SANTA CRUZ BIOTECHNOLOGY, INC.

MHC class II (Y-Ae): sc-32247

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: H2-Ea-ps (mouse) mapping to 17 B1.

SOURCE

MHC class II (Y-Ae) is a mouse monoclonal antibody raised against lipopolysaccharide activated spleen cells of mouse origin.

PRODUCT

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

MHC class II (Y-Ae) is available conjugated to agarose (sc-32247 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32247 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32247 PE), fluorescein (sc-32247 FITC), Alexa Fluor® 488 (sc-32247 AF488), Alexa Fluor® 546 (sc-32247 AF546), Alexa Fluor® 594 (sc-32247 AF594) or Alexa Fluor® 647 (sc-32247 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32247 AF680) or Alexa Fluor® 790 (sc-32247 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MHC class II (Y-Ae) is recommended for detection of splenic B cells expressing the I-A^b MHC class II molecules complexed to the 52-68 fragment of the α chain of I-E class II molecules (the Eα 52-68 peptide) 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)], 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 flow cytometry (1 µg per 1 x 10^6 cells).

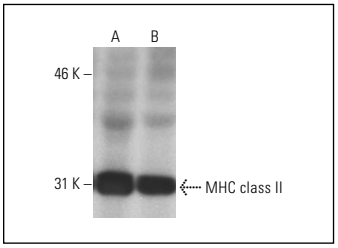
Molecular Weight of MHC class II α/β: 34/29 kDa.

Positive Controls: I-11.15 whole cell lysate: sc-364370 or mouse spleen extract: sc-2391.

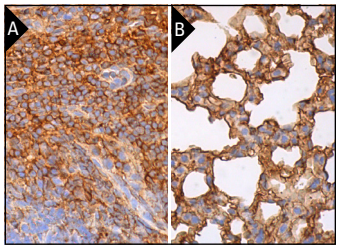
STORAGE

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

DATA



MHC class II (Y-Ae): sc-32247. Western blot analysis of MHC class II expression in 1-11.15 whole cell lysate (**A**) and mouse spleen tissue extract (**B**).



MHC class II (Y-Ae): sc-32247. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse lymph node tissue showing membrane and cytoplasmic staining of cells in non-germinal center (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse lung tissue showing membrane and cytoplasmic staining pneumocytes and macrophages (**B**).

SELECT PRODUCT CITATIONS

1. Majumder, N., et al. 2008. Arabinosylated lipoarabinomannan modulates the impaired cell mediated immune response in *Mycobacterium tuberculosis* H37Rv infected C57BL/6 mice. Microbes Infect. 10: 349-357.
2. Kang, Y.H., et al. 2015. Immunomodulatory properties and *in vivo* osteogenesis of human dental stem cells from fresh and cryopreserved dental follicles. Differentiation 90: 48-58.
3. Zhai, J., et al. 2018. The mechanisms of Ag85A DNA vaccine activates RNA sensors through new signal transduction. Int. Immunopharmacol. 59: 1-11.
4. Jing, L., et al. 2019. Long non-coding RNA small nucleolar RNA host gene 7 facilitates cardiac hypertrophy via stabilization of SDA1 domain containing 1 mRNA. J. Cell. Biochem. 120: 15089-15097.
5. Yoo, M., et al. 2020. Integrin-β1 is required for the renal cystogenesis caused by ciliary defects. Am. J. Physiol. Renal Physiol. 318: F1306-F1312.
6. Zhang, Y.Y., et al. 2021. Chimeric antigen-guiding extracellular vesicles eliminate antigen-specific Th2 cells in subjects with food allergy. World Allergy Organ. J. 14: 100522.
7. Zhang, Y., et al. 2022. Targeted inhibition of the immunoproteasome blocks endothelial MHC class II antigen presentation to $CD4^+$ T cells in chronic liver injury. Int. Immunopharmacol. 107: 108639.
8. Xu, Y., et al. 2022. A critical role of δ-opioid receptor in anti-microglial activation under stress. Front. Aging Neurosci. 14: 847386.
9. Lim, S., et al. 2023. Enhanced anti-tumor immunity of vaccine combined with anti-PD-1 antibody in a murine bladder cancer model. Investig. Clin. Urol. 64: 74-81.

RESEARCH USE

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