SANTA CRUZ BIOTECHNOLOGY, INC.

MR1 siRNA (h): sc-88089

BACKGROUND

MR1 (major histocompatibility complex, class I-related), also known as HLALS, is a 341 amino acid single-pass membrane protein that localizes to the endoplasmic reticulum, as well as to the extracellular side of the cell membrane, and contains one Ig-like C1-type domain. Expressed ubiquitously, MR1 exists as a heterodimer with β-2-Microglobulin and plays an important role in antigen presentation, specifically in the development and expansion of mucosal-associated invariant T cells (MAITs). MAITs are located in the gut and are involved in monitoring flora levels, as well as in conveying distress signals to other areas of the body, indicating a role for MR1 in proper digestion and immune system function. MR1 exists as four alternatively spliced isoforms and is encoded by a gene which maps to human chromosome 1.

REFERENCES

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2. Hashimoto, K., et al. 1995. A gene outside the human MHC related to classical HLA class I genes. Science 269: 693-695.
3. Yamaguchi, H., et al. 1998. Expanded genomic organization of conserved mammalian MHC class I-related genes, human MR1 and its murine ortholog. Biochem. Biophys. Res. Commun. 250: 558-564.
4. Riegert, P., et al. 1998. Genomics, isoforms, expression, and phylogeny of the MHC class I-related MR1 gene. J. Immunol. 161: 4066-4077.
5. Parra-Cuadrado, J.F., et al. 2000. A study on the polymorphism of human MHC class I-related MR1 gene and identification of an MR1-like pseudogene. Tissue Antigens 56: 170-172.
6. Miley, M.J., et al. 2003. Biochemical features of the MHC-related protein 1 consistent with an immunological function. J. Immunol. 170: 6090-6098.
7. Treiner, E., et al. 2003. Selection of evolutionarily conserved mucosal-associated invariant T cells by MR1. Nature 422: 164-169.
8. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 600764. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: MR1 (human) mapping to 1q25.3.

PRODUCT

MR1 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 MR1 shRNA Plasmid (h): sc-88089-SH and MR1 shRNA (h) Lentiviral Particles: sc-88089-V as alternate gene silencing products.

For independent verification of MR1 (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-88089A, sc-88089B and sc-88089C.

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

MR1 siRNA (h) is recommended for the inhibition of MR1 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

MR1 (B-3): sc-377312 is recommended as a control antibody for monitoring of MR1 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 MR1 gene expression knockdown using RT-PCR Primer: MR1 (h)-PR: sc-88089-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.