

CA III (F-10): sc-373729

BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes 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. CA III (carbonic anhydrase III), also known as Car3 or CA3, is a 260 amino acid cytoplasmic protein that is specifically expressed in muscle. Belonging to the α -carbonic anhydrase family, CA III is activated by proton donors such as imidazole and dipeptide histidylhistidine, and is inhibited by coumarins and sulfonamide derivatives such as acetazolamide.

REFERENCES

1. Heath, R., et al. 1985. Evaluation of carrier detection of Duchenne muscular dystrophy using carbonic anhydrase III and creatine kinase. *Am. J. Med. Genet.* 21: 291-296.
2. Edwards, Y.H., et al. 1988. The gene for human muscle specific carbonic anhydrase (CAIII) is assigned to chromosome 8. *Ann. Hum. Genet.* 50: 41-47.
3. Beechey, C., et al. 1990. Mapping of mouse carbonic anhydrase-3, Car-3: another locus in the homologous region of mouse chromosome 3 and human chromosome 8. *Genomics* 6: 692-696.

CHROMOSOMAL LOCATION

Genetic locus: CA3 (human) mapping to 8q21.2; Car3 (mouse) mapping to 3 A1.

SOURCE

CA III (F-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 27-55 near the N-terminus of CA III of human origin.

PRODUCT

Each vial contains 200 μ g IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CA III (F-10) is available conjugated to agarose (sc-373729 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373729 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373729 PE), fluorescein (sc-373729 FITC), Alexa Fluor[®] 488 (sc-373729 AF488), Alexa Fluor[®] 546 (sc-373729 AF546), Alexa Fluor[®] 594 (sc-373729 AF594) or Alexa Fluor[®] 647 (sc-373729 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-373729 AF680) or Alexa Fluor[®] 790 (sc-373729 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373729 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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RESEARCH USE

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

APPLICATIONS

CA III (F-10) is recommended for detection of CA III of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 III siRNA (h): sc-60309, CA III siRNA (m): sc-60310, CA III shRNA Plasmid (h): sc-60309-SH, CA III shRNA Plasmid (m): sc-60310-SH, CA III shRNA (h) Lentiviral Particles: sc-60309-V and CA III shRNA (m) Lentiviral Particles: sc-60310-V.

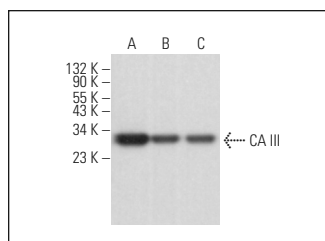
Molecular Weight of CA III: 28 kDa.

Positive Controls: A-10 cell lysate: sc-3806, Sol8 cell lysate: sc-2249 or C2C12 whole cell lysate: sc-364188.

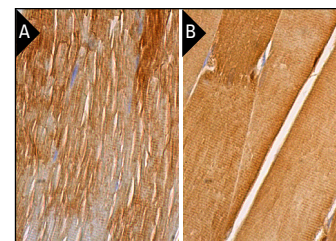
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CA III (F-10): sc-373729. Western blot analysis of CA III expression in Sol8 (A), C2C12 (B) and A-10 (C) whole cell lysates.



CA III (F-10): sc-373729. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse (A) and rat (B) skeletal muscle tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. Kawasaki, M., et al. 2021. Neutrophil degranulation interconnects over-represented biological processes in atrial fibrillation. *Sci. Rep.* 11: 2972.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.