SANTA CRUZ BIOTECHNOLOGY, INC.

MHC class I (ER-HR52): sc-59199

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. Accumu-lating 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: H2-K1 (mouse) mapping to 17 B1.

SOURCE

MHC class I (ER-HR52) is a rat monoclonal antibody raised against macrophage precursor cells of mouse origin.

PRODUCT

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

MHC class I (ER-HR52) is available conjugated to agarose (sc-59199 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to either phycoerythrin (sc-59199 PE), fluorescein (sc-59199 FITC), Alexa Fluor® 488 (sc-59199 AF488), Alexa Fluor® 546 (sc-59199 AF546), Alexa Fluor® 594 (sc-59199 AF594) or Alexa Fluor® 647 (sc-59199 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-59199 AF680) or Alexa Fluor® 790 (sc-59199 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MHC class I (ER-HR52) is recommended for detection of MHC class I molecules on the surface of cells of the following haplotypes: $H2\text{-}D^{b}$, $H2\text{-}D^{w16}$, $H2^{d,p,q}$ and, to a lesser extent, $H2^{f,r,s,w17,w23,w27}$ of mouse 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with MHC class I molecules of other haplotypes.

Suitable for use as control antibody for MHC class I siRNA (m): sc-106993, MHC class I shRNA Plasmid (m): sc-106993-SH and MHC class I shRNA (m) Lentiviral Particles: sc-106993-V.

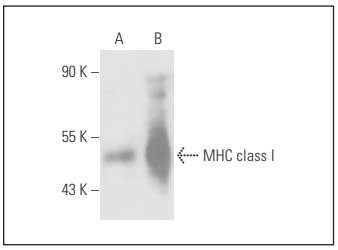
Molecular Weight of MHC class I: 46 kDa.

Positive Controls: CTLL-2 cell lysate: sc-2242 or mouse spleen extract: sc-2391.

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 (ER-HR52): sc-59199. Western blot analysis of MHC class I expression in CTLL-2 whole cell lysate under reducing (**A**) and non-reducing (**B**) conditions.

SELECT PRODUCT CITATIONS

1. Walton, S.M., et al. 2011. Absence of cross-presenting cells in the salivary gland and viral immune evasion confine cytomegalovirus immune control to effector CD4 T cells. PLoS Pathog. 7: e1002214.
2. Ihara, S., et al. 2012. Inhibitory roles of signal transducer and activator of transcription 3 in antitumor immunity during carcinogen-induced lung tumorigenesis. Cancer Res. 72: 2990-2999.
3. Mould, A.W., et al. 2015. Blimp1/Prdm1 functions in opposition to Irf1 to maintain neonatal tolerance during postnatal intestinal maturation. PLoS Genet. 11: e1005375.
4. Kim, H.R., et al. 2018. T cell microvilli constitute immunological synaptosomes that carry messages to antigen-presenting cells. Nat. Commun. 9: 3630.
5. Ziegler, P.K., et al. 2018. Mitophagy in intestinal epithelial cells triggers adaptive immunity during tumorigenesis. Cell 174: 88-101.e16.
6. Fink, A., et al. 2019. Function of the cargo sorting dileucine motif in a cytomegalovirus immune evasion protein. Med. Microbiol. Immunol. 208: 531-542.
7. Wen, J., et al. 2022. Chitosan oligosaccharide improves the mucosal immunity of small intestine through activating SIgA production in mice: proteomic analysis. Int. Immunopharmacol. 109: 108826.
8. Yu, L., et al. 2023. Celsr2 knockout alleviates inhibitory synaptic stripping and benefits motoneuron survival and axon regeneration after branchial plexus avulsion. Mol. Neurobiol. 60: 1884-1900.
9. Qian, B., et al. 2024. Podocyte SIRPα reduction aggravates lupus nephritis via promoting T cell inflammatory responses. Cell Rep. 43: 114249.

RESEARCH USE

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