SANTA CRUZ BIOTECHNOLOGY, INC.

CA IV (H-72): sc-25597

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Carbonic anhydrase IV (CA IV) is glycosylphosphotidylinositol-anchored to the outer surface of the plasma membrane where it catalyzes hydration-dehydration of CO_2/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 (pH_0) transients in brain. Impairment in targetting leads to disruption of 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

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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 (δF508) CFTR. Eur. J. Cell Biol. 8: 437-447.
3. Schwartz, G.J., et al. 2002. Carbonic anhydrase XII mRNA encodes a hydratase that is differentially expressed along the rabbit nephron. Am. J. Physiol. Renal. Physiol. 284: F399-F410.
4. Sterling, D., et al. 2002. The extracellular component of a transport metabolon. Extracellular loop 4 of the human AE_1 Cl^-/HCO_3^- exchanger binds carbonic anhydrase IV. J. Biol. Chem. 277: 25239-25246.
5. Alvarez, B.V., et al. 2003. Direct extracellular interaction between carbonic anhydrase IV and the human NBC_1 sodium/bicarbonate co-transporter. Biochemistry 42: 12321-12329.
6. Bonapace, G., et al. 2004. Chemical chaperones protect from effects of apoptosis-inducing mutation in carbonic anhydrase IV identified in retinitis pigmentosa 17. Proc. Natl. Acad. Sci. USA 101: 12300-12305.
7. Ekstedt, E., et al. 2004. Carbonic anhydrase in mouse testis and epididymis; transfer of isozyme IV to spermatozoa during passage. J. Mol. Histol. 35: 167-173.

CHROMOSOMAL LOCATION

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

SOURCE

CA IV (H-72) is a rabbit polyclonal antibody raised against amino acids 241-312 of CA IV 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.

RESEARCH USE

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

APPLICATIONS

CA IV (H-72) is recommended for detection of CA IV of 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 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 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.

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 or our catalog for detailed protocols and support products.