SANTA CRUZ BIOTECHNOLOGY, INC.

USP6 siRNA (h): sc-61765

BACKGROUND

Ubiquitin-specific protease (USP6) is a 1,406 amino acid protein that is very hydrophilic and has two charge clusters that are characteristic of nucleic acid-binding regions. The USP6 gene is oncogenic and originated from the chimeric fusion of two genes: USP32 and TBC1D3. USP32 is an ancient, highly conserved gene, whereas the TBC1D3 gene came from a relatively recent segmental duplication. This duplication is absent in most other mammals and shows rapid amplification and propagation throughout the primate lineage. The chimeric USP6, however, only exists in the hominoid lineage of primates, so it may have contributed to hominoid speciation. USP6 is testis-specific, suggesting an implication in the emergence of reproductive barriers.

REFERENCES

1. White, R.A., et al. 2000. The gene encoding TBC1D1 with homology to the Tre2/USP6 oncogene, BUB2, and Cdc16 maps to mouse chromosome 5 and human chromosome 4. Cytogenet. Cell Genet. 89: 272-275.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604334. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Paulding, C.A., et al. 2003. The Tre2/USP6 oncogene is a hominoid-specific gene. Proc. Natl. Acad. Sci. USA 100: 2507-2511.
4. Oliveira, A.M., et al. 2004. USP6/Tre2 fusion oncogenes in aneurysmal bone cyst. Cancer Res. 64: 1920-1923.
5. Oliveira, A.M., et al. 2004. USP6 and CDH11 oncogenes identify the neoplastic cell in primary aneurysm bone cysts and are absent in so-called secondary aneurysmal bone cysts. Am. J. Pathol. 165: 1773-1780.

CHROMOSOMAL LOCATION

Genetic locus: USP6 (human) mapping to 17p13.2.

PRODUCT

USP6 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 USP6 shRNA Plasmid (h): sc-61765-SH and USP6 shRNA (h) Lentiviral Particles: sc-61765-V as alternate gene silencing products.

For independent verification of USP6 (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-61765A, sc-61765B and sc-61765C.

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

USP6 siRNA (h) is recommended for the inhibition of USP6 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

USP6/32 (D-11): sc-377306 is recommended as a control antibody for monitoring of USP6 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 USP6 gene expression knockdown using RT-PCR Primer: USP6 (h)-PR: sc-61765-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. Wu, S., et al. 2022. Overexpression of microRNA-130a represses uveal melanoma cell migration and invasion through inactivation of the Wnt/β-catenin signaling pathway by downregulating USP6. Cancer Gene Ther. 29: 930-939.

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.