

# β-defensin 129 siRNA (h): sc-77126

## BACKGROUND

β-defensins (also designated BDs, or hBDs in human) are small cationic peptides with broad-spectrum antimicrobial activity against a variety of enveloped viruses, fungi and bacteria. Produced in mucosal epithelia and neutrophils of several species, β-defensins are developmentally regulated. The family of β-defensin proteins share a common defensin-motif that is characterized by multiple cysteine residues and a highly conserved tertiary structure. Besides playing a significant role in host immune defense, many β-defensins also are involved in sperm maturation and capacitation. β-defensin 129 is a 183 amino acid secreted protein that most likely contains a signal peptide sequence that requires cleavage by proteolytic enzymes in order to become biologically active. With specific expression in testis, β-defensin 129 is upregulated in men with nonobstructive azoospermia.

## REFERENCES

1. Jia, H.P., Mills, J.N., Barahmand-Pour, F., Nishimura, D., Mallampali, R.K., Wang, G., Wiles, K., Tack, B.F., Bevins, C.L. and McCray, P.B. 1999. Molecular cloning and characterization of rat genes encoding homologues of human β-defensins. *Infect. Immun.* 67: 4827-4833.
2. Jia, H.P., Schutte, B.C., Schudy, A., Linzmeier, R., Guthmiller, J.M., Johnson, G.K., Tack, B.F., Mitros, J.P., Rosenthal, A., Ganz, T. and McCray, P.B. 2001. Discovery of new human β-defensins using a genomics-based approach. *Gene* 263: 211-218.
3. Schutte, B.C., Mitros, J.P., Bartlett, J.A., Walters, J.D., Jia, H.P., Welsh, M.J., Casavant, T.L. and McCray, P.B. 2002. Discovery of five conserved β-defensin gene clusters using a computational search strategy. *Proc. Natl. Acad. Sci. USA* 99: 2129-2133.
4. Kao, C.Y., Chen, Y., Zhao, Y.H. and Wu, R. 2003. ORFeome-based search of airway epithelial cell-specific novel human β-defensin genes. *Am. J. Respir. Cell Mol. Biol.* 29: 71-80.
5. Rodríguez-Jimenez, F.J., Krause, A., Schulz, S., Forssmann, W.G., Conejo-Garcia, J.R., Schreeb, R. and Motzkus, D. 2003. Distribution of new human β-defensin genes clustered on chromosome 20 in functionally different segments of epididymis. *Genomics* 81: 175-183.
6. Zhang, Z. and Henzel, W.J. 2004. Signal peptide prediction based on analysis of experimentally verified cleavage sites. *Protein Sci.* 13: 2819-2824.
7. Crovella, S., Antcheva, N., Zelezetsky, I., Boniotto, M., Pacor, S., Verga Falzacappa, M.V. and Tossi, A. 2005. Primate β-defensins—structure, function and evolution. *Curr. Protein Pept. Sci.* 6: 7-21.
8. Patil, A.A., Cai, Y., Sang, Y., Blecha, F. and Zhang, G. 2005. Cross-species analysis of the mammalian β-defensin gene family: presence of syntenic gene clusters and preferential expression in the male reproductive tract. *Physiol. Genomics* 23: 5-17.
9. Dube, E., Hermo, L., Chan, P.T. and Cyr, D.G. 2008. Alterations in gene expression in the caput epididymides of nonobstructive azoospermic men. *Biol. Reprod.* 78: 342-351.

## CHROMOSOMAL LOCATION

Genetic locus: DEFB129 (human) mapping to 20p13.

## PRODUCT

β-defensin 129 siRNA (h) is a pool of 2 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 β-defensin 129 shRNA Plasmid (h): sc-77126-SH and β-defensin 129 shRNA (h) Lentiviral Particles: sc-77126-V as alternate gene silencing products.

For independent verification of β-defensin 129 (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-77126A and sc-77126B.

## 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

β-defensin 129 siRNA (h) is recommended for the inhibition of β-defensin 129 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 β-defensin 129 gene expression knockdown using RT-PCR Primer: β-defensin 129 (h)-PR: sc-77126-PR (20 μl). 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.