abcam

ab289888

Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric)

Recombinant | 20ul selling size

Key facts

Isotype	IgG2a
Host species	Rat
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	EPR8260
Purification technique	Ion exchange chromatography
Concentration	0.875 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Target data

See full target information GZMB

Function	Abundant protease in the cytosolic granules of cytotoxic T-cells and NK-cells which activates caspase-independent pyroptosis when delivered into the target cell through the immunological synapse (PubMed:1985927, PubMed:3262682, PubMed:3263427). It cleaves after Asp (PubMed:1985927, PubMed:8258716). Once delivered into the target cell, acts by catalyzing cleavage of gasdermin-E (GSDME), releasing the pore-forming moiety of GSDME, thereby triggering pyroptosis and target cell death (PubMed:31953257, PubMed:32188940). Seems to be linked to an activation cascade of caspases (aspartate-specific cysteine proteases) responsible for apoptosis execution. Cleaves caspase-3, -9 and -10 (CASP3, CASP9 and CASP10, respectively) to give rise to active enzymes mediating apoptosis (PubMed:9852092). Cleaves and activates CASP7 in response to bacterial infection, promoting plasma membrane repair (By similarity).

Storage

Shipped at conditions	Blue Ice
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

This rat monoclonal chimeric antibody has been engineered from a RabMAb parent antibody (ab134933). By necessity, some rabbit sequence is retained as part of the variable domain. When multiplexing with other rabbit-derived antibodies, using cross absorbed Fc-reactive secondary antibodies are recommended.
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	Granzyme B also known as GZMB GB11 or granzyme B protein is a serine protease with a molecular mass of approximately 32 kDa. It is expressed mainly in cytotoxic T lymphocytes and natural killer (NK) cells. This enzyme plays a mechanical role in inducing apoptosis in target cells serving as an effector protein in the immune system's defense against virally infected cells or transformed cancer cells. The activity of granzyme B relies on its ability to cleave after aspartate residues in substrate proteins leading to the activation of apoptotic pathways.
Biological function summary	Granzyme B participates prominently in the immune response by activating caspases particularly caspase-3 which promotes the breakdown of cellular components necessary for apoptosis. Granzyme B does not function in isolation but acts in concert with other immune system factors such as perforin to effectively induce cell death. Perforin creates pores in the target cell membrane allowing granzyme B to enter and instigate the apoptosis sequence. The enzyme also contributes to the processing of cytokines which enhances the immune response further.
Pathways	Studies have determined that granzyme B is critical in the apoptosis pathway particularly in the granule exocytosis pathway. It closely interacts with proteins such as perforin and other granzymes to mediate apoptosis in target cells. Granzyme B also plays a role in the inflammatory response and can influence pathways associated with cytotoxic T cell signaling. Its pathway interactions ensure effective elimination of damaged or infected cells maintaining tissue homeostasis.

Associated diseases and disorders	Granzyme B has associations with autoimmune diseases and cancer. Abnormally high levels of granzyme B can contribute to tissue damage and inflammation in autoimmune conditions like rheumatoid arthritis. In the context of cancer granzyme B aids in tumor surveillance and destruction when functioning correctly but impaired granzyme B activity can lead to evasion of immune detection by cancerous cells. Perforin also plays a role in these conditions closely working with granzyme B to either protect against or drive disease progression.

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

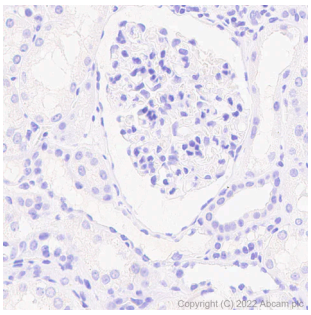
We do not recommend this combination. It is not covered by our product promise.

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.

4 product images



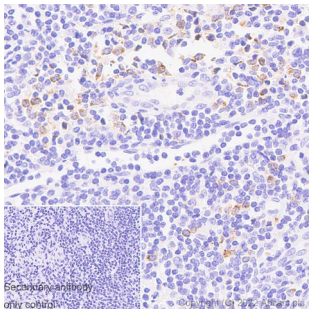
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric) (ab289888)

Granzyme B Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Granzyme B antibody

Immunohistochemical analysis of paraffin-embedded human kidney tissue labeling Granzyme B with ab289888 at 1/100 dilution, followed by ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). **Negative control:** no staining on the glomerulus and tubule epithelia in human kidney (PMID: 28900605).

The section was incubated with ab289888 for 30 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin.

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins was used.



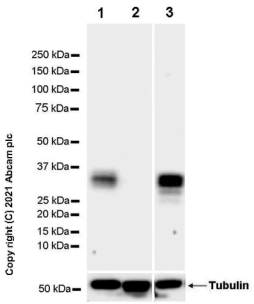
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric) (ab289888)

Granzyme B Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Granzyme B antibody

Immunohistochemical analysis of paraffin-embedded human tonsil tissue labeling Granzyme B with ab289888 at 1/100 dilution, followed by ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Positive staining on human tonsil.
The section was incubated with ab289888 for 30 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counter stained with Hematoxylin.

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins was used.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is LeicaDS9800 (Bond™ Polymer Refine Detection).



Western blot - Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric) (ab289888)

Granzyme B Western blot staining using rat Anti-Granzyme B antibody

Negative control: Jurkat (PMID:18437383, 25168906
5% NFDM/TBST was used as a blocking and diluting buffer.

All lanes:
Western blot - Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric) (ab289888) at 1/1000 dilution

Lane 1:
KARPAS-299 (human anaplastic large cell lymphoma), whole cell lysate at 20 µg

Lane 2:
Jurkat (human T cell leukemia T lymphocyte), whole cell lysate at 20 µg

Lane 3:
SR (human pleural effusion lymphoblast), whole cell lysate at 20 µg

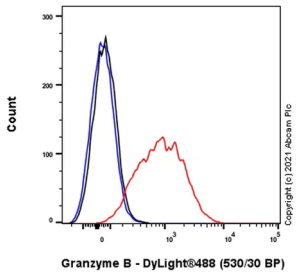
Secondary

All lanes:
Western blot - Goat Anti-Rat IgG H&L (HRP) (ab205720) at 1/5000 dilution

Predicted band size: 28 kDa

Observed band size: 28 kDa

Exposure time: 48s



Flow Cytometry (Intracellular) - Anti-Granzyme B antibody [EPR8260] - Rat IgG2a (Chimeric) (ab289888)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized No-GFP-CD16.NK-92 (Human peripheral blood malignant non-Hodgkin's lymphoma cell line) cells labelling Granzyme B with ab289888 at 1/50 dilution (Red) compared with a Mouse monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rat IgG Fc (DyLight 488, ab96971) at 1/2000 dilution was used as the secondary antibody.

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