SANTA CRUZ BIOTECHNOLOGY, INC.

MHC class I (W6/32): sc-32235

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 β2-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. 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.

CHROMOSOMAL LOCATION

Genetic locus: HLA-A (human) mapping to 6p22.1, HLA-B/HLA-C (human) mapping to 6p21.33.

SOURCE

MHC class I (W6/32) is a mouse monoclonal antibody recognizing the W6/32 antigenic determinant common to HLA-A, B and C antigens of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MHC class I (W6/32) is available conjugated to agarose (sc-32235 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32235 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32235 PE), fluorescein (sc-32235 FITC), Alexa Fluor® 488 (sc-32235 AF488), Alexa Fluor® 546 (sc-32235 AF546), Alexa Fluor® 594 (sc-32235 AF594) or Alexa Fluor® 647 (sc-32235 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32235 AF680) or Alexa Fluor® 790 (sc-32235 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, MHC class I (W6/32) is available conjugated to biotin (sc-32235 B), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

MHC class I (W6/32) is recommended for detection of HLA-A, HLA-B and HLA-C of human 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).

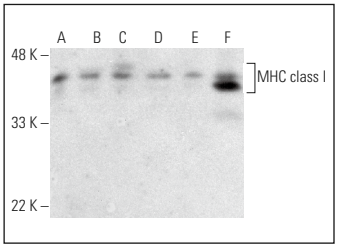
Molecular Weight of MHC class I: 46 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, CCRF-CEM cell lysate: sc-2225 or NCI-H929 whole cell lysate: sc-364786.

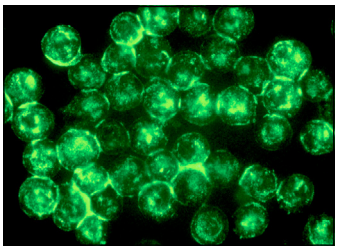
STORAGE

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

DATA



MHC class I (W6/32) HRP: sc-32235 HRP. Direct western blot analysis of MHC class I expression in CCRF-CEM (**A**), GA-10 (**B**), NCI-H929 (**C**), HuT 78 (**D**), Jurkat (**E**) and TK-1 (**F**) whole cell lysates.



MHC class I (W6/32): sc-32235. Immunofluorescence staining of methanol-fixed Raji cells showing membrane localization.

SELECT PRODUCT CITATIONS

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2. Rangan, L., et al. 2017. Identification of a novel PD-L1 positive solid tumor transplantable in HLA-A*0201/DRB1*0101 transgenic mice. Oncotarget 8: 48959-48971.
3. Zobel, M., et al. 2018. A NUMB-EFA6B-ARF6 recycling route controls apically restricted cell protrusions and mesenchymal motility. J. Cell Biol. 217: 3161-3182.
4. Kumari, S., et al. 2019. HIV-1 Nef-GCC185 interaction regulates assembly of cellular protein complexes at TGN targeting MHC-I downregulation. Life Sci. 229: 13-20.
5. Weingarten-Gabbay, S., et al. 2020. SARS-CoV-2 infected cells present HLA-I peptides from canonical and out-of-frame ORFs. bioRxiv. E-published.
6. Hirano, J., et al. 2021. Hepatitis C virus modulates signal peptide peptidase to alter host protein processing. Proc. Natl. Acad. Sci. USA 118: e2026184118.
7. Lei, X., et al. 2022. Mitochondrial fission induces immunoescape in solid tumors through decreasing MHC-I surface expression. Nat. Commun. 13: 3882.
8. Graul, M., et al. 2023. The N-terminal proline hinge motif controls the structure of bovine herpesvirus 1-encoded inhibitor of the transporter associated with antigen processing required for its immunomodulatory function. J. Mol. Biol. 435: 167964.

RESEARCH USE

For research use only, not for use in diagnostic procedures.