SANTA CRUZ BIOTECHNOLOGY, INC.

NIPA (B-10): sc-365058

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 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.

CHROMOSOMAL LOCATION

Genetic locus: ZC3HC1 (human) mapping to 7q32.2.

SOURCE

NIPA (B-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of NIPA of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NIPA (B-10) is available conjugated to agarose (sc-365058 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365058 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365058 PE), fluorescein (sc-365058 FITC), Alexa Fluor® 488 (sc-365058 AF488), Alexa Fluor® 546 (sc-365058 AF546), Alexa Fluor® 594 (sc-365058 AF594) or Alexa Fluor® 647 (sc-365058 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365058 AF680) or Alexa Fluor® 790 (sc-365058 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

NIPA (B-10) is recommended for detection of NIPA of 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 shRNA Plasmid (h): sc-61197-SH and NIPA shRNA (h) Lentiviral Particles: sc-61197-V.

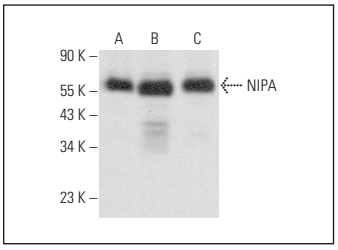
Molecular Weight of NIPA: 60 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270, NTERA-2 cl.D1 whole cell lysate: sc-364181 or HeLa whole cell lysate: sc-2200.

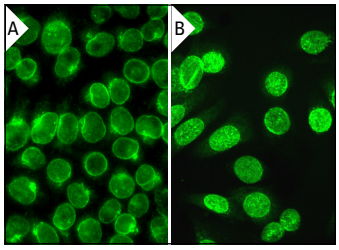
RECOMMENDED SUPPORT REAGENTS

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 (B-10): sc-365058. Western blot analysis of NIPA expression in HeLa (**A**), HEL 92.1.7 (**B**) and NTERA-2 cl.D1 (**C**) whole cell lysates.



NIPA (B-10): sc-365058. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear membrane localization (**A**). Immunofluorescence staining of formalin-fixed SW480 cells showing nuclear membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Kreutmair, S., et al. 2020. Loss of the Fanconi anemia-associated protein NIPA causes bone marrow failure. J. Clin. Invest. 130: 2827-2844.
2. Hussain, M., et al. 2022. A small-molecule Skp1 inhibitor elicits cell death by p53-dependent mechanism. iScience 25: 104591.

RESEARCH USE

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