SANTA CRUZ BIOTECHNOLOGY, INC.

Filaggrin 2 siRNA (h): sc-88656

BACKGROUND

Profilaggrin is a large, insoluble, highly phosphorylated precursor protein and major component of keratohyalin granules in the living cells of the epidermis. During terminal differentiation of the epidermis, profilaggrin is proteolytically processed into active Filaggrin molecules that promote aggregation and disulfide-bond formation of keratin intermediate filaments. Active Filaggrin is present at a level of the epidermis where keratinocytes are in transition between the live nucleated granular layer and the anucleate cornified layer, suggesting that Filaggrin aids in the terminal differentiation process by facilitating apoptotic machinery. Filaggrin 2, also known as FLG2, Ifapsoriasin or IFPS (intermediate filament-associated and psoriasis-susceptibility protein), is a 2,391 amino acid protein that shares common structural features with Filaggrin. Filaggrin 2 contains ten Filaggrin repeats, two EF-hand domains and belongs to both the S-100 and S100-fused protein families.

REFERENCES

1. McKinley-Grant, L.J., et al. 1989. Characterization of a cDNA clone encoding human Filaggrin and localization of the gene to chromosome region 1q21. Proc. Natl. Acad. Sci. USA 86: 4848-4852.
2. Gan, S.Q., et al. 1990. Organization, structure, and polymorphisms of the human profilaggrin gene. Biochemistry 29: 9432-9440.
3. Gerritsen, M.J., et al. 1997. Recruitment of cycling epidermal cells and expression of Filaggrin, involucrin and tenascin in the margin of the active psoriatic plaque, in the uninvolved skin of psoriatic patients and in the normal healthy skin. J. Dermatol. Sci. 14: 179-188.
4. Kuechle, M.K., et al. 2000. Inducible expression of Filaggrin increases keratinocyte susceptibility to apoptotic cell death. Cell Death Differ. 7: 566-573.
5. Stemmler, S., et al. 2009. Variation in genes of the epidermal differentiation complex in German atopic dermatitis patients. Int. J. Immunogenet. 36: 217-222.
6. Wu, Z., et al. 2009. Molecular identification and expression analysis of Filaggrin 2, a member of the S100 fused-type protein family. PLoS ONE 4: e5227.

CHROMOSOMAL LOCATION

Genetic locus: FLG2 (human) mapping to 1q21.3.

PRODUCT

Filaggrin 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 Filaggrin 2 shRNA Plasmid (h): sc-88656-SH and Filaggrin 2 shRNA (h) Lentiviral Particles: sc-88656-V as alternate gene silencing products.

For independent verification of Filaggrin 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-88656A, sc-88656B and sc-88656C.

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

Filaggrin 2 siRNA (h) is recommended for the inhibition of Filaggrin 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 Filaggrin 2 gene expression knockdown using RT-PCR Primer: Filaggrin 2 (h)-PR: sc-88656-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mohamad, J., et al. 2018. Filaggrin 2 deficiency results in abnormal cell-cell adhesion in the cornified cell layers and causes peeling skin syndrome type A. J. Invest. Dermatol. 138: 1736-1743.

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.