

**Angiotensin-Converting Enzyme-2 (ACE-2, ACEH) Antibodies**

Cat. # ACE22-P	Human ACE-2 Control/blocking Peptide #2	<b>SIZE:</b> 100 ug
Cat. # ACE22-C	Recombinant Human ACE-2 protein WB +ve Control	<b>SIZE:</b> 100 ul
Cat. # ACE22-A	Rabbit Anti-Human ACE-2 IgG #2 (aff pure)	<b>SIZE:</b> 100 ug

Renin-Angiotensin System (RAS) is a critical regulator of blood pressure homeostasis. The protease renin cleaves angiotensinogen into inactive decameric peptide angiotensin-I (Ang-I). Angiotensin-converting enzyme (ACE) then cleaves C-terminal dipeptide from Ang-I to form an active octamer angiotensin-II (Ang-II), which can contribute to hypertension by promoting vascular smooth muscle vasoconstriction and renal tubule sodium reabsorption. ACE is found in somatic (s-ACE) and testicular/germinal (t-ACE) isoforms. The products of renin and ACE catalysis, namely Ang1-10 and Ang1-8 can also be by another peptidase, ACE-2 to Ang1-9 and Ang1-7, respectively. ACE-2 and ACE (s-ACE and t-ACE) are made as transmembrane (TM) proteins but these enzymes also exist as soluble, truncated forms lacking the TM and cytosolic domains.

**ACE-2** (also known as ACE-2 and ACE homolog, ACEH) gene has been mapped at human chromosome Xp22. ACE-2 enzymes from human (805aa) and mouse (798aa) are single chain proteins with 40% seq homology to N- and C-terminal domains of ACE. However, in contrast to s-ACE which consists of two catalytic sites, ACE-2 contains only one active site. Unlike s-ACE and t-ACE which are dipeptidyl-carboxypeptidases, ACE-2 acts as a carboxypeptidase, cleaving single residue from Ang-I, generating Ang1-9 and a single residue from Ang-II to generate Ang1-7. ACE-2 can cleave angiotensin-I but not bradykinin and the enzyme activity is not inhibited by the ACE inhibitors. This enzyme is expressed highly in heart, kidney and testis and moderately in colon, small intestine and ovary. ACE-2 is an essential regulator of heart function because targeted disruption of this enzyme in mice results in severe cardiac contractility defect, increased angiotensin-II levels and upregulation of hypoxia-induced genes in the heart.

**Source of Antigen and Antibodies**

<b>Antigen</b>	20-aa peptide of Human ACE-2 (Gene Accession # Q9BYF1, refs 1); Designated (ACE22-P or control peptide) conjugated to KLH
<b>Location</b>	Extracellular
<b>Ab Host/type</b>	Rabbit, polyclonal, Aff pure IgG (cat # ACE22-A) purified over antigen-agarose column
<b>2-ab</b>	Goat Anti-rabbit IgG-HRP cat # 20320 (AP, FITC conjugates also available)
<b>-ve control</b>	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

**Human ACE-2** (1-740aa, glycosylated secreted protein of MW ~120kDa, predicted MW 85 kDa) with His tag was expressed in mouse myeloma cell line NS0 and purified >90% (SDS-PAGE). **Human ACE-2 protein for WB +ve control**, Cat # ACE22-C, is formulated in SDS-PAGE sample buffer (reduced). This preparation is biologically inactive. It is not suitable for ELISA or other applications where native protein is required. It is supplied in 100 ul/vial. For WB, heat once and load 10 ul/lane and visualize with appropriate antibodies. This preparation is intended for qualitative purpose and not to serve as standard of known concentration. Angiotensin protein is ~14 kda. Store frozen in suitable aliquots. Do not freeze, thaw, or heat repeatedly.

**Form & Storage of Antibodies/Peptide Control**

**Affinity pure IgG**

100 ug/100ul solution lyophilized powder

Supplied in **Buffer:** PBS+0.1% BSA

**Reconstitute powder in PBS at 1mg/ml**

**Control/blocking peptide**

100 ug/100 ul solution lyophilized powder

Supplied in Buffer: PBS pH 7.5,

**Reconstitute powder in PBS at 1 mg/ml.**

**Storage**

**Short-term:** unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20oC or below.

**Shipping:** 4oC for solutions and room temp for powder.

**Recommended Usage**

**Western Blotting** (1-10 ug/ml for affinity pure antibody using ECL technique). The antibody (cat # ACE22-A) will recognize ~120 kDa ACE-2 under reducing and non-reducing conditions.

**ELISA:** Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml for affinity pure).

**Histochemistry & Immunofluorescence:** Not tested.

**Specificity & Cross-reactivity**

Human ACE22-P control peptide is 95% conserved in mouse ACE-2, respectively. Antibody cross-reactivity in various species is not known. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at: [www.4adi.com/data/abblock.html](http://www.4adi.com/data/abblock.html)). Recombinant human Ace-2 protein (cat # ACE22-C) is suitable for Western.

**General References:** (1) Crackower, MA (2002) Nature 417, 822; Sibinga, NES & Ware JA (2000) Circ Res 87, e1-e9; Bernstein, KE et al (1989) JBC 264, 11945; Tinis, SR et al (2000) JBC 275, 33238; Donoghue, M et al (2000) Circ Res 87, e1-e9; Ehlers, MRW & Riordan, JF (1991) Biochemistry 30, 7118; Hubert, C (1991) JBC 266, 15377;

**(2) Citations of ADI's Antibodies** (see web site for updated list)

Chang Y-J, 2004, J. Immunol., Dec 2004; 173: 7602 - 7614  
WB

*\*This product is for In vitro research use only.*

ACE22-A-P-C

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