SANTA CRUZ BIOTECHNOLOGY, INC.

lactoferrin siRNA (h): sc-41371

BACKGROUND

Ferritin and transferrins manage necessary iron-binding fuctions for iron metabolism. Transferrins comprise a class of single-chain, two-sited, metal-binding proteins expressed throughout the fluid and cells of vertebrates. The three major types of transferrin include serotransferrin, lactotransferrin (lactoferrin) and ovotransferrin. Lactoferrin is found in milk, tears and leukocytes. It degrades an IgA1 protease secreted by *Haemophilus influenzae* and, consequently, allows the human IgA1 antibody to effectively abolish *Haemophilus influenzae* colonization. Lactoferrin also attenuates the pathogenic potential of *Haemophilus influenzae* by proteolytic degradation of the Hap adhesin. While lactoferrin may aid in the the transmission of human T cell leukemia virus type 1, it inhibits HIV-1 replication at the level of viral fusion and entry into cells. The inhibitory effects of lactoferrin on mixed lymphocyte reactions suggest that it may have the ability to sense the activation status of lymphocytes. The gene encoding human lactoferrin maps to chromosome 3p21.31.

REFERENCES

1. Aisen, P. and Listowsky, I. 1980. Iron transport and storage proteins. Annu. Rev. Biochem. 49: 357-393.
2. Chung, S., et al. 1986. A monoclonal antibody-based immunoassay for human lactoferrin. J. Immunol. Methods 84: 135-141.
3. Teng, C.T., et al. 1987. Assignment of the lactotransferrin gene to human chromosome 3 and to mouse chromosome 9. Somat. Cell Mol. Genet. 13: 689-693.
4. Nibbering, P.H., et al. 2001. Human lactoferrin and peptides derived from its N-terminus are highly effective against infections with antibiotic-resistant bacteria. Infect. Immun. 69: 1469-1476.
5. Moriuchi, M. and Moriuchi, H. 2001. A milk protein lactoferrin enhances human T cell leukemia virus type 1 and suppresses HIV-1 infection. J. Immunol. 166: 4231-4236.
6. Zimecki, M., et al. L. 2001. Lactoferrin regulates proliferative response of human peripheral blood mononuclear cells to phytohemagglutinin and mixed lymphocyte reaction. Arch. Immunol. Ther. Exp. 49: 147-154.

CHROMOSOMAL LOCATION

Genetic locus: LTF (human) mapping to 3p21.31.

PRODUCT

lactoferrin 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 lactoferrin shRNA Plasmid (h): sc-41371-SH and lactoferrin shRNA (h) Lentiviral Particles: sc-41371-V as alternate gene silencing products.

For independent verification of lactoferrin (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-41371A, sc-41371B and sc-41371C.

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

lactoferrin siRNA (h) is recommended for the inhibition of lactoferrin 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

lactoferrin (B97): sc-53498 is recommended as a control antibody for monitoring of lactoferrin 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 lactoferrin gene expression knockdown using RT-PCR Primer: lactoferrin (h)-PR: sc-41371-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.