SANTA CRUZ BIOTECHNOLOGY, INC.

MHC class I siRNA (m): sc-106993

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. Janeway, C.A., Travers, P., Hunt, S., and Walport, M. 1997. Immunobiology: The immune system in health and disease 3rd Edition (New York: Garland Publishing).
2. Little, A.M. and Parham, P. 1999. Polymorphism and evolution of HLA class I and II genes and molecules. Rev. Immunogenet. 1: 105-123.
3. Gunther, E. and Walter, L. 2001. The major histocompatibility complex of the rat *(Rattus norvegicus)*. Immunogenetics 53: 520-542.
4. Van Kaer, L. 2001. Accessory proteins that control the assembly of MHC molecules with peptides. Immunol. Res. 23: 205-214.
5. 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-K1 (mouse) mapping to 17 B1.

PRODUCT

MHC class I siRNA (m) is a pool of 2 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 MHC class I shRNA Plasmid (m): sc-106993-SH and MHC class I shRNA (m) Lentiviral Particles: sc-106993-V as alternate gene silencing products.

For independent verification of MHC class I (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-106993A and sc-106993B.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

MHC class I siRNA (m) is recommended for the inhibition of MHC class I 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 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

MHC class I (ER-HR52): sc-59199 is recommended as a control antibody for monitoring of MHC class I 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 I gene expression knockdown using RT-PCR Primer: MHC class I (m)-PR: sc-106993-PR (20 µl, 462 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., Jiang, H., Hossain, M.B., Fan, X., Gumin, J., Dong, A., Alonso, M.M., Gomez-Manzano, C. and Fueyo, J. 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.