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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

SANTA CRUZ BIOTECHNOLOGY, INC.

HLA-DMβ siRNA (h): sc-42911

BACKGROUND

HLA-DMβ (HLA class II histocompatibility antigen, DM β chain), also known as DMB or RING7 (really interesting new gene 7 protein), is a 263 amino acid single-pass type I membrane protein that contains one Ig-like C1-type (immunoglobulin-like) domain and belongs to the MHC class II family. While it plays a critical role in catalyzing the release of class II-associated invariant chain peptide (CLIP) from newly synthesized MHC class II molecules, HLA-DMβ also frees the peptide binding site for acquisition of antigenic peptides. In B cells, the interaction between HLA-DM and MHC class II molecules is regulated by HLA-DO. HLA-DMβ exists as a heterodimer made up of an α chain (DMA) and a β chain (DMB). The gene that encodes HLA-DMβ consists of approximately 6,442 bases and maps to human chromosome 6p21.32.

REFERENCES

1. Kelly, A.P., et al. 1991. A new human HLA class II-related locus, DM. Nature 353: 571-573.
2. Carrington, M., et al. 1993. Characterization of HLA-DMB polymorphism. Immunogenetics 38: 446-449.
3. Sanderson, F., et al. 1994. Limited polymorphism in HLA-DM does not involve the peptide binding groove. Immunogenetics 39: 56-58.
4. Radley, E., et al. 1994. Genomic organization of HLA-DMA and HLA-DMB. Comparison of the gene organization of all six class II families in the human major histocompatibility complex. J. Biol. Chem. 269: 18834-18838.
5. Kim, T.G., et al. 1996. Three HLA-DMB variants in Korean patients with autoimmune diseases. Hum. Immunol. 46: 58-60.
6. Copier, J., et al. 1996. Targeting signal and subcellular compartments involved in the intracellular trafficking of HLA-DMB. J. Immunol. 157: 1017-1027.
7. Beck, S., et al. 1996. Evolutionary dynamics of non-coding sequences within the class II region of the human MHC. J. Mol. Biol. 255: 1-13.
8. Mosyak, L., et al. 1998. The structure of HLA-DM, the peptide exchange catalyst that loads antigen onto class II MHC molecules during antigen presentation. Immunity 9: 377-383.

CHROMOSOMAL LOCATION

Genetic locus: HLA-DMB (human) mapping to 6p21.32.

PRODUCT

HLA-DMβ 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 HLA-DMβ shRNA Plasmid (h): sc-42911-SH and HLA-DMβ shRNA (h) Lentiviral Particles: sc-42911-V as alternate gene silencing products.

For independent verification of HLA-DMβ (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-42911A, sc-42911B and sc-42911C.

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

HLA-DMβ siRNA (h) is recommended for the inhibition of HLA-DMβ 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

HLA-DMβ (E-8): sc-393548 is recommended as a control antibody for monitoring of HLA-DMβ 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 HLA-DMβ gene expression knockdown using RT-PCR Primer: HLA-DMβ (h)-PR: sc-42911-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.