SANTA CRUZ BIOTECHNOLOGY, INC.

β-defensin 3 siRNA (h): sc-43723

BACKGROUND

β-defensins (also designated BD, and hBD in human) are small cationic peptides with broad-spectrum antimicrobial activity. Produced in mucosal epithelia and neutrophils of several species, β-defensins are developmentally regulated. Human β-defensin 2 is locally regulated by inflammation and is the first member of the β-defensin family that is locally inducible by inflammation. The murine homolog of human β-defensin 2, which is called β-defensin 3, is present in the respiratory system and in low levels in the epithelial cells of the intestine and lung. The unique murine β-defensin 2 (Defb2) is not expressed in airways of untreated mice, but is upregulated in the airways by lipopolysaccharide and may contribute to host defense at the mucosal surface of the airways.

REFERENCES

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2. Liu, L., Zhao, C., Heng, H.H. and Ganz, T. 1997. The human β-defensin 1 and α-defensins are encoded by adjacent genes: two peptide families with differing disulfide topology share a common ancestry. Genomics 43: 316-320.
3. Liu, L., Wang, L., Jia, H.P., Zhao, C., Heng, H.H.Q., Schutte, B.C., McCray, P.B., Jr. and Ganz, T. 1998. Structure and mapping of the human β-defensin HBD-2 gene and its expression at sites of inflammation. Gene 222: 237-244.
4. Bals, R., Wang, X., Meegalla, R.L., Wattler, S., Weiner, D.J., Nehls, M.C. and Wilson, J.M. 1999. Mouse β-defensin 3 is an inducible antibicrobial peptide expressed in the epithelia of multiple genes. Infect. Immun. 67: 3542-3547.
5. Yang, D., Chertov, O., Bykovskaia, S.N., Chen, Q., Buffo, M.J., Shogan, J., Anderson, M., Schroder, J.M., Wang, J.M., Howard, O.M.Z. and Oppenheim, J.J. 1999. β-defensins: linking innate and adaptive immunity through dendritic and T cell CCR6. Science 286: 525-528.
6. Morrison, G.M., Davidson, D.J. and Dorin, J.R. 1999. A novel mouse β-defensin, Defb2, which is upregulated in the airways by lipopolysaccharides. FEBS Lett. 442: 112-116.

CHROMOSOMAL LOCATION

Genetic locus: DEFB103B (human) mapping to 8p23.1.

PRODUCT

β-defensin 3 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 β-defensin 3 shRNA Plasmid (h): sc-43723-SH and β-defensin 3 shRNA (h) Lentiviral Particles: sc-43723-V as alternate gene silencing products.

For independent verification of β-defensin 3 (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-43723A, sc-43723B and sc-43723C.

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 3 siRNA (h) is recommended for the inhibition of β-defensin 3 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

β-defensin 3 (L3-18b-E1): sc-59495 is recommended as a control antibody for monitoring of β-defensin 3 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).

SELECT PRODUCT CITATIONS

1. Shuyi, Y., Feng, W., Jing, T., Hongzhang, H., Haiyan, W., Pingping, M., Liwu, Z., Zwahlen, R.A. and Hongyu, Y. 2011. Human β-defensin 3 (hBD-3) upregulated by LPS via epidermal growth factor receptor (EGFR) signaling pathways to enhance lymphatic invasion of oral squamous cell carcinoma. Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod. 112: 616-625.

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.