SANTA CRUZ BIOTECHNOLOGY, INC.

β-2-Microglobulin (S19.8): sc-32241



BACKGROUND

Major histocompatibility complex (MHC) class 1 molecules bind to antigens for presentation on the surface of cells. The proteasome is responsible for producing these antigens from the components of foreign pathogens. MHC class 1 molecules consist of an α heavy chain that contains three subdomains (α 1, α 2, α 3) and a non-covalent associating light chain, known as β -2-Microglobu-lin. β -2-Microglobulin associates with the α 3 subdomain of the α heavy chain and forms an immunoglobulin domain-like structure that mediates proper folding and expression of MHC class 1 molecules. The α 1 and α 2 domains of the α heavy chain form the peptide antigen-binding cleft. Mice that lack β-2-Microglobulin protein show a normal distribution of T cells, yet have no mature CD4-8+ T cells and are defective in CD4-8+ T cell-mediated cytotoxicity. Interferon-y can stimulate production of β -2-Microglobulin transcripts. The human β -2-Microglobulin gene maps to chromosome 15q21.1 and encodes a 119 amino acid protein. Mutations in the β -2-Microglobulin gene can enhance the progression of malignant melanoma phenotypes.

REFERENCES

- 1. Skjodt, K., et al. 1987. Isolation and characterization of chicken and turkey β -2-Microglobulin. Mol. Immunol. 23: 1301-1309.
- 2. Dunon, D., et al. 1990. T cell precursor migration towards β -2-Microglobulin is involved in thymus colonization of chicken embryos. EMBO J. 9: 3315-3322.
- Zijlstra, M., et al. 1990. β-2-Microglobulin deficient mice lack CD4-8+ cytolytic T cells. Nature 344: 742-746.

CHROMOSOMAL LOCATION

Genetic locus: B2M (human) mapping to 15q21.1; B2m (mouse) mapping to 2 E5.

SOURCE

 β -2-Microglobulin (S19.8) is a mouse monoclonal antibody raised against B10.S spleen cells.

PRODUCT

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

β-2-Microglobulin (S19.8) is available conjugated to agarose (sc-32241 AC), 500 μg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32241 HRP), 200 μg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32241 PE), fluorescein (sc-32241 FITC), Alexa Fluor[®] 488 (sc-32241 AF488), Alexa Fluor[®] 546 (sc-32241 AF546), Alexa Fluor[®] 594 (sc-32241 AF594) or Alexa Fluor[®] 647 (sc-32241 AF647), 200 μg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-32241 AF680) or Alexa Fluor[®] 790 (sc-32241 AF790), 200 μg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

RESEARCH USE

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

APPLICATIONS

β-2-Microglobulin (S19.8) is recommended for detection of β-2-Microglobulin of mouse, rat, human and primate origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 μg per 1 x 10⁶ cells); Positive mouse strains include C57BL/6, C57BL/10, C57BR, and C57L; not recommended for A, AKR, BALB/c, C58, C3H, CBA, DBA/1, DBA/2, SJL, SWR and 129 strains.

Suitable for use as control antibody for β -2-Microglobulin siRNA (h): sc-29592, β -2-Microglobulin siRNA (m): sc-29593, β -2-Microglobulin shRNA Plasmid (h): sc-29592-SH, β -2-Microglobulin shRNA Plasmid (m): sc-29593-SH, β -2-Microglobulin shRNA (h) Lentiviral Particles: sc-29592-V, β -2-Microglobulin shRNA (m) Lentiviral Particles: sc-29593-V.

Molecular Weight of β-2-Microglobulin: 12 kDa.

DATA



 $\begin{array}{l} \beta\mbox{-}2\mbox{-}Nicroglobulin (S19.8) PE: sc\mbox{-}32241 PE. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc\mbox{-}516214 (A), \beta\mbox{-}2\mbox{-}Nicroglobulin (S19.8); sc\mbox{-}32241 Immunofluorescence staining of methanol-fixed NIH/313 cells show-ing cytoplasmic localization (B). \label{eq:scalar}$

SELECT PRODUCT CITATIONS

- Koguchi, Y., et al. 2007. Preformed CD40 ligand exists in secretory lysosomes in effector and memory CD4+ T cells and is quickly expressed on the cell surface in an antigen-specific manner. Blood 110: 2520-2527.
- 2. Taveirne, S., et al. 2011. Inhibitory receptors specific for MHC class I educate murine NK cells but not CD8 $\alpha\alpha$ intestinal intraepithelial T lymphocytes. Blood 118: 339-347.
- Choi, J.H., et al. 2011. Effects of pre-conditioning dose on the immune kinetics and cytokine production in the leukocytes infiltrating GVHD tissues after MHC-matched transplantation. Immune Netw. 11: 68-78.
- 4. Liu, Y., et al. 2021. LSD1 inhibition sustains T cell invigoration with a durable response to PD-1 blockade. Nat. Commun. 12: 6831.
- 5. Chen, F., et al. 2023. β -2-Microglobulin exacerbates neuroinflammation, brain damage, and cognitive impairment after stroke in rats. Neural Regen. Res. 18: 603-608.

STORAGE

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