

NTH1 (A-12): sc-22842

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., Biswas, T., Roy, R., Izumi, T., Boldogh, I., Kurosky, A., Sarker, A.H., Seki, S. and Mitra, S. 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., Ikeda, S., Nakano, H., Terato, H., Ide, H., Imai, K., Akiyama, K., Tsutsui, K., Bo, Z., Kubo, K., Yamamoto, K., Yasui, A., Yoshida, M.C. and Seki, S. 1998. Cloning and characterization of a mouse homologue (mNth1) of *Escherichia coli* endonuclease III. *J. Mol. Biol.* 282: 761-764.
- Ikeda, S., Mochizuki, A., Sarker, A.H. and Seki, S. 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., Kohmoto, T., Tabata, R. and Seki, Y. 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., Izumi, T., Kow, Y.W. and Mitra, S. 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 (A-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NTH1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22842 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NTH1 (A-12) 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), 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).

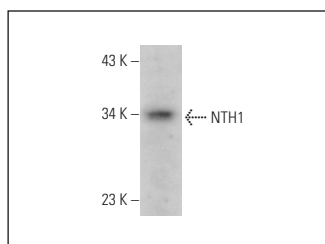
Suitable for use as control antibody for NTH1 siRNA (h): sc-38133, NTH1 siRNA (m): sc-38134, NTH1 shRNA Plasmid (h): sc-38133-SH, NTH1 shRNA Plasmid (m): sc-38134-SH, NTH1 shRNA (h) Lentiviral Particles: sc-38133-V and NTH1 shRNA (m) Lentiviral Particles: sc-38134-V.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



NTH1 (A-12): sc-22842. Western blot analysis of NTH1 expression in HeLa whole cell lysate.

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.



Try **NTH1 (2660C1a): sc-130644**, our highly recommended monoclonal alternative to NTH1 (A-12).