

β-defensin 109 siRNA (h): sc-105284

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 109 is an 87 amino acid secreted protein that is notably expressed on the ocular surface and is found in reduced levels in microbial infection, therefore suggesting that this particular β-defensin is unlikely to have a major antimicrobial effect.

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. 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.
4. 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.
5. Kouno, T., Fujitani, N., Mizuguchi, M., Osaki, T., Nishimura, S., Kawabata, S., Aizawa, T., Demura, M., Nitta, K. and Kawano, K. 2008. A novel β-defensin structure: a potential strategy of big defensin for overcoming resistance by Gram-positive bacteria. *Biochemistry* 47: 10611-10619.
6. Hosaka, Y., Koslowski, M., Nuding, S., Wang, G., Schlee, M., Schäfer, C., Saigenji, K., Stange, E.F. and Wehkamp, J. 2008. Antimicrobial host defense in the upper gastrointestinal tract. *Eur. J. Gastroenterol. Hepatol.* 20: 1151-1158.
7. Abedin, A., Mohammed, I., Hopkinson, A. and Dua, H.S. 2008. A novel antimicrobial peptide on the ocular surface shows decreased expression in inflammation and infection. *Invest. Ophthalmol. Vis. Sci.* 49: 28-33.
8. Diamond, G., Beckloff, N. and Ryan, L.K. 2008. Host defense peptides in the oral cavity and the lung: similarities and differences. *J. Dent. Res.* 87: 915-927.

CHROMOSOMAL LOCATION

Genetic locus: DEFB109 (human) mapping to 8p23.1.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

β-defensin 109 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 109 shRNA Plasmid (h): sc-105284-SH and β-defensin 109 shRNA (h) Lentiviral Particles: sc-105284-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 109 siRNA (h) is recommended for the inhibition of β-defensin 109 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.

PROTOCOLS

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