abcam

ab251496

Anti-Prothrombin antibody [EPR20159] - BSA and Azide free

Recombinant | RabMAb

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	EPR20159
Purification technique	Affinity purification Protein A
Concentration	1.028 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information F2

Function	Thrombin, which cleaves bonds after Arg and Lys, converts fibrinogen to fibrin and activates factors V, VII, VIII, XIII, and, in complex with thrombomodulin, protein C. Functions in blood homeostasis, inflammation and wound healing. Activates coagulation factor XI (F11); activation is promoted by the contact with negatively charged surfaces (PubMed:2019570, PubMed:21976677). Triggers the production of pro-inflammatory cytokines, such as MCP-1/CCL2 and IL8/CXCL8, in endothelial cells (PubMed:30568593, PubMed:9780208).

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

ab251496 is the carrier-free version of ab208589.

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	Prothrombin also known as coagulation factor II is an important protein in blood clotting with an approximate mass of 72 kDa. This protein is synthesized in the liver and is expressed mainly in the plasma as an inactive precursor of thrombin. Prothrombin plays a pivotal role in the conversion into active thrombin through factor X activation in the presence of ionized calcium and phospholipid surfaces. Thrombin then further acts to convert fibrinogen into fibrin leading to clot

	formation. Prothrombin also can interact with various cellular receptors influencing other pathways beyond coagulation.
Biological function summary	Prothrombin regulates hemostasis and is part of the prothrombinase complex along with factor Xa factor Va calcium ions and phospholipids. This complex allows for the precise regulation of thrombin generation on the surface of activated platelets. By controlling the formation of thrombin prothrombin affects not only blood coagulation but also influences cell proliferation inflammation and tissue repair. The careful balance of prothrombin activation is important to prevent excessive bleeding or clot formation.
Pathways	Prothrombin is an essential component of the coagulation cascade especially the intrinsic and extrinsic coagulation pathways. In these pathways it links with proteins such as fibrinogen and factor X contributing to the amplification and perpetuation of thrombin generation. Additionally thrombin produced from prothrombin engages in a feedback loop to further enhance factor V VIII and XI activation. Through these actions prothrombin helps maintain normal coagulation but must be tightly regulated to prevent thrombotic complications.
Associated diseases and disorders	Prothrombin is implicated in conditions like prothrombin thrombophilia and liver disease. Prothrombin thrombophilia is a genetic disorder that increases the risk for venous thromboembolism due to the presence of the G20210A mutation in the prothrombin gene. Moreover impaired prothrombin synthesis can occur as a result of liver disease leading to a higher bleeding risk. In thrombotic conditions proteins like protein C and antithrombin work to combat excessive prothrombin-generated thrombin underlining the necessity for balance and regulation in hemostatic processes.

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

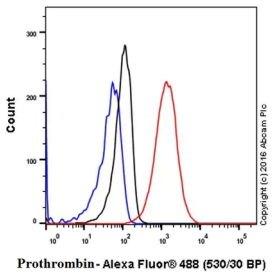
We do not recommend this combination. It is not covered by our product promise.

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.

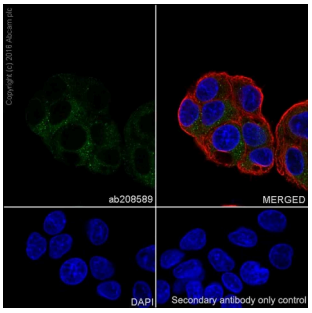
5 product images



Flow Cytometry (Intracellular) - Anti-Prothrombin antibody [EPR20159] - BSA and Azide free (ab251496)

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

This data was developed using ab208589, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HepG2 (Human liver hepatocellular carcinoma cell line) cells labeling Prothrombin with ab208589 at 1/600 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.



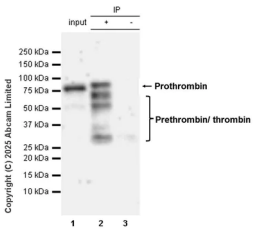
Immunocytochemistry/ Immunofluorescence - Anti-Prothrombin antibody [EPR20159] - BSA and Azide free (ab251496)

Prothrombin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Prothrombin antibody

This data was developed using ab208589, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HepG2 (Human liver hepatocellular carcinoma cell line) cells labeling Prothrombin with ab208589 at 1/100 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HepG2 cell line.

The nuclear counter stain is DAPI (blue). Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) at 1/1000 dilution.



Immunoprecipitation - Anti-Prothrombin antibody [EPR20159] - BSA and Azide free (ab251496)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab208589).
Prothrombin was immunoprecipitated from HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate with ab208589 at 1/50 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab208589 at 1/1000 dilution.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-Prothrombin antibody [EPR20159] (ab208589) at 1/1000 dilution

Lane 1:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate (Input) at 10 µg

Lane 2:
HepG2 whole cell lysate (+)

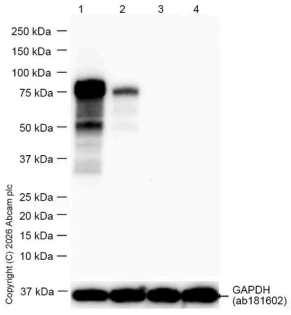
Lane 3:
Rabbit monoclonal IgG (ab172730) instead of ab208589 in HepG2 whole cell lysate (-)

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 33-72 kDa

Exposure time: 180s



Western blot - Anti-Prothrombin antibody [EPR20159] - BSA and Azide free (ab251496)

Prothrombin Western blot staining using rabbit Anti-Prothrombin antibody

This data was developed using ab208589, the same antibody clone in a different buffer formulation.

Low/negative samples: SW480 (PMID: 31324782), HeLa (PMID: 1463733).

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Prothrombin antibody [EPR20159] (ab208589) at 1/1000 dilution

Lane 1:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Caco-2 (human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

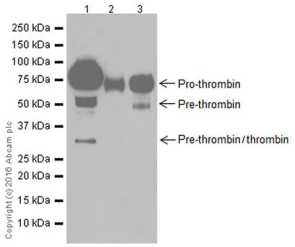
Lane 4:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

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

Observed band size: 72 kDa, 37 kDa

Exposure time: 20s



Western blot - Anti-Prothrombin antibody [EPR20159] - BSA and Azide free (ab251496)

Prothrombin Western blot staining using rabbit Anti-Prothrombin antibody

This data was developed using ab208589, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

Prothrombin is proteolytically cleaved into different fragments. The fragments profile is consistent with what has been described in the literature (PMID: 17637839; 21131592; 16734589).

All lanes:
Western blot - Anti-Prothrombin antibody [EPR20159] (ab208589) at 1/1000 dilution

Lane 1:
Human plasma at 20 µg

Lane 2:
Human fetal liver tissue lysate at 20 µg

Lane 3:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/4000 dilution

Predicted band size: 70 kDa

Observed band size: 33 kDa, 52 kDa, 72 kDa

Exposure time: 3min

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