Physiol. B, Biochem. Mol. Biol.* 133: 13-21.
6. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607878. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
7. Jackson, J.B. 2003. Proton translocation by transhydrogenase. *FEBS Lett.* 545: 18-24.

CHROMOSOMAL LOCATION

Genetic locus: NNT (human) mapping to 5p12.

SOURCE

NNT (43-R17) is a mouse monoclonal antibody raised against recombinant NNT of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NNT (43-R17) is recommended for detection of NNT of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

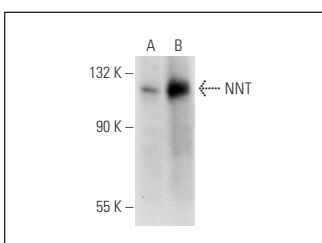
Molecular Weight of NNT: 114 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or NNT (h): 293T Lysate: sc-114805.

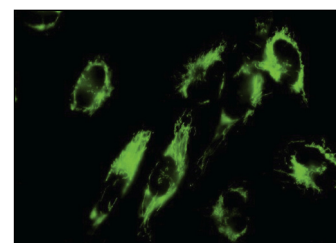
RECOMMENDED SUPPORT REAGENTS

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

DATA



NNT (43-R17): sc-100490. Western blot analysis of NNT expression in non-transfected: sc-117752 (A) and human NNT transfected: sc-114805 (B) 293T whole cell lysates.



NNT (43-R17): sc-100490. Immunofluorescence staining of paraformaldehyde-fixed HepG2 cells showing cytoplasmic localization.

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.