SANTA CRUZ BIOTECHNOLOGY, INC.

CA VB (G-1): sc-393851

BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes responsible for catalyzing the reversible hydration of carbon dioxide. CAs show extensive diversity in their distribution and subcellular localization. They are involved in a variety of biological processes, including calcification, bone resorption, respiration, acid-base balance and the formation of aqueous humor, saliva, gastric juice and cerebrospinal fluid. CA VB, also known as carbonate dehydratase VB, is one of two isoforms of CA V. It localizes to the mitochondria and is involved in metabolic processes. CA VB is predominantly expressed in heart, pancreas, lung, placenta, kidney and skeletal muscle. It exhibits highest homology with family member CA VA (the second isoform of CA V); however, unlike CA VA, it is not expressed in the liver, suggesting that it plays a significantly different physiological role.

REFERENCES

1. Fujikawa-Adachi, K., et al. 1999. Human mitochondrial carbonic anhydrase VB. cDNA cloning, mRNA expression, subcellular localization, and mapping to chromosome x. J. Biol. Chem. 274: 21228-21233.
2. Shah, G.N., et al. 2000. Mitochondrial carbonic anhydrase CA VB: differences in tissue distribution and pattern of evolution from those of CA VA suggest distinct physiological roles. Proc. Natl. Acad. Sci. USA 97: 1677-1682.
3. Nishimori, I. and Onishi, S. 2001. Carbonic anhydrase isozymes in the human pancreas. Dig. Liver Dis. 33: 68-74.
4. Winum, J.Y., et al. 2006. Carbonic anhydrase inhibitors: clash with Ala65 as a means for designing inhibitors with low affinity for the ubiquitous isozyme II, exemplified by the crystal structure of the topiramate sulfamide analogue. J. Med. Chem. 49: 7024-7031.
5. Vitale, R.M., et al. 2007. Molecular modeling study for the binding of zonisamide and topiramate to the human mitochondrial carbonic anhydrase isoform VA. Bioorg. Med. Chem. 15: 4152-4158.
6. Supuran, C.T. and Scozzafava, A. 2007. Carbonic anhydrases as targets for medicinal chemistry. Bioorg. Med. Chem. 15: 4336-4350.
7. Supuran, C.T. 2007. Carbonic anhydrases as drug targets—an overview. Curr. Top. Med. Chem. 7: 825-833.

CHROMOSOMAL LOCATION

Genetic locus: CA5B (human) mapping to Xp22.2.

SOURCE

CA VB (G-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 39-66 near the N-terminus of CA VB of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 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-393851 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CA VB (G-1) is recommended for detection of CA VB of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

CA VB (G-1) is also recommended for detection of CA VB in additional species, including canine.

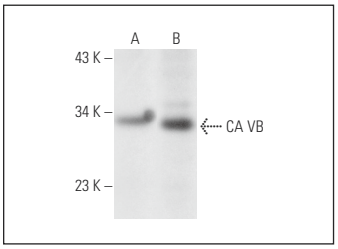
Suitable for use as control antibody for CA VB siRNA (h): sc-62034, CA VB shRNA Plasmid (h): sc-62034-SH and CA VB shRNA (h) Lentiviral Particles: sc-62034-V.

Molecular Weight of mature CA VB: 32 kDa.

Molecular Weight of CA VB precursor: 36 kDa.

Positive Controls: human liver extract: sc-363766.

DATA



CA VB (G-1): sc-393851. Western blot analysis of CA VB expression in 293T whole cell lysate (**A**) and human liver tissue extract (**B**).

SELECT PRODUCT CITATIONS

1. Aventaggiato, M., et al. 2024. Pharmacological activation of SIRT3 modulates the response of cancer cells to acidic pH. Pharmaceuticals 17: 810.

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.