SANTA CRUZ BIOTECHNOLOGY, INC.

β-2-Microglobulin (BBM.1): sc-13565

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 (α1, α2, α3) and a non-covalent associating light chain, known as β-2-Microglobulin. β-2-Microglobulin associates with the α3 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 α1 and α2 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-γ 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.

CHROMOSOMAL LOCATION

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

SOURCE

β-2-Microglobulin (BBM.1) is a mouse monoclonal antibody raised against a MOLT-4 human T cell line.

PRODUCT

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

β-2-Microglobulin (BBM.1) is available conjugated to agarose (sc-13565 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13565 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13565 PE), fluorescein (sc-13565 FITC), Alexa Fluor® 488 (sc-13565 AF488), Alexa Fluor® 546 (sc-13565 AF546), Alexa Fluor® 594 (sc-13565 AF594) or Alexa Fluor® 647 (sc-13565 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13565 AF680) or Alexa Fluor® 790 (sc-13565 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

β-2-Microglobulin (BBM.1) is recommended for detection of β-2-Microglobulin of mouse, rat, human and primate 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

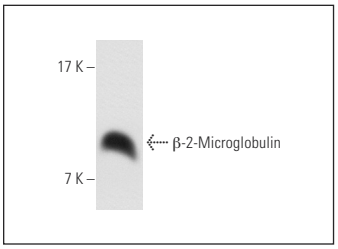
Suitable for use as control antibody for β-2-Microglobulin siRNA (h): sc-29592, β-2-Microglobulin siRNA (m): sc-29593, β-2-Microglobulin shRNA Plasmid (h): sc-29592-SH, β-2-Microglobulin shRNA Plasmid (m): sc-29593-SH, β-2-Microglobulin shRNA (h) Lentiviral Particles: sc-29592-V and β-2-Microglobulin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

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

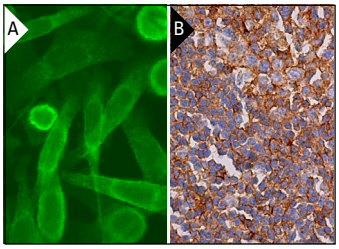
STORAGE

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

DATA



β-2-Microglobulin (BBM.1): sc-13565. Western blot analysis of β-2-Microglobulin expression in HL-60 whole cell lysate.



β-2-Microglobulin (BBM.1) Alexa Fluor® 488: sc-13565 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic and membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing membrane and cytoplasmic staining of cells in germinal center and cells in non-germinal center (**B**).

SELECT PRODUCT CITATIONS

1. Park, B., et al. 2006. Redox regulation facilitates optimal peptide selection by MHC class I during antigen processing. Cell 127: 369-382.
2. Panchanathan, R., et al. 2009. Female and male sex hormones differentially regulate expression of Ifi202, an interferon-inducible lupus susceptibility gene within the Nba2 interval. J. Immunol. 183: 7031-7038.
3. Panchanathan, R., et al. 2010. Mutually positive regulatory feedback loop between interferons and estrogen receptor-α in mice: implications for sex bias in autoimmunity. PLoS ONE 5: e10868.
4. Panchanathan, R., et al. 2011. Cell type and gender-dependent differential regulation of the p202 and Aim2 proteins: implications for the regulation of innate immune responses in SLE. Mol. Immunol. 49: 273-280.
5. Jiang, Q., et al. 2012. Upregulation of β-2-Microglobulin expression in progressive human oral squamous cell carcinoma. Oncol. Rep. 27: 1058-1064.
6. Sultan, A., et al. 2013. The extracellular chaperone haptoglobin prevents serum fatty acid-promoted amyloid fibril formation of β-2-Microglobulin, resistance to lysosomal degradation, and cytotoxicity. J. Biol. Chem. 288: 32326-32342.
7. Cebrián, C., et al. 2014. MHC-I expression renders catecholaminergic neurons susceptible to T-cell-mediated degeneration. Nat. Commun. 5: 3633.
8. Swiercz, R., et al. 2017. Loss of expression of the recycling receptor, FcRn, promotes tumor cell growth by increasing albumin consumption. Oncotarget 8: 3528-3541.

RESEARCH USE

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