abcam

ab230152

# Anti-Thrombomodulin antibody [EPR18217-209] - 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** | EPR18217-209 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 1.021 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### IP

#### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |

| | |
|---|---|
| **Notes** | - |

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Expected

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

## IHC-Fr

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | Perform heat mediated antigen retrieval by using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20). |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | - |

## 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. 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. 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 (By similarity). Plays critical protective roles in changing the cleavage specificity of protease-activated receptor 1/PAR1, inhibiting endothelial cell permeability and inflammation (PubMed:38174561). 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 (By similarity). |

## 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

ab230152 is the carrier-free version of ab230010.

**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** | 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.

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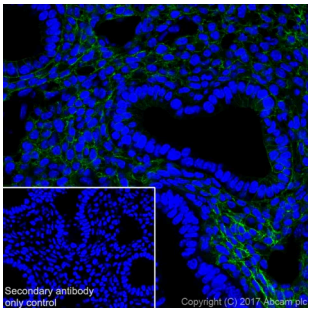
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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## 7 product images



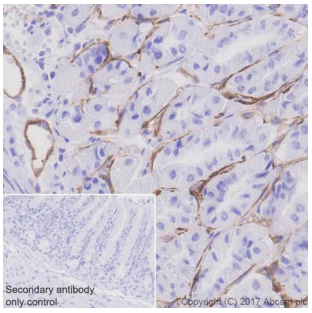

### Immunohistochemistry (Frozen sections) - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

Thrombomodulin Immunohistochemistry (Frozen sections) staining using rabbit Anti-Thrombomodulin antibody

Immunohistochemical analysis of 4% paraformaldehyde-fixed, 0.2% Triton X-100 permeabilized frozen mouse embryo E14.5 (developing lung) tissue labeling Thrombomodulin with ab230010 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/1000 dilution (green). Positive membrane staining in the developing lung in mouse E14.5 embryo (PMID: 28306049) is observed.
The nuclear counterstain is DAPI (blue).

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).



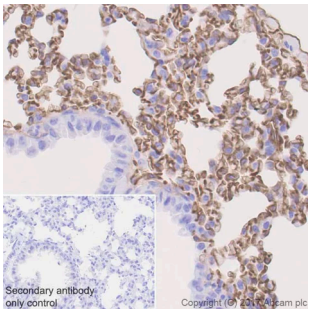

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

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

Immunohistochemical analysis of paraffin-embedded mouse stomach tissue labeling Thrombomodulin with ab230010 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Positive staining on endothelial cells of mouse stomach (PMID: 23946288; PMID: 10231031) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



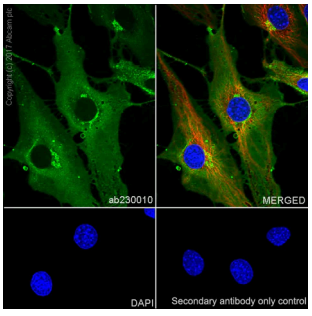

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

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

Immunohistochemical analysis of paraffin-embedded mouse lung tissue labeling Thrombomodulin with ab230010 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Positive staining on endothelial cells of mouse lung (PMID: 23946288; PMID: 10231031) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).

Heat mediated antigen retrieval was performed with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



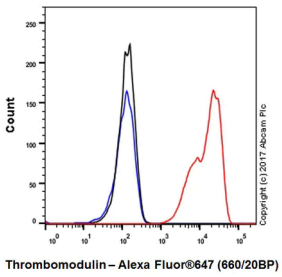

## Immunocytochemistry/ Immunofluorescence - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

Thrombomodulin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Thrombomodulin antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized bEND.3 (mouse brain endothelioma cell line) cells labeling Thrombomodulin with ab230010 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic and membranous staining in bEND.3 cell line (PMID: 7622601; PMID: 8223719).
The nuclear counterstain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).

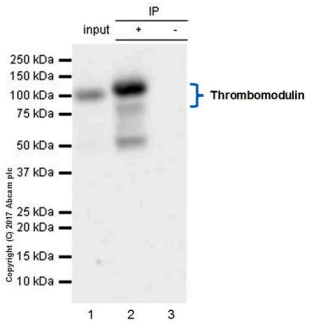



## Flow Cytometry - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

Thrombomodulin Flow Cytometry staining using rabbit Anti-Thrombomodulin antibody

Flow cytometric analysis of bEND.3 (mouse brain endothelioma cell line) cells labeling Thrombomodulin with ab230010 at 1/500 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2000 dilution was used as the secondary antibody.
Gated on total viable cells.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).




## Immunoprecipitation - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

Thrombomodulin was immunoprecipitated from 0.35 mg of mouse lung tissue lysate with ab230010 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab230010 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
**Lane 1:** Mouse lung tissue lysate 10 µg (Input).
**Lane 2:** ab230010 IP in mouse lung tissue lysate.
**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab230010 in mouse lung tissue lysate.

**Exposure time:** 10 seconds.

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

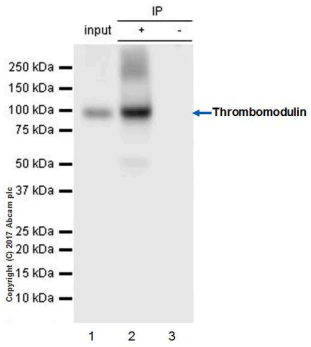
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).

All lanes:
Immunoprecipitation - Anti-Thrombomodulin antibody [EPR18217-209] (ab230010)

Developed using the ECL technique.

Predicted band size: 60 kDa

Observed band size: 105 kDa, 75 kDa




# Immunoprecipitation - Anti-Thrombomodulin antibody [EPR18217-209] - BSA and Azide free (ab230152)

Thrombomodulin was immunoprecipitated from 0.35 mg of bEND.3 (mouse brain endothelioma cell line) whole cell lysate with ab230010 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab230010 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
**Lane 1:** bEND.3 whole cell lysate 10 µg (Input).
**Lane 2:** ab230010 IP in bEND.3 whole cell lysate.
**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab230010 in bEND.3 whole cell lysate.

**Exposure time:** 10 seconds.

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

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab230010).

All lanes:
Immunoprecipitation - Anti-Thrombomodulin antibody [EPR18217-209] (ab230010)

Developed using the ECL technique.

Predicted band size: 60 kDa

Observed band size: 105 kDa

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