ACO2, also referred to as aconitate hydratase, citrate hydrolyase or aconitase, is an iron-sulfur hydrolase that catalyzes the non-limiting interconversion of citrate and isocitrate in the tricarboxylic acid cycle. It is expressed in the mitochondria and maintains a citrate/isocitrate ratio of approximately 10:1. ACO2 contains a redox-sensitive iron-sulfur cluster that exists in two states: active (Fe₄S₄) and inactive (Fe³S₄). ACO2 activity is dependent on the state of this cluster as well as the presence of two conserved cysteine residues. In normal prostate epithelial cells ACO2 activity is prevented due to the high levels of zinc inhibiting the enzyme. In these citrate-producing epithelial cells citrate oxidation is impaired, allowing citrate to accumulate and exhibit a citrate/isocitrate ratio of approximately 30:1. In malignant prostate cells zinc is unable to accumulate, therefore ACO2 activity resumes and citrate is oxidized.

REFERENCES


CHROMOSOMAL LOCATION

Genetic locus: ACO2 (human) mapping to 22q13.2; Aco2 (mouse) mapping to 15 E1.

SOURCE

ACO2 (A-22) is a purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of ACO2 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

ACO2 (A-22) is recommended for detection of ACO2 of mouse, rat and 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), 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 ACO2 siRNA (h): sc-61936, ACO2 siRNA (m): sc-61937, ACO2 shRNA Plasmid (h): sc-61936-SH, ACO2 shRNA Plasmid (m): sc-61937-SH, ACO2 shRNA (h) Lentiviral Particles: sc-61936-V and ACO2 shRNA (m) Lentiviral Particles: sc-61937-V.

Molecular Weight of ACO2: 82 kDa.

Positive Controls: ACO2 (h): 293T Lysate: sc-127922, ACO2 (m): 293T Lysate: sc-118201 or K-562 whole cell lysate: sc-2203.

DATA

ACO2 (A-22): sc-130677. Western blot analysis of ACO2 expression in non-transfected: sc-117752 (A) and mouse ACO2 transfected: sc-118201 (B) and K-562 whole cell lysates.

ACO2 (A-22): sc-130677. Western blot analysis of ACO2 expression in non-transfected 293T: sc-117752 (A), human ACO2 transfected 293T: sc-127922 (B) and K-562 (C) whole cell lysates.

ACO2 (A-22): sc-130677. Western blot analysis of ACO2 expression in non-transfected 293T: sc-117752 (A), human ACO2 transfected 293T: sc-172722 (B) and K-562 (C) whole cell lysates.

ACO2 (A-22): sc-130677. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic localization (A), Immunofluorescence staining of methanol-fixed HeLa cells showing membrane and cytoplasmic localization (B).

SELECT PRODUCT CITATIONS


RESEARCH USE

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