SANTA CRUZ BIOTECHNOLOGY, INC.

CA II (M-14): sc-17244

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, bone resorption, and 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 8q21.2, 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 9p13.3, 15q22.2 and 1q21.2, 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.

CHROMOSOMAL LOCATION

Genetic locus: CA2 (human) mapping to 8q21.2; Car2 (mouse) mapping to 3 A1.

SOURCE

CA II (M-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of CA II of mouse 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-17244 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CA II (M-14) is recommended for detection of CA II of mouse, rat and, to a lesser extent, human 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), 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).

Suitable for use as control antibody for CA II siRNA (h): sc-29865, CA II siRNA (m): sc-29866, CA II shRNA Plasmid (h): sc-29865-SH, CA II shRNA Plasmid (m): sc-29866-SH, CA II shRNA (h) Lentiviral Particles: sc-29865-V and CA II shRNA (m) Lentiviral Particles: sc-29866-V.

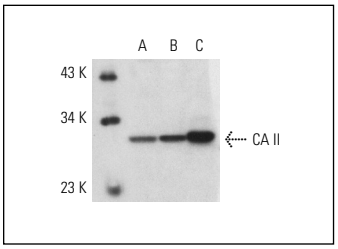
Molecular Weight of CA II: 29 kDa.

Positive Controls: rat kidney extract: sc-2394, mouse kidney extract: sc-2255 or mouse spleen extract: sc-2391.

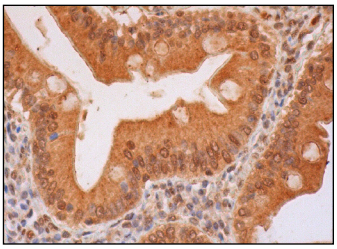
STORAGE

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

DATA



CA II (M-14): sc-17244. Western blot analysis of CA II expression in HEL 92.1.7 (**A**) and K-562 (**B**) whole cell lysates and mouse kidney extract (**C**).



CA II (M-14): sc-17244. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Dou, H., et al. 2004. Co-expression of Pendrin, vacuolar H^+-ATPase α_4-subunit and carbonic anhydrase II in epithelial cells of the murine endolymphatic sac. J. Histochem. Cytochem. 52: 1377-1384.
2. Essalihi, R., et al. 2005. Regression of medial elastocalcinosis in rat aorta: a new vascular function for carbonic anhydrase. Circulation 112: 1628-1635.
3. Wang, X., et al. 2010. Carbonic anhydrase II regulates differentiation of ameloblasts via intracellular pH-dependent JNK signaling pathway. J. Cell. Physiol. 225: 709-719.
4. Zhang, Y., et al. 2011. Proteomic and metabolomic profiling of a trait anxiety mouse model implicate affected pathways. Mol. Cell. Proteomics 10: M111.
5. Crooke, A., et al. 2012. Involvement of carbonic anhydrases in the ocular hypotensive effect of melatonin analogue 5-MCA-NAT. J. Pineal Res. 52: 265-270.

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.