SANTA CRUZ BIOTECHNOLOGY, INC.

NPAT (27): sc-136007

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, 11q22.3, 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 $p220^{NPAT}$ 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/$p220^{NPAT}$ 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.

SOURCE

NPAT (27) is a mouse monoclonal antibody raised against amino acids 681-803 of NPAT of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} 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.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

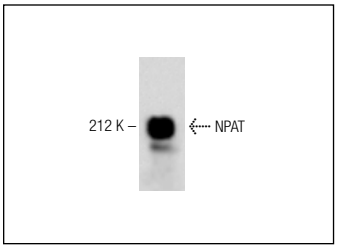
NPAT (27) is recommended for detection of NPAT of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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

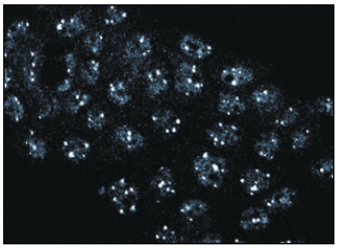
Molecular Weight of NPAT: 212 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or A-431 whole cell lysate: sc-2201.

DATA



NPAT (27): sc-136007. Western blot analysis of NPAT expression in Jurkat whole cell lysate.



NPAT (27): sc-136007. Immunofluorescence staining of A-431 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Chen, S., et al. 2012. FLASH knockdown sensitizes cells to Fas-mediated apoptosis via down-regulation of the anti-apoptotic proteins, MCL-1 and Cflip short. PLoS ONE 7: e32971.
2. Neelsen, K.J., et al. 2013. Oncogenes induce genotoxic stress by mitotic processing of unusual replication intermediates. J. Cell Biol. 200: 699-708.
3. Zheng, L.L., et al. 2015. Interaction of heat shock protein cpn10 with the Cyclin E/Cdk2 substrate nuclear protein ataxia-telangiectasia (NPAT) is involved in regulating histone transcription. J. Biol. Chem. 290: 29290-29300.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.