

# β-defensin 7 siRNA (h): sc-77766

## 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. With specific expression in the testis, β-defensin 7, also known as β-defensin 107, is a 66 amino acid secreted protein that most likely contains a signal peptide sequence that requires cleavage by proteolytic enzymes in order to become biologically active.

## REFERENCES

- Jia, H.P., et al. 1999. Molecular cloning and characterization of rat genes encoding homologues of human β-defensins. *Infect. Immun.* 67: 4827-4833.
- Jia, H.P., et al. 2001. Discovery of new human β-defensins using a genomics-based approach. *Gene* 263: 211-218.
- Schutte, B.C., et al. 2002. Discovery of five conserved β-defensin gene clusters using a computational search strategy. *Proc. Natl. Acad. Sci. USA* 99: 2129-2133.
- Kao, C.Y., et al. 2003. ORFeome-based search of airway epithelial cell-specific novel human β-defensin genes. *Am. J. Respir. Cell Mol. Biol.* 29: 71-80.
- Rodríguez-Jimenez, F.J., et al. 2003. Distribution of new human β-defensin genes clustered on chromosome 20 in functionally different segments of epididymis. *Genomics* 81: 175-183.
- Zhang, Z. and Henzel, W.J. 2004. Signal peptide prediction based on analysis of experimentally verified cleavage sites. *Protein Sci.* 13: 2819-2824.
- Crovella, S., et al. 2005. Primate β-defensins—structure, function and evolution. *Curr. Protein Pept. Sci.* 6: 7-21.
- Patil, A.A., et al. 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.
- Hollox, E.J. and Armour, J.A. 2008. Directional and balancing selection in human β-defensins. *BMC Evol. Biol.* 8: 113.

## CHROMOSOMAL LOCATION

Genetic locus: DEFB107B (human) mapping to 8p23.1.

## PRODUCT

β-defensin 7 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 β-defensin 7 shRNA Plasmid (h): sc-77766-SH and β-defensin 7 shRNA (h) Lentiviral Particles: sc-77766-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

β-defensin 7 siRNA (h) is recommended for the inhibition of β-defensin 7 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.

## 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.