

CD89 siRNA (h): sc-42815

BACKGROUND

Fc (Ig constant fragment) receptors ensure protection of the host against foreign antigens, such as microorganisms and pathogens, by removing Ig-coated antigen complexes from circulation. Fc receptors are present on lymphoid and myeloid derivatives, where they mediate endocytosis of Ig-antigen complexes, antibody production in B cells through T cell antigen presentation, cytotoxicity and the release of cytokines and reactive oxygen species. CD89, also known as Immunoglobulin α Fc receptor (Fc α RI), is a glycoprotein that is expressed on the surface of neutrophils, monocytes, macrophages and eosinophils and is a potent cytotoxic trigger molecule. CD89 specifically interacts with aggregated IgAs, not IgG. Cytokines can initiate a high-binding state for CD89 through a mechanism that involves the intracellular C-terminus of CD89. Polymorphisms within the gene encoding CD89 may be associated with susceptibility to IgA nephropathy, a form of glomerulonephritis characterized by IgA antibody deposition in the kidney glomerulus.

REFERENCES

1. Kremer, E.J., et al. 1992. The gene for the human IgA Fc receptor maps to 19q13.4. *Hum. Genet.* 89: 107-108.
2. de Wit, T.P., et al. 1995. Structure of the gene for the human myeloid IgA Fc receptor (CD89). *J. Immunol.* 155: 1203-1209.
3. Tsuge, T., et al. 2001. Polymorphism in promoter region of Fc α receptor gene in patients with IgA nephropathy. *Hum. Genet.* 108: 128-133.
4. Herr, A.B., et al. 2003. Insights into IgA-mediated immune responses from the crystal structures of human Fc α RI and its complex with IgA1-Fc. *Nature* 423: 614-620.
5. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 147045. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Gomes, M.M., et al. 2008. Analysis of IgA1 N-glycosylation and its contribution to Fc α RI binding. *Biochemistry* 47: 11285-11299.
7. Matsui, T., et al. 2008. Functionality of the IgA Fc receptor (Fc α R, CD89) is down-regulated by extensive engagement of Fc ϵ RI. *Clin. Immunol.* 129: 155-162.

CHROMOSOMAL LOCATION

Genetic locus: FCAR (human) mapping to 19q13.42.

PRODUCT

CD89 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CD89 shRNA Plasmid (h): sc-42815-SH and CD89 shRNA (h) Lentiviral Particles: sc-42815-V as alternate gene silencing products.

For independent verification of CD89 (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-42815A, sc-42815B and sc-42815C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CD89 siRNA (h) is recommended for the inhibition of CD89 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 μ M in 66 μ l. 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

CD89 (A3): sc-19680 is recommended as a control antibody for monitoring of CD89 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 CD89 gene expression knockdown using RT-PCR Primer: CD89 (h)-PR: sc-42815-PR (20 μ l). 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.