SANTA CRUZ BIOTECHNOLOGY, INC.

Siglec-12 siRNA (h): sc-61552

BACKGROUND

Two families of mammalian lectin-like adhesion molecules, the selectins and the sialoadhesins, bind glycoconjugate ligands in a sialic acid-dependent manner. The sialic acid-binding immunoglobulin superfamily lectins, designated Siglecs, are immunoglobulin superfamily members that recognize sialylated ligands. Siglecs are important in the functions of the haemopoietic, immune and nervous systems. Siglec-12, also designated Siglec-L1, is expressed on the lumenal edge of epithelial cell surfaces. The Siglec-12 transcript is alternatively spliced, resulting in a short and long isoform. Siglec-12 lacks a conserved arginine residue known to be necessary for optimal sialic acid recognition by other previously known Siglecs. This arginine loss from an ancestral molecule was caused by a single nucleotide substitution that occurred between the common ancestor of humans with the great apes, and the origin of modern humans.

REFERENCES

1. Brinkman-Van der Linden, E.C. and Varki, A. 2000. New aspects of Siglec binding specificities, including the significance of fucosylation and of the sialyl-Tn epitope. Sialic acid-binding immunoglobulin superfamily lectins. J. Biol. Chem. 275: 8625-8632.
2. Brinkman-Van der Linden, E.C., Sjoberg, E.R., Juneja, L.R., Crocker, P.R., Varki, N. and Varki, A. 2000. Loss of N-glycolylneuraminic acid in human evolution. Implications for sialic acid recognition by Siglecs. J. Biol. Chem. 275: 8633-8640.
3. Angata, T., Varki, N.M. and Varki, A. 2001. A second uniquely human mutation affecting sialic acid biology. J. Biol. Chem. 276: 40282-40287.
4. Crocker, P.R. and Varki, A. 2001. Siglecs in the immune system. Immunology 103: 137-145.
5. Crocker, P.R. and Varki, A. 2001. Siglecs, sialic acids and innate immunity. Trends Immunol. 22: 337-342.
6. Crocker, P.R. 2002. Siglecs: sialic-acid-binding immunoglobulin-like lectins in cell-cell interactions and signalling. Curr. Opin. Struct. Biol. 12: 609-615.
7. Sonnenburg, J.L., Altheide, T.K. and Varki, A. 2004. A uniquely human consequence of domain-specific functional adaptation in a sialic acid-binding receptor. Glycobiology 14: 339-346.

CHROMOSOMAL LOCATION

Genetic locus: SIGLEC12 (human) mapping to 19q13.41.

PRODUCT

Siglec-12 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 Siglec-12 shRNA Plasmid (h): sc-61552-SH and Siglec-12 shRNA (h) Lentiviral Particles: sc-61552-V as alternate gene silencing products.

For independent verification of Siglec-12 (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-61552A, sc-61552B and sc-61552C.

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

Siglec-12 siRNA (h) is recommended for the inhibition of Siglec-12 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 Siglec-12 gene expression knockdown using RT-PCR Primer: Siglec-12 (h)-PR: sc-61552-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.