

Product Specification Sheet

Testicular ACE-1 Antibodies

Cat. # ACE12-P	Human Testicular-ACE Control/blocking Peptide #2	SIZE: 100 ug
Cat. # ACE12-A	Rabbit Anti-Human testicular-ACE1 IgG #2 (aff pure)	SIZE: 100 ug

Renin-Angiotensin System (RAS) is a critical regulator of blood pressure homeostasis. The protease renin cleaves angiotensinogen into inactive decaemic 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 vasodilating peptide bradykinin into inactive fragment, cleave Alzheimer amyloid beta-peptide (A β), retard A β 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 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. t-ACE exists as membrane form (732-aa, isoform 1) and soluble form (659-732 aa removed by proteolysis)

Source of Antigen and Antibodies

Antigen	14-aa peptide of Human testicular-ACE (gene accession # P22966, refs 1); Designated (ACE12-P or control peptide) conjugated to KLH. Epitope location ~ N-terminal, Extracellular
Ab Host/type	Rabbit, polyclonal, Aff pure IgG (cat # ACE12-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 # ACE12-A**) recognizes >80 kDa testicular-ACE.

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 testicular **ACE12-P** control peptide is 92% conserved in mouse and 57% in rat t-ACE. ACE12-P epitope is located near the N-terminus that is found in membrane bound as well soluble t-ace. So the antibodies are expected to react with both isoforms. No significant sequence homology exist with the s-Ace of any species. 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: the web site).

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;

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

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