SANTA CRUZ BIOTECHNOLOGY, INC.

HNP-3 siRNA (h): sc-105533

BACKGROUND

Defensins are a family of microbicidal and cytotoxic peptides which are made by neutrophils and are thought to be involved in host defense. Defensins are abundant in the granules of neutrophils and are also found in the epithelia of mucosal surfaces such as those of the intestine, respiratory tract, urinary tract and vagina. There are six α-defensins, which are known as human neutrophil peptides (HNPs) in humans. HNP-1,2,3 and 4 are found in the microbicidal granules of neutrophils; HNP-5 and HNP-6 are located in Paneth cells of the intestinal tract. HNP-1 is found in the microbicidal granules of neutrophils and probably plays a role in phagocyte-mediated host defense. HNP-1, HNP-2 and HNP-3, which comprise about 30% of the total granule protein of the neutrophil, are secreted by most normal individuals. The HNP-1 protein is encoded by the α1-defensin (DEFA1) gene. HNP-3 is encoded by the α3-defensin (DEFA3) gene. HNP2 is a mature cleavage product of both precursor HNP-1 and HNP-3.

REFERENCES

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2. Sparkes, R.S., et al. 1989. Assignment of defensin gene(s) to human chromosome 8p23. Genomics 5: 240-244.
3. Hill, C.P., et al. 1991. Crystal structure of defensin HNP-3, an amphiphilic dimer: mechanisms of membrane permeabilization. Science 251: 1481-1485.
4. Ganz, T. and Lehrer, R.I. 1995. Defensins. Pharm. Ther. 66: 191-205.
5. Mars, W.M., et al. 1995. Inheritance of unequal numbers of the genes encoding the human neutrophil defensins HP-1 and HP-3. J. Biol. Chem. 270: 30371-30376.
6. Liu, L. et al. 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: 316-20.
7. Mizukawa, N., et al. 2000. Immunohistochemical staining of human α-defensin-1 (HNP-1), in the submandibular glands of patients with oral carcinomas. Anticancer Res. 20:1125-1127.
8. Zhang, L., et al. 2002. Contribution of human α-defensin 1, 2, and 3 to the anti-HIV-1 activity of CD8 antiviral factor. Science 298: 995-1000.
9. Lundy, F.T., et al. 2008. Antimicrobial activity of truncated α-defensin (human neutrophil peptide (HNP)-1) analogues without disulphide bridges. Mol. Immunol. 45: 190-193.

CHROMOSOMAL LOCATION

Genetic locus: DEFA3 (human) mapping to 8p23.1.

PRODUCT

HNP-3 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 HNP-3 shRNA Plasmid (h): sc-105533-SH and HNP-3 shRNA (h) Lentiviral Particles: sc-105533-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

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

HNP (H-2): sc-390796 is recommended as a control antibody for monitoring of HNP-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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

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.