abcam

ab180606

Anti-Proteasome 20S LMP7 antibody [EPR14482(B)]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR14482(B)
Purification technique	Affinity purification Protein A
Concentration	0.89 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/1700
Notes	**For unpurified use at 1/250 - 1/500.** Perform heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0)

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/90 - 1/150
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information PSMB8

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. The proteasome has an ATP-dependent proteolytic activity. This subunit is involved in antigen processing to generate class I binding peptides. Replacement of PSMB5 by PSMB8 increases the capacity of the immunoproteasome to cleave model peptides after hydrophobic and basic residues. Involved in the generation of spliced peptides resulting from the ligation of two separate proteasomal cleavage products that are not contiguous in the parental protein (PubMed:27049119). Acts as a major component of interferon gamma-induced sensitivity. Plays a key role in apoptosis via the degradation of the apoptotic inhibitor MCL1. May be involved in the inflammatory response pathway. In cancer cells, substitution of isoform 1 (E2) by isoform 2 (E1) results in immunoproteasome deficiency. Required for the differentiation of preadipocytes into adipocytes.

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

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.

Supplementary info

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

Activity summary	Proteasome 20S LMP7 also known as β5i or PSMB8 is a subunit of the immunoproteasome. It weighs about 23 kDa and it is expressed predominantly in immune cells such as lymphocytes and macrophages. LMP7 is part of the proteasome 20S a cylindrical core particle involved in the degradation of ubiquitinated proteins. This process helps maintain protein homeostasis by breaking down misfolded and damaged proteins.
Biological function summary	The immunoproteasome in which LMP7 is an essential component plays an important role in the adaptive immune system. It influences the generation of antigenic peptides that are presented on MHC class I molecules. LMP7's expression is increased during immune responses particularly following gamma interferon (IFN-γ) stimulation contributing to the immune-mediated proteasome conformation. The immunoproteasome enables more efficient peptide processing enhancing antigen presentation to cytotoxic T lymphocytes.
Pathways	LMP7 is involved in the MHC class I antigen presentation pathway. This pathway allows the immune system to detect and respond to intracellular pathogens such as viruses. Additionally LMP7 interacts with TAP (Transporter associated with Antigen Processing) and other proteasome subunits to ensure effective peptide processing for loading onto MHC class I molecules. Through this involvement it closely links to immune signaling and cellular stress responses.
Associated diseases and disorders	Research shows that LMP7 connects to autoimmune diseases and inflammatory disorders such as lupus and rheumatoid arthritis. Dysregulation of LMP7 expression or activity can lead to improper immune responses contributing to disease pathogenesis. Furthermore LMP7 impacts the degradation of specific proteins relevant to these conditions. For example it works alongside other proteasome subunits like LMP2 and MECL-1 in modulating the inflammatory response which can exacerbate autoimmune disease symptoms.

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

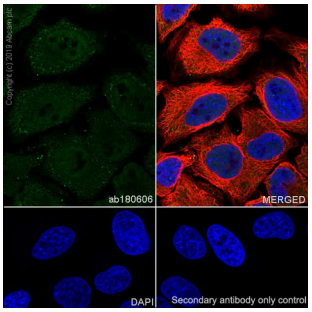
We do not recommend this combination. It is not covered by our product promise.

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.

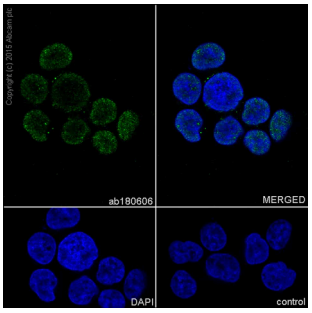
10 product images



Immunocytochemistry/ Immunofluorescence - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Proteasome 20S LMP7 antibody

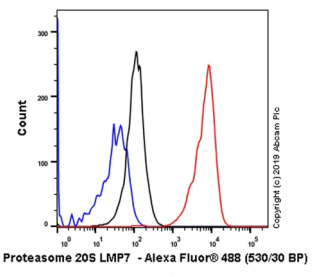
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Proteasome 20S LMP7 with purified ab180606 at 1:100 dilution (8.9 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunocytochemistry/ Immunofluorescence - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Proteasome 20S LMP7 antibody

ab180606 (unpurified) staining Proteasome 20S LMP7 in Jurkat (human acute T cell leukemia) cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with 4% PFA and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/500. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a dilution of 1/1000. DAPI was used as a nuclear counterstain.
Negative control: PBS only.

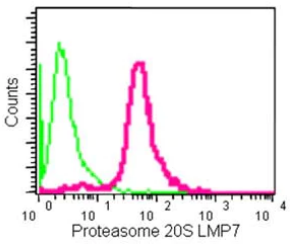


Flow Cytometry (Intracellular) - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Flow Cytometry (Intracellular) staining using rabbit Anti-Proteasome 20S LMP7 antibody

Intracellular Flow Cytometry analysis of Raji (Human Burkitt's lymphoma B lymphocyte) cells labeling Proteasome 20S LMP7 with purified ab180606 at 1/90 dilution (10 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit

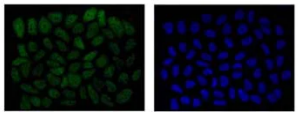
monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Flow Cytometry (Intracellular) - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Flow Cytometry (Intracellular) staining using rabbit Anti-Proteasome 20S LMP7 antibody

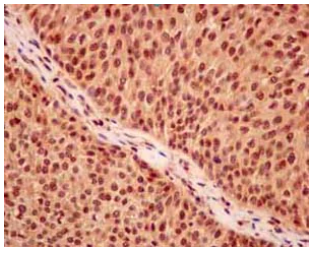
Intracellular flow cytometric analysis of 2% paraformaldehyde-fixedJurkat (Human T cell leukemia cell line from peripheral blood) cells labeling Proteasome 20S LMP7 with ab180606 (unpurified) at 1/150 dilution (red) compared to a Rabbit monoclonal IgG Isotype control (green), followed byGoat anti rabbit IgG (FITC) secondary antibody at 1/150 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Proteasome 20S LMP7 antibody

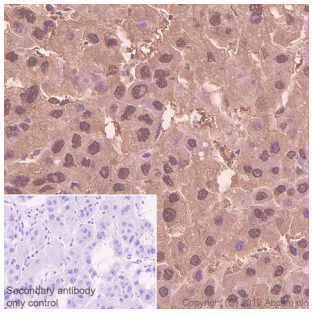
Immunofluorecenct analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Proteasome 20S LMP7 with ab180606 (unpurified) at 1/100 dilution, followed by Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody at 1/200 dilution (left panel). DAPI staining (right panel).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP7 antibody

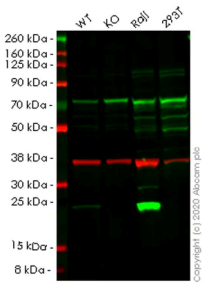
Immunohistochemical analysis of paraffin-embedded human bladder transitional cell carcinoma tissue labeling Proteasome 20S LMP7 with ab180606 (unpurified) at 1/500 dilution, followed by prediluted ImmunoHistoprobe (Ready to use) HRP Polymer for Rabbit IgG. Counterstained with hematoxylin.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Proteasome 20S LMP7 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human gastric carcinoma tissue sections labeling Proteasome 20S LMP7 with purified ab180606 at 1/1700 dilution (0.52 µg/ml). Heat mediated antigen retrieval was performed using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Western blot - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Western blot staining using rabbit Anti-Proteasome 20S LMP7 antibody

Lanes 1-4: Merged signal (red and green). Green - ab180606 observed at 23 kDa. Red - loading control ab8245 observed at 36 kDa.
ab180606 Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] was shown to specifically react with Proteasome 20S LMP7 in wild-type A549 cells. Loss of signal was observed when knockout cell line ab267149 (knockout cell lysate ab257130) was used. Wild-type and Proteasome 20S LMP7 knockout samples were subjected to SDS-PAGE. ab180606 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated at room temperature for 2.5 hours at 1 in 1000 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-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606) at 1/1000 dilution

Lane 1:
Wild-type A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

Lane 2:
Western blot - Human PSMB8 (Proteasome 20S LMP7) knockout A549 cell lysate (ab257130) at 20 µg

Lane 3:
Raji (Human Burkitt's lymphoma cell line) whole cell lysate at 20 µg

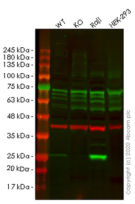
Lane 4:
HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Secondary

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

Predicted band size: 30 kDa

Observed band size: 23 kDa



Western blot - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

Proteasome 20S LMP7 Western blot staining using rabbit Anti-Proteasome 20S LMP7 antibody

Lanes 1-4: Merged signal (red and green). Green - ab180606 observed at 23 kDa. Red - loading control ab8245 observed at 36 kDa.
ab180606 Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] was shown to specifically react with Proteasome 20S LMP7 in wild-type A549 cells. Loss of signal was observed when knockout cell line ab267148 (knockout cell lysate ab257129) was used. Wild-type and Proteasome 20S LMP7 knockout samples were subjected to SDS-PAGE. ab180606 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 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-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606) at 1/1000 dilution

Lane 1:
Wild-type A549 cell lysate at 20 µg

Lane 2:
PSMB8 knockout A549 cell lysate at 20 µg

Lane 2:
Western blot - Human PSMB8 (Proteasome 20S LMP7) knockout A549 cell line (ab267148)

Lane 3:
Raji cell lysate at 20 µg

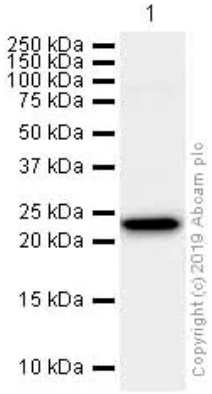
Lane 4:
HEK-293 cell lysate at 20 µg

Secondary

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

Predicted band size: 30 kDa

Observed band size: 23 kDa



Western blot - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606)

All lanes:
Western blot - Anti-Proteasome 20S LMP7 antibody [EPR14482(B)] (ab180606) at 1/10000 dilution

All lanes:
Raji (Human Burkitt's lymphoma B lymphocyte) whole cell lysates at 15 µg

Secondary

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

Predicted band size: 30 kDa

Observed band size: 23 kDa

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