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ACE2 Antibody (HRP)

Infectious Disease
Catalog # ASC12195

Product Information

Application	E
Primary Accession	Q9BYF1
Other Accession	NP_068576
Reactivity	Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Clone Names	ACE2
Calculated MW	92463
Concentration (mg/ml)	1 mg/mL
Conjugate	HRP

Additional Information

Gene ID	59272
Alias Symbol	ACE2
Other Names	ACE2 Antibody: ACEH, Angiotensin-converting enzyme 2, ACE-related carboxypeptidase, ACEH, SARS-CoV receptor, SARS-CoV-2 receptor
Target/Specificity	Anti-ACE2 has no cross response to ACE1.
Reconstitution & Storage	ACE2 antibody can be stored at 4˚C for three months and -20˚C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	ACE2 Antibody (HRP) 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 Antibody: Angiotensin-converting enzyme 2 (ACE2) plays a central role in vascular, renal, and myocardial physiology. In contrast to its homolog ACE, ACE2 expression is restricted to heart, kidney, and testis. Recently. ACE2 has also been shown to be a functional receptor of the SARS coronavirus. Homology modeling shows 2019-nCoV has a similar receptor-binding domain structure as SARS-CoV, which suggests COVID-19 (2019-nCoV) may use ACE2 as a receptor in humans for infection. The normal function of ACE2 is to convert the inactive vasoconstrictor angiotensin I (AngI) to Ang1-9 and the active form AngII to Ang1-7, unlike ACE, which converts AngI to AngII. While the role of these vasoactive peptides is not well understood, lack of ACE2 expression in ace2-/ace2- mice leads to severely reduced cardiac contractility, indicating its importance in regulating heart function.

References

Donoghue et al. Circ. Res. 2000;87:1-9.
Tipnis et al. J Biol. Chem. 2000;275:33238-43.
Li et al. Nature 2003;426:450-4.
Lu et al. The Lancet 2020 (published online).
Crackower et al. Nature 2002;417:822-8.

Images

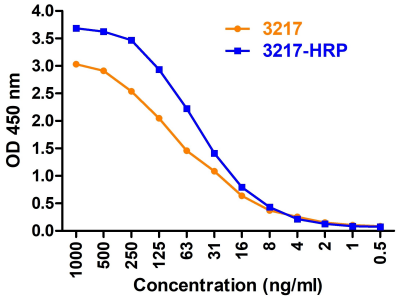

Figure 1 ELISA Validation
Coating Antigen: immunogen peptide, 3217P, 10 µg/mL, incubate at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 Spike antibody, ASC12195 or 3217, dilution: 0.5-1000 ng/mL, incubate at RT for 1 hr. 3217 was detected by anti-rabbit HRP-conjugated secondary antibodies at 1:10,000, incubate at RT for 1 hr.

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