SANTA CRUZ BIOTECHNOLOGY, INC.

β-2-Microglobulin (2213): sc-80668

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.

REFERENCES

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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.
3. Zijlstra, M., et al. 1990. β-2-Microglobulin deficient mice lack CD4-8$^+$ cytolytic T cells. Nature 344: 742-746.
4. Solheim, J.C., et al. 1995. Conformational changes induced in the MHC class I molecule by peptide and β-2-Microglobulin. Immunol. Res. 14: 200-217.
5. Pamer, E., et al. 1998. Mechanisms of MHC class I-restricted antigen processing. Annu. Rev. Immunol. 16: 323-358.
6. Tsuyuki, Y., et al. 1998. IFN-γ induces coordinate expression of MHC class I-mediated antigen presentation machinery molecules in adult mouse Schwann cells. Neuroreport 9: 2071-2075.
7. Hicklin, D.J., et al. 1998. β-2-Microglobulin mutations, HLA class I antigen loss, and tumor progression in melanoma. J. Clin. Invest. 101: 2720-2729.
8. Drbal, K., et al. 2001. A proteolytically truncated form of free CD18, the common chain of leukocyte Integrins, as a novel marker of activated myeloid cells. Blood 98: 1561-1566.
9. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 109700. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: B2M (human) mapping to 15q21.1.

SOURCE

β-2-Microglobulin (2213) is a mouse monoclonal antibody raised against β-2-Microglobulin of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml PBS with < 0.1% sodium azide, 1% glycerol, and 0.1% gelatin.

APPLICATIONS

β-2-Microglobulin (2213) is recommended for detection of β-2-Microglobulin of human origin by 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 shRNA Plasmid (h): sc-29592-SH and β-2-Microglobulin shRNA (h) Lentiviral Particles: sc-29592-V.

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

SELECT PRODUCT CITATIONS

1. Tayman, C., et al. 2011. Mesenchymal stem cell therapy in necrotizing enterocolitis: a rat study. Pediatr. Res. 70: 489-494.
2. Ryu, C.M., et al. 2018. Longitudinal intravital imaging of transplanted mesenchymal stem cells elucidates their functional integration and therapeutic potency in an animal model of interstitial cystitis/bladder pain syndrome. Theranostics 8: 5610-5624.
3. Ryu, C.M., et al. 2019. N-acetylcysteine prevents bladder tissue fibrosis in a lipopolysaccharide-induced cystitis rat model. Sci. Rep. 9: 8134.
4. Shin, J.H., et al. 2019. Synergistic effects of N-acetylcysteine and mesenchymal stem cell in a lipopolysaccharide-induced interstitial cystitis rat model. Cells 9 pii: E86.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.