

# CA XII (H-114): sc-25601

## 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, 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 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. Dodgson, S.J., Tashian, R.E., Gross, G. and Carter, N.D. 1991. The Carbonic Anhydrases: Cellular Physiology and Molecular Genetics. New York: Plenum.
2. Venta, P.J., Welty, R. J., Johnson, T.M., Sly, W.S. and Tashian, R.E. 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., Sato, S., Zhu, X.L., Waheed, A. and Sly, W.S. 1992. Human carbonic anhydrase IV: cDNA cloning, sequence comparison, and expression in COS cell membranes. *Proc. Natl. Acad. Sci. USA* 89: 1315-1319.
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5. Ivanov, S.V., Kuzmin, I., Wei, M.H., Pack, S., Geil, L., Johnson, B.E., Stanbridge, E.J. and Lerman, M.I. 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.

## CHROMOSOMAL LOCATION

Genetic locus: CA12 (human) mapping to 15q22; Car12 (mouse) mapping to 9 C.

## SOURCE

CA XII (H-114) is a rabbit polyclonal antibody raised against amino acids 241-354 of CA XII of human origin.

## PRODUCT

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

## APPLICATIONS

CA XII (H-114) is recommended for detection of CA XII of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

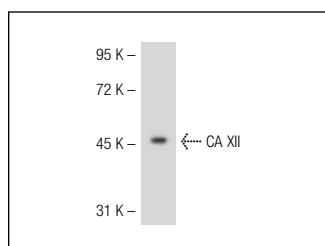
Suitable for use as control antibody for CA XII siRNA (h): sc-41463, CA XII siRNA (m): sc-41464, CA XII shRNA Plasmid (h): sc-41463-SH, CA XII shRNA Plasmid (m): sc-41464-SH, CA XII shRNA (h) Lentiviral Particles: sc-41463-V and CA XII shRNA (m) Lentiviral Particles: sc-41464-V.

Molecular Weight of CA XII: 43/44 kDa.

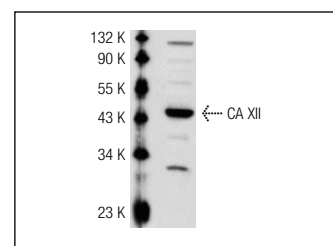
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



CA XII (H-114): sc-25601. Western blot analysis of CA XII expression in 293T whole cell lysate.



CA XII (H-114): sc-25601. Western blot analysis of CA XII expression in HeLa whole cell lysate.

## 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.

**MONOS**  
Satisfaction  
Guaranteed

Try **CA XII (D-2): sc-374314** or **CA XII (A-3): sc-374313**, our highly recommended monoclonal alternatives to CA XII (H-114).