SANTA CRUZ BIOTECHNOLOGY, INC.

OS-9 siRNA (h): sc-96230

BACKGROUND

OS-9 is a 667 amino acid endoplasmic reticulum protein that contains one PRKCSH domain and is expressed as three isoforms, designated OS-9-1, OS-9-2 and OS-9-3. Expressed ubiquitously in normal tissue and at high levels in osteosarcomas, OS-9 functions to bind HIF-1α (hypoxia-inducible factor 1, α), a protein that plays an important role in angiogenesis (the development of blood vessels) and in the hypoxic response. Through its interaction with HIF-1α, OS-9 promotes the oxygen-dependent degradation of HIF-1α, thereby affecting the HIF-1α-mediated regulation of blood vessel growth and contributing to tumorigenesis. Additionally, OS-9 is thought to play a role in the ER-associated degradation (ERAD) of misfolded glycoproteins, assisting in the transport and polyubiquiination of damaged peptides.

REFERENCES

1. Su, Y.A., et al. 1996. Complete sequence analysis of a gene (OS-9) ubiquitously expressed in human tissues and amplified in sarcomas. Mol. Carcinog. 15: 270-275.
2. Kimura, Y., et al. 1997. Genomic organization of the OS-9 gene amplified in human sarcomas. J. Biochem. 122: 1190-1195.
3. Nakayama, T., et al. 1999. Ca^{2+}-dependent interaction of N-copine, a member of the two C2 domain protein family, with OS-9, the product of a gene frequently amplified in osteosarcoma. FEBS Lett. 453: 77-80.
4. Vigneron, N., et al. 2002. Identification of a new peptide recognized by autologous cytolytic T lymphocytes on a human melanoma. Cancer Immun. 2: 9.
5. Litovchick, L., et al. 2002. A selective interaction between OS-9 and the carboxyl-terminal tail of meprin β. J. Biol. Chem. 277: 34413-34423.
6. Baek, J.H., et al. 2005. OS-9 interacts with hypoxia-inducible factor-1α and prolyl hydroxylases to promote oxygen-dependent degradation of HIF-1α. Mol. Cell 17: 503-512.
7. Wang, Y., et al. 2007. OS-9 regulates the transit and polyubiquitination of TRPV4 in the endoplasmic reticulum. J. Biol. Chem. 282: 36561-36570.
8. Christianson, J.C., et al. 2008. OS-9 and GRP94 deliver mutant α1-antitrypsin to the Hrd1-SEL1L ubiquitin ligase complex for ERAD. Nat. Cell Biol. 10: 272-282.

CHROMOSOMAL LOCATION

Genetic locus: OS9 (human) mapping to 12q13.3.

PRODUCT

OS-9 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 OS-9 shRNA Plasmid (h): sc-96230-SH and OS-9 shRNA (h) Lentiviral Particles: sc-96230-V as alternate gene silencing products.

For independent verification of OS-9 (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-96230A, sc-96230B and sc-96230C.

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

OS-9 siRNA (h) is recommended for the inhibition of OS-9 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor OS-9 gene expression knockdown using RT-PCR Primer: OS-9 (h)-PR: sc-96230-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Seaayfan, E., et al. 2016. OS9 protein interacts with Na-K-2Cl co-transporter (NKCC2) and targets its immature form for the endoplasmic reticulum-associated degradation pathway. J. Biol. Chem. 291: 4487-4502.
2. Chiritoiu, M., et al. 2020. EDEM1 drives misfolded protein degradation via ERAD and exploits ER-phagy as back-up mechanism when ERAD is impaired. Int. J. Mol. Sci. 21: E3468.

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.