SANTA CRUZ BIOTECHNOLOGY, INC.

# MHC class I (VPM 19): sc-59205

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

The major histocompatibility complex (MHC) is a high genomic density gene family that plays an important role in the immune system, autoimmunity and reproductive success. Human MHC genes are referred to as human leukocyte antigen (HLA) genes. MHC class I molecules consist of two polypeptide chains, an $\alpha$ or heavy chain and $\beta$-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 8-10 residues in length and are stabilized in a peptide binding groove. 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., Jr., 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. Van Acker, A., Conte, F., Hulin, N. and Urbain, J. 2001. The epitope recognized by pan-HLA class I-reactive monoclonal antibody W6/32 and its relationship to unusual stability of the HLA-B27/$\beta_2$-Microglobulin complex. Immunogenetics 53: 440-446.
4. Gunther, E. and Walter, L. 2001. The major histocompatibility complex of the rat *(Rattus norvegicus)*. Immunogenetics 53: 520-542.
5. Van Kaer, L. 2001. Accessory proteins that control the assembly of MHC molecules with peptides. Immunol. Res. 23: 205-214.
6. Fischer, G.F. and Mayr, W.R. 2001. Molecular genetics of the HLA complex. Wien. Klin. Wochenschr. 113: 814-824.


## SOURCE

MHC class I (VPM 19) is a mouse monoclonal antibody raised against thymocytes of ovine origin.

## PRODUCT

Each vial contains 200 µg $IgG_1$ lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MHC class I (VPM 19) is available conjugated to either phycoerythrin (sc-59205 PE) or fluorescein (sc-59205 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

MHC class I (VPM 19) is recommended for detection of MHC class I in lymphocytes isolated from either peripheral blood or efferent lymph of ovine and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x $10^6$ cells); not recommended for detection of lymphocytes in red blood cells, thymus and brain.

Molecular Weight of MHC class I: 46 kDa.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## SELECT PRODUCT CITATIONS


1. Kumar, K., Kumar, P., Sindhoora, K., Valecha, S., Kumar, R., Singh, V. and Singh, R. 2022. Detection and immune cell response of natural maedi visna virus (MVV) infection in Indian sheep and goats. Microb. Pathog. 165: 105467.


## 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.