abcam

ab246713

PE Anti-GSDMD antibody [EPR20859]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR20859
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/250

Notes	The cellular localisation of this product has been verified in ICC/IF.

Expected

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

ICC/IF

Expected

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

IHC-P

Expected

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

Target data

See full target information Gsdmd

Function	Gasdermin-D. Precursor of a pore-forming protein that plays a key role in host defense against pathogen infection and danger signals (PubMed:26375003, PubMed:26375259, PubMed:26611636, PubMed:27383986, PubMed:27385778, PubMed:27418190). This form constitutes the precursor of the pore-forming protein: upon cleavage, the released N-terminal moiety (Gasdermin-D, N-terminal) binds to membranes and forms pores, triggering pyroptosis (PubMed:26375003, PubMed:26375259, PubMed:26611636, PubMed:27383986, PubMed:27385778, PubMed:27418190). Gasdermin-D, N-terminal. Promotes pyroptosis in response to microbial infection and danger signals (PubMed:26375003, PubMed:26375259, PubMed:26611636, PubMed:27383986, PubMed:27385778, PubMed:27418190, PubMed:32820063, PubMed:34289345, PubMed:35705808, PubMed:37988464, PubMed:38530158, PubMed:38538834, PubMed:38632402). Produced by the cleavage of gasdermin-D by inflammatory caspases CASP1 or CASP4/CASP11 in response to canonical, as well as non-canonical (such as cytosolic LPS)

inflammasome activators (PubMed:26375003, PubMed:26375259, PubMed:26611636, PubMed:27383986, PubMed:27385778, PubMed:27418190, PubMed:35705808, PubMed:38632402). After cleavage, moves to the plasma membrane where it strongly binds to inner leaflet lipids, including monophosphorylated phosphatidylinositols, such as phosphatidylinositol 4-phosphate, bisphosphorylated phosphatidylinositols, such as phosphatidylinositol (4,5)-bisphosphate, as well as phosphatidylinositol (3,4,5)-bisphosphate, and more weakly to phosphatidic acid and phosphatidylserine (PubMed:27339137, PubMed:27383986). Homooligomerizes within the membrane and forms pores of 10-15 nanometers (nm) of inner diameter, allowing the release of mature interleukin-1 (IL1B and IL18) and triggering pyroptosis (PubMed:27383986, PubMed:29195811, PubMed:29274245, PubMed:33883744, PubMed:38530158, PubMed:38538834). Gasdermin pores also allow the release of mature caspase-7 (CASP7) (PubMed:35705808). In some, but not all, cells types, pyroptosis is followed by pyroptotic cell death, which is caused by downstream activation of ninjurin-1 (NINJ1), which mediates membrane rupture (cytolysis) (PubMed:38632402). Also forms pores in the mitochondrial membrane, resulting in release of mitochondrial DNA (mtDNA) into the cytosol (PubMed:37001519). Gasdermin-D, N-terminal released from pyroptotic cells into the extracellular milieu rapidly binds to and kills both Gram-negative and Gram-positive bacteria, without harming neighboring mammalian cells, as it does not disrupt the plasma membrane from the outside due to lipid-binding specificity (PubMed:27383986). Under cell culture conditions, also active against intracellular bacteria, such as Listeria monocytogenes (PubMed:27383986). Also active in response to MAP3K7/TAK1 inactivation by Yersinia toxin YopJ, which triggers cleavage by CASP8 and subsequent activation (PubMed:30361383, PubMed:30381458). Required for mucosal tissue defense against enteric pathogens (PubMed:37988464). Activation of the non-canonical inflammasome in brain endothelial cells can lead to excessive pyroptosis, leading to blood-brain barrier breakdown (PubMed:38632402). Strongly binds to bacterial and mitochondrial lipids, including cardiolipin. Does not bind to unphosphorylated phosphatidylinositol, phosphatidylethanolamine nor phosphatidylcholine (PubMed:27383986). Gasdermin-D, p13. Transcription coactivator produced by the cleavage by CASP3 or CASP7 in the upper small intestine in response to dietary antigens (PubMed:37327784). Required to maintain food tolerance in small intestine: translocates to the nucleus and acts as a coactivator for STAT1 to induce the transcription of CIITA and MHC class II molecules, which in turn induce type 1 regulatory T (Tr1) cells in upper small intestine (PubMed:37327784). Gasdermin-D, p40. Produced by the cleavage by papain allergen (PubMed:35794369). After cleavage, moves to the plasma membrane and homooligomerizes within the membrane and forms pores of 10-15 nanometers (nm) of inner diameter, allowing the specific release of mature interleukin-33 (IL33), promoting type 2 inflammatory immune response (PubMed:35749514, PubMed:35794369).

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	+4°C
Aliquoting information	Upon delivery aliquot
Storage information	Store in the dark

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	GSDMD also known as gasdermin D is a protein known for its role in pyroptosis a form of programmed cell death. Its molecular weight is approximately 53 kDa. Mechanically GSDMD operates by forming pores in cell membranes. These pores disrupt cellular homeostasis and eventually lead to cell lysis. GSDMD is mainly expressed in immune cells including macrophages and neutrophils. Researchers frequently use GSDMD Western blot and GSDMD ELISA for its detection and quantification in various studies.
Biological function summary	Gasdermin D functions in the execution of immune responses against infections. It acts as an effector molecule that participates directly in pyroptosis by disrupting mitochondrial membranes. GSDMD operates as part of a larger inflammasome complex initiated by inflammatory signals. The inflammasome activates inflammatory caspases that cleave GSDMD enabling its active form to execute pyroptosis. This process releases cytokines like IL-1β enhancing the inflammatory response.
Pathways	GSDMD is important in the pyroptosis pathway initiated by the inflammasome. This process involves Caspase-1 a protease responsible for cleaving pro-inflammatory cytokines and initiating pyroptosis. Another significant pathway includes NLRP3 inflammasome which acts upstream to activate Caspase-1 and

	subsequently GSDMD establishing the overall inflammatory response in the innate immune system. Through these pathways GSDMD interacts closely with proteins like IL-18 an essential inflammatory mediator.
Associated diseases and disorders	Gasdermin D has links to inflammatory diseases such as rheumatoid arthritis and sepsis. In rheumatoid arthritis the excessive activation of GSDMD leads to chronic joint inflammation mediated by activated immune cells. In sepsis over-activation of the pyroptosis pathway may cause severe systemic inflammation driven by GSDMD activity exacerbating cytokine release. Connections exist between GSDMD and other proteins such as Caspase-11 which can also initiate GSDMD cleavage independently and has roles in non-canonical inflammasome pathways influencing 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

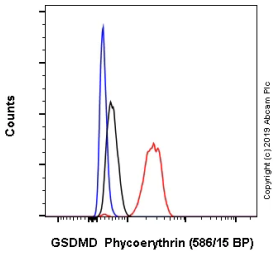
We do not recommend this combination. It is not covered by our product promise.

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.

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1 product image



Flow Cytometry (Intracellular) - PE Anti-GSDMD antibody [EPR20859] (ab246713)

GSDMD Flow Cytometry (Intracellular) staining using rabbit Anti-GSDMD antibody

Overlay histogram showing RAW 264.7 cells stained with ab246713 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal Goat serum to block non-specific protein-protein interactions followed by the antibody (ab246713) (1x 10^6 cells in 100 µl at 2 µg/ml (1/250 dilution)) for 30 min at 22°C.
Isotype control antibody (black line) was Rabbit IgG (monoclonal) Phycoerythrin (ab209478) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 50 mW Yellow/Green laser (561nm) and 586/15 bandpass filter.

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