abcam

ab243556

Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR22042
Purification technique	Affinity purification Protein A
Concentration	1.051 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Rat
Dilution info	-
Notes	-

Expected

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

Target data

See full target information PSMB9

Function	The proteasome is a multicatalytic proteinase complex which is characterized by its ability to cleave peptides with Arg, Phe, Tyr, Leu, and Glu adjacent to the leaving group at neutral or slightly basic pH (PubMed:33727065, PubMed:34819510). The proteasome has an ATP-dependent proteolytic activity. This subunit is involved in antigen processing to generate class I binding peptides. Replacement of PSMB6 by PSMB9 increases the capacity of the immunoproteasome to cleave model peptides after hydrophobic and basic residues.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab243556 is the carrier-free version of ab242061.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	The proteasome LMP2 also known as proteasome subunit beta type-1 or PSMB9 is a component important in the functioning of the 20S proteasome complex. This molecular entity with a mass of approximately 23 kDa is predominantly expressed in immune cells including lymphocytes. LMP2 incorporates into the

	immunoproteasome a specialized variant of the proteasome that participates prominently in the processing of class I MHC peptides enhancing the immune response.
Biological function summary	LMP2 is integral to protein catabolism and regulation of the cellular protein homeostasis. As part of the larger proteasome complex the LMP2 protein functions in degradative pathways that recycle amino acids from ubiquitin-tagged proteins. This proteasome takes part in antigen processing helping convert proteins into peptides that are presented on the surface of cells for immune system recognition.
Pathways	LMP2 is significantly involved in the ubiquitin-proteasome pathway and immune system processes. It interacts with other immunoproteasome subunits like LMP7 and MECL-1 which work together to enhance the proteolytic capacity for antigen presentation. The presence of LMP2 in these pathways demonstrates its role in adaptive immunity contributing to the clearance of misfolded or damaged proteins and therefore maintaining cell health.
Associated diseases and disorders	LMP2 associates with immune-related conditions and some cancer types. Dysregulation of LMP2 expression or function can impact antigen presentation potentially leading to autoimmune disorders due to inappropriate immune activation. Moreover alterations in LMP2 expression have been observed in certain cancers such as melanoma where it affects proteasome activity and influences tumor progression. In these contexts interactions with proteins like TAP1 and TAP2 which aid in peptide transport mark its relevance in disease pathogenesis.

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

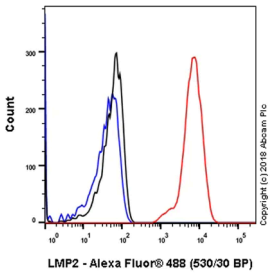
We do not recommend this combination. It is not covered by our product promise.

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.

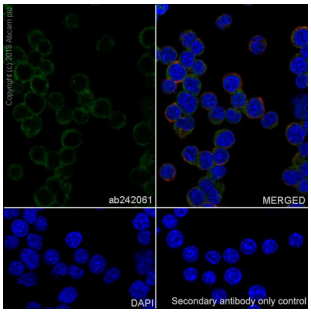
11 product images



Flow Cytometry (Intracellular) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Flow Cytometry (Intracellular) staining using rabbit Anti-Proteasome 20S LMP2 antibody

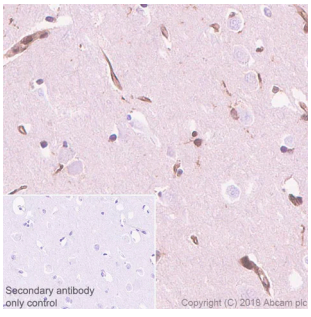
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized Ramos (Human Burkitt's lymphoma B lymphocyte) cell line labeling Proteasome 20S LMP2 with ab242061 at 1/500 (red) compared with a Rabbit monoclonal IgG (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Immunocytochemistry/ Immunofluorescence - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Proteasome 20S LMP2 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized Ramos (Human Burkitt's lymphoma B lymphocyte) cells labeling Proteasome 20S LMP2 with ab242061 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and weakly nuclear staining in Ramos cells. The nuclear counter stain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
The negative control is the secondary antibody only.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).

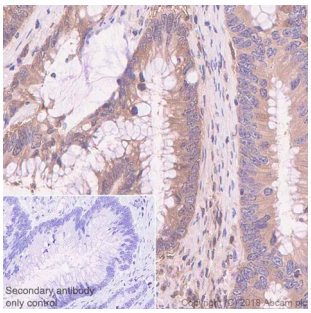


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP2 antibody

Immunohistochemical analysis of paraffin-embedded human cerebrum tissue labeling Proteasome 20S LMP2 with ab242061 at 1/2000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic and nuclear staining in human cerebrum (PMID:20174631) is observed. Counterstained 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).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).This data was

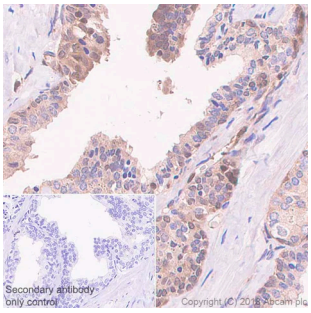
developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP2 antibody

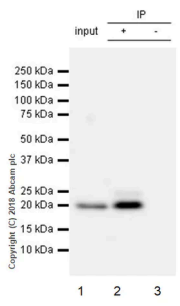
Immunohistochemical analysis of paraffin-embedded human colon cancer tissue labeling Proteasome 20S LMP2 with ab242061 at 1/2000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic and nuclear staining in human colon cancer (PMID:24040045) is observed. Counterstained with 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).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP2 antibody

Immunohistochemical analysis of paraffin-embedded human prostatic hyperplasia tissue labeling Proteasome 20S LMP2 with ab242061 at 1/2000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic and nuclear staining in human prostatic hyperplasia (PMID:22677907) is observed. Counterstained 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).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



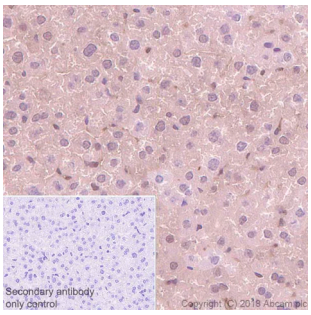
Immunoprecipitation - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 was immunoprecipitated from 0.35 mg THP-1 (Human monocytic leukemia monocyte) whole cell lysate with ab242061 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab242061 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
Lane 1: THP-1 whole cell lysate 10 µg (Input).
Lane 2: ab242061 IP in THP-1 whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab242061 in THP-1 whole cell lysate.
Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: 10 seconds.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).

All lanes:
Immunoprecipitation - Anti-Proteasome 20S LMP2 antibody [EPR22042] (ab242061)

Predicted band size: 23 kDa

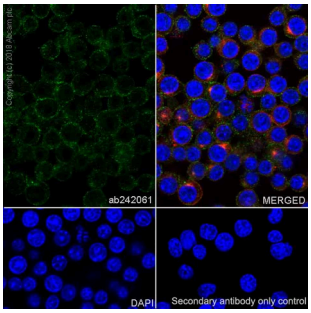
Observed band size: 21 kDa, 23 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP2 antibody

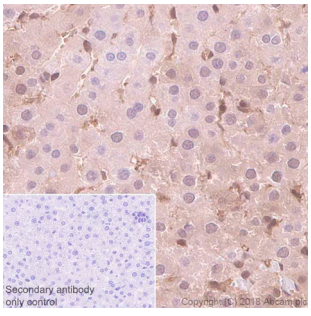
Immunohistochemical analysis of paraffin-embedded mouse liver tissue labeling Proteasome 20S LMP2 with ab242061 at 1/2000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic and nuclear staining in mouse liver (PMID:8365398) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Immunocytochemistry/ Immunofluorescence - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Proteasome 20S LMP2 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized RAW 264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) cells labeling Proteasome 20S LMP2 with ab242061 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and weakly nuclear staining in RAW 264.7 cells. The nuclear counter stain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
The negative control is the secondary antibody only.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).

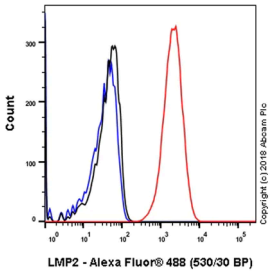


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP2 antibody

Immunohistochemical analysis of paraffin-embedded rat liver tissue labeling Proteasome 20S LMP2 with ab242061 at 1/2000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic and nuclear staining in rat liver (PMID:8365398) is observed. Counterstained 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).

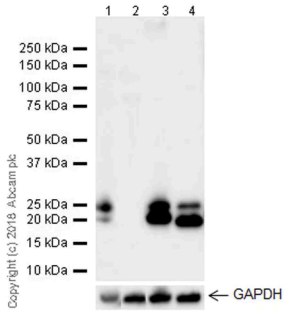
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Flow Cytometry (Intracellular) - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Flow Cytometry (Intracellular) staining using rabbit Anti-Proteasome 20S LMP2 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized RAW264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) cell line labeling Proteasome 20S LMP2 with ab242061 at 1/500 (red) compared with a Rabbit monoclonal IgG (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).



Western blot - Anti-Proteasome 20S LMP2 antibody [EPR22042] - BSA and Azide free (ab243556)

Proteasome 20S LMP2 Western blot staining using rabbit Anti-Proteasome 20S LMP2 antibody

ab242061 was shown to specifically react with Proteasome 20S LMP2 in wild-type HAP1 cells as signal was lost in Proteasome 20S LMP2 knockout cells. Wild-type and Proteasome 20S LMP2 knockout samples were subjected to SDS-PAGE. ab242061 and ab181602 (Rabbit anti-GAPDH loading control) were incubated 1 hour at room temperature at 1/1000 dilution and 1/200,000 dilution respectively. Blots were developed with Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) secondary antibody at 1/50,000 dilution for 1 hour at room temperature before imaging. The blot was developed on a BIO-RAD® ChemiDoc™ MP instrument using the ECL technique.
The expression profile observed is consistent with what has been described in the literature (PMID:22355695; PMID:15284441).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab242061).

All lanes:
Western blot - Anti-Proteasome 20S LMP2 antibody [EPR22042] (ab242061) at 1/1000 dilution

Lane 1:
Wild-type HAP1 at 40 µg

Lane 2:
Proteasome 20S LMP2 knockout HAP1 whole cell lysate at 40 µg

Lane 3:
Ramos (human Burkitt's lymphoma B lymphocyte), whole cell lysate at 20 µg

Lane 4:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate at 20 µg

Secondary

All lanes:

Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 23 kDa

Observed band size: 21 kDa, 23 kDa

Exposure time: 59s

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