SANTA CRUZ BIOTECHNOLOGY, INC.

B23 siRNA (m): sc-29772

BACKGROUND

The transport of proteins across the nuclear envelope is a selective, multi-step process involving several cytoplasmic factors. Proteins must be recognized as import substrates, dock at the nuclear pore complex, and translocate across the nuclear envelope in an ATP-dependent fashion. Several cytosolic and nuclear proteins that are central to this process have been identified. For example, two cytosolic factors critically involved in the recognition and docking process are the karyopherin α and karyopherin β proteins. The karyopherin holoenzyme is a heterodimer of α and β subunits. The nuclear protein B23 (also referred to as nucleophosmin) is involved in ribosomal assembly and rRNA transport. B23 is an abundant protein that is highly phosphorylated by Cdc2 kinase during mitosis.

REFERENCES

1. Moroianu, J., et al. 1995. Protein export from the nucleus requires the GTPase Ran and GTP hydrolysis. Proc. Natl. Acad. Sci. USA 92: 4318-4322.
2. Chou, Y.H., et al. 1995. Cell cycle phase-dependent changes of localization and oligomerization states of nucleophosmin/B23. Biochem. Biophys. Res. Commun. 217: 313-325.
3. Lounsbury, K.M., et al. 1996. Ran binding domains promote the interaction of Ran with p97/karyopherin β, linking the docking and translocation steps of nuclear import. J. Biol. Chem. 271: 2357-2360.
4. Moroianu, J., et al. 1996. The binding site of karyopherin α for karyopherin β overlaps with a nuclear localization sequence. Proc. Natl. Acad. Sci. USA 93: 6572-6576.
5. Moroianu, J., et al. 1996. Nuclear protein import: Ran-GTP dissociates the karyopherin α/β heterodimer by displacing α from an overlapping binding site on β. Proc. Natl. Acad. Sci. USA 93: 7059-7062.
6. Nozawa, Y., et al. 1996. Expression of nucleophosmin/B23 in normal and neoplastic colorectal mucosa. J. Pathol. 178: 48-52.
7. Lu, Y.Y., et al. 1996. Decreased accumulation and desphosphorylation of the mitosis-specific form of nucleophosmin/B23 in staurosporine-induced chromosome decondensation. Biochem. J. 317: 321-327.

CHROMOSOMAL LOCATION

Genetic locus: Npm1 (mouse) mapping to 11 A4.

PRODUCT

B23 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 B23 shRNA Plasmid (m): sc-29772-SH and B23 shRNA (m) Lentiviral Particles: sc-29772-V as alternate gene silencing products.

For independent verification of B23 (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-29772A, sc-29772B and sc-29772C.

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

B23 siRNA (m) is recommended for the inhibition of B23 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

B23 (E-3): sc-271737 is recommended as a control antibody for monitoring of B23 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 B23 gene expression knockdown using RT-PCR Primer: B23 (m)-PR: sc-29772-PR (20 µl, 519 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Dhar, S.K., et al. 2009. Nucleophosmin blocks mitochondrial localization of p53 and apoptosis. J. Biol. Chem. 284: 16409-16418.

RESEARCH USE

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