

β -2-Microglobulin (2M2): sc-73379

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 ($\alpha 1$, $\alpha 2$, $\alpha 3$), and a non-covalent associating light chain, known as β -2-Microglobulin. β -2-Microglobulin associates with the $\alpha 3$ 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 $\alpha 1$ and $\alpha 2$ 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- 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

1. Skjødtt, 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.
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.

CHROMOSOMAL LOCATION

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

SOURCE

β -2-Microglobulin (2M2) is a mouse monoclonal antibody raised against purified β -2-Microglobulin of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

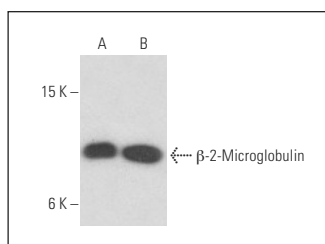
β -2-Microglobulin (2M2) is recommended for detection of β -2-Microglobulin of human and porcine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and flow cytometry (1 μ g per 1 x 10⁶ cells).

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.

Positive Controls: HL-60 whole cell lysate: sc-2209, CCRF-CEM cell lysate: sc-2225 or HeLa whole cell lysate: sc-2200.

DATA



β -2-Microglobulin (2M2): sc-73379. Western blot analysis of β -2-Microglobulin expression in CCRF-CEM (A) and HL-60 (B) whole cell lysates.

STORAGE

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

PROTOCOLS

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

CONJUGATES

See **β -2-Microglobulin (G-10): sc-46697** for β -2-Microglobulin antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.