

CA VB (R-20): sc-54763

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., Nishimori, I., Taguchi, T. and Onishi, S. 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., Hewett-Emmett, D., Grubb, J.H., Migas, M.C., Fleming, R.E., Waheed, A. and Sly, W.S. 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., Temperini, C., El Cheikh, K., Innocenti, A., Vullo, D., Ciattini, S., Montero, J.L., Scozzafava, A. and Supuran, C.T. 2006. Carbonic anhydrase inhibitors: clash with Ala 65 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. Supuran, C.T. 2007. Carbonic anhydrases as drug targets—an overview. *Curr. Top. Med. Chem.* 7: 825-833.
6. De Simone, G. and Supuran, C.T. 2007. Antiobesity carbonic anhydrase inhibitors. *Curr. Top. Med. Chem.* 7: 879-884.

CHROMOSOMAL LOCATION

Genetic locus: Car5b (rat) mapping to Xq21.

SOURCE

CA VB (R-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of CA VB of rat origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-54763 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CA VB (R-20) is recommended for detection of CA VB of rat origin by Western Blotting (starting dilution 1:200, 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).

Molecular Weight of CA VB precursor: 36 kDa.

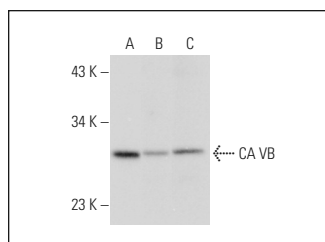
Molecular Weight of mature CA VB: 32 kDa.

Positive Controls: rat kidney extract: sc-2394, rat colon tissue extract or rat lung extract: sc-2396.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



CA VB (R-20): sc-54763. Western blot analysis of CA VB expression in rat kidney (A), rat colon (B) and rat lung (C) tissue extracts.

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 or our catalog for detailed protocols and support products.