SANTA CRUZ BIOTECHNOLOGY, INC.

NPAT (M-300): sc-67008

BACKGROUND

The nuclear protein, ataxia telangiectasia locus (NPAT), an essential downstream component of the cyclin E/Cdk2 signaling pathway, acts as a critical regulator for S phase entry, histone gene expression and Cajal body maintenance in somatic cells. This protein was originally identified by its chromosomal location, 11q23, and its proximity to the ATM gene, which is responsible for the autosomal recessive disease ataxia telangiectasia (AT). The NPAT protein sequence is strongly conserved in eukaryotes and its expression is ubiquitous. The C-terminal half of the NPAT protein contains multiple elements required for induction of S phase, while the N-terminal half appears to be crucial for the activation of Histone H4 and H2B. NPAT contains several Cdk2 phosphorylation sites, but they do not appear to affect protein function.

REFERENCES

1. Imai, T., et al. 1996. Identification and characterization of a new gene physically linked to the ATM gene. Genome Res. 6: 439-447.
2. Ma, T., et al. 2000. Cell cycle-regulated phosphorylation of p220(NPAT) by cyclin E/Cdk2 in Cajal bodies promotes histone gene transcription. Genes Dev. 14: 2298-2313.
3. Sagara, M., et al. 2002. Characterization of functional regions for nuclear localization of NPAT. J. Biochem. 132: 875-879.
4. Gao, G., et al. 2003. NPAT expression is regulated by E2F and is essential for cell cycle progression. Mol. Cell. Biol. 23: 2821-2833.
5. Wei, Y., et al. 2003. The cyclin E/Cdk2 substrate and Cajal body component p220(NPAT) activates histone transcription through a novel LisH-like domain. Mol. Cell. Biol. 23: 3669-3680.
6. Wang, A., et al. 2004. Dynamic interaction of p220NPAT and CBP/p300 promotes S phase entry. Biochem. Biophys. Res. Commun. 325: 1509-1516.
7. Miele, A., et al. 2005. HiNF-P directly links the cyclin E/Cdk2/p220NPAT pathway to Histone H4 gene regulation at the G_1/S phase cell cycle transition. Mol. Cell. Biol. 25: 6140-6153.

CHROMOSOMAL LOCATION

Genetic locus: NPAT (human) mapping to 11q22.3; Npat (mouse) mapping to 9 A5.3.

SOURCE

NPAT (M-300) is a rabbit polyclonal antibody raised against amino acids 1091-1390 mapping near the C-terminus of NPAT of mouse origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

NPAT (M-300) is recommended for detection of NPAT of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NPAT siRNA (m): sc-44782, NPAT siRNA (h): sc-44351, NPAT shRNA Plasmid (m): sc-44782-SH, NPAT shRNA Plasmid (h): sc-44351-SH, NPAT shRNA (m) Lentiviral Particles: sc-44782-V and NPAT shRNA (h) Lentiviral Particles: sc-44351-V.

Molecular Weight of NPAT: 212 kDa.

Positive Controls: mouse testis extract: sc-2405.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.