

# CA IV (N-16): sc-17247

## BACKGROUND

Carbonic anhydrase IV (CA IV) is glycosylphosphatidylinositol-anchored to the outer surface of the plasma membrane where it catalyzes hydration-dehydration of  $\text{CO}_2/\text{HCO}_3^-$ . CA IV is present on the plasma face of microcapillaries and in the choriocapillaris of the human eye. CA IV facilitates renal acidification in the kidney and is responsible for the regulation of interstitial pH ( $\text{pH}_i$ ) transients in brain. Impairment in targeting leads to disruption of  $\text{HCO}_3^-$  secretion and associates with malfunction in cystic fibrosis cells. Carbonic anhydrases are zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide. They participate in respiration, calcification, acid-base balance, bone resorption, and the formation of aqueous humor, cerebrospinal fluid, saliva, and gastric acid. Carbonic anhydrases show extensive diversity in tissue distribution and in their subcellular localization.

## REFERENCES

1. Tong, C.K., et al. 2000. Interstitial carbonic anhydrase (CA) activity in brain is attributable to membrane-bound CA type IV. *J. Neurosci.* 20: 8247-8253.
2. Fanjul, M., et al. 2002. Targeting of carbonic anhydrase IV to plasma membranes is altered in cultured human pancreatic duct cells expressing a mutated ( $\delta\text{F508}$ ) CFTR. *Eur. J. Cell Biol.* 8: 437-447.

## CHROMOSOMAL LOCATION

Genetic locus: CA4 (human) mapping to 17q23.1.

## SOURCE

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

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17247 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

CA IV (N-16) is recommended for detection of CA IV of human and, to a lesser extent, rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  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).

CA IV (N-16) is also recommended for detection of CA IV in additional species, including equine.

Suitable for use as control antibody for CA IV siRNA (h): sc-29867, CA IV shRNA Plasmid (h): sc-29867-SH and CA IV shRNA (h) Lentiviral Particles: sc-29867-V.

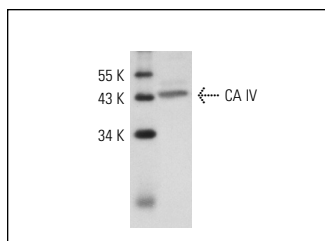
Molecular Weight of CA IV: 39 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

## 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



CA IV (N-16): sc-17247. Western blot analysis of CA IV expression in KNRK whole cell lysate.

## SELECT PRODUCT CITATIONS

1. Essalihi, R., et al. 2005. Regression of medial elastocalcinosis in rat aorta: a new vascular function for carbonic anhydrase. *Circulation* 112: 1628-1635.
2. Casey, J.R., et al. 2009. Bicarbonate homeostasis in excitable tissues: role of AE3  $\text{Cl}^-/\text{HCO}_3^-$  exchanger and carbonic anhydrase XIV interaction. *Am. J. Physiol., Cell Physiol.* 297: C1091-C1102.

## 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.



Try **CA IV (H-5): sc-74446** or **CA IV (E-6): sc-390371**, our highly recommended monoclonal alternatives to CA IV (N-16).