SANTA CRUZ BIOTECHNOLOGY, INC.

Nucleostemin (P-13): sc-46218

BACKGROUND

Nucleostemin, also designated Nucleolar GTP-binding protein 3, is a member of the MMR1/HSR1 GTP-binding protein family. It is expressed in the nucleoli of adult CNS stem cells, primitive bone marrow cells, embryonic stem cells and in several cancer cell lines. Nucleostemin is often used as a stem cell marker. Overexpression or depletion of the protein can reduce cell proliferation in CNS stem cells. Nucleostemin shuttles between the nucleus and the nucleolus and may be important in maintaining the proliferative capacity of stem cells. Nucleostemin is important in the growth regulation of liver cancer, gastric cancer and several other cancer types. The gene encoding Nucleostemin is localized to chromosome 3p21.1.

REFERENCES

1. Charpentier, A.H., et al. 2000. Effects of estrogen on global gene expression: identification of novel targets of estrogen action. Cancer Res. 60: 5977-5983.
2. Normile, D. 2002. Cell proliferation. Common control for cancer, stem cells. Science 298: 1869.
3. Tsai, R.Y. and McKay, R.D. 2002. A nucleolar mechanism controlling cell proliferation in stem cells and cancer cells. Genes Dev. 16: 2991-3003.
4. Schwartz, P.H., et al. 2003. Isolation and characterization of neural progenitor cells from post-mortem human cortex. J. Neurosci. Res. 74: 838-851.
5. Baddoo, M., et al. 2003. Characterization of mesenchymal stem cells isolated from murine bone marrow by negative selection. J. Cell. Biochem. 89: 1235-1249.
6. Bernardi, R. and Pandolfi, P.P. 2003. The nucleolus: at the stem of immortality. Nat. Med. 9: 24-25.
7. Xu, W., et al. 2004. A novel tumor cell line cloned from mutated human embryonic bone marrow mesenchymal stem cells. Oncol. Rep. 12: 501-508.
8. Liu, S.J., et al. 2004. Role of Nucleostemin in growth regulation of gastric cancer, liver cancer and other malignancies. World J. Gastroenterol. 10: 1246-1249.
9. Shimamura, M., et al. 2004. Laser capture microdissection and analysis of amplified antisense RNA from distinct cell populations of the young and aged rat brain: effect of traumatic brain injury on hippocampal gene expression. Brain Res. Mol. Brain Res. 122: 47-61.

CHROMOSOMAL LOCATION

Genetic locus: GNL3 (human) mapping to 3p21.1.

SOURCE

Nucleostemin (P-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Nucleostemin of human origin.

STORAGE

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

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-46218 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

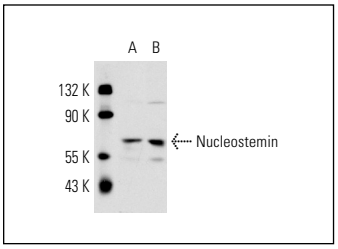
Nucleostemin (P-13) is recommended for detection of Nucleostemin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Nucleostemin siRNA (h): sc-45830, Nucleostemin shRNA Plasmid (h): sc-45830-SH and Nucleostemin shRNA (h) Lentiviral Particles: sc-45830-V.

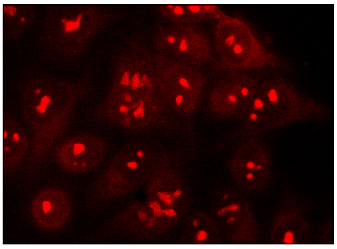
Molecular Weight of Nucleostemin: 62 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or K-562 nuclear extract: sc-2130.

DATA



Nucleostemin (P-13): sc-46218. Western blot analysis of Nucleostemin expression in Hep G2 (**A**) and SW480 (**B**) nuclear extracts.



Nucleostemin (P-13): sc-46218. Immunofluorescence staining of methanol-fixed HeLa cells showing nucleolar localization.

SELECT PRODUCT CITATIONS

1. Drago-Ferrante, R., et al. 2008. Low doses of paclitaxel potently induce apoptosis in human retinoblastoma Y79 cells by up-regulating E2F1. Int. J. Oncol. 33: 677-687.

RESEARCH USE

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