SANTA CRUZ BIOTECHNOLOGY, INC.

α-defensin 4 siRNA (h): sc-60047

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.

REFERENCES

1. Ouellette, A.J., et al. 1999. Peptide localization and gene structure of cryptdin 4, a differentially expressed mouse paneth cell α-defensin. Infect. Immun. 67: 6643-6651.
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.

CHROMOSOMAL LOCATION

Genetic locus: DEFA4 (human) mapping to 8p23.1.

PRODUCT

α-defensin 4 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 α-defensin 4 shRNA Plasmid (h): sc-60047-SH and α-defensin 4 shRNA (h) Lentiviral Particles: sc-60047-V as alternate gene silencing products.

For independent verification of α-defensin 4 (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-60047A, sc-60047B and sc-60047C.

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 4 siRNA (h) is recommended for the inhibition of α-defensin 4 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 α-defensin 4 gene expression knockdown using RT-PCR Primer: α-defensin 4 (h)-PR: sc-60047-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 for detailed protocols and support products.