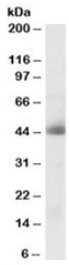
CA12 Antibody / Carbonic Anhydrase 12 Antibody (R35918)

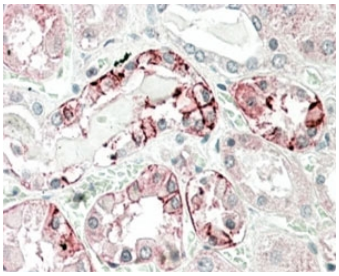
Catalog No.	Formulation	Size
R35918-100UG	0.5 mg/ml in 1X TBS, pH7.3, with 0.5% BSA (US sourced) and 0.02% sodium azide	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Goat
Clonality	Polyclonal (goat origin)
Isotype	Goat Ig
Purity	Antigen affinity
UniProt	O43570
Applications	Western blot: 0.3-1ug/ml Immunohistochemistry (FFPE): 5-10ug/ml ELISA (peptide) LOD: 1:128000
Limitations	This CA12 Antibody / Carbonic Anhydrase 12 Antibody is available for research use only.



CA12 Antibody by WB in human kidney. Western blot analysis of human kidney lysate using goat polyclonal CA12 Antibody at 0.3 ug/ml. A distinct immunoreactive band is detected at approximately 40 kDa, consistent with the predicted molecular weight of carbonic anhydrase 12. The blot exhibits minimal background staining, with no prominent additional bands visible. This Carbonic Anhydrase 12 Antibody demonstrates detection of CA12 at its expected molecular weight in human kidney tissue.



CA12 Antibody by IHC in human kidney. Immunohistochemistry of FFPE human kidney tissue using goat polyclonal CA12 Antibody at 5 ug/ml. Prominent red immunoreactivity is observed in renal tubular epithelial cells, with staining concentrated along portions of the cell membranes and cytoplasm. Surrounding structures exhibit comparatively weaker staining, highlighting the distribution of carbonic anhydrase 12 within the renal tubules. Heat-mediated antigen retrieval was performed by steaming sections in pH 6 citrate buffer, followed by alkaline phosphatase-based detection. This Carbonic Anhydrase 12 Antibody demonstrates localized CA12 immunoreactivity in human kidney tissue.

Description

CA12 Antibody recognizes carbonic anhydrase 12, also known as carbonic anhydrase XII or CA XII, a zinc-dependent enzyme involved in cellular pH regulation and bicarbonate metabolism. This protein belongs to the alpha-carbonic anhydrase family and catalyzes the reversible hydration of carbon dioxide to bicarbonate and hydrogen ions. Its extracellular catalytic domain enables it to regulate acid-base balance at the cell surface, supporting bicarbonate transport and intracellular pH homeostasis.

The human CA12 gene is located on chromosome 15 and encodes a type I transmembrane glycoprotein of approximately 354 amino acids. Its structure includes an extracellular zinc-binding catalytic domain, a single transmembrane region, and a short intracellular tail. Glycosylation contributes to the biochemical properties of CA12 and can influence its apparent molecular weight. Although structurally related to carbonic anhydrase IX (CA9), CA12 exhibits distinct expression patterns and regulatory characteristics.

Carbonic anhydrase 12 participates in the regulation of extracellular acidity, particularly in metabolically active tissues. In cancer cells, increased glycolytic activity and altered metabolism can promote extracellular acidification. Membrane-associated carbonic anhydrases help maintain intracellular pH while contributing to the acidic tumor microenvironment. These processes can influence cellular survival, proliferation, and responses to environmental stress.

CA12 expression has been documented in several malignancies, including breast and kidney cancers. In certain breast cancer subtypes, CA12 expression is associated with estrogen receptor signaling and differentiated tumor phenotypes. Its expression can also be influenced by hypoxia-associated pathways, although this regulation differs from the strongly hypoxia-responsive CA9 protein. These characteristics have generated interest in carbonic anhydrase 12 as a potential cancer biomarker and therapeutic target.

Beyond oncology, CA12 contributes to epithelial ion transport, bicarbonate regulation, and fluid homeostasis. Inherited mutations affecting CA12 function have been associated with disorders involving abnormal salt balance and sweating, demonstrating its importance in normal physiology. The Carbonic Anhydrase 12 Antibody provides a research tool for investigating these biological pathways. NSJ Bioreagents offers this antibody for studies of pH homeostasis and carbonic anhydrase biology. A CA12 Antibody supports research into CA12 expression, epithelial physiology, and cancer-associated metabolic regulation.

For an alternative antibody targeting the same protein, see our Carbonic Anhydrase XII Antibody.

Application Notes

Optimal dilution of the CA12 Antibody / Carbonic Anhydrase 12 Antibody should be determined by the researcher.

Immunogen

Amino acids SHLQHVKYKGQE were used as the immunogen for this CA12 antibody.

Storage

Aliquot and store the CA12 antibody at -20oC.

Alternate Names

Carbonic Anhydrase XII antibody, CA XII antibody, Carbonic Anhydrase 12 Polyclonal antibody, Carbonate Dehydratase XII antibody

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