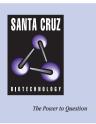
# SANTA CRUZ BIOTECHNOLOGY, INC.

# β-2-Microglobulin (TLD-3H12): sc-53525



# 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  $\alpha$  heavy chain that contains three subdomains ( $\alpha 1, \alpha 2, \alpha 3$ ), and a non-covalent associating light chain, known as  $\beta$ -2-Microglobulin  $\beta$ -2-Microglobulin associates with the  $\alpha 3$  subdomain of the  $\alpha$  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  $\alpha$  heavy chain form the peptide antigen-binding cleft. Mice that lack  $\beta$ -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- $\gamma$  can stimulate production of  $\beta$ -2-Microglobulin transcripts. The human  $\beta$ -2-Microglobulin gene maps to chromosome 15q21-q22.2 and encodes a 119 amino acid protein. Mutations in the  $\beta$ -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  $\beta$ -2-Microglobulin. Mol. Immunol. 23: 1301-1309.
- 2. Dunon, D., et al. 1990. T cell precursor migration towards  $\beta$ -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  $\beta$ -2-Microglobulin. Immunol. Res. 14: 200-217.
- Pamer, E., et al. 1998. Mechanisms of MHC class I-restricted antigen processing. Annu. Rev. Immunol. 16: 323-358.
- 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.  $\beta$ -2-Microglobulin mutations, HLA class I antigen loss, and tumor progression in melanoma. J. Clin. Invest. 101: 2720-2729.
- 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; B2m (mouse) mapping to 2 F1-F3.

# SOURCE

 $\beta\mbox{-}2\mbox{-}Microglobulin (TLD-3H12)$  is a mouse monoclonal antibody raised against microglial cells of rat origin.

# PRODUCT

Each vial contains 200  $\mu g~lgG_1$  in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Available as phycoerythrin (sc-53525 PE) or fluorescein (sc-53525 FITC) conjugates for flow cytometry, 100 tests.

# **APPLICATIONS**

 $\beta$ -2-Microglobulin (TLD-3H12) is recommended for detection of  $\beta$ -2-Microglobulin of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10<sup>6</sup> cells).

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

# **RECOMMENDED SECONDARY REAGENTS**

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluo-rescence: use goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

#### **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.