Active Angiotensin I Converting Enzyme 2 (ACE2)

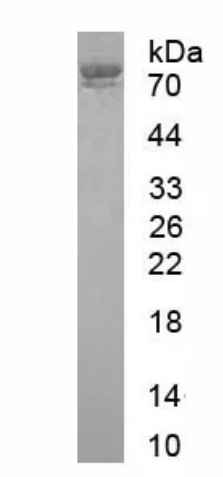
Catalog#:PHH12762

概述（Summary）

别称（Alternative Names）	ACEH; ACEII; ACE-II; Peptidyl-Dipeptidase A; ACE-related carboxypeptidase; Angiotensin-converting enzyme homolog; Metalloprotease MPROT15
纯度（Purity）	Greater than 95% as determined by reducing SDS-PAGE.
内毒素（Endotoxin level）	Please contact with the lab for this information
蛋白构建（Construction）	【Gln18-Ser740】
Accession #	Q9BYF1
表达宿主（Host）	293F
种属（Species）	Homo sapiens (Human)
预测分子量（Predicted MW）	85.2 kDa
制剂（Form）	Lyophilized from a 0.2 μm filtered solution of PBS, pH7.4, containing 0.01% SKL, 1mM DTT, 5% Trehalose and Proclin300.
运输方式（Shipping）	The product is shipped with ice bag. Upon receipt, store it immediately at the temperature listed below.
稳定性&储存（Stability &Storage）	12 months at -20°C to -80°C in lyophilized state.6 months at -20°C to -80°C under sterile conditions after reconstitution.7-10 days at 2°C to 8°C under sterile conditions after reconstitution.Please minimize freeze-thaw cycles.
复溶（Reconstitution）	Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.
背景介绍（References）	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. 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. Also removes the C-terminal residue from three other vasoactive peptides, neurotensin, kinetensin, and des-Arg bradykinin, but is not active on

bradykinin. Also cleaves other biological peptides, such as apelins (apelin-13, Non-functional as a carboxypeptidase.; (Microbial infection) Acts as a receptor for human coronaviruses SARS-CoV and SARS-CoV-2, as well as human coronavirus NL63/HCoV-NL63.; (Microbial infection) Non-functional as a receptor for human coronavirus SARS-CoV-2.

电泳图（SDS-PAGE image）



Greater than 95% as determined by reducing SDS-PAGE.

活性图（Bioactivity image）

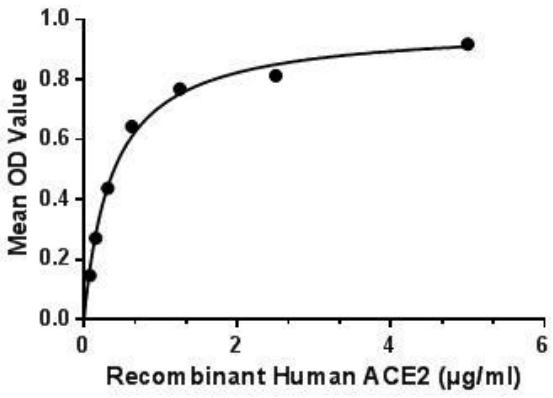
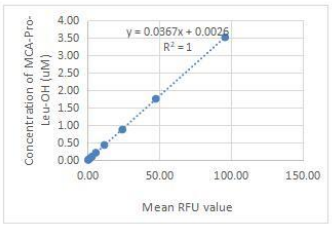


Figure 1. The binding activity of ACE2 with RBD

The activity of recombinant human ACE2 is also measured by its ability to cleave a fluorogenic peptide substrate MCA-Tyr-Val-Ala-Asp-Ala-Pro-Lys(DNP)-OH in the assay buffer 50 mM Tris, 1 M NaCl, pH 7.5. The rhACE2 is diluted to 0.5 ug/mL in assay buffer. Loading into a black well plate 50 µL of 0.5 ug/mL rhACE2 and start the reaction by adding 50 µL of 20 µM substrate, with a substrate blank containing 50 µL assay buffer, 50 µL substrate, and no rhACE2. Then read at excitiation and emission wavelengths of 320 nm and 405 nm, respectively, in kinetic mode for 5 minutes. The specific activity of recombinant human ACE2 is > 1100 pmol/min/µg. Angiotensin-converting enzyme 2 (ACE2), as a transmembrane protein, serves as the main entry point into cells for some coronaviruses, including HCoV-NL63, SARS-CoV , and SARS-CoV-2 . More specifically, the binding of the spike S1 protein of SARS-CoV and SARS-CoV-2 to the enzymatic domain of ACE2 on the surface of cells results in endocytosis and

translocation of both the virusand the enzyme into endosomes located within cells. Besides, recent studies show that spike (S) proteins of 2019-nCoV and SARS-CoV may use the same host cell receptor called angiotensin-converting enzyme 2 (ACE2) for entering into host cells, thus a binding ELISA assay was conducted to detect the interaction of recombinant human ACE2 and recombinant Spike glycoprotein RBD. Briefly, biotin-linked ACE2 were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100μl were then transferred to RBD-coated microtiter wells and incubated for 2h at 37℃. Wells were washed with PBST 3 times and incubation with HRP conjugage for 30min, then wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50μl stop solution to the wells and read at 450nm immediately. The binding activity of ACE2 and RBD was shown in Figure 1, and this effect was in a dose dependent manner.



RFU (320/405)	MCA-Pro-Leu-OH (product) uM
95.78	3.52
47.46	1.76
24.20	0.88
11.63	0.44
5.71	0.22
3.05	0.11
1.52	0.05
0.77	0.03

Figure 2. The standard curve of MCA-Pro-Leu-OH

Specific Activity (pmol/min/μg) =

$$\frac{\text{Adjusted Vmax * (RFU/min) x Conversion Factor ** (pmol/RFU)}}{\text{amount of enzyme (ug)}}$$

*Adjusted for Substrate Blank

**Derived using calibration standard MCA-Pro-Leu-OH

注意事项（Note）

For Research Use Only , Not for Diagnostic Use.