



β-2-Microglobulin (3H2719): sc-69964

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-q22.2 and encodes a 119 amino acid protein. Mutations in the β -2-Microglobulin gene can enhance the progression of malignant melanoma phenotypes.

REFERENCES

1. Skjødt, 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. 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.
4. Pamer, E., et al. 1998. Mechanisms of MHC class I-restricted antigen processing. *Annu. Rev. Immunol.* 16: 323-358.
5. 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.
6. 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.
7. 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.
8. 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/>
9. LocusLink Report (LocusID: 567). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: B2M (human) mapping to 15q21-q22.2.

SOURCE

β -2-Microglobulin (3H2719) is a rat monoclonal antibody raised against lymphocytes of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} in 1.0 mL 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 origin by flow cytometry (1 μ g per 1 x 10⁶ cells).

Suitable for use as control antibody for β -2-Microglobulin siRNA (h): sc-29592 and β -2-Microglobulin siRNA (h2): sc-44280.

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.

RESEARCH USE

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

PROTOCOLS

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