

CA I (D-4): sc-166796

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, calcification and 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 has been assigned to chromosome 8 and 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

1. Hopkinson, D.A., et al. 1974. 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.
2. Edwards, Y.H., et al. 1986. Assignment of the gene determining human carbonic anhydrase, CAI, to chromosome 8. *Ann. Hum. Genet.* 50: 123-129.
3. 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.
4. Hewett-Emmett, D. and Tashian, R.E. 1996. Functional diversity, conservation, and convergence in the evolution of the α -, β -, and γ -carbonic anhydrase gene families. *Mol. Phylogenet. Evol.* 5: 50-77.
5. Ichihara, N., et al. 1997. Immunohistolocalization of carbonic anhydrase isozymes (CA I, CA II and CA III) in bovine male reproductive tracts. *Okajimas Folia Anat. Jpn.* 74: 193-198.
6. Asari, M., et al. 2000. Immunohistochemistry of carbonic anhydrase isozymes (CA I, II and III) in canine salivary glands: a distributional and comparative assessment. *Anat. Histol. Embryol.* 29: 9-12.

CHROMOSOMAL LOCATION

Genetic locus: Car1 (mouse) mapping to 3 A1.

SOURCE

CA I (D-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-40 at the N-terminus of CA-I (carbonic anhydrase) of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-166796 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CA I (D-4) is recommended for detection of CA-I of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

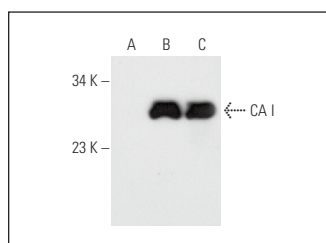
Molecular Weight of CA I: 29 kDa.

Positive Controls: mouse colon extract: sc-364238, mouse spleen extract: sc-2391 or CA I (m): 293T Lysate: sc-118938.

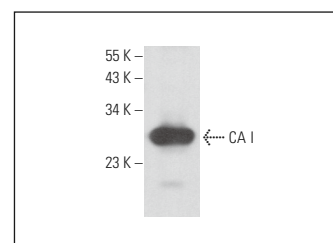
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CA I (D-4): sc-166796. Western blot analysis of CA I expression in non-transfected: sc-117752 (A) and mouse CA I transfected: sc-118938 (B) 293T whole cell lysates and mouse spleen tissue extract (C).



CA I (D-4): sc-166796. Western blot analysis of CA I expression in mouse colon tissue extract.

STORAGE

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

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.