

CA II (D-8): sc-133111



The Power to Question

BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metallo-enzymes 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 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 17q23.1, 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 trans-membrane 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 (D-8) is a mouse monoclonal antibody raised against amino acids 191-260 of CA II of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CA II (D-8) is recommended for detection of CA II of mouse, rat and 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), 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).

CA II (D-8) is also recommended for detection of CA II in additional species, including bovine.

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.

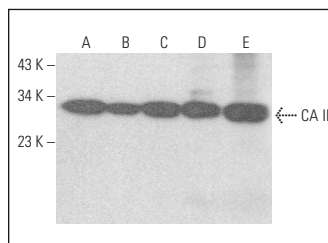
Molecular Weight of CA II: 29 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, K-562 whole cell lysate: sc-2203 or HEL 92.1.7 cell lysate: sc-2270.

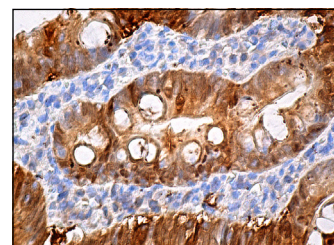
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CA II (D-8): sc-133111. Western blot analysis of CA II expression in HEL 92.1.7 (A), Caki-1 (B) and K-562 (C) whole cell lysates and rat heart (D) and rat spleen (E) tissue extracts.



CA II (D-8): sc-133111. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Du, A., et al. 2017. Suppression of CHRN endocytosis by carbonic anhydrase CAR3 in the pathogenesis of myasthenia gravis. *Autophagy* 13: 1981-1994.
2. Huang, L., et al. 2021. Commitment and oncogene-induced plasticity of human stem cell-derived pancreatic acinar and ductal organoids. *Cell Stem Cell* 28: 1090-1104.e6.

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.



See **CA II (G-2): sc-48351** for CA II antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.