abcam

ab321992

Anti-Granzyme A antibody [EPR29034-79]

Recombinant | RabMAb

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	EPR29034-79
Purification technique	Affinity purification Protein A
Concentration	0.495 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Transfected cell line - Human
Dilution info	1/50
Notes	-

Species	Human

Dilution info	1/50 - 1/500
Notes	-

Not recommended

Species	Mouse
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Transfected cell line - Human
Dilution info	-
Notes	-

WB

Not recommended

Species	Human, Mouse, Transfected cell line - Human
Dilution info	-
Notes	-

Target data

See full target information GZMA

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:12819770, PubMed:32299851,

PubMed:3257574, PubMed:3262682, PubMed:3263427). It cleaves after Lys or Arg (PubMed:12819770, PubMed:32299851). Once delivered into the target cell, acts by catalyzing cleavage of gasdermin-B (GSDMB), releasing the pore-forming moiety of GSDMB, thereby triggering pyroptosis and target cell death (PubMed:32299851, PubMed:34022140, PubMed:36157507, PubMed:36899106). Cleaves APEX1 after 'Lys-31' and destroys its oxidative repair activity (PubMed:12524539). Cleaves the nucleosome assembly protein SET after 'Lys-189', which disrupts its nucleosome assembly activity and allows the SET complex to translocate into the nucleus to nick and degrade the DNA (PubMed:11555662, PubMed:12628186, PubMed:16818237).

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	Granzyme A also known as CTLA3 or GZMA is a serine protease with a role in immune cell-mediated cytotoxicity. It has a molecular weight of approximately 27 kDa. This protein is primarily expressed in the granules of cytotoxic T lymphocytes (CTLs) and natural killer (NK) cells. Granzyme A gets released into the immunological synapse upon recognition of target cells by these immune cells facilitating the induction of target cell death.
Biological function summary	Functions of Granzyme A extend to inducing apoptosis in target cells alongside its role in promoting inflammation. It operates independent of caspases and directly cleaves substrates in the cell to induce cell death making it different from the related Granzyme B. As part of the granzyme-perforin complex it enters target cells via perforin-created pores mediates reactions leading to substrate degradation and promotes DNA damage.
Pathways	Granzyme A gets involved in the granule exocytosis pathway which constitutes an important mechanism for CTLs and NK cells to kill infected or cancerous cells. The protein is also linked to the inflammatory response pathways where it can interact with other serine proteases. Related proteins like perforin and Granzyme B also engage in these pathways and they collectively work to trigger apoptosis and modulate immune responses.
Associated diseases and disorders	Impairments or dysregulation of Granzyme A function can contribute to autoimmune diseases and certain viral infections. Autoimmune diseases such as lupus may demonstrate altered levels or activity of Granzyme A associated with tissue damage and inflammation. During viral infections Granzyme A in conjunction with perforin and Granzyme B aids in eliminating infected cells but alterations in this balance could lead to ineffective immune responses or excessive tissue damage.

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

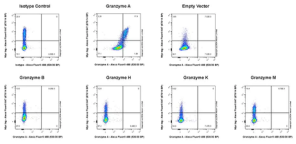
We do not recommend this combination. It is not covered by our product promise.

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.

7 product images



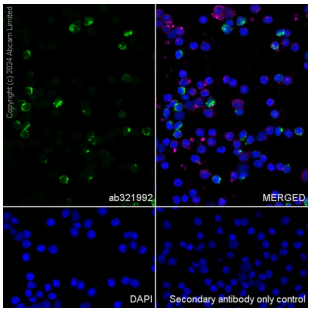
Flow Cytometry (Intracellular) - Anti-Granzyme A antibody [EPR29034-79] (ab321992)

Granzyme A Flow Cytometry (Intracellular) staining using rabbit Anti-Granzyme A antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Isotype (Upper Left) / 293T (human embryonic kidney epithelial cell) transfected with an Granzyme A expression vector containing a myc-His-tag® (Upper Middle) / 293T cells transfected with an empty expression vector containing a myc-His-tag® (Upper Right) / 293T cells transfected with homologous human Granzyme expression vector (GrzmB, GrzmH, GrzmK, GrzmM) containing a myc-His-tag® (Lower). cells labelling Granzyme A with ab321992 at 1/50 dilution (1ug) compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody).

Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Cells were first stained with rabbit IgG or ab321992. After fixation and permeability, cells stained with anti-myc tag conjugated to Alexa Fluor® 647.
Crossreactivity with protein Granzyme B, Granzyme H, Granzyme K, Granzyme M were fully tested.



Immunocytochemistry/ Immunofluorescence - Anti-Granzyme A antibody [EPR29034-79] (ab321992)

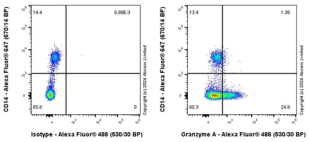
Granzyme A Immunocytochemistry/ Immunofluorescence staining of Human PBMC (human peripheral blood mononuclear cell) using rabbit Anti-Granzyme A antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Human PBMC (human peripheral blood mononuclear cell) cells labelling Granzyme A with ab321992 at 1/500 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/ab150081 1000 dilution (Green).

Confocal image showing cytoplasmic staining in a subset of human PBMC (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/ab195889 200 dilution (Magenta). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/ab150081 1000 dilution.



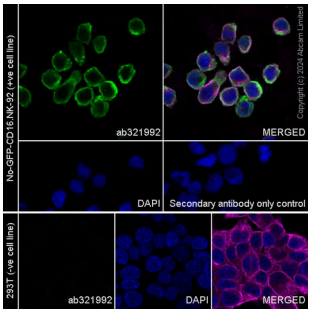
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Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Human PBMC (human peripheral blood mononuclear cell) cells labelling Granzyme A with ab321992 at 1/50 dilution (1ug) / Right compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody).

Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Cells were co-stained with anti human CD14 conjugated to Pacific blue.



Immunocytochemistry/ Immunofluorescence - Anti-Granzyme A antibody [EPR29034-79] (ab321992)

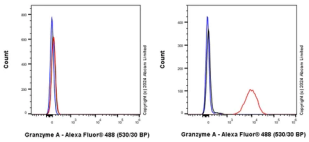
Granzyme A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Granzyme A antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) cells labelling Granzyme A with ab321992 at 1/500 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/ab150081 1000 dilution (Green).

Confocal image showing cytoplasmic staining in No-GFP-CD16.NK-92 cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue).
Negative control: 293T
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

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Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/ab150081 1000 dilution.



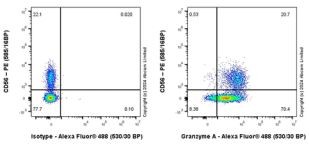
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Granzyme A Flow Cytometry (Intracellular) staining using rabbit Anti-Granzyme A antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) (Right) / 293T (human embryonic kidney epithelial cell) (Left) cells labelling Granzyme A with ab321992 at 1/500 dilution (0.01ug) / Right compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody).

Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Negative control: 293T.



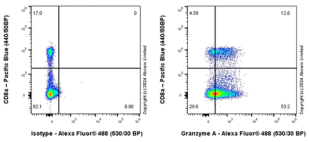
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Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Human PBMC (human peripheral blood mononuclear cell) cells labelling Granzyme A with ab321992 at 1/50 dilution (1ug) / Right compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody).

Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Cells were co-stained with anti human CD56 conjugated to PE.



Flow Cytometry (Intracellular) - Anti-Granzyme A antibody [EPR29034-79] (ab321992)

Granzyme A Flow Cytometry (Intracellular) staining of Human PBMC (human peripheral blood mononuclear cell) using rabbit Anti-Granzyme A antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Human PBMC (human peripheral blood mononuclear cell) cells labelling Granzyme A with ab321992 at 1/50 dilution (1ug) / Right compared with a Rabbit monoclonal IgG (ab172730) / Left isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody).

Goat anti-Rabbit IgG (Alexa Fluor® 647, ab150083) at 1/5000 dilution was used as the secondary antibody.

Cells were co-stained with anti human CD8a conjugated to Pacific blue.

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