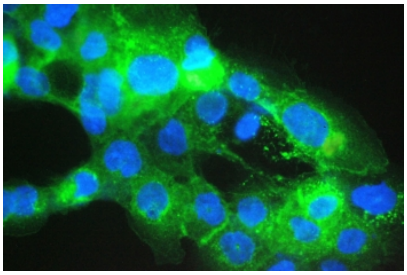
Beta-2 Microglobulin Polyclonal Antibody / B2M Rabbit Polyclonal Antibody (R32745)

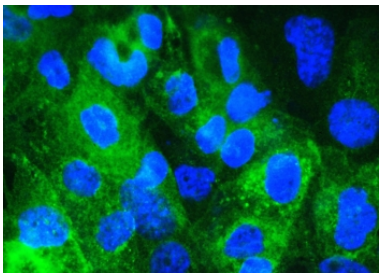
Catalog No.	Formulation	Size
R32745	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

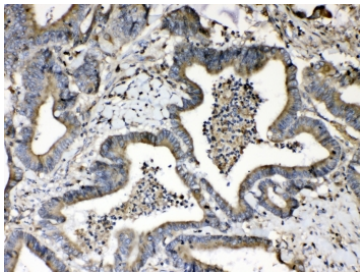
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	P61769
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 1-2ug/ml Immunofluorescence (FFPE): 2-4ug/ml FACS: 1-3ug/10^6 cells
Limitations	This Beta-2 Microglobulin Polyclonal Antibody / B2M Rabbit Polyclonal Antibody is available for research use only.



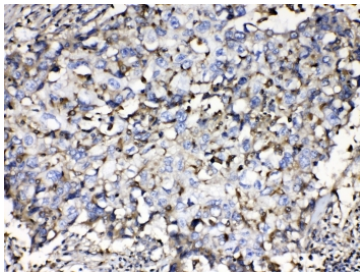
Beta-2 Microglobulin Polyclonal Antibody IF Staining of Human A431 Cells. Immunofluorescence staining of FFPE human A431 cells using B2M Rabbit Polyclonal Antibody at 2 ug/ml. Green fluorescence is observed predominantly along the cell periphery and within the cytoplasm, consistent with the membrane-associated and intracellular distribution of B2M. Nuclei are counterstained with DAPI (blue). Heat-induced epitope retrieval was performed in citrate buffer (pH 6.0) for 20 minutes using steam.



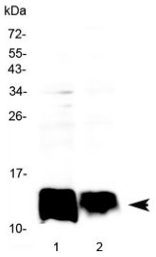
Immunofluorescent staining of FFPE human A431 cells with Beta-2 Microglobulin antibody (green) at 2ug/ml and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



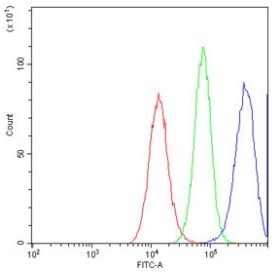
IHC testing of FFPE human intestinal cancer tissue with Beta-2 Microglobulin antibody at 1ug/ml. Required HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to testing.



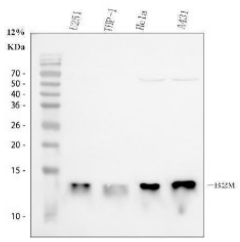
IHC testing of FFPE human lung cancer tissue with Beta-2 Microglobulin antibody at 1ug/ml. Required HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to testing.



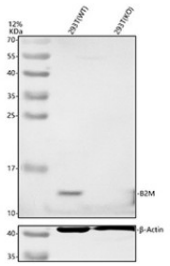
Western blot testing of human 1) HepG2 and 2) 22RV1 cell lysate with Beta-2 Microglobulin antibody at 0.5ug/ml. Predicted molecular weight ~14 kDa.



Flow cytometry testing of human U251 cells with Beta-2 Microglobulin antibody at 1ug/10^6 cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= Beta-2 Microglobulin antibody.



Beta-2 Microglobulin Polyclonal Antibody WB Analysis of Human U251, THP-1, HeLa and A431 Cells. Western blot analysis of human U251 (lane 1), THP-1 (lane 2), HeLa (lane 3) and A431 (lane 4) whole-cell lysates using B2M Rabbit Polyclonal Antibody. A band is detected at approximately 12-14 kDa in all four samples, consistent with the expected molecular weight of beta-2 microglobulin. Each lane contained 30 ug of protein, and the primary antibody was used at 0.5 ug/ml.



Beta-2 Microglobulin Polyclonal Antibody WB Validation Using Human 293T Wild-Type and B2M Knockout Cells. Western blot analysis of human 293T wild-type (WT, lane 1) and B2M knockout (KO, lane 2) whole-cell lysates using B2M Rabbit Polyclonal Antibody. A band at approximately 12-14 kDa is detected in WT cells but is absent at the corresponding position in B2M KO cells, supporting antibody specificity for B2M. Beta-actin serves as the loading control. Each lane contained 30 ug of protein, and the primary antibody was used at 0.5 ug/ml.

Description

Beta-2 Microglobulin Polyclonal Antibody / B2M Rabbit Polyclonal Antibody targets beta-2 microglobulin (B2M), a small, non-glycosylated protein that serves as the invariant light chain of major histocompatibility complex (MHC) class I molecules. B2M associates noncovalently with the MHC class I heavy chain and is essential for the proper folding, stability, and cell surface expression of these complexes. Unlike the polymorphic MHC class I heavy chains, B2M is highly conserved and does not directly bind antigenic peptides. Instead, it provides structural support that enables MHC class I molecules to present intracellularly derived peptides to CD8+ T lymphocytes, contributing to immune surveillance and recognition of infected or abnormal cells.

B2M is synthesized with a signal peptide that directs it into the endoplasmic reticulum, where the mature protein associates with newly synthesized MHC class I heavy chains. Assembly of a stable complex requires coordinated interactions with peptide-loading machinery, including tapasin, calreticulin, and the transporter associated with antigen processing (TAP). Following peptide loading, properly assembled MHC class I complexes are transported through the secretory pathway to the plasma membrane. B2M can also associate with other MHC class I-related proteins, including CD1 molecules, FcRn, and HFE, extending its biological importance beyond conventional antigen presentation.

Loss or reduced expression of B2M can impair MHC class I surface expression and diminish recognition by cytotoxic T lymphocytes. B2M gene alterations have been identified in several malignancies and represent one mechanism through which tumor cells evade antigen-specific immune responses. Such alterations may also contribute to resistance against immune checkpoint blockade. Conversely, the absence of normal MHC class I expression can increase susceptibility to natural killer cell recognition through missing-self surveillance. These opposing immune consequences illustrate the importance of B2M in maintaining the balance between adaptive and innate immune responses.

Beta-2 Microglobulin Polyclonal Antibody is relevant to research investigating antigen presentation, MHC class I assembly, tumor immune evasion, and immune checkpoint resistance. Understanding B2M expression and its relationship to MHC class I stability remains important for characterizing mechanisms that influence immune recognition and the effectiveness of antitumor immunity.

For additional research on beta-2 microglobulin expression, MHC class I complexes and antigen presentation, including a protein microarray validated reagent, see our Beta-2 Microglobulin Antibody / MHC Class I Component Antibody page.

Application Notes

Optimal dilution of the Beta-2 Microglobulin Polyclonal Antibody / B2M Rabbit Polyclonal Antibody should be determined by the researcher.

Immunogen

Amino acids Q22-M119 from the human protein were used as the immunogen for the Beta-2 Microglobulin Polyclonal Antibody.

Storage

After reconstitution, the Beta-2 Microglobulin Polyclonal Antibody can be stored for up to one month at 4oC. For long-

term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Beta-2 Microglobulin antibody, B2M antibody, Beta 2 Microglobulin antibody, beta2-Microglobulin antibody, beta-2-Microglobulin antibody, beta2M antibody, MHC Class I Light Chain antibody, MHC Class I Beta Chain antibody, B2M Protein antibody, Beta-2 Microglobulin Rabbit Polyclonal antibody

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