SANTA CRUZ BIOTECHNOLOGY, INC.

MHC class I (F-3): sc-55582

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 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 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-B (human) mapping to 6p21.33.

SOURCE

MHC class I (F-3) is a mouse monoclonal antibody raised against amino acids 63-362 of MHC class I 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 (F-3) is available conjugated to agarose (sc-55582 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-55582 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55582 PE), fluorescein (sc-55582 FITC), Alexa Fluor® 488 (sc-55582 AF488), Alexa Fluor® 546 (sc-55582 AF546), Alexa Fluor® 594 (sc-55582 AF594) or Alexa Fluor® 647 (sc-55582 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55582 AF680) or Alexa Fluor® 790 (sc-55582 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MHC class I (F-3) is recommended for detection of MHC class I of human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

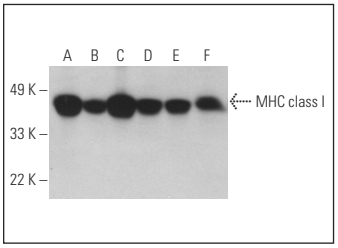
Molecular Weight of MHC class I: 46 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, GA-10 whole cell lysate: sc-364230 or NCI-H929 whole cell lysate: sc-364786.

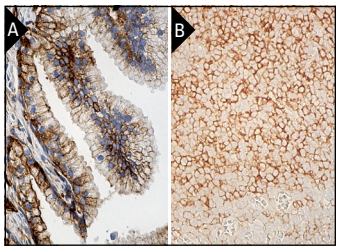
STORAGE

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 (F-3) HRP: sc-55582 HRP. Direct western blot analysis of MHC class I expression in NAMALWA (**A**), CCRF-CEM (**B**), GA-10 (**C**), NCI-H929 (**D**), U-698-M (**E**) and HEL 92.1.7 (**F**) whole cell lysates.



MHC class I (F-3): sc-55582. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing membrane staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing membrane staining of cells in germinal center. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detected with m-IgG Fc BP-B: sc-533652 and ImmunoCruz® ABC Kit: sc-516216 (**B**).

SELECT PRODUCT CITATIONS

1. Bu, N., et al. 2011. Exosome-loaded dendritic cells elicit tumor-specific $CD8^+$ cytotoxic T cells in patients with glioma. J. Neurooncol. 104: 659-667.
2. Bertino, P., et al. 2013. Fowlpox-based survivin vaccination for malignant mesothelioma therapy. Int. J. Cancer 133: 612-623.
3. Sahu, A., et al. 2014. Host response profile of human brain proteome in toxoplasma encephalitis co-infected with HIV. Clin. Proteomics 11: 39.
4. Mfunyi, C.M., et al. 2015. Exosome release following activation of the dendritic cell immunoreceptor: a potential role in HIV-1 pathogenesis. Virology 484: 103-112.
5. Sommer, A., et al. 2018. Th17 lymphocytes induce neuronal cell death in a human iPSC-based model of Parkinson's disease. Cell Stem Cell 23: 123-131.e6.
6. Chew, G.L., et al. 2019. DUX4 suppresses MHC class I to promote cancer immune evasion and resistance to checkpoint blockade. Dev. Cell 50: 658-671.e7.
7. Dusart, P., et al. 2019. A systems-based map of human brain cell-type enriched genes and malignancy-associated endothelial changes. Cell Rep. 29: 1690-1706.e4.
8. Guo, W., et al. 2021. LincRNA-immunity landscape analysis identifies EPIC1 as a regulator of tumor immune evasion and immunotherapy resistance. Sci. Adv. 7: eabb3555.
9. Wang, B.Y., et al. 2021. Stress increases MHC-I expression in dopaminergic neurons and induces autoimmune activation in Parkinson's disease. Neural Regen. Res. 16: 2521-2527.

RESEARCH USE

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