abcam

ab253254

PE Anti-Angiotensin Converting Enzyme 1 antibody [5-369]

Anti-Angiotensin Converting Enzyme 1 antibody [5-369] conjugated to PE - suitable for flow cytometry, and reacts with human samples. Clone [5-369] is a mouse monoclonal antibody.

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Key facts

Isotype	IgG1
Host species	Mouse
Conjugation	PE
Excitation/Emission	Ex: 480;565nm, Em: 578nm
Storage buffer	pH: 7.4 Preservative: 0.0975% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing ACE protein. The exact immunogen used to generate this antibody is proprietary information. Database link P12821
Clone number	5-369
Purification technique	Size-exclusion chromatography
Purification notes	The purified antibody is conjugated with R-Phycoerythrin (PE) under optimum conditions. The conjugate is purified by size-exclusion chromatography and adjusted for direct use.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	10 µL for 10^6 Cells
Notes	Or 100 µl of whole blood.

Target data

See full target information ACE

Function

Dipeptidyl carboxypeptidase that removes dipeptides from the C-terminus of a variety of circulating hormones, such as angiotensin I, bradykinin or enkephalins, thereby playing a key role in the regulation of blood pressure, electrolyte homeostasis or synaptic plasticity (PubMed:15615692, PubMed:20826823, PubMed:2558109, PubMed:4322742, PubMed:7523412, PubMed:7683654). Composed of two similar catalytic domains, each possessing a functional active site, with different selectivity for substrates (PubMed:10913258, PubMed:1320019, PubMed:1851160, PubMed:19773553, PubMed:7683654, PubMed:7876104). Plays a major role in the angiotensin-renin system that regulates blood pressure and sodium retention by the kidney by converting angiotensin I to angiotensin II, resulting in an increase of the vasoconstrictor activity of angiotensin (PubMed:11432860, PubMed:1851160, PubMed:19773553, PubMed:23056909, PubMed:4322742). Also able to inactivate bradykinin, a potent vasodilator, and therefore enhance the blood pressure response (PubMed:15615692, PubMed:2558109, PubMed:4322742, PubMed:6055465, PubMed:6270633, PubMed:7683654). Acts as a regulator of synaptic transmission by mediating cleavage of neuropeptide hormones, such as substance P, neurotensin or enkephalins (PubMed:15615692, PubMed:6208535, PubMed:6270633, PubMed:656131). Catalyzes degradation of different enkephalin neuropeptides (Met-enkephalin, Leu-enkephalin, Met-enkephalin-Arg-Phe and possibly Met-enkephalin-Arg-Gly-Leu) (PubMed:2982830, PubMed:6270633, PubMed:656131). Acts as a regulator of synaptic plasticity in the nucleus accumbens of the brain by mediating cleavage of Met-enkephalin-Arg-Phe, a strong ligand of Mu-type opioid receptor OPRM1, into Met-enkephalin (By similarity). Met-enkephalin-Arg-Phe cleavage by ACE decreases activation of OPRM1, leading to long-term synaptic potentiation of glutamate release (By similarity). Also acts as a regulator of hematopoietic stem cell differentiation by mediating degradation of hemoregulatory peptide N-acetyl-SDKP (AcSDKP) (PubMed:26403559, PubMed:7876104, PubMed:8257427, PubMed:8609242). Acts as a regulator of cannabinoid signaling pathway by mediating degradation of hemopressin, an antagonist peptide of the cannabinoid receptor CNR1 (PubMed:18077343). Involved in amyloid-beta metabolism by catalyzing degradation of Amyloid-beta protein 40 and Amyloid-beta protein 42 peptides, thereby preventing plaque formation (PubMed:11604391, PubMed:16154999, PubMed:19773553). Catalyzes cleavage of cholecystokinin (maturation of Cholecystokinin-8 and Cholecystokinin-5) and Gonadoliberin-1 (both maturation and degradation) hormones (PubMed:10336644, PubMed:2983326, PubMed:7683654, PubMed:9371719). Degradation of hemoregulatory peptide N-acetyl-SDKP (AcSDKP) and amyloid-beta proteins is mediated by the N-terminal catalytic domain, while angiotensin I and cholecystokinin cleavage is mediated by the C-terminal catalytic region (PubMed:10336644, PubMed:19773553, PubMed:7876104). Angiotensin-converting

enzyme, soluble form. Soluble form that is released in blood plasma and other body fluids following proteolytic cleavage in the juxtamembrane stalk region. Isoform Testis-specific. Isoform produced by alternative promoter usage that is specifically expressed in spermatocytes and adult testis, and which is required for male fertility (PubMed:1651327, PubMed:1668266). In contrast to somatic isoforms, only contains one catalytic domain (PubMed:1651327, PubMed:1668266). Acts as a dipeptidyl carboxypeptidase that removes dipeptides from the C-terminus of substrates (PubMed:1668266, PubMed:24297181). The identity of substrates that are needed for male fertility is unknown (By similarity). May also have a glycosidase activity which releases GPI-anchored proteins from the membrane by cleaving the mannose linkage in the GPI moiety. The GPIase activity was reported to be essential for the egg-binding ability of the sperm (By similarity). This activity is however unclear and has been challenged by other groups, suggesting that it may be indirect (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Store in the dark

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Angiotensin Converting Enzyme 1 also known as ACE1 or ACE is an important enzyme in the renin-angiotensin system. This enzyme exhibits a significant role in blood pressure regulation. ACE1 is a zinc-metallopeptidase with a molecular weight of approximately 130 kDa. It converts angiotensin I into the potent vasoconstrictor angiotensin II a critical function in cardiovascular physiology. ACE1 is widely expressed in endothelial cells particularly in the lungs kidneys and the small intestine.
Biological function summary	The enzyme generates angiotensin II by cleaving angiotensin I. Angiotensin II an important effector peptide impacts cardiovascular and renal systems influencing vasoconstriction and fluid balance. While not directly forming a complex ACE1's activity increases the potency of angiotensin II which binds to angiotensin II receptors to exert its effects therefore indirectly forming a functional signaling complex.
Pathways	ACE1 plays a central role in the renin-angiotensin system and the kallikrein-kinin system. The enzyme's activity boosts angiotensin II production which connects it to the regulation of blood pressure via the renin-angiotensin pathway. ACE1 also indirectly interacts with proteins like bradykinin by degrading them modulating

	kinin-related functions and influencing inflammation and tension in vascular smooth muscle.
Associated diseases and disorders	Understanding ACE1 is important for addressing hypertension and congestive heart failure. ACE1's conversion of angiotensin I to angiotensin II means overactivity can cause elevated blood pressure leading to hypertension. This makes ACE inhibitors such as lisinopril and ramipril therapeutic for these conditions. Furthermore its connection with aldosterone production places ACE1 in relevance to heart failure as excessive aldosterone can cause detrimental remodeling of cardiac tissue.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

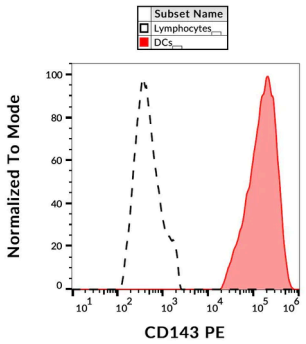
We do not recommend this combination. It is not covered by our product promise.

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1 product image



Flow Cytometry - PE Anti-Angiotensin Converting Enzyme 1 antibody [5-369] (ab253254)

Angiotensin Converting Enzyme 1 Flow Cytometry staining using mouse Anti-Angiotensin Converting Enzyme 1 antibody

Flow cytometric analysis of human peripheral blood labeling Angiotensin Converting Enzyme 1 with ab253254 (Red histogram). Surface staining.

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