



MHC class II siRNA (m): sc-72123

BACKGROUND

Major histocompatibility complex (MHC) molecules, also designated human leukocyte antigen (HLA) molecules, are cell-surface receptors that bind foreign peptides and present them to T lymphocytes. MHC class I molecules consist of two polypeptide chains, an α or heavy chain and β -2-Microglobulin, a non-covalently associated protein. Cytotoxic T lymphocytes bind antigenic peptides presented by MHC class I molecules. Antigens that bind to MHC class I molecules are typically eight to ten residues in length and are stabilized in a peptide binding groove. MHC class II molecules are encoded by polymorphic MHC genes and consist of a non-covalent complex of an α and β chain. Helper T lymphocytes bind antigenic peptides presented by MHC class II molecules. MHC class II molecules bind 13-18 amino acid antigenic peptides. Accumulating in endosomal/lysosomal compartments and on the surface of B cells, HLA-DM and -DO molecules regulate binding of exogenous peptides to class II molecules (HLA-DR) by sustaining a conformation that favors peptide exchange. The differential structural properties of MHC class I and class II molecules account for their respective roles in activating different populations of T lymphocytes.

REFERENCES

1. Murphy, D.B., et al. 1989. A novel MHC class II epitope expressed in thymic medulla but not cortex. *Nature* 338: 765-768.
2. AYu, R., et al. 1991. On the complexity of self. *Nature* 353: 660-662.
3. Little, A.M. and Parham, P. 1999. Polymorphism and evolution of HLA class I and II genes and molecules. *Rev. Immunogenet.* 1: 105-123.
4. Agger, R., et al. 2000. Characterization of murine dendritic cells derived from adherent blood mononuclear cells *in vitro*. *Scand. J. Immunol.* 52: 138-147.
5. Viret, C. and Janeway, C.A., Jr. 2000. Functional and phenotypic evidence for presentation of E α_{52-68} structurally related self-peptide(s) in I-E α -deficient mice. *J. Immunol.* 164: 4627-4634.
6. Fischer, G.F. and Mayr, W.R. 2001. Molecular genetics of the HLA complex. *Wien. Klin. Wochenschr.* 113: 814-824.

CHROMOSOMAL LOCATION

Genetic locus: H2-Ea (mouse) mapping to 17 B1.

PRODUCT

MHC class II siRNA (m) 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 MHC class II shRNA Plasmid (m): sc-72123-SH and MHC class II shRNA (m) Lentiviral Particles: sc-72123-V as alternate gene silencing products.

For independent verification of MHC class II (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72123A, sc-72123B and sc-72123C.

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

MHC class II siRNA (m) is recommended for the inhibition of MHC class II expression in mouse 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

MHC class II (ER-TR3): sc-59318 is recommended as a control antibody for monitoring of MHC class II 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MHC class II gene expression knockdown using RT-PCR Primer: MHC class II (m)-PR: sc-72123-PR (20 μ l, 460 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Klein, S.R., et al. 2016. Critical role of autophagy in the processing of adenovirus capsid-incorporated cancer-specific antigens. *PLoS ONE* 11: e0153814.

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.