SANTA CRUZ BIOTECHNOLOGY, INC.

SUV3 siRNA (h): sc-90749

BACKGROUND

SUV3, also known as SUPV3L1 (suppressor of var1, 3-like 1), is a 786 amino acid protein that localizes to both the nucleus and the mitochondrial matrix and contains one helicase C-terminal domain, as well as one helicase ATP-binding domain. Expressed in a broad range of tissues, SUV3 interacts with HBXIP and functions as an ATPase DNA/RNA helicase that uses magnesium as a cofactor to catalyze the unwinding of DNA/RNA and RNA/RNA duplexes, thereby playing a role in DNA replication and transcriptional initiation. SUV3 exhibits optimal activity at a pH of 5 and, in addition to its helicase activity, is thought to protect cells from apoptosis and participate in maintaining mitochondrial homeostasis. The gene encoding SUV3 maps to human chromosome 10, which houses over 1,200 genes and comprises nearly 4.5% of the human genome.

REFERENCES

1. Dmochowska, A., et al. 1998. Assignment1 of SUPV3L1 to human chromosome band 10q22.1 by *in situ* hybridization. Cytogenet. Cell Genet. 83: 84-85.
2. Dmochowska, A., et al. 1999. A human putative Suv3-like RNA helicase is conserved between *Rhodobacter* and all eukaryotes. Acta Biochim. Pol. 46: 155-162.
3. Minczuk, M., et al. 2002. Localisation of the human hSuv3p helicase in the mitochondrial matrix and its preferential unwinding of dsDNA. Nucleic Acids Res. 30: 5074-5086.
4. Minczuk, M., et al. 2005. The 5' region of the human hSUV3 gene encoding mitochondrial DNA and RNA helicase: promoter characterization and alternative pre-mRNA splicing. Biochim. Biophys. Acta 1729: 81-87.
5. Szczesny, R.J., et al. 2007. Down-regulation of human RNA/DNA helicase SUV3 induces apoptosis by a caspase- and AIF-dependent pathway. Biol. Cell 99: 323-332.
6. Pereira, M., et al. 2007. Interaction of human SUV3 RNA/DNA helicase with BLM helicase; loss of the SUV3 gene results in mouse embryonic lethality. Mech. Ageing Dev. 128: 609-617.
7. Khidr, L., et al. 2008. Role of SUV3 helicase in maintaining mitochondrial homeostasis in human cells. J. Biol. Chem. 283: 27064-27073.

CHROMOSOMAL LOCATION

Genetic locus: SUPV3L1 (human) mapping to 10q22.1.

PRODUCT

SUV3 siRNA (h) 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 SUV3 shRNA Plasmid (h): sc-90749-SH and SUV3 shRNA (h) Lentiviral Particles: sc-90749-V as alternate gene silencing products.

For independent verification of SUV3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-90749A, sc-90749B and sc-90749C.

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

SUV3 siRNA (h) is recommended for the inhibition of SUV3 expression in human 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

SUV3 (E-1): sc-365750 is recommended as a control antibody for monitoring of SUV3 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 SUV3 gene expression knockdown using RT-PCR Primer: SUV3 (h)-PR: sc-90749-PR (20 µl). 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.