abcam

ab218230

Anti-beta 2 Microglobulin antibody [EPR21752-214]

Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) is a rabbit monoclonal antibody detecting beta 2 Microglobulin in **Western Blot, Flow Cytometry (Intra), IP, IHC-P**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR21752-214
Purification technique	Affinity purification Protein A
Concentration	0.522 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human

Dilution info	1/30
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.

Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information B2M

Function	Component of the class I major histocompatibility complex (MHC). Involved in the presentation of peptide antigens to the immune system. Exogenously applied M.tuberculosis EsxA or EsxA-EsxB (or EsxA expressed in host) binds B2M and decreases its export to the cell surface (total protein levels do not change), probably leading to defects in class I antigen presentation (PubMed:25356553).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot

Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P) in Human, Mouse, Rat samples.

What is the molecular weight of beta 2 Microglobulin?
Anti-beta 2 Microglobulin [EPR21752-214] (ab218230) specifically detects a band for beta 2 Microglobulin (UniProt: P61769) at a molecular weight of 14kDa.

Specificity confirmed
The specificity of Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) has been confirmed by Western blot testing in B2M Knockout HEPG2 cell line, ab266828.

Other related products
We have a range of other formats of antibody clone [EPR21752-214] also available for your convenience: ab218230, Carrier free - ab237032

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Beta-2-Microglobulin (B2M) is a component of the class I major histocompatibility complex (MHC I) and plays an important role in presenting peptides to the immune system. B2M weighs approximately 11.8 kDa and is found abundantly in all nucleated cells. It has alternate names such as B2 microglobulin or beta-2-microglobulin. This protein is present in the cell membrane as a part of the MHC I which is important for immune surveillance. Additionally B2M is detectable in

	various biological fluids including serum and its levels can reflect physiological and pathological states.
Biological function summary	Beta-2-microglobulin is important for the stability and transport of MHC class I molecules to the cell surface. As part of the MHC class I complex B2M assists in binding peptides allowing immune cells to identify and target pathogen-infected cells. Without B2M the MHC class I molecules are not properly expressed on the cell surface disrupting immune recognition. In laboratory settings researchers often use anti-beta-2-microglobulin antibodies to investigate its role in MHC class I function.
Pathways	Beta-2-microglobulin interacts significantly with the immune system most notably in the antigen processing and presentation pathway. It works alongside proteins such as the heavy chain of MHC class I. B2M is important in the pathway that involves the transport of antigens to the endoplasmic reticulum where they are loaded onto MHC class I molecules for inspection by cytotoxic T cells. Another related pathway is the tapasin-mediated processing of antigen peptides highlighting the indispensable role of B2M in immune response regulation.
Associated diseases and disorders	Beta-2-microglobulin is associated with conditions such as beta-2-microglobulin amyloidosis and certain lymphoproliferative disorders. Elevated levels of B2M in serum serve as a marker for diseases like multiple myeloma where the protein level correlates with disease severity. B2M-related amyloidosis frequently occurs in patients undergoing long-term dialysis where amyloid deposits accumulate in tissues. Linking B2M to immune system dysfunction studies have shown interactions with other proteins including components of the immune system like HLA-A and HLA-B highlighting B2M's relevance in diagnosing and understanding these conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

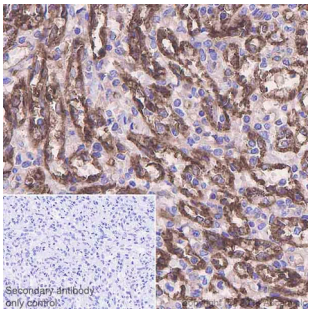
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

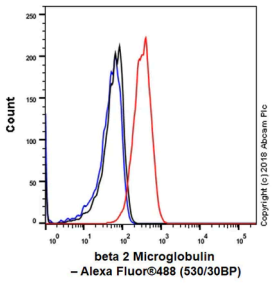
8 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-beta 2 Microglobulin antibody

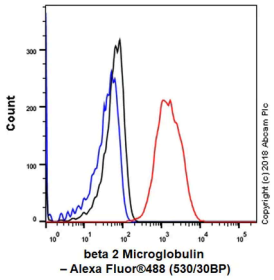
Immunohistochemical analysis of paraffin-embedded human spleen tissue labeling beta 2 Microglobulin with ab218230 at 1/4000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP) secondary antibody. Positive staining on endothelial cells of human spleen is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Flow Cytometry (Intracellular) staining using rabbit Anti-beta 2 Microglobulin antibody

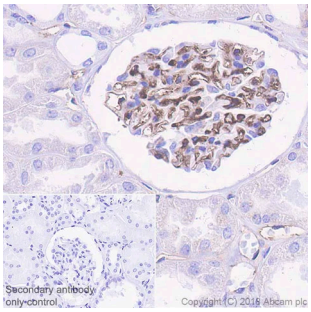
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized HepG2 (human liver hepatocellular carcinoma cell line) cell line labeling beta 2 Microglobulinwith ab218230 at 1/500 dilution (red) compared with a Rabbit monoclonal IgG - Isotype control (ab172730) (black) and an unlabeled control cells incubatedwith secondary antibody only) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.



Flow Cytometry (Intracellular) - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Flow Cytometry (Intracellular) staining using rabbit Anti-beta 2 Microglobulin antibody

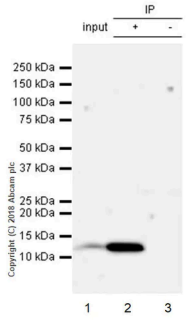
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized HeLa (human epithelial cell line from cervix adenocarcinoma) cell line labeling beta 2 Microglobulinwith ab218230 at 1/50 dilution (red) compared with a Rabbit monoclonal IgG - Isotype control (ab172730) (black) and an unlabeled control (cells incubatedwith secondary antibody only) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-beta 2 Microglobulin antibody

Immunohistochemical analysis of paraffin-embedded human kidney tissue labeling beta 2 Microglobulin with ab218230 at 1/4000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP) secondary antibody. Positive staining on endothelial cells of human kidney is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

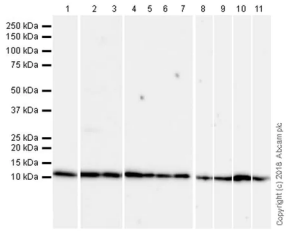
Beta 2 Microglobulin was immunoprecipitated from 0.35 mg HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab218230 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab218230 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.

Lane 1: HeLa whole cell lysate 10 µg (Input).
Lane 2: ab218230 IP in HeLa whole cell lysate (+).
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab218230 in HeLa whole cell lysate (-).

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Immunoprecipitation - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Predicted band size: 14 kDa



Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Blocking/diluting buffer and concentration: 5% NFDM/TBST.
Exposure times: Lane 1: 6 seconds; Lane 2-3: 37 seconds: Lane 4-7: 48 seconds; Lane 8-11: 3 minutes.

Lanes 4-11: This blot was developed using a higher sensitive ECL substrate.

All lanes:
Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) at 1/1000 dilution

Lane 1:
HeLa (human epithelial cell line from cervix adenocarcinoma) cell lysate at 10 µg

Lane 2:
Jurkat (human T cell leukemia T lymphocyte), whole cell lysate at 10 µg

Lane 3:
HepG2 (human liver hepatocellular carcinoma cell line) cell lysate at 10 µg

Lane 4:
Mouse serum at 10 µg

Lane 5:
Mouse plasma at 10 µg

Lane 6:
Rat serum at 10 µg

Lane 7:
Rat plasma at 10 µg

Lane 8:
Human plasma at 10 µg

Lane 9:
Human skin lysate at 10 µg

Lane 10:
Human kidney lysate at 10 µg

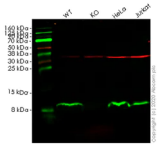
Lane 11:
Human liver lysate at 10 µg

Secondary

Lanes 1 - 3:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Lanes 4 - 11:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/1000 dilution

Predicted band size: 14 kDa



Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Western blot staining using rabbit Anti-beta 2 Microglobulin antibody

Lanes 1-4: Merged signal (red and green). Green - ab218230 observed at 14 kDa. Red - loading control ab8245 observed at 36 kDa.
ab218230 Anti-beta 2 Microglobulin antibody [EPR21752-214] was shown to specifically react with beta 2 Microglobulin in wild-type HepG2 cells. Loss of signal was observed when knockout cell line ab262325 (knockout cell lysate ab256846) was used. Wild-type and beta 2 Microglobulin knockout samples were subjected to SDS-PAGE. ab218230 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 500 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) at 1/500 dilution

Lane 1:
Wild-type HepG2 cell lysate at 20 µg

Lane 2:
B2M knockout HepG2 cell lysate at 20 µg

Lane 2:
Western blot - Human B2M (beta 2 Microglobulin) knockout Hep G2 cell line (ab262325)

Lane 3:
HeLa cell lysate at 20 µg

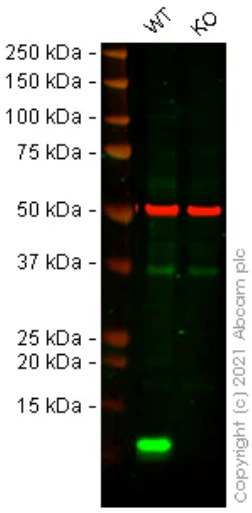
Lane 4:
Jurkat cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 14 kDa

Observed band size: 14 kDa



Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230)

Beta 2 Microglobulin Western blot staining using rabbit Anti-beta 2 Microglobulin antibody

False colour image of Western blot: Anti-beta 2 Microglobulin antibody [EPR21752-214] staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab218230 was shown to bind specifically to beta 2 Microglobulin. A band was observed at 12 kDa in wild-type HEK-293T cell lysates with no signal observed at this size in B2M knockout cell line ab266828 (knockout cell lysate ab256845). To generate this image, wild-type and B2M knockout HEK-293T cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution before incubation with primary antibodies overnight at 4°C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged.Secondary antibodies used were Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-beta 2 Microglobulin antibody [EPR21752-214] (ab218230) at 1/1000 dilution

Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
Western blot - Human B2M (beta 2 Microglobulin) knockout HEK-293T cell lysate (ab256845) at 20 µg

Performed under reducing conditions.

Predicted band size: 14 kDa

Observed band size: 12 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.