

# CA X (N-16): sc-54668

## BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes responsible for catalyzing the reversible hydration of carbon dioxide. CAs show extensive diversity in their distribution and subcellular localization. They are involved in a variety of biological processes, including calcification, bone resorption, respiration, acid-base balance and the formation of aqueous humor, saliva, gastric juice and cerebrospinal fluid. CA X, also referred to as carbonic anhydrase-related protein X (CA-RP X) or cerebral protein 15, is a member of the carbonic anhydrase family that lacks two of the three Zn-binding motifs essential for carbonic anhydrase activity. For this reason, CA X does not exhibit catalytic activity. It is expressed primarily in brain and kidney and may play a role in brain development.

## REFERENCES

- Lovejoy, D.A., Hewett-Emmett, D., Porter, C.A., Cepoi, D., Sheffield, A., Vale, W.W. and Tashian, R.E. 1999. Evolutionarily conserved, "acatalytic" carbonic anhydrase-related protein XI contains a sequence motif present in the neuropeptide sauvagine: the human CA-RP XI gene (CA11) is embedded between the secretor gene cluster and the DBP gene at 19q13.3. *Genomics* 54: 484-493.
- Okamoto, N., Fujikawa-Adachi, K., Nishimori, I., Taniuchi, K. and Onishi, S. 2001. cDNA sequence of human carbonic anhydrase-related protein, CA-RP X: mRNA expressions of CA-RP X and XI in human brain. *Biochim. Biophys. Acta* 1518: 311-316.
- Taniuchi, K., Nishimori, I., Takeuchi, T., Fujikawa-Adachi, K., Ohtsuki, Y. and Onishi, S. 2002. Developmental expression of carbonic anhydrase-related proteins VIII, X, and XI in the human brain. *Neuroscience* 112: 93-99.
- Taniuchi, K., Nishimori, I., Takeuchi, T., Ohtsuki, Y. and Onishi, S. 2003. cDNA cloning and developmental expression of murine carbonic anhydrase-related proteins VIII, X, and XI. *Brain Res. Mol. Brain Res.* 109: 207-215.
- Gulcin, I., Beydemir, S. and Buyukokuroglu, M.E. 2004. *In vitro* and *in vivo* effects of dantrolene on carbonic anhydrase enzyme activities. *Biol. Pharm. Bull.* 27: 613-616.
- Pastorekova, S., Parkkila, S., Pastorek, J. and Supuran, C.T. 2004. Carbonic anhydrases: current state of the art, therapeutic applications and future prospects. *J. Enzyme Inhib. Med. Chem.* 19: 199-229.
- Vullo, D., Manole, G., Casini, A., Scozzafava, A. and Supuran, C.T. 2004. Designing of novel carbonic anhydrase inhibitors and activators. *Curr. Med. Chem. Cardiovasc. Hematol. Agents* 2: 51-70.
- Ohradanova, A., Vullo, D., Kopacek, J., Temperini, C., Betakova, T., Pastorekova, S., Pastorek, J. and Supuran, C.T. 2007. Reconstitution of carbonic anhydrase activity of the cell surface binding protein of Vaccinia Virus. *Biochem. J.* 407: 61-67.

## CHROMOSOMAL LOCATION

Genetic locus: CA10 (human) mapping to 17q21.33; Car10 (mouse) mapping to 11 D.

## SOURCE

CA X (N-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of CA X 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.

Blocking peptide available for competition studies, sc-54668 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

CA X (N-16) is recommended for detection of CA X of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

CA X (N-16) is also recommended for detection of CA X in additional species, including equine, canine, bovine and avian.

Suitable for use as control antibody for CA X siRNA (h): sc-62040, CA X siRNA (m): sc-62041, CA X shRNA Plasmid (h): sc-62040-SH, CA X shRNA Plasmid (m): sc-62041-SH, CA X shRNA (h) Lentiviral Particles: sc-62040-V and CA X shRNA (m) Lentiviral Particles: sc-62041-V.

Molecular Weight of CA X: 38 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.