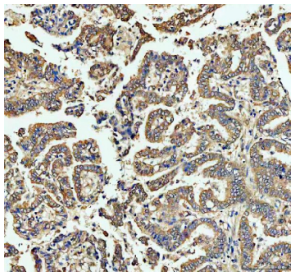
ECE1 Antibody / Endothelin converting enzyme 1 (R32724)

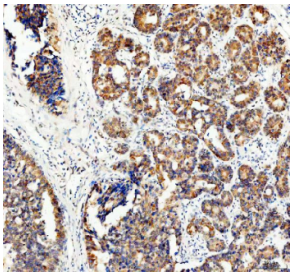
Catalog No.	Formulation	Size
R32724	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

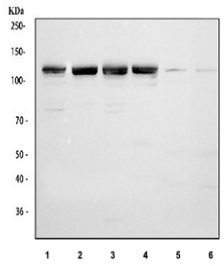
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P42892
Localization	Cytoplasm, cell membrane
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml
Limitations	This ECE1 antibody is available for research use only.



Immunohistochemical staining of FFPE human lung cancer tissue with ECE1 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE human breast cancer tissue with ECE1 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human HeLa, 2) human A549, 3) HUVEC, 4) human MCF7, 5) rat liver and 6) mouse liver lysate with ECE1 antibody at 0.5ug/ml. The predicted molecular weight of ECE1 is approximately 87 kDa; however, the mature glycosylated protein migrates at approximately 120 to 130 kDa. Human cell lines show a clear doublet corresponding to distinct glycoforms, while rodent liver displays a slightly faster migrating band consistent with species specific glycosylation patterns.

Description

ECE1 antibody detects Endothelin Converting Enzyme 1, a membrane associated metalloprotease responsible for generating biologically active endothelin peptides that regulate vascular tone, cardiac function, and smooth muscle contraction. The UniProt recommended name is Endothelin-converting enzyme 1 (ECE1). As a key enzyme in the endothelin pathway, ECE1 converts inactive big endothelins into potent vasoactive endothelins, making it central to cardiovascular homeostasis, blood pressure regulation, and endothelial signaling.

ECE1 is a type I membrane protein composed of an extracellular zinc dependent catalytic domain, a single transmembrane region, and a cytoplasmic tail that regulates intracellular trafficking. The enzyme localizes primarily to the plasma membrane and Golgi associated compartments, where it processes precursor peptides during secretion or cell surface signaling events. Through these activities, ECE1 influences local concentrations of active endothelins that control vascular constriction, smooth muscle proliferation, and cardiovascular remodeling.

The ECE1 gene is located on chromosome 1p36.12 and produces multiple isoforms through alternative splicing. These isoforms differ in trafficking behavior and subcellular distribution, allowing fine tuned regulation of endothelin production in different tissues. ECE1 expression is especially prominent in endothelial cells, vascular smooth muscle, heart, lung, kidney, and brain. Its widespread distribution reflects the broad physiologic influence of endothelin signaling across vascular, renal, pulmonary, and neural systems.

Functionally, ECE1 plays a critical role in the endothelin axis, which regulates vascular resistance, cardiac output, and fluid balance. Active endothelin peptides produced by ECE1 bind endothelin receptors on vascular smooth muscle to trigger contraction and increase vascular tone. ECE1 also contributes to endothelial function by modulating autocrine and paracrine signaling pathways that influence nitric oxide balance, permeability, and vascular remodeling. Abnormal ECE1 activity can disrupt these finely tuned processes, contributing to cardiovascular dysfunction or dysregulated blood pressure responses.

Beyond vascular regulation, ECE1 influences development and tissue homeostasis. During embryogenesis, it contributes to formation of the cardiovascular system, craniofacial structures, and neural crest derived tissues. In adult tissues, ECE1 supports smooth muscle biology, extracellular matrix remodeling, and peptide processing pathways that govern local signaling networks. Through interactions with inflammatory and metabolic cues, ECE1 also participates in broader physiological processes, including renal sodium handling, pulmonary vascular control, and neuronal communication.

Pathologically, altered ECE1 activity has been associated with hypertension, heart failure, atherosclerosis, endothelial dysfunction, and pulmonary arterial hypertension. Excessive endothelin production can contribute to vascular stiffness, inflammatory signaling, and maladaptive fibrotic remodeling. Conversely, insufficient ECE1 activity can impair normal vascular reactivity or lead to developmental abnormalities. Genetic variants in ECE1 have been linked to congenital heart defects and craniofacial disorders. In oncology, ECE1 dysregulation has been observed in certain tumors, where aberrant endothelin signaling can influence proliferation, invasion, and angiogenesis.

ECE1 is also investigated for its roles in neurobiology. Active endothelins participate in neurotransmission, glial signaling, and neurovascular coupling. Because ECE1 affects local peptide availability, it is relevant to studies of neural regulation,

pain pathways, and neuroinflammatory mechanisms.

ECE1 antibody supports research into endothelin pathway activity, vascular physiology, and protease mediated peptide processing. It is validated for use in relevant research applications to detect Endothelin Converting Enzyme 1 expression in cells and tissues. NSJ Bioreagents provides ECE1 antibody reagents suitable for cardiovascular research, developmental biology, renal physiology, and studies of vascular signaling.

Application Notes

Optimal dilution of the ECE1 antibody should be determined by the researcher.

Immunogen

Amino acids M18-T233 from the human protein were used as the immunogen for the ECE1 antibody.

Storage

After reconstitution, the ECE1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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