SANTA CRUZ BIOTECHNOLOGY, INC.

cryptdin 4 siRNA (m): sc-142599

BACKGROUND

Defensin-related cryptdin 4 is a 92 amino acid gene product belonging to the α-defensin family. Defensins are antimicrobial peptides that are characterized by several conserved amino acids. These conserved sequences include six invariant cysteine residues which can form up to three intrapeptidal disulfide bonds that help to stabilize the tertiary structure. Consisting of a signal peptide and a propeptide, cryptdin 4 can be pared down to a small peptide that acts as a potent bactericidal agent that likely acts as a microbial barrier along the hosts small bowel mucosa. Cryptdin seems to be restricted to Paneth cells in adult mice, where in newborn mice cryptdin is distributed throughout the intestinal epithelium and is not associated with rudimentary crypts. Mice lacking the expression of RelA can result in diminished expression of defensin-related cryptdin 4 which can lead to elevated rates of epithelial apoptosis.

REFERENCES

1. Ouellette, A.J., et al. 1989. Localization of the cryptdin locus on mouse chromosome 8. Genomics 5: 233-239.
2. Ouellette, A.J., et al. 1989. Developmental regulation of cryptdin, a corticostatin/defensin precursor mRNA in mouse small intestinal crypt epithelium. J. Cell Biol. 108: 1687-1695.
3. Lin, M.Y., et al. 1992. The defensin-related murine CRS1C gene: expression in Paneth cells and linkage to Defcr, the cryptdin locus. Genomics 14: 363-368.
4. Huttner, K.M., et al. 1994. Structure and diversity of the murine cryptdin gene family. Genomics 19: 448-453.
5. Ouellette, A.J., et al. 1994. Mouse Paneth cell defensins: primary structures and antibacterial activities of numerous cryptdin isoforms. Infect. Immun. 62: 5040-5047.
6. Darmoul, D., et al. 1997. Cryptdin gene expression in developing mouse small intestine. Am. J. Physiol. 272: G197-G206.
7. Jing, W., et al. 2004. Solution structure of cryptdin 4, a mouse paneth cell α-defensin. Biochemistry 43: 15759-15766.
8. Steinbrecher, K.A., et al. 2008. Loss of epithelial RelA results in deregulated intestinal proliferative/apoptotic homeostasis and susceptibility to inflammation. J. Immunol. 180: 2588-2599.

CHROMOSOMAL LOCATION

Genetic locus: Defcr4 (mouse) mapping to 8 A2.

PRODUCT

cryptdin 4 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 cryptdin 4 shRNA Plasmid (m): sc-142599-SH and cryptdin 4 shRNA (m) Lentiviral Particles: sc-142599-V as alternate gene silencing products.

APPLICATIONS

cryptdin 4 siRNA (m) is recommended for the inhibition of cryptdin 4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor cryptdin 4 gene expression knockdown using RT-PCR Primer: cryptdin 4 (m)-PR: sc-142599-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.

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.