abcam

ab282118

Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR24705-45
Purification technique	Affinity purification Protein A
Concentration	1.045 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Rat, Mouse, Human
Dilution info	-
Notes	-

Target data

See full target information ACE2

Function Essential counter-regulatory carboxypeptidase of the renin-angiotensin hormone system that is a critical regulator of blood volume, systemic vascular resistance, and thus cardiovascular homeostasis (PubMed:27217402). Converts angiotensin I to angiotensin 1-9, a nine-amino acid peptide with anti-hypertrophic effects in cardiomyocytes, and angiotensin II to angiotensin 1-7, which then acts as a beneficial vasodilator and anti-proliferation agent, counterbalancing the actions of the vasoconstrictor angiotensin II (PubMed:10924499, PubMed:10969042,

PubMed:11815627, PubMed:14504186, PubMed:19021774). Also removes the C-terminal residue from three other vasoactive peptides, neurotensin, kinetensin, and des-Arg bradykinin, but is not active on bradykinin (PubMed:10969042, PubMed:11815627). Also cleaves other biological peptides, such as apelins (apelin-13, [Pyr1]apelin-13, apelin-17, apelin-36), casomorphins (beta-casomorphin-7, neocasomorphin) and dynorphin A with high efficiency (PubMed:11815627, PubMed:27217402, PubMed:28293165). In addition, ACE2 C-terminus is homologous to collectrin and is responsible for the trafficking of the neutral amino acid transporter SL6A19 to the plasma membrane of gut epithelial cells via direct interaction, regulating its expression on the cell surface and its catalytic activity (PubMed:18424768, PubMed:19185582). (Microbial infection) Acts as a receptor for human coronaviruses SARS-CoV and SARS-CoV-2, as well as human coronavirus NL63/HCoV-NL63. Isoform 2. Non-functional as a carboxypeptidase. Isoform 2. (Microbial infection) Non-functional as a receptor for human coronavirus SARS-CoV-2.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

ab282118 is the carrier-free version of ab272500.

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	The ACE2 protein also known as angiotensin-converting enzyme 2 is an essential component in the renin-angiotensin system. It functions mechanically by converting the hormone angiotensin II to angiotensin-(1-7) which helps regulate blood pressure and fluid balance. The molecular weight of ACE2 is approximately 120 kDa. This protein is expressed in various tissues particularly the lungs heart kidneys and gastrointestinal tract. In cultured cells like Caco-2 cells researchers often study this expression.
Biological function summary	The ACE2 protein plays an important role in the regulation of cardiovascular and renal functions. It is a single-pass type I membrane protein and its activity reduces inflammation and oxidative stress in cells. ACE2 does not function as part of a larger protein complex but its enzymatic conversion has a substantial impact on reducing the effects of angiotensin II in the body leading to vasodilation and decreased blood pressure.
Pathways	ACE2 involvement is significant in the renin-angiotensin system and the kallikrein-kinin system. These pathways are essential for maintaining cardiovascular homeostasis. In the renin-angiotensin system ACE2 works in opposition to angiotensin-converting enzyme (ACE) balancing the effects through the production of angiotensin-(1-7) from angiotensin II. Additionally ACE2 interacts indirectly with proteins like angiotensin receptor type 1 (AT1) and angiotensin receptor type 2 (AT2) ensuring proper signaling and physiological responses.
Associated diseases and disorders	ACE2 links closely with conditions such as hypertension and COVID-19. Increased activity of angiotensin II due to low ACE2 levels contributes to hypertension. In infectious disease SARS-CoV-2 virus responsible for COVID-19 uses ACE2 as an entry receptor to initiate infection in host cells. This interaction highlights the importance of ACE2 in disease pathogenesis and has prompted interest in ACE2 as a potential therapeutic target.

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.

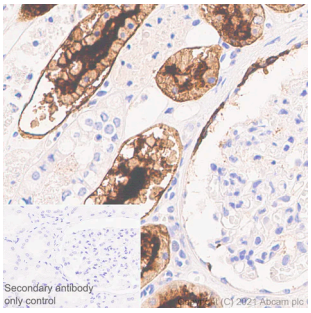
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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:
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7 product images



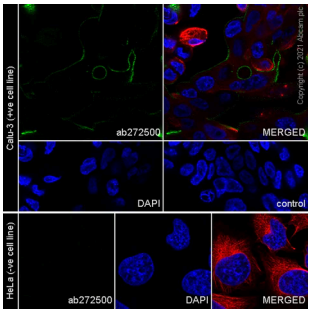
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human kidney tissue labelling ACE2 with ab272500 at 1/100 (5.0 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Membranous and cytoplasmic staining in human kidney. The section was incubated with ab272500 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND™ RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection) .

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



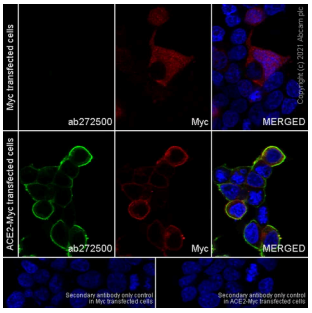
Immunocytochemistry/ Immunofluorescence - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Calu-3 cells labelling ACE2 with ab272500 at 1/50 (10.0 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing membranous staining in subsets of Calu-3 cells. **Negative control**: HeLa (PMID: 32926098). ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) (Red) was used at 1/200 dilution. The Nuclear counterstain was DAPI (Blue).

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

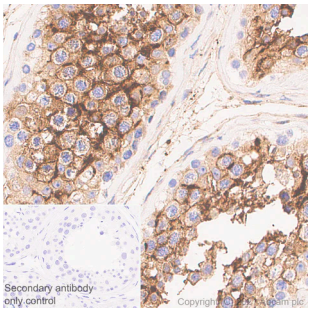


Immunocytochemistry/ Immunofluorescence - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized 293T cells labelling ACE2 with ab272500 at 1/250 (2.0 ug/ml) dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing positive staining in HEK-293T cells transfected with myc-tagged ACE2 expression vector. Myc-Tag Mouse mAb (Alexa Fluor® 647) was used at 1/100 dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



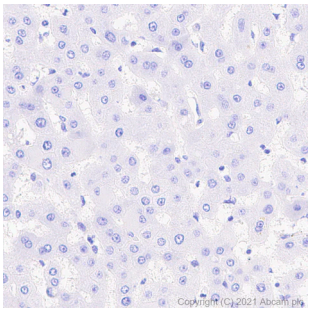
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human testis tissue labelling ACE2 with ab272500 at 1/100 (5.0 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Membranous and cytoplasmic staining in human testis. The section was incubated with ab272500 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond® Polymer Refine Detection) .

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



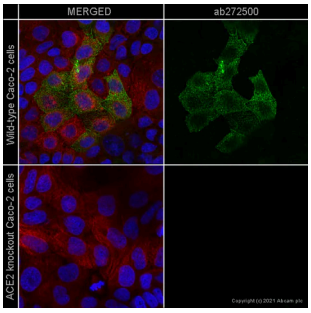
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human liver tissue labelling ACE2 with ab272500 at 1/100 (5.0 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). **Negative control:** No staining in human liver. The section was incubated with ab272500 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond®Polymer Refine Detection) .

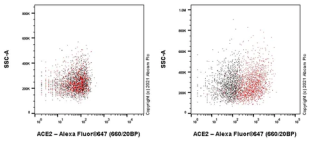
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunocytochemistry/ Immunofluorescence - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ACE2 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab272500).
ab272500 staining ACE2 in wild-type Caco2 cells (top panel) and ACE2 knockout Caco2 cells (ab273731) (bottom panel). The cells were fixed with 4% paraformaldehyde (10 min) then permeabilized with 0.1% Tween for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab272500 at 10µg/ml concentration and ab7291 (Mouse monoclonal to alpha Tubulin) at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green) and a goat secondary antibody to mouse IgG (Alexa Fluor® 594) (ab150120) at 2 µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).



Flow Cytometry - Anti-ACE2 antibody [EPR24705-45] - BSA and Azide free (ab282118)

ACE2 Flow Cytometry staining using rabbit Anti-ACE2 antibody

This data was developed using ab272500, the same antibody clone in a different buffer formulation.
Flow cytometric analysis of HeLa (Human cervix adenocarcinoma epithelial cell, Left)/ Calu-3 (human lung adenocarcinoma epithelial cell, Right) cells labelling ACE2 with ab272500 at 1/500 dilution (0.1ug). Goat anti rabbit IgG (Alexa Fluor® 647, ab150079) at 1/2000 dilution was used as the secondary antibody.

Negative control: HeLa (PMID: 32926098). Gated on viable cells.

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