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SANTA CRUZ BIOTECHNOLOGY, INC.

Nucleostemin siRNA (m): sc-45831

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

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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.
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CHROMOSOMAL LOCATION

Genetic locus: Gnl3 (mouse) mapping to 14 B.

PRODUCT

Nucleostemin siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Nucleostemin shRNA Plasmid (m): sc-45831-SH and Nucleostemin shRNA (m) Lentiviral Particles: sc-45831-V as alternate gene silencing products.

For independent verification of Nucleostemin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45831A, sc-45831B and sc-45831C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Nucleostemin shRNA (m) Lentiviral Particles is recommended for the inhibition of Nucleostemin expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Nucleostemin (F-5): sc-398978 is recommended as a control antibody for monitoring of Nucleostemin gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Nucleostemin gene expression knockdown using RT-PCR Primer: Nucleostemin (m)-PR: sc-45831-PR (20 µl, 581 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.