SANTA CRUZ BIOTECHNOLOGY, INC.

α-defensin siRNA (m): sc-40476

BACKGROUND

Human neutrophil α-defensins (also designated HNPs) are small, cationic, cysteine-rich antimicrobial proteins that play important roles in innate immunity against infectious microbes such as bacteria, fungi and enveloped viruses. α-defensins are synthesized as inactive precursors and are activated by proteolytic cleavage by MMP-7. Paneth cells in small intestinal crypts secrete the α-defensins, which are also termed cryptdins in mice. The cryptdin 4 gene is unique among the paneth cell α-defensins in that it is inactive in the duodenum but expressed at maximal levels in the distal small bowel. α-defensin (defensin, α1), also known as defensin-related cryptdin peptide (Defcr), Defcr1 or cryptdin 1, is a 93 amino acid secreted protein that plays a role in antimicrobial barrier function in the mucosa of the small bowel. As a member of the α-defensin family, α-defensin is expressed specifically in paneth cells of the small bowel.

REFERENCES

1. Dahl, B.L., et al. 1975. An alternative treatment in cases with advanced localized attrition. J. Oral Rehabil. 2: 209-214.
2. Ayabe, T., et al. 2002. Activation of Paneth cell α-defensins in mouse small intestine. J. Biol. Chem. 277: 5219-5228.
3. Wu, Z., et al. 2003. From pro defensins to defensins: synthesis and characterization of human neutrophil pro α-defensin-1 and its mature domain. J. Pept. Res. 62: 53-62.
4. Maemoto, A., et al. 2004. Functional analysis of the α-defensin disulfide array in mouse cryptdin 4. J. Biol. Chem. 279: 44188-44196.
5. Wu, Z., et al. 2005. Human neutrophil α-defensin 4 inhibits HIV-1 infection *in vitro*. FEBS Lett. 579: 162-166.
6. Nam, M.J., et al. 2005. Identification of defensin α6 as a potential biomarker in colon adenocarcinoma. J. Biol. Chem. 280: 8260-8265.
7. van Es, J.H., et al. 2005. Wnt signalling induces maturation of paneth cells in intestinal crypts. Nat. Cell Biol. 7: 381-386.
8. Mori-Akiyama, Y., et al. 2007. Sox-9 is required for the differentiation of paneth cells in the intestinal epithelium. Gastroenterology 133: 539-546.
9. Garcia, M.I., et al. 2009. LGR5 deficiency deregulates Wnt signaling and leads to precocious paneth cell differentiation in the fetal intestine. Dev. Biol. 331: 58-67.

CHROMOSOMAL LOCATION

Genetic locus: Defa1 (mouse) mapping to 8 A2.

PRODUCT

α-defensin siRNA (m) 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 α-defensin shRNA Plasmid (m): sc-40476-SH and α-defensin shRNA (m) Lentiviral Particles: sc-40476-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

α-defensin siRNA (m) is recommended for the inhibition of α-defensin expression in mouse 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.

SELECT PRODUCT CITATIONS

1. Prado, M.K.B., et al. 2017. Leukotriene B_4 is essential for lung host defence and α-defensin-1 production during *Achromobacter xylosoxidans* infection. Sci. Rep. 7: 17658.

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.