ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Life Technologies™ Your Molecular & Cell Technology Partner

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

Cat. # ACE21-P	Mouse ACE-2 Control/blocking Peptide #1	**SIZE**: 100 ug
Cat. # ACE21-A	Rabbit Anti-Mouse ACE-2 IgG # 1 (aff pure)	**SIZE**: 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 can also cleave many other small peptides including the vasodialating peptide bradykinin into inactive fragment, cleave Alzheimer amyloid beta-peptide (Abeta), retard Abeta aggregation, deposition and fibril formation. ACE mutant mice display spontaneous hypotension, partial male infertility and kidney malformations. 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

Antigen	20aa peptide of Mouse ACE-2 Gene Accession # Q8R0I0 (refs 1); Designated (ACE21-P or control peptide) conjugated to KLH
Location	Extracellular
Ab Host/type	Rabbit, polyclonal, Aff pure IgG (**cat # ACE21-A**) purified over antigen-agarose column
2-ab	Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

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 # ACE21-A**) recognizes ~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

Mouse **ACE21-P** control peptide is 90% conserved in rat, 70% in human/chimp/cat, and 65% in ACE-2, respectively. Antibody (**cat # ACE21-A**) 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).

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 et al (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
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**This product is for In vitro research use only.*

Related material available from ADI

ACE21-A-P 70724A

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