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ACE2 (SARS Receptor) Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6020a

Product Information

Application	WB, IHC-P, E
Primary Accession	Q9BYF1
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB4810
Calculated MW	92463
Antigen Region	6-36

Additional Information

Gene ID	59272
Other Names	Angiotensin-converting enzyme 2, ACE-related carboxypeptidase, Angiotensin-converting enzyme homolog, ACEH, Metalloprotease MPROT15, Processed angiotensin-converting enzyme 2, ACE2
Target/Specificity	This ACE2 (SARS Receptor) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 6-36 amino acids from the N-terminal region of human ACE2 (SARS Receptor).
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	ACE2 (SARS Receptor) Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ACE2 (HGNC:13557)
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).
Cellular Location	[Processed angiotensin-converting enzyme 2]: Secreted [Isoform 2]: Apical cell membrane
Tissue Location	Expressed in endothelial cells from small and large arteries, and in arterial smooth muscle cells (at protein level) (PubMed:15141377). Expressed in enterocytes of the small intestine, Leydig cells and Sertoli cells (at protein level) (PubMed:15141377) Expressed in the renal proximal tubule and the small intestine (at protein level) (PubMed:18424768). Expressed in heart, kidney, testis, and gastrointestinal system (at protein level) (PubMed:10924499, PubMed:10969042, PubMed:12459472, PubMed:15231706, PubMed:15671045, PubMed:32170560, PubMed:32715618). In lung, expressed at low levels in some alveolar type 2 cells, the expression seems to be individual- specific (at protein level) (PubMed:15141377, PubMed:32170560, PubMed:32425701, PubMed:32715618, PubMed:33432184). Expressed in nasal epithelial cells (at protein level) (PubMed:32333915, PubMed:33432184) Coexpressed with TMPRSS2 within some lung alveolar type 2 cells, ileal absorptive enterocytes, intestinal epithelial cells, cornea, gallbladder and nasal goblet secretory cells (PubMed:32327758, PubMed:32358202, PubMed:32413319). Coexpressed with TMPRSS4 within mature enterocytes (PubMed:32404436).

Background

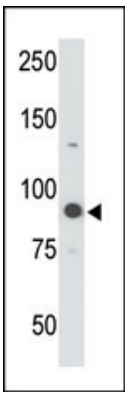
ACE2 cDNA encodes a deduced 805-amino acid protein containing a potential 17-amino acid N-terminal signal peptide and a putative 22-amino acid C-terminal membrane anchor. It also possesses a zinc metalloprotease consensus sequence and a conserved glutamine residue that may function as a third zinc ligand. ACE2 is expressed predominantly in vascular endothelial cells of the heart and kidney. ACE converts angiotensin I to angiotensin II, ACE2 converts angiotensin I to angiotensin 1-9, which has 9 amino acids. Angiotensin II is a potent blood vessel constrictor, while angiotensin 1-9 does not impact blood vessels but is cleaved by ACE to a shorter peptide, angiotensin 1-7, which is a blood vessel dilator. Spike (S) proteins of coronaviruses, including the SARS coronavirus, bind with cellular receptors to mediate infection of target cells. ACE2 binds the S1 domain of the SARS coronavirus S protein. SARS coronavirus replicates efficiently on ACE2-transfected but not mock-transfected 293T cells. Anti-ACE2 but not anti-ACE1 antibody blocks viral replication on Vero E6 cells. It has been proposed that ACE2 is a functional receptor for SARS coronavirus.

References

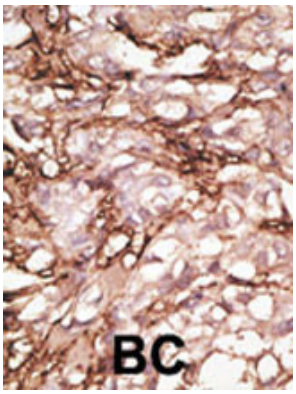
Douglas, G.C., et al., Endocrinology 145(10):4703-4711 (2004).
Turner, A.J., et al., Trends Pharmacol. Sci. 25(6):291-294 (2004).
Towler, P., et al., J. Biol. Chem. 279(17):17996-18007 (2004).
Wong, S.K., et al., J. Biol. Chem. 279(5):3197-3201 (2004).

Li, W., et al., Nature 426(6965):450-454 (2003).

Images



The anti-ACE2 N-term Pab (Cat. #AP6020a) is used in Western blot to detect ACE2 in 293 cell lysate.



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

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