

TUSC2 siRNA (h): sc-77910

BACKGROUND

TUSC2 (tumor suppressor candidate 2), also known as FUS1, LGCC or PDAP2, is a 110 amino acid protein that is expressed at high levels in kidney, pancreas, lung, heart and skeletal muscle where it is thought to function as a tumor suppressor. More specifically, TUSC2 inhibits invasive colony formation by inducing G₁ cell cycle arrest and ultimately causing apoptosis, thereby preventing tumor growth. The gene encoding TUSC2 maps to human chromosome 3, which houses over 1,100 genes, including a chemokine receptor (CKR) gene cluster and a variety of human cancer-related gene loci. Key tumor suppressing genes on chromosome 3 include those that encode the apoptosis mediator RASSF1, the cell migration regulator HYAL1 and the angiogenesis suppressor SEMA3B. Marfan syndrome, porphyria, von Hippel-Lindau syndrome, osteogenesis imperfecta and Charcot-Marie-Tooth disease are a few of the numerous genetic diseases associated with chromosome 3.

REFERENCES

1. Fischer, W.H. and Schubert, D. 1996. Characterization of a novel platelet-derived growth factor-associated protein. *J. Neurochem.* 66: 2213-2216.
2. Lerman, M.I. and Minna, J.D. 2000. The 630-kb lung cancer homozygous deletion region on human chromosome 3p21.3: identification and evaluation of the resident candidate tumor suppressor genes. The international lung cancer chromosome 3p21.3 tumor suppressor gene consortium. *Cancer Res.* 60: 6116-6133.
3. Kondo, M., et al. 2001. Overexpression of candidate tumor suppressor gene FUS1 isolated from the 3p21.3 homozygous deletion region leads to G₁ arrest and growth inhibition of lung cancer cells. *Oncogene* 20: 6258-6262.

CHROMOSOMAL LOCATION

Genetic locus: TUSC2 (human) mapping to 3p21.31.

PRODUCT

TUSC2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TUSC2 shRNA Plasmid (h): sc-77910-SH and TUSC2 shRNA (h) Lentiviral Particles: sc-77910-V as alternate gene silencing products.

For independent verification of TUSC2 (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-77910A, sc-77910B and sc-77910C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TUSC2 siRNA (h) is recommended for the inhibition of TUSC2 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 μ M in 66 μ l. 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

TUSC2 (1550CT388.74.12): sc-517369 is recommended as a control antibody for monitoring of TUSC2 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 TUSC2 gene expression knockdown using RT-PCR Primer: TUSC2 (h)-PR: sc-77910-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, J., et al. 2019. MicroRNA-663b downregulation inhibits proliferation and induces apoptosis in bladder cancer cells by targeting TUSC2. *Mol. Med. Rep.* 19: 3896-3902.

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.