SANTA CRUZ BIOTECHNOLOGY, INC.

PNAd (L-20): sc-54990

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

PNAd, protein N-terminal asparagine amidohydrolase, is a 310 amino acid protein encoded by the human gene NTAN1. PNAd is responsible for the side-chain deamidation of N-terminal asparagine residues to aspartate. It is required for the ubiquitin-dependent turnover of intracellular proteins that initiate with Met-Asn. These proteins are acetylated on the retained initiator methionine and can subsequently be modified by the removal of N-acetyl methionine by acylaminoacid hydrolase (AAH). Conversion of the resulting N-terminal asparagine to aspartate by PNAd renders the protein susceptible to arginylation, polyubiquitination and degradation as specified by the N-end rule. This enzyme does not act on substrates with internal or C-terminal asparagines and does not act on glutamine residues in any position.

REFERENCES

1. Grigoryev, S., Stewart, A.E., Kwon, Y.T., Arfin, S.M., Bradshaw, R.A., Jenkins, N.A., Copeland, N.G. and Varshavsky, A. 1996. A mouse amidase specific for N-terminal asparagine. The gene, the enzyme, and their function in the N-end rule pathway. J. Biol. Chem. 271: 28521-28532.
2. Balogh, S.A., Kwon, Y.T. and Denenberg, V.H. 2000. Varying intertrial interval reveals temporally defined memory deficits and enhancements in NTAN1-deficient mice. Learn. Mem. 7: 279-286.
3. Kwon, Y.T., Balogh, S.A., Davydov, I.V., Kashina, A.S., Yoon, J.K., Xie, Y., Gaur, A., Hyde, L., Denenberg, V.H. and Varshavsky, A. 2000. Altered activity, social behavior, and spatial memory in mice lacking the NTAN1p amidase and the asparagine branch of the N-end rule pathway. Mol. Cell. Biol. 20: 4135-4148.
4. Balogh, S.A., McDowell, C.S., Tae Kwon, Y. and Denenberg, V.H. 2001. Facilitated stimulus-response associative learning and long-term memory in mice lacking the NTAN1 amidase of the N-end rule pathway. Brain Res. 892: 336-343.
5. Balogh, S.A., McDowell, C.S. and Denenberg, V.H. 2003. Behavioral characterization of mice lacking the ubiquitin ligase UBR1 of the N-end rule pathway. Genes Brain Behav. 1: 223-229.
6. Goto, Y., Taniura, H., Yamada, K., Hirai, T., Sanada, N., Nakamichi, N. and Yoneda, Y. 2006. The magnetism responsive gene Ntan1 in mouse brain. Neurochem. Int. 49: 334-341.
7. Hirai, T., Taniura, H., Goto, Y., Ogura, M., Sng, J.C. and Yoneda, Y. 2006. Stimulation of ubiquitin-proteasome pathway through the expression of amidohydrolase for N-terminal asparagine (Ntan1) in cultured rat hippocampal neurons exposed to static magnetism. J. Neurochem. 96: 1519-1530.

CHROMOSOMAL LOCATION

Genetic locus: NTAN1 (human) mapping to 16p13.11; Ntan1 (mouse) mapping to 16 A1.

SOURCE

PNAd (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of PNAd of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-54990 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PNAd (L-20) is recommended for detection of PNAd of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

PNAd (L-20) is also recommended for detection of PNAd in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for PNAd siRNA (h): sc-62832, PNAd siRNA (m): sc-62833, PNAd shRNA Plasmid (h): sc-62832-SH, PNAd shRNA Plasmid (m): sc-62833-SH, PNAd shRNA (h) Lentiviral Particles: sc-62832-V and PNAd shRNA (m) Lentiviral Particles: sc-62833-V.

Molecular Weight of PNAd: 35 kDa.

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) 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.

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 or our catalog for detailed protocols and support products.