abcam

ab109189

Anti-Thrombomodulin antibody [EPR4051]

Anti-Thrombomodulin antibody [EPR4051] (ab109189) is a rabbit monoclonal antibody detecting Thrombomodulin in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 10 publications

Recombinant | RabMAb | 20ul selling size

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	EPR4051
Purification technique	Affinity purification Protein A
Concentration	1.358 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	1/100 - 1/1000
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

IP

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/300
Notes	-

Flow Cyt (Intra)

Tested

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

Target data

See full target information THBD

Function	Endothelial cell receptor that plays a critical role in regulating several physiological processes including hemostasis, coagulation, fibrinolysis, inflammation, and angiogenesis (PubMed:10761923). Acts as a cofactor for thrombin activation of protein C/PROC on the surface of vascular endothelial cells leading to initiation of the activated protein C anticoagulant pathway (PubMed:29323190, PubMed:33836597, PubMed:9395524). Also accelerates the activation of the plasma carboxypeptidase B2/CPB2, which catalyzes removal of C-terminal basic amino acids from its substrates including kinins or anaphylatoxins leading to fibrinolysis inhibition (PubMed:26663133). Plays critical protective roles in changing the cleavage specificity of protease-activated receptor 1/PAR1, inhibiting endothelial cell permeability and inflammation (By similarity). Suppresses inflammation distinctly from its anticoagulant cofactor activity by sequestering HMGB1 thereby preventing it from engaging cellular receptors such as RAGE and contributing to the inflammatory response (PubMed:15841214).

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	Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-Thrombomodulin antibody [EPR4051] (ab109189) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Thrombomodulin?
Anti-Thrombomodulin [EPR4051] (ab109189) specifically detects a band for Thrombomodulin (UniProt: P07204) at a molecular weight of 60kDa.

Trusted by the scientific community
Anti-Thrombomodulin [EPR4051] (ab109189) was first used in a scientific publication in 2011 and has been cited over

10 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR4051] also available for your convenience: ab109189, Carrier free - ab222292, Carrier free - ab271880

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Thrombomodulin also known as CD141 is a glycoprotein with a mass of approximately 74 kDa. It is an integral membrane protein expressed on the surface of endothelial cells. Thrombomodulin acts mechanically by binding thrombin an enzyme involved in blood coagulation to modulate its activity. This binding substantially alters thrombin's substrate specificity turning it into an anticoagulant enzyme that activates protein C instead of a procoagulant enzyme.
Biological function summary	Thrombomodulin regulates blood coagulation and maintains hemostatic balance. It forms a complex with thrombin on endothelial cells facilitating the conversion of protein C to activated protein C (APC). Activated protein C plays a pivotal role in controlling blood clot formation by proteolytically inactivating Factors Va and VIIIa. This function is important for preventing excessive clotting while ensuring proper wound healing processes.
Pathways	Thrombomodulin works chiefly within the anticoagulation pathway. It interacts directly with the thrombin-protein C pathway to achieve the activation of protein C. Additionally it interfaces with other pathways sharing mutual components such as endothelial cell proliferation and inflammation modulation. Related proteins include thrombin and protein C along with protein S which serves as a cofactor for APC's anticoagulant actions.

Associated diseases and disorders	Thrombomodulin dysregulation can lead to thrombosis and vascular inflammation. A deficiency or altered expression of thrombomodulin has been linked to thromboembolic disorders and atherosclerosis. In these conditions improper activation of protein C in the presence of decreased thrombomodulin function can exacerbate clot formation. Monitoring the levels of proteins like thrombin and protein C within these diseases can provide insights into endothelial dysfunction and potential therapeutic approaches.

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

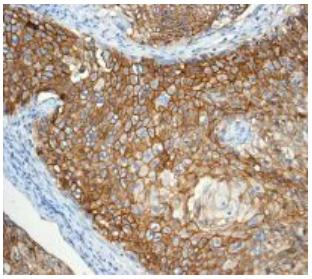
We do not recommend this combination. It is not covered by our product promise.

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.

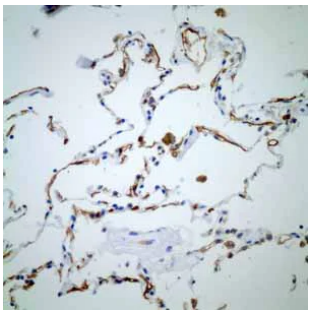
13 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

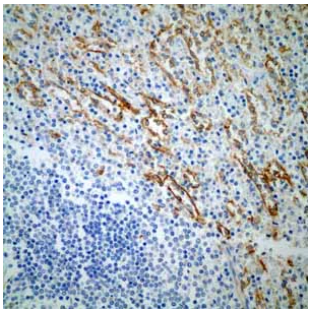
Unpurified ab109189 at 1/100 dilution staining Thrombomodulin in Human squamous cervical carcinoma tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

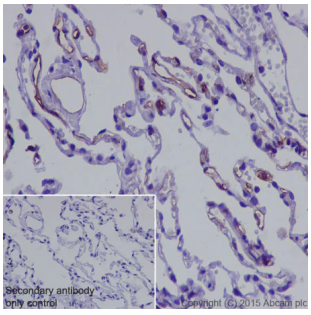
Immunohistochemical analysis of paraffin embedded normal Human lung tissue using unpurified ab109189 showing +ve staining.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

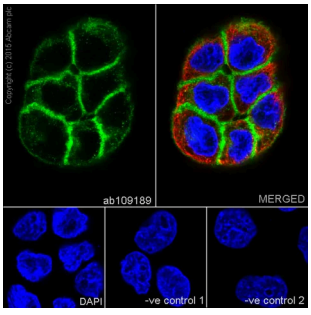
Immunohistochemical analysis of paraffin embedded normal Human spleen tissue using unpurified ab109189 showing +ve staining.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

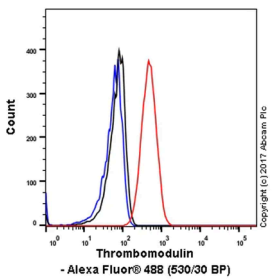
Immunohistochemical staining of paraffin embedded human lung with purified ab109189 at a working dilution of 1/1000. The secondary antibody used is HRP goat anti-rabbit IgG H&L (ab97051) at 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.



Immunocytochemistry/ Immunofluorescence - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Thrombomodulin antibody

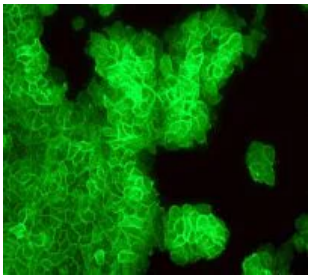
Immunofluorescence staining of A431 cells with purified ab109189 at a working dilution of 1/300 counter-stained with DAPI. The secondary antibody was Alexa Fluor® 488 goat anti-rabbit (ab150077) used at a dilution of 1/1000. ab7291 a mouse anti-tubulin antibody (1/1000) was used to stain tubulin along with ab150120 (Alexa Fluor® 594 goat anti-mouse 1/1000) shown in the top right hand panel. The cells were fixed in 4% PFA and permeabilized using 0.1% Triton X 100. The negative controls are shown in bottom middle and right hand panels - for negative control 1 purified ab109189 was used at a dilution of 1/500 followed by an Alexa Fluor® 594 goat anti-mouse antibody (ab150120) at a dilution of 1/500. For negative control 2 ab7291 (mouse anti-tubulin) was used at a dilution of 1/500 followed by an Alexa Fluor® 488 goat anti-rabbit antibody (ab150077) at a dilution of 1/400.



Flow Cytometry (Intracellular) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

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

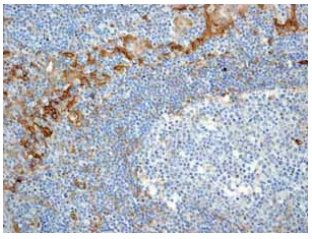
Intracellular Flow Cytometry analysis of A431 (human epidermoid carcinoma) cells labeling Thrombomodulin with purified ab109189 at 1/150 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) (1/2000 dilution) was used as the secondary antibody. Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.



Immunocytochemistry/ Immunofluorescence - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Thrombomodulin antibody

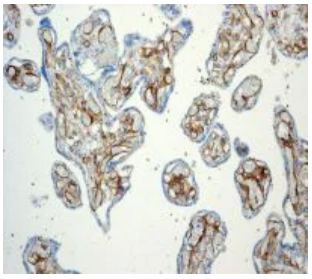
Unpurified ab109189 at 1/100 dilution staining Thombomodulin in A431 cells by Immunofluorescence.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

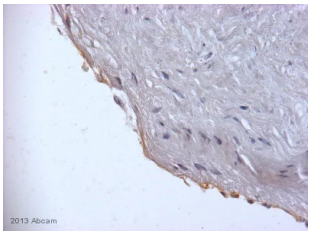
Immunohistochemical analysis of paraffin embedded normal Human tonsil tissue using unpurified ab109189 showing +ve staining.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

Unpurified ab109189 at 1/100 dilution staining Thrombomodulin in Human placenta tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

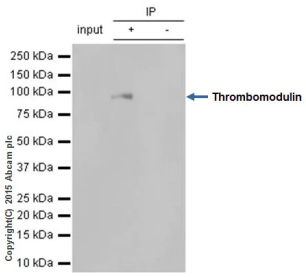


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thrombomodulin antibody

This image is courtesy of an anonymous customer review.

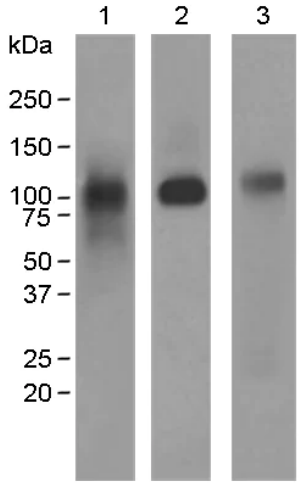
Unpurified ab109189 staining Thrombomodulin in Human artery tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 20% serum for 60 minutes at 21°C; antigen retrieval was by heat mediation in a citrate buffer. Samples were incubated with primary antibody (1/200) for 16 hours at 4°C. A Biotin-conjugated Goatanti-rabbit polyclonal (1/200) was used as the secondary antibody.



Immunoprecipitation - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

ab109189 (purified) at 1/90 immunoprecipitating thrombomodulin in 10 µg human placenta whole cell lysate (Lanes 1 and 2, observed at 100 kDa). Lane 3 - PBS. For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10,000 dilution. Blocking buffer and concentration: 5% NFDM/TBST Dilution buffer and concentration: 5% NFDM/TBST
All lanes:
Immunoprecipitation - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Predicted band size: 60 kDa



Western blot - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

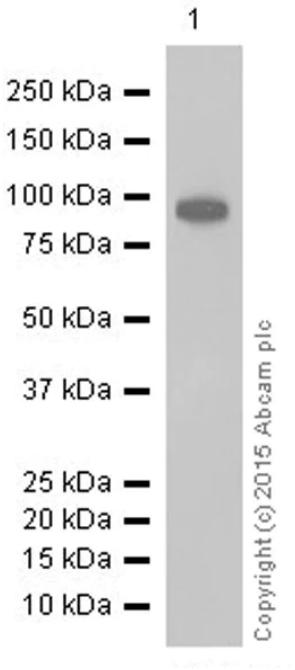
All lanes:
Western blot - Anti-Thrombomodulin antibody [EPR4051] (ab109189) at 1/1000 dilution

Lane 1:
THP-1 cell lysate at 10 µg

Lane 2:
Human placenta lysate at 10 µg

Lane 3:
Human heart lysate at 10 µg

Predicted band size: 60 kDa



Western blot - Anti-Thrombomodulin antibody [EPR4051] (ab109189)

Thrombomodulin Western blot staining of human placenta lysate using rabbit Anti-Thrombomodulin antibody

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Thrombomodulin antibody [EPR4051] (ab109189) at 1/10000 dilution

All lanes:
human placenta lysate at 10 µg

Secondary

All lanes:
HRP goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 60 kDa

Observed band size: 100 kDa

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