

NTH1 (2660C1a): sc-130644

BACKGROUND

The human endonuclease III (hNTH1), a homolog of the *E. Coli* enzyme (Nth), is a DNA glycosylase with abasic (apurinic/aprimidinic (AP)) lyase activity that specifically cleaves oxidatively damaged pyrimidines in DNA. The enzyme carries out β -elimination and forms a Schiff base between the active site at Lysine 212 and the deoxyribose generated after base removal. Full-length human NTH1 sorts exclusively into the nuclei, whereas most mouse NTH1 protein sorts into the mitochondria, with a relatively small amount localized in the nuclei. This difference is due to the presence of a nuclear localization sequence in the human NTH1 that is absent in the mouse form of the protein. The mammalian NTH1 gene lies immediately adjacent to one of the tuberous sclerosis disease-determining genes, TSC2, in a head-to-head orientation. The two genes share a promoter with bidirectional activity essential for the transcription of both genes. DNA glycosylases such as NTH1 play an important role in the excision of damaged bases in the genome.

REFERENCES

- Ikeda, S., et al. 1998. Purification and characterization of human NTH1, a homolog of *Escherichia coli* endonuclease III. Direct identification of Lys 212 as the active nucleophilic residue. *J. Biol. Chem.* 273: 21585-21593.
- Sarker, A.H., et al. 1998. Cloning and characterization of a mouse homologue (mNth1) of *Escherichia coli* endonuclease III. *J. Mol. Biol.* 282: 761-764.
- Ikeda, S., et al. 2000. Identification of functional elements in the bidirectional promoter of the mouse Nth1 and Tsc2 genes. *Biochem. Biophys. Res. Commun.* 273: 1063-1068.
- Ikeda, S., et al. 2002. Differential intracellular localization of the human and mouse endonuclease III homologs and analysis of the sorting signals. *DNA Repair* 1: 847-854.
- Hazra, T.K., et al. 2004. The discovery of a new family of mammalian enzymes for repair of oxidatively damaged DNA, and its physiological implications. *Carcinogenesis* 24: 155-157.

CHROMOSOMAL LOCATION

Genetic locus: NTH1 (human) mapping to 16p13.3; Nth1 (mouse) mapping to 17 A3.3.

SOURCE

NTH1 (2660C1a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to the N-terminus of NTH1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

STORAGE

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

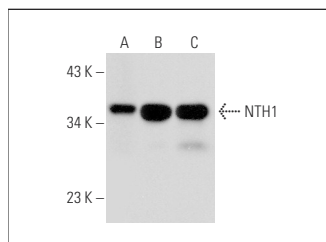
APPLICATIONS

NTH1 (2660C1a) is recommended for detection of NTH1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

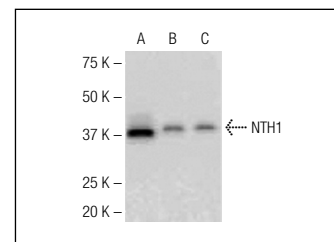
Suitable for use as control antibody for NTH1 siRNA (h): sc-38133, NTH1 siRNA (m): sc-38134, NTH1 shRNA Plasmid (h): sc-38133-SH, NTH1 shRNA Plasmid (m): sc-38134-SH, NTH1 shRNA (h) Lentiviral Particles: sc-38133-V and NTH1 shRNA (m) Lentiviral Particles: sc-38134-V.

Positive Controls: ARPE-19 whole cell lysate: sc-364357, HeLa whole cell lysate: sc-2200 or MCF7 whole cell lysate: sc-2206.

DATA



NTH1 (2660C1a): sc-130644. Western blot analysis of NTH1 expression in ARPE-19 (A), HeLa (B) and MCF7 (C) whole cell lysates.



NTH1 (2660C1a): sc-130644. Western blot analysis of NTH1 expression in HEK293 (A), NIH/3T3 (B) and F2408 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Dinis, J., et al. 2012. DNA damage response in imatinib resistant chronic myeloid leukemia K-562 cells. *Leuk. Lymphoma* 53: 2004-2014.

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.