

WFDC3 siRNA (h): sc-76921

BACKGROUND

Peptidases are enzymes that are responsible for hydrolyzing peptide bonds of polypeptide chains during protein catabolism. Protease inhibitors are important peptidase regulators which halt enzymatic function. The WAP (whey acidic protein) domain, also referred to as the WAP-type four-disulfide core domain, is a signature protein motif that contains eight cysteine residues which form disulfide bonds and may exhibit protease inhibitor activity. WAP domain-containing proteins are thought to function in the immune defense by cleaving microbial proteolytic enzymes in order to prevent tissue penetration and infection. WFDC3 (WAP four-disulfide core domain protein 3), also known as WAP14, is a 231 amino acid secreted protein that contains four WAP domains and is ubiquitously expressed. A cluster of WAP genes, including WFDC3, exist on chromosome 20, suggesting they evolved by repeated duplications.

REFERENCES

1. Clauss, A., Lilja, H. and Lundwall, A. 2002. A locus on human chromosome 20 contains several genes expressing protease inhibitor domains with homology to whey acidic protein. *Biochem. J.* 368: 233-242.
2. Hagiwara, K., Kikuchi, T., Endo, Y., Huqun, K., Takahashi, M., Shibata, N., Kusakabe, T., Xin, H., Hoshi, S., Miki, M., Inooka, N., Tokue, Y. and Nukiwa, T. 2003. Mouse SWAM1 and SWAM2 are antibacterial proteins composed of a single whey acidic protein motif. *J. Immunol.* 170: 1973-1979.
3. Shayu, D., Chennakesava, C.S. and Rao, A.J. 2006. Differential expression and antibacterial activity of WFDC10A in the monkey epididymis. *Mol. Cell. Endocrinol.* 259: 50-56.
4. Lundwall, A. 2007. A locus on chromosome 20 encompassing genes that are highly expressed in the epididymis. *Asian J. Androl.* 9: 540-544.
5. Sharp, J.A., Lefèvre, C. and Nicholas, K.R. 2007. Molecular evolution of monotreme and marsupial whey acidic protein genes. *Evol. Dev.* 9: 378-392.
6. Hurlé, B., Swanson, W. and Green, E.D. 2007. Comparative sequence analyses reveal rapid and divergent evolutionary changes of the WFDC locus in the primate lineage. *Genome Res.* 17: 276-286.
7. Idoji, Y., Watanabe, Y., Yamashita, A., Yamanishi, K., Nishiguchi, S., Shimada, K., Yasunaga, T. and Yamanishi, H. 2008. In silico study of whey-acidic-protein domain containing oral protease inhibitors. *Int. J. Mol. Med.* 21: 461-468.
8. Bingle, C.D. and Vyakarnam, A. 2008. Novel innate immune functions of the whey acidic protein family. *Trends Immunol.* 29: 444-453.
9. Liu, J., Wang, H.Y. and Li, J.Y. 2008. Advances in researches on epididymal WFDC-type serine protease inhibitors. *Zhonghua Nan Ke Xue* 14: 1027-1030.

CHROMOSOMAL LOCATION

Genetic locus: WFDC3 (human) mapping to 20q13.12.

PROTOCOLS

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

PRODUCT

WFDC3 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 WFDC3 shRNA Plasmid (h): sc-76921-SH and WFDC3 shRNA (h) Lentiviral Particles: sc-76921-V as alternate gene silencing products.

For independent verification of WFDC3 (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-76921A, sc-76921B and sc-76921C.

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

WFDC3 siRNA (h) is recommended for the inhibition of WFDC3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor WFDC3 gene expression knockdown using RT-PCR Primer: WFDC3 (h)-PR: sc-76921-PR (20 μ l). 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.