SANTA CRUZ BIOTECHNOLOGY, INC.

RNase 7 siRNA (h): sc-92112

BACKGROUND

RNase 7 (ribonuclease, RNase A family, 7), also known as skin-derived antimicrobial protein 2 (SAP-2), is a 156 amino acid secreted protein belonging to the pancreatic ribonuclease family and RNase A superfamily that is involved in antimicrobial defense of the skin. As an antimicrobial ribonuclease, RNase 7 exhibits broad-spectrum antimicrobial activity against many pathogenic microorganisms and is lethal to *Enterococcus faecium,* which plays an important role in the protection of human skin from *E. faecium* colonization. Expressed in heart, kidney, liver and skeletal muscle, RNase 7 is also found in various epithelial tissues such as respiratory tract, skin, genitourinary tract, and is found at lower levels in colon, stomach and small intestine. The gene encoding RNase 7 maps to human chromosome 14q11.2.

REFERENCES

1. Harder, J. and Schroder, J.M. 2002. RNase 7, a novel innate immune defense antimicrobial protein of healthy human skin. J. Biol. Chem. 277: 46779-46784.
2. Zhang, J., Dyer, K.D. and Rosenberg, H.F. 2002. RNase 8, a novel RNase A superfamily ribonuclease expressed uniquely in placenta. Nucleic Acids Res. 30: 1169-1175.
3. Zhang, J., Dyer, K.D. and Rosenberg, H.F. 2003. Human RNase 7: a new cationic ribonuclease of the RNase A superfamily. Nucleic Acids Res. 31: 602-607.
4. Cho, S., Beintema, J.J. and Zhang, J. 2005. The ribonuclease A superfamily of mammals and birds: identifying new members and tracing evolutionary histories. Genomics 85: 208-220.
5. Torrent, M., Sánchez, D., Buzón, V., Nogues, M.V., Cladera, J. and Boix, E. 2009. Comparison of the membrane interaction mechanism of two antimicrobial RNases: RNase 3/ECP and RNase 7. Biochim. Biophys. Acta 1788: 1116-1125.
6. Zanger, P., Holzer, J., Schleucher, R., Steffen, H., Schittek, B. and Gabrysch, S. 2009. Constitutive expression of the antimicrobial peptide RNase 7 is associated with *Staphylococcus aureus* infection of the skin. J. Infect. Dis. 200: 1907-1915.

CHROMOSOMAL LOCATION

Genetic locus: RNASE7 (human) mapping to 14q11.2.

PRODUCT

RNase 7 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 RNase 7 shRNA Plasmid (h): sc-92112-SH and RNase 7 shRNA (h) Lentiviral Particles: sc-92112-V as alternate gene silencing products.

For independent verification of RNase 7 (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-92112A, sc-92112B and sc-92112C.

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

RNase 7 siRNA (h) is recommended for the inhibition of RNase 7 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 RNase 7 gene expression knockdown using RT-PCR Primer: RNase 7 (h)-PR: sc-92112-PR (20 µl, 440 bp). 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.