SANTA CRUZ BIOTECHNOLOGY, INC.

Elastase-1 siRNA (h): sc-105326

BACKGROUND

Elastase-1 is a serine protease that belongs to the elastase subfamily of the peptidase S1 family. It is secreted by the exocrine pancreas in all mammals but is transcriptionally silent in human pancreas due to mutations that inactivate its promoter and enhancer. Elastase-1 plays a role in the digestion of elastin, fibrin, hemoglobin and albumin and its activity can be inhibited by elafin. In humans, Elastase-1 is expressed only in skin keratinocytes and localizes to the basal cell layer of the epidermis where it may play a role in the detachment of cells from the basement membrane. Elastase-1 expressed in keratinocytes may be inhibited by SLPI (secretory leukocyte protease inhibitor) instead of elafin. In adddition, Elastase-1 may be a candidate for diffuse nonepidermolytic palmoplantar keratoderma (NEPPK), an autosomal dominant skin disease.

REFERENCES

1. Tani, T., et al. 1987. Characterization of a silent gene for human pancreatic elastase I: structure of the 5'-flanking region. J. Biochem. 101: 591-599.
2. Kawashima, I., et al. 1992. Genomic organization of the human homologue of the rat pancreatic elastase I gene. DNA Seq. 2: 303-312.
3. Kelsell, D.P., et al. 1995. Genetic linkage studies in non-epidermolytic palmoplantar keratoderma: evidence for heterogeneity. Hum. Mol. Genet. 4: 1021-1025.
4. Davies, R.L., et al. 1996. Physical mapping of the human ELA1 gene between D12S361 and D12S347 on chromosome 12q13. Genomics 29: 766-768.
5. Rose, S.D., et al. 1997. Evolutionary silencing of the human elastase I gene (ELA1). Hum. Mol. Genet. 6: 897-903.
6. van Bergen, B.H., et al. 1997. Expression of SKALP/elafin during wound healing in human skin. Arch. Dermatol. Res. 288: 458-462.
7. Talas, U., et al. 2000. Human elastase 1: evidence for expression in the skin and the identification of a frequent frameshift polymorphism. J. Invest. Dermatol. 114: 165-170.
8. Szepessy, E., et al. 2006. Inactivity of recombinant ELA2B provides a new example of evolutionary elastase silencing in humans. Pancreatology 6: 117-122.

CHROMOSOMAL LOCATION

Genetic locus: CELA1 (human) mapping to 12q13.13.

PRODUCT

Elastase-1 siRNA (h) is a pool of 2 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 Elastase-1 shRNA Plasmid (h): sc-105326-SH and Elastase-1 shRNA (h) Lentiviral Particles: sc-105326-V as alternate gene silencing products.

For independent verification of Elastase-1 (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-105326A and sc-105326B.

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

Elastase-1 siRNA (h) is recommended for the inhibition of Elastase-1 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

Elastase-1 (4H5): sc-517432 is recommended as a control antibody for monitoring of Elastase-1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Elastase-1 gene expression knockdown using RT-PCR Primer: Elastase-1 (h)-PR: sc-105326-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.