



Product Specification Sheet

Angiotensin I Converting Enzyme-2 (ACE-2) Antibodies

Cat. # ACE23-M

Mouse monoclonal anti-Human ACE2 IgG # 3 (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 (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

The antibody was produced from a hybridoma resulting from the fusion of a mouse myeloma with B cells obtained from a mouse immunized with purified NSO-derived recombinant human angiotensin I converting enzyme-2 (rhACE-2) ectodomain (aa 18-740). The IgG fraction of the tissue culture supernatant was purified by Protein G affinity chromatography (isotype IgG2a).

Recommended 2-ab

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

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 PBS at 1 mg/ml.

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 (1-2ug/ml with appropriate secondary reagents to detect human ACE-2).

ELISA (1:10K-1:30K).

Histochemistry & Immunofluorescence: not tested

Specificity & Cross-reactivity

ACE23-M is specific for human ACE-2 in western blots and direct ELISA. Antibody cross reactivity with other species not determined. The antibody does not crossreact with ACE-1. Purified human ACE2 protein can be used as positive control (Cat #ACE22-C).

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.

ACE23-M

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