SANTA CRUZ BIOTECHNOLOGY, INC.

Vimentin siRNA (h): sc-29522

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cytoskeletal intermediate filaments (IFs) constitute a diverse group of proteins that are expressed in a highly tissue-specific manner. Intermediate filaments are constructed from two-chain, α-helical, coiled-coil molecules arranged on an imperfect helical lattice and have been widely used as markers for distinguishing individual cell types within a tissue and identifying the origins of metastatic tumors. One such intermediate filament protein, Vimentin, is a general marker of cells originating in the mesenchyme. Vimentin is frequently coexpressed with other members of the intermediate filament family, such as the cytokeratins, in neoplasms including melanoma and breast carcinoma.

CHROMOSOMAL LOCATION

Genetic locus: VIM (human) mapping to 10p13.

PRODUCT

Vimentin siRNA (h) is a target-specific 19-25 nt siRNA 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 Vimentin shRNA Plasmid (h): sc-29522-SH and Vimentin shRNA (h) Lentiviral Particles: sc-29522-V as alternate gene silencing products.

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

Vimentin siRNA (h) is recommended for the inhibition of Vimentin 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

GENE EXPRESSION MONITORING

Vimentin (E-5): sc-373717 is recommended as a control antibody for monitoring of Vimentin 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Vimentin gene expression knockdown using RT-PCR Primer: Vimentin (h)-PR: sc-29522-PR (20 µl, 477 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Vasko, V., et al. 2007. Gene expression and functional evidence of epithelial-to-mesenchymal transition in papillary thyroid carcinoma invasion. Proc. Natl. Acad. Sci. USA 104: 2803-2808.
2. Pan, Y., et al. 2012. Roles of vimentin and 14-3-3 ζ/δ in the inhibitory effects of heparin on PC-3M cell proliferation and B16-F10-luc-G5 cells metastasis. Acta Pharmacol. Sin. 33: 798-808.
3. Burch, T.C., et al. 2013. Variable metastatic potentials correlate with differential plectin and Vimentin expression in syngeneic androgen independent prostate cancer cells. PLoS ONE 8: e65005.
4. Lee, J., et al. 2015. Withaferin A inhibits experimental epithelial-mesenchymal transition in MCF-10A cells and suppresses Vimentin protein level *in vivo* in breast tumors. Mol. Carcinog. 54: 417-429.
5. Huang, S.H., et al. 2016. Vimentin, a novel NFκB regulator, is required for meningitic *Escherichia coli* K1-induced pathogen invasion and PMN transmigration across the blood-brain barrier. PLoS ONE 11: e0162641.
6. Li, D., et al. 2018. FOXD1 promotes cell growth and metastasis by activation of Vimentin in NSCLC. Cell. Physiol. Biochem. 51: 2716-2731.
7. Chatterjee, K., et al. 2018. EGFR-mediated matrix metalloproteinase-7 up-regulation promotes epithelial-mesenchymal transition via ERK1-AP1 axis during ovarian endometriosis progression. FASEB J. 32: 4560-4572.
8. Su, L.X., et al. 2019. Vimentin modulates apoptosis and inflammatory cytokine release by a human monocytic cell line (THP-1) in response to lipopolysaccharides *in vitro*. Chin. Med. J. 132: 1336-1343.
9. Su, L., et al. 2019. Role of Vimentin in modulating immune cell apoptosis and inflammatory responses in sepsis. Sci. Rep. 9: 5747.
10. Tusamda Wakhloo, N., et al. 2020. Actomyosin, Vimentin and LINC complex pull on osteosarcoma nuclei to deform on micropillar topography. Biomaterials 234: 119746.
11. Kim, T.W., et al. 2020. MicroRNA-17-5p regulates EMT by targeting Vimentin in colorectal cancer. Br. J. Cancer. E-published.

RESEARCH USE

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