SANTA CRUZ BIOTECHNOLOGY, INC.

CA II (m): 293T Lysate: sc-118933

BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide. CAs are involved in a variety of biological processes including respiration, calcification, acid-base balance and bone resorption, as well as the formation of aqueous humor, cerebrospinal fluid, saliva and gastric juice. They show extensive diversity in distribution and in their subcellular localization. The human CA2 gene, which maps to chromosome 8q22, encodes CA II, a cytoplasmic protein that has the highest turnover rate and widest tissue distribution of any known human CA isozyme. The human CA4 gene, which maps to chromosome 17q23, encodes CA IV, a membrane-anchored isozyme that is expressed on the luminal surfaces of pulmonary capillaries and proximal renal tubules. The human CA9, CA12 and CA14 genes, which map to chromosomes 9p13-p12, 15q22 and 1q21, respectively, encode transmembrane proteins that have unique patterns of tissue-specific expression. CA IX is specifically expressed in clear-cell renal carcinomas, whereas CA XII is highly expressed in normal tissues, such as kidney, colon and pancreas. Human CA XIV is also expressed in normal tissues, such as brain, but differs from CA XII in its expression pattern.

REFERENCES

1. Carter, N.D., et al. 1991. The Carbonic Anhydrases: Cellular Physiology and Molecular Genetics. New York: Plenum.
2. Venta, P.J., et al. 1991. Carbonic anhydrase II deficiency syndrome in a Belgian family is caused by a point mutation at an invariant histidine residue (107 His—Tyr): complete structure of the normal human CA II gene. Am. J. Hum. Genet. 49: 1082-1090.
3. Okuyama, T., et al. 1992. Human carbonic anhydrase IV: cDNA cloning, sequence comparison, and expression in COS cell membranes. Proc. Natl. Acad. Sci. USA 89: 1315-1319.
4. Sly, W.S. and Hu, P.Y. 1995. Human carbonic anhydrases and carbonic anhydrase deficiencies. Annu. Rev. Biochem. 64: 375-401.
5. Ivanov, S.V., et al. 1998. Down-regulation of transmembrane carbonic anhydrases in renal cell carcinoma cell lines by wild-type von Hippel-Lindau transgenes. Proc. Natl. Acad. Sci. USA 95: 12596-12601.
6. Fujikawa-Adachi, K., et al. 1999. Human carbonic anhydrase XIV (CA14): cDNA cloning, mRNA expression, and mapping to chromosome 1. Genomics 61: 74-81.

CHROMOSOMAL LOCATION

Genetic locus: Car2 (mouse) mapping to 3 A1.

PRODUCT

CA II (m): 293T Lysate represents a lysate of mouse CA II transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

CA II (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive CA II antibodies. Recommended use: 10-20 µl per lane.

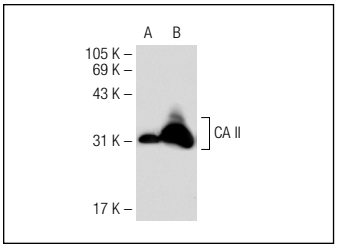
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

CA II (C-14): sc-133111 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse CA II expression in CA II transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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.

DATA



CA II (D-8): sc-133111. Western blot analysis of CA II expression in non-transfected: sc-117752 (**A**) and mouse CA II transfected: sc-118933 (**B**) 293T whole cell lysates.

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.