ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

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Angiotensin I Converting Enzyme-1 (ACE-1) Antibodies

Cat. # ACE15-M	Mouse monoclonal anti-Rat ACE-1 IgG # 5	**SIZE**: 100 ug
Cat. # ACE15-C	Rat ACE1 protein WB +ve Control	**SIZE**: 100 ul

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 (also known as dipeptidyl carboxypeptidase-1, DCP1; Kininase-II, ACE1) gene has been mapped at human chromosome 17q23. The s-ACE and t-ACE isoforms are generated by alternative splicing of ACE-2 gene. Somatic-ACE, a Zn (II) containing dipeptidyl carboxy peptidase is a single chain glycoprotein with a molecular mass of ~140kDa. The s-ACE enzymes from mouse (1312aa), rat (1313aa) and human (1306aa) contain two large areas of homologous sequence, each containing catalytic site and a Zn-binding region. These homologous regions are approximately half the size of whole s-ACE. The s-ACE is expressed in many somatic tissue tissues, including vascular endothelial cells, renal epithelial cells, and testicular Leydig cells. In contrast to s-ACE, the t-ACE enzymes (~80 kDa) from mouse (732aa), rat (775aa) and human (732aa) contain only one active site and are expressed only in sperms. The soluble ACE is present present in serum and seminal, amniotic and cerebrospinal fluids. The t-ACE is identical, from residue 37 to its C-terminus, to the second half or C-terminus of s-ACE. The t-ACE from mouse, rat and human are ~72% identical to each other in their aa seq.

Source of Antigen and Antibodies

Purified human/rat lung ACE protein. Monoclonal antibodies were raised in mice. A clone secreting antibodies (IgG1) to rat ACE-1 was expanded as ascites, and IgG1 (cat # ACE15-M) purified by protein A/G column. It is supplied in 100 ul/vial in PBS pH 7.4 (liquid or lyophilized). No preservative is added. Reconstitute in PBS pH 7.4 or other buffers. Store powder at 4 oC. Reconstituted IgG should be aliquoted and stored frozen at –20oC or below.

Recommended secondary anitbodies

Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available)

Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

Rat somatic-ACE (MW ~170 kDa) was isolated from rat lung membranes by lisinopril-affinity chromatography to >95% purity. **rat ACE-1 protein for WB +ve control**, Cat # ACE13-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. Store frozen in suitable aliquots. Do not freeze, thaw, or hear repeatedly.

Form & Storage of Antibodies

Affinity pure IgG

100 ug/100ul solution — 50 ug/50 ul lyophilized powder

Buffer: PBS, pH 7.4
contains 0.1% sodium azide
Reconstitute powder with sterile PBS.

Storage

Short-term: unopened, undiluted vials for less than a week at 4oC.

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 (2-5 ug/ml with appropriate secondary reagents to detect human ACE-1).
ELISA (1:1K-1:10K).
Histochemistry & Immunofluorescence: 4% paraformaldehyde tissues. Paraffin embedded sections not recommended.

Specificity & Cross-reactivity

ACE15-M reacts with rat, mouse, human, hamster, feline ACE-1. Antibody cross reactivity with other species not determined. The antibody does not crossreact with ACE-2. Purified rat ACE-1 protein (Cat #ACE15-C) or human ACE-1 (#ACE13-C) can be used as positive control

General References: Tipnis, S. R et al (2000) JBC Vol. 275: 33238-33243; Crackower, M. A et al (2002), Nature 417: 822-828; Huang, L et al (2003) JBC Vol. 278: 15532-15540.

*This Product is for *in vitro* research use only.

Related material available from ADI

Antibodies Angiotensin Converting Enzyme 1 (ACE1) , ACE-2 and recombinant proteins.
ACE15-M-C 70807A

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