SANTA CRUZ BIOTECHNOLOGY, INC.

NIPA (A-12): sc-514368

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Entry into mitosis is essentially driven by cyclin B1, which is located in the cytoplasm throughout interphase, but accumulates in the nucleus just before mitosis occurs. Nuclear interaction partner of ALK (NIPA) plays a critical role in cyclin B1 regulation. NIPA is normally phosphorylated during G_2 and M phases, resulting in an accumulation of cyclin B1. When NIPA sheds its attached phosphate, it binds to SCF to form the SCFNIPA complex, a member of the E3 ubiquitin ligases, which ubiquitinates cyclin B1, thereby targeting it to the proteosome for degradation. Therefore, the accumulation of cyclin B1 is due to the inability of phosphorylated NIPA to bind to the molecule SCF, thereby preventing the degradation of cyclin B1. An absence of NIPA causes cyclin B1 to accumulate abnormally, leading to premature mitotic entry, loss of checkpoint control and genomic instability, which are all associated with cancer. The phosphorylated form of NIPA may also be involved in apoptotic signaling pathways.

REFERENCES

1. Lamant, L., et al. 1999. A new fusion gene TPM3-ALK in anaplastic large cell lymphoma created by a (1;2)(q25;p23) translocation. Blood 93: 3088-3095.
2. Golan, A., et al. 2002. The cyclin-ubiquitin ligase activity of cyclosome/APC is jointly activated by protein kinases Cdk1-cyclin B and Plk. J. Biol. Chem. 277: 15552-15557.
3. Ayad, N.G., et al. 2003. Tome-1, a trigger of mitotic entry, is degraded during G_1 via the APC. Cell 113: 101-113.
4. Bassermann, F., et al. 2005. NIPA defines an SCF-type mammalian E3 ligase that regulates mitotic entry. Cell 122: 45-57.
5. Bassermann, F., et al. 2005. Mitotic entry: a matter of oscillating destruction. Cell Cycle 4: 1515-1517.

CHROMOSOMAL LOCATION

Genetic locus: ZC3HC1 (human) mapping to 7q32.2; Zc3hc1 (mouse) mapping to 6 A3.3.

SOURCE

NIPA (A-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 369-388 near the C-terminus of NIPA of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514368 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% 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

NIPA (A-12) is recommended for detection of NIPA of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 NIPA siRNA (h): sc-61197, NIPA siRNA (m): sc-61198, NIPA shRNA Plasmid (h): sc-61197-SH, NIPA shRNA Plasmid (m): sc-61198-SH, NIPA shRNA (h) Lentiviral Particles: sc-61197-V and NIPA shRNA (m) Lentiviral Particles: sc-61198-V.

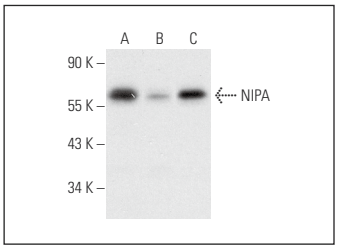
Molecular Weight of NIPA: 60 kDa.

Positive Controls: U-251-MG whole cell lysates: sc-364176, HeLa whole cell lysate: sc-2200 or WI-38 whole cell lysate: sc-364260.

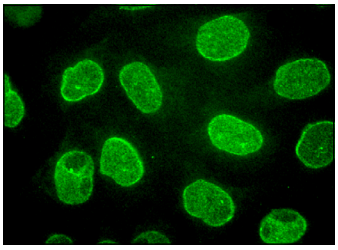
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



NIPA (A-12): sc-514368. Western blot analysis of NIPA expression in HeLa (**A**), WI-38 (**B**) and U-251-MG (**C**) whole cell lysates.



NIPA (A-12): sc-514368. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear membrane localization.

SELECT PRODUCT CITATIONS

1. Martinez-Lage, M., et al. 2012. TDP-43 pathology in a case of hereditary spastic paraplegia with a NIPA1/SPG6 mutation. Acta Neuropathol. 124: 285-291.

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.