SANTA CRUZ BIOTECHNOLOGY, INC.

CA VII (G-7): sc-166721

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 VII, also known as carbonate dehydratase VII, is a highly conserved mammlian carbonic anhydrase. It localizes to the cytoplasm and is ubiquitiously expressed at low levels, but is present at significant levels in brain and salivary glands. CA VII may influence GABAergic excitation in neurons and contribute to the triggering of convulsions common to neurological disorders. Due to the high expression level of CA VII in brain, it may be useful in the development of pharmacologic agents for managing epilepsy and Alzheimer's disease.

REFERENCES

1. Earnhardt, J.N., et al. 1998. The catalytic properties of murine carbonic anhydrase VII. Biochemistry 37: 10837-10845.
2. Ruusuvuori, E., et al. 2004. Carbonic anhydrase isoform VII acts as a molecular switch in the development of synchronous γ-frequency firing of hippocampal CA1 pyramidal cells. J. Neurosci. 24: 2699-2707.
3. Vullo, D., et al. 2005. Carbonic anhydrase inhibitors. Inhibition of the human cytosolic isozyme VII with aromatic and heterocyclic sulfonamides. Bioorg. Med. Chem. Lett. 15: 971-976.
4. Halmi, P., et al. 2005. Expression of carbonic anhydrases II, IV, VII, VIII and XII in rat brain after kainic acid induced status epilepticus. Neurochem. Int. 48: 24-30.
5. Rivera, C., et al. 2005. Two developmental switches in GABAergic signalling: the K^+-Cl^- cotransporter KCC2 and carbonic anhydrase CA VII. J. Physiol. 562: 27-36.

CHROMOSOMAL LOCATION

Genetic locus: CA7 (human) mapping to 16q22.1.

SOURCE

CA VII (G-7) is a mouse monoclonal antibody raised against amino acids 1-90 mapping at the N-terminus of CA VII of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CA VII (G-7) is available conjugated to agarose (sc-166721 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166721 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166721 PE), fluorescein (sc-166721 FITC), Alexa Fluor® 488 (sc-166721 AF488), Alexa Fluor® 546 (sc-166721 AF546), Alexa Fluor® 594 (sc-166721 AF594) or Alexa Fluor® 647 (sc-166721 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166721 AF680) or Alexa Fluor® 790 (sc-166721 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CA VII (G-7) is recommended for detection of CA VII 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CA VII siRNA (h): sc-62036, CA VII shRNA Plasmid (h): sc-62036-SH and CA VII shRNA (h) Lentiviral Particles: sc-62036-V.

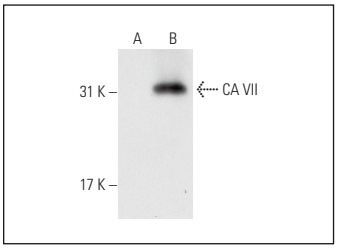
Molecular Weight of CA VII: 30 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa nuclear extract: sc-2120 or CA VII (h): 293T Lysate: sc-115027.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CA VII (G-7): sc-166721. Western blot analysis of CA VII expression in non-transfected: sc-117752 (**A**) and human CA VII transfected: sc-115027 (**B**) 293T whole cell lysates.

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 for detailed protocols and support products.