Daresbury Proteins

Product description

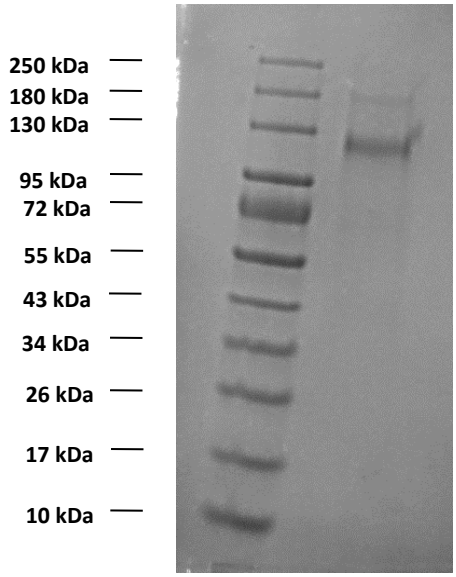
Name: Recombinant Human Angiotensin-converting Enzyme 2, ACE2.
Synonyms: Angiotensin-converting enzyme homologue, ACEH, angiotensin-converting enzyme-related carboxypeptidase, ACE-related carboxypeptidase, metalloprotease MPROT15.

Species: Human
Source: HEK293
Amino Acids: 19-740
Tag: 10xHis at the C terminus.
Predicted Molecular Weight: 85 kDa
Protein ID: Q9BYF1
Sequence:

STIEEQAKTFLDKFNHEAEDLFYQSSLASWNYNTNITEENVQNMNNAGDKWSAFLKEQSTLAQMYPLQEIQNLTVKLQLQALQ
QNGSSVLSEDKSKRLNTILNTMSTIYSTGKVCNPDNPQECLLLEPGLNEIMANSLDYNERLWAWESWRSEVGKQLRPLYEEYV
VLKNEMARANHYEDYGDYWRGDYEVNGVDGYDYSRGQLIEDVEHTFEEIKPLYEHLHAYVRAKLMNAYPSYISPIGCLPAHLL
GDMWGRFWTNLYSLTVPFGQKPNIDVTDAMVDQAWDAQRIFKEAEKFFVSVGLPNMTQGFWENSMLTDPGNVQKAVCHPTAWD
LGKGDFRILMCTKVTMDDFLTAHHEMGHIQYDMAYAAQPFLLRNGANEGFHEAVGEIMSLSAATPKHLKSIGLLSPDFQEDNE
TEINFLLKQALTIVGTLPFTYMLEKWRWMVFKGEIPKDQWMKKWWEMKREIVGVVEPVPHDETYCDPASLFHVSNDYSFIRYY
TRTLYQFQFQEALCQAAKHEGPLHKCDISNSTEAGQKLFNMLRLGKSEPWTLALENVVGAKNMNVRPLLNYFEPLFTWLKDQN
KNSFVGWSTDWSPYADQSIKVRISLKSALGDKAYEWNDNEMYLFRSSVAYAMRQYFLKVKNQMILFGEEDVRVANLKPRISFN
FFVTAPKNVSDIIPRTEVEKAIRMSRSRINDAFRLNDNSLEFLGIQPTLGPPNQPPVSGSGHHHHHHHHHH

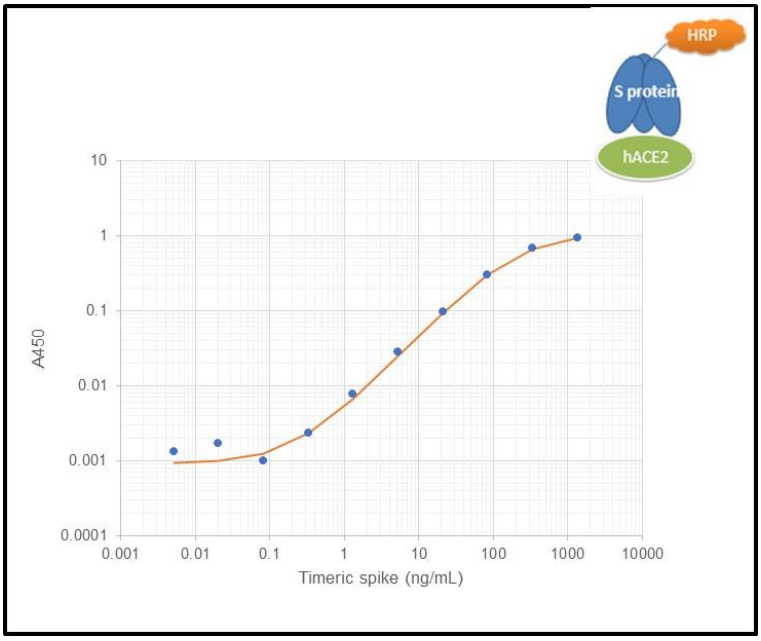
Product specifications

Estimated Molecular Weight, SDS-PAGE: ≈ 120 kDa
Grade & Purity: >90% as estimated by SDS-PAGE stained with Instant Blue Stain (Expedeon).



Endotoxins: Less than 0.1 ng/µg (1 IEU/µg), as measured by LAL method.
Formulation: PBS 20% Glycerol

Functional data:
Binding curve of trimeric Spike (D614G), HRP-conjugated, to the ACE2 (capture reagent) in direct ELISA assay.



Shipping

Product is shipped on dry or wet ice or frozen gel packs. Upon receipt, store at -20°C to -70°C.

Product application and Storage

Storage: The protein should be stored at -20°C to -70°C preferably in small aliquots to avoid repeated freeze-thaw cycles.

Stability: At least 12 months at -20°C to -70°C and at least 1 month at 2°C to 8°C.

Application Note: For research purposes only. Not for use in humans.

Background Information

Carboxypeptidase of the renin-angiotensin hormone system that is a critical regulator of blood volume, systemic vascular resistance, and thus cardiovascular homeostasis (1). 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 (2,3). Acts as a receptor for human coronaviruses SARS-CoV and SARS-CoV-2, as well as human coronavirus NL63/HCoV-NL63 (4-9).

References:

1. Wang W., McKinnie S.M., Farhan M., et al. Angiotensin-Converting Enzyme 2 Metabolizes and Partially Inactivates Pyr-Apelin-13 and Apelin-17: Physiological Effects in the Cardiovascular System. *Hypertension,* 2016;68:365-377.
2. Donoghue M., Hsieh F., Baronas E., et al. A Novel Angiotensin-Converting Enzyme-Related Carboxypeptidase (ACE2) Converts Angiotensin I to Angiotensin 1-9. *Circ. Res.,* 2000;87:E1-E9.
3. Zisman L.S., Keller R.S., Weaver B., et al. Increased Angiotensin-(1-7)-Forming Activity in Failing Human Heart Ventricles: Evidence for Upregulation of the Angiotensin-Converting Enzyme Homologue ACE2. *Circulation,* 2003;108:1707-1712.
4. Li W., Moore M.J., Vasilieva N., et al. Angiotensin-Converting Enzyme 2 is a Functional Receptor for the SARS Coronavirus. *Nature,* 2003;426:450-454.
5. Li W., Zhang C., Sui J., et al. Receptor and Viral Determinants of SARS-Coronavirus Adaptation to Human ACE2. *EMBO J.,* 2005;24:1634-1643.
6. Hofmann H., Pyrc K., van der Hoek L., Geier M., et al. Human Coronavirus NL63 Employs the Severe Acute Respiratory Syndrome Coronavirus Receptor for Cellular Entry. *Proc. Natl. Acad. Sci. U.S.A,* 2005;102:7988-7993.
7. Heurich A., Hofmann-Winkler H., Gierer S., et al. TMPRSS2 and ADAM17 Cleave ACE2 Differentially and Only Proteolysis by TMPRSS2 Augments Entry Driven by the Severe Acute Respiratory Syndrome Coronavirus Spike Protein. *J. Virol.,* 2014;88:1293-1307.
8. Hoffmann M., Kleine-Weber H., Schroeder S., SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and is Blocked by a Clinically Proven Protease Inhibitor. *Cell,* 2020;181:1-10.
9. Shang J., Ye G., Shi K., et al. Structural Basis of Receptor Recognition by SARS-CoV-2. *Nature,* 2020;581:221-224.