

β-2-Microglobulin (G-10): sc-46697

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. Skjodt, 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.

CHROMOSOMAL LOCATION

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

SOURCE

β -2-Microglobulin (G-10) is a mouse monoclonal antibody raised against amino acids 1-119 representing full length β -2-Microglobulin of human origin.

PRODUCT

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

β -2-Microglobulin (G-10) is available conjugated to agarose (sc-46697 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-46697 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-46697 PE), fluorescein (sc-46697 FITC), Alexa Fluor[®] 488 (sc-46697 AF488), Alexa Fluor[®] 546 (sc-46697 AF546), Alexa Fluor[®] 594 (sc-46697 AF594) or Alexa Fluor[®] 647 (sc-46697 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-46697 AF680) or Alexa Fluor[®] 790 (sc-46697 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

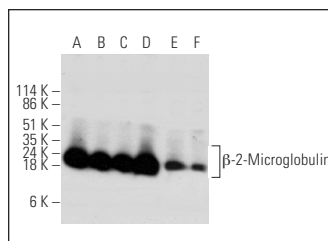
β -2-Microglobulin (G-10) is recommended for detection of β -2-Microglobulin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:10000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

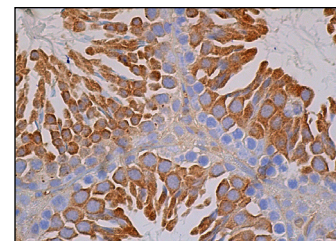
Molecular Weight of β -2-Microglobulin: 12 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, CCRF-CEM cell lysate: sc-2225 or IB4 whole cell lysate: sc-364780.

DATA



β -2-Microglobulin (G-10): sc-46697. Western blot analysis of β -2-Microglobulin expression in HL-60 (A), CCRF-CEM (B), U-937 (C), IB4 (D), NIH/3T3 (E) and KNRK (F) whole cell lysates.



β -2-Microglobulin (G-10): sc-46697. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse testis tissue showing cytoplasmic staining of cells in seminiferous ducts.

SELECT PRODUCT CITATIONS

1. Fisher, K.W., et al. 2011. Kinase suppressor of Ras 1 (KSR1) regulates PGC1 α and estrogen-related receptor α to promote oncogenic Ras-dependent anchorage-independent growth. *Mol. Cell. Biol.* 31: 2453-2461.
2. Hoshino, A., et al. 2020. Extracellular vesicle and particle biomarkers define multiple human cancers. *Cell* 182: 1044-1061.
3. Thomas, R.C., et al. 2020. Complement properdin regulates the metabolic-inflammatory response to a high fat diet. *Medicina* 56: 484.
4. Sveeggen, T.M., et al. 2023. Annexin A2 modulates phospholipid membrane composition upstream of Arp2 to control angiogenic sprout initiation. *FASEB J.* 37: e22715.

STORAGE

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

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