

CA I (F-5): sc-393490

BACKGROUND

Carbonic anhydrases (CAs), also designated carbonate dehydratases or carbonate hydrolyases, form a large family of genes that encode zinc metalloenzymes of great physiologic importance. As catalysts of the reversible hydration of carbon dioxide, these enzymes participate in a variety of biologic processes, including respiration, acid-base balance, bone resorption and calcification as well as the formation of aqueous humor, cerebrospinal fluid, saliva and gastric acid. Genes in the α -carbonic anhydrase family encode either active carbonic anhydrase isozymes or "acatalytic" (devoid of CO₂ hydration activity) carbonic anhydrase-related proteins. Human CA I (CA1) is encoded by the CA1 gene, which maps to a region on chromosome 8 that harbors a cluster of CA genes. CA I localizes to the cytoplasm and research indicates that a severe deficiency of CA I does not result in any obvious hematological or renal consequences.

REFERENCES

- Hopkinson, D.A., et al. 1975. The detection and differentiation of the products of the human carbonic anhydrase loci, CA I and CA II using fluorogenic substrates. *Ann. Hum. Genet.* 38: 155-162.
- Davis, M.B., et al. 1987. Regional localization of carbonic anhydrase genes CA1 and CA3 on human chromosome 8. *Somat. Cell Mol. Genet.* 13: 173-178.

CHROMOSOMAL LOCATION

Genetic locus: CA1 (human) mapping to 8q21.2; Car1 (mouse) mapping to 3 A1.

SOURCE

CA I (F-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 45-64 near the N-terminus of CA I (carbonic anhydrase) of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CA I (F-5) is available conjugated to agarose (sc-393490 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393490 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393490 PE), fluorescein (sc-393490 FITC), Alexa Fluor[®] 488 (sc-393490 AF488), Alexa Fluor[®] 546 (sc-393490 AF546), Alexa Fluor[®] 594 (sc-393490 AF594) or Alexa Fluor[®] 647 (sc-393490 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-393490 AF680) or Alexa Fluor[®] 790 (sc-393490 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393490 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

CA I (F-5) is recommended for detection of CA I of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

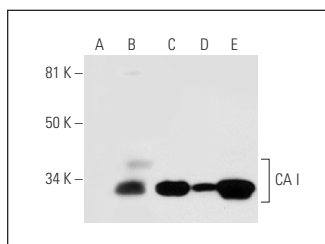
CA I (F-5) is also recommended for detection of CA I in additional species, including canine and porcine.

Suitable for use as control antibody for CA I siRNA (h): sc-60307, CA I siRNA (m): sc-60308, CA I shRNA Plasmid (h): sc-60307-SH, CA I shRNA Plasmid (m): sc-60308-SH, CA I shRNA (h) Lentiviral Particles: sc-60307-V and CA I shRNA (m) Lentiviral Particles: sc-60308-V.

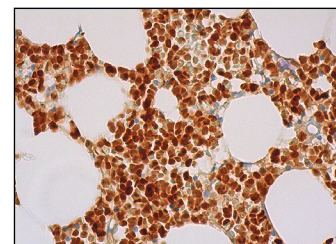
Molecular Weight of CA I: 29 kDa.

Positive Controls: human spleen extract: sc-363779, HEL 92.1.7 cell lysate: sc-2270 or CA I (m): 293T Lysate: sc-118938.

DATA



CA I (F-5): sc-393490. Western blot analysis of CA I expression in non-transfected 293T: sc-117752 (A), mouse CA I transfected 293T: sc-118938 (B), HEL 92.1.7 (C) and TF-1 (D) whole cell lysates and human spleen tissue extract (E).



CA I (F-5): sc-393490. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing nuclear and cytoplasmic staining of hematopoietic cells.

SELECT PRODUCT CITATIONS

- Kim, E.K., et al. 2019. Proteomic analysis of primary colon cancer and synchronous solitary liver metastasis. *Cancer Genomics Proteomics* 16: 583-592.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.