SANTA CRUZ BIOTECHNOLOGY, INC.

SESN3 siRNA (h): sc-106545

BACKGROUND

The sestrin family consists of a group of conserved proteins that are suggested to be involved in the regulation of cell growth and survival and may play a role in mediating stress-induced cellular responses. Upregulated following oxidative stress or DNA damage, sestrin proteins are also thought to potentiate adenosine monophosphate-activated protein kinase (AMPK) and inhibit activation of target of rapamycin (TOR). SESN3 (sestrin 3), also known as SEST3, is a 492 amino acid, widely expressed protein belonging to the sestrin family. Exists as three alternatively spliced isoforms, SESN3 is encoded by a gene located on human chromosome 11, which houses over 1,400 genes and comprises nearly 4% of the human genome. Jervell and Lange-Nielsen syndrome, Jacobsen syndrome, Niemann-Pick disease, hereditary angioedema and Smith-Lemli-Opitz syndrome are associated with defects in genes that maps to chromosome 11.

REFERENCES

1. Peeters, H., et al. 2003. PA26 is a candidate gene for heterotaxia in humans: identification of a novel PA26-related gene family in human and mouse. Hum. Genet. 112: 573-580.
2. Ricketts, S.L., et al. 2003. Identification of three 11p11.2 candidate liver tumor suppressors through analysis of known human genes. Mol. Carcinog. 36: 90-99.
3. Kopnin, P.B., et al. 2007. Repression of sestrin family genes contributes to oncogenic Ras-induced reactive oxygen species upregulation and genetic instability. Cancer Res. 67: 4671-4678.
4. Zighelboim, I., et al. 2007. Differential methylation hybridization array of endometrial cancers reveals two novel cancer-specific methylation markers. Clin. Cancer Res. 13: 2882-2889.
5. Nogueira, V., et al. 2008. Akt determines replicative senescence and oxidative or oncogenic premature senescence and sensitizes cells to oxidative apoptosis. Cancer Cell 14: 458-470.
6. Budanov, A.V. and Karin, M. 2008. p53 target genes sestrin1 and sestrin2 connect genotoxic stress and mTOR signaling. Cell 134: 451-460.

CHROMOSOMAL LOCATION

Genetic locus: SESN3 (human) mapping to 11q21.

PRODUCT

SESN3 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 SESN3 shRNA Plasmid (h): sc-106545-SH and SESN3 shRNA (h) Lentiviral Particles: sc-106545-V as alternate gene silencing products.

For independent verification of SESN3 (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-106545A, sc-106545B and sc-106545C.

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

SESN3 siRNA (h) is recommended for the inhibition of SESN3 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

SESN3 (2C9): sc-517092 is recommended as a control antibody for monitoring of SESN3 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 SESN3 gene expression knockdown using RT-PCR Primer: SESN3 (h)-PR: sc-106545-PR (20 µl, 515 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.