SANTA CRUZ BIOTECHNOLOGY, INC.

Keratin 2 siRNA (h): sc-95659

BACKGROUND

The keratin multigene family is made of "soft" epithelial cytokeratins and "hard" hair keratins. While the epithelial cytokeratins are involved in the layering and formation of epithelia, the hair keratins are responsible for creating nails and hair. There are two types of keratins: the acidic class I keratin proteins and the basic/neutral class II keratin proteins. Keratin 2 (KRT2), also known as Keratin type II cytoskeletal 2 epidermal, Keratin-2e (K2e), KRTE, Cytokeratin-2e (CK-2e), KRT2A or KRT2E, is a 639 amino acid class II epithelial Keratin protein belonging to the intermediate filament family. Encoded by a gene that maps to human chromosome 12q13.13, Keratin 2 functions in epidermal keratinocyte activation and proliferation, and plays a part in terminal cornification. Highly expressed in upper epithelial tissues, Keratin 2 forms heterotetramers with two class I Keratins and another class II Keratin. Defects in Keratin 2 have been linked to ichthyosis bullosa of Siemens (IBS), a rare autosomal dominant skin disorder.

REFERENCES

1. Herzog, F., et al. 1994. The large type II 70-kDa keratin of mouse epidermis is the ortholog of human Keratin K2e. J. Invest. Dermatol. 102: 165-170.
2. McLean, W.H., et al. 1994. Ichthyosis bullosa of Siemens—a disease involving Keratin 2e. J. Invest. Dermatol. 103: 277-281.
3. Kremer, H., et al. 1994. Ichthyosis bullosa of Siemens is caused by mutations in the Keratin 2e gene. J. Invest. Dermatol. 103: 286-289.
4. Rothnagel, J.A., et al. 1994. Mutations in the rod domain of Keratin 2e in patients with ichthyosis bullosa of Siemens. Nat. Genet. 7: 485-490.
5. Jones, D.O., et al. 1997. A new Keratin 2e mutation in ichthyosis bullosa of Siemens. J. Invest. Dermatol. 108: 354-356.
6. Smith, F.J., et al. 1998. Genomic organization and fine mapping of the Keratin 2e gene (KRT2E): K2e V1 domain polymorphism and novel mutations in ichthyosis bullosa of Siemens. J. Invest. Dermatol. 111: 817-821.
7. Smith, L.T., et al. 1999. Ontogeny and regional variability of Keratin 2e (K2e) in developing human fetal skin: a unique spatial and temporal pattern of keratin expression in development. Br. J. Dermatol. 140: 582-591.
8. Bloor, B.K., et al. 2003. Expression of Keratin K2e in cutaneous and oral lesions: association with keratinocyte activation, proliferation, and keratinization. Am. J. Pathol. 162: 963-975.
9. Nishizawa, A., et al. 2007. A novel H1 domain mutation in the Keratin 2 gene in a Japanese family with ichthyosis bullosa of Siemens. Br. J. Dermatol. 156: 1042-1044.

CHROMOSOMAL LOCATION

Genetic locus: KRT2 (human) mapping to 12q13.13.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

Keratin 2 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 Keratin 2 shRNA Plasmid (h): sc-95659-SH and Keratin 2 shRNA (h) Lentiviral Particles: sc-95659-V as alternate gene silencing products.

For independent verification of Keratin 2 (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-95659A, sc-95659B and sc-95659C.

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

Keratin 2 siRNA (h) is recommended for the inhibition of Keratin 2 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 Keratin 2 gene expression knockdown using RT-PCR Primer: Keratin 2 (h)-PR: sc-95659-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.