

CA IX (H-11): sc-365900

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, 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, 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.

CHROMOSOMAL LOCATION

Genetic locus: CA9 (human) mapping to 9p13.3.

SOURCE

CA IX (H-11) is a mouse monoclonal antibody raised against amino acids 41-160 of CA IX 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.

CA IX (H-11) is available conjugated to agarose (sc-365900 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365900 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365900 PE), fluorescein (sc-365900 FITC), Alexa Fluor[®] 488 (sc-365900 AF488), Alexa Fluor[®] 546 (sc-365900 AF546), Alexa Fluor[®] 594 (sc-365900 AF594) or Alexa Fluor[®] 647 (sc-365900 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-365900 AF680) or Alexa Fluor[®] 790 (sc-365900 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, CA IX (H-11) is available conjugated to biotin (sc-365900 B), 200 µg/ml, for WB, IHC(P) and ELISA.

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STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

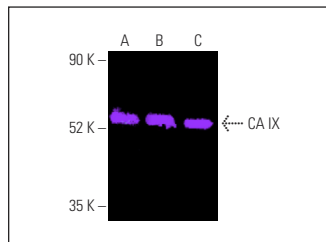
CA IX (H-11) is recommended for detection of CA IX of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (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 IX siRNA (h): sc-29869, CA IX shRNA Plasmid (h):sc-29869-SH and CA IX shRNA (h) Lentiviral Particles: sc-29869-V.

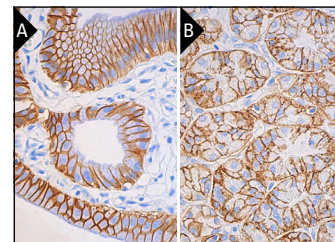
Molecular Weight of CA IX: 58 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Y79 cell lysate: sc-2240 or SK-N-SH cell lysate: sc-2410.

DATA



CA IX (H-11): sc-365900. Fluorescent western blot analysis of CA IX expression in HeLa (A), Y79 (B) and SK-N-SH (C) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgG Fc BP-CFL 555: sc-533654.



CA IX (H-11): sc-365900. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder (A) and human stomach (B) tissue showing membrane staining of glandular cells. Blocked with 0.25X UltraCruz[®] Blocking Reagent: sc-516214. Detection reagents used: m-IgGx BP-B: sc-516142 and ImmunoCruz[®] ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

- Xue, M.M., et al. 2012. Research of stem cell isotype of human lung cancer and biologic function of gene PLAGL2. *Chin. J. Cell Biol.* 34: 366-375.
- Vergara, D., et al. 2020. Carbonic anhydrase XII expression is modulated during epithelial mesenchymal transition and regulated through protein kinase C signaling. *Int. J. Mol. Sci.* 21: 715.
- Upcin, B., et al. 2021. Contribution of adventitia-derived stem and progenitor cells to new vessel formation in tumors. *Cells* 10: 1719.
- Kudo, M., et al. 2022. Histological tumor necrosis in pancreatic cancer after neoadjuvant therapy. *Oncol. Rep.* 48: 121.
- Rupert, C., et al. 2023. Therapeutic targeting of P2X4 receptor and mitochondrial metabolism in clear cell renal carcinoma models. *J. Exp. Clin. Cancer Res.* 42: 134.
- Urrutia, A.A, et al. 2024. HIF1α-dependent uncoupling of glycolysis suppresses tumor cell proliferation. *Cell Rep.* 43: 114103.

RESEARCH USE

For research use only, not for use in diagnostic procedures.