

COX5b (C-5): sc-374416



The Power to Question

BACKGROUND

The cytochrome c oxidase (COX) family of proteins function as the final electron donor in the respiratory chain to drive a proton gradient across the inner mitochondrial membrane, ultimately resulting in the production of water. The mammalian COX apoenzyme is a dimer, with each monomer consisting of 13 subunits, some of which are mitochondrial and some of which are nuclear. Found in the inner mitochondrial membrane, COX5 is the heme A-containing chain of the oxidase family that converts one molecule of oxygen and four molecules of hydrogen to two molecules of water. Two isoforms of COX5 exist, COX5a and COX5b. When oxygen levels within the cell are high, transcription of COX5a (the aerobic isoform) is upregulated as the rate of cellular respiration increases. Conversely, when oxygen levels are low, COX5b (the hypoxic isoform) transcription increases and functions to maximize the turnover rate of the COX apoenzyme.

REFERENCES

- Hodge, M.R., et al. 1989. Inverse regulation of the yeast COX5 genes by oxygen and heme. *Mol. Cell. Biol.* 9: 1958-1964.
- Allen, L.A., et al. 1995. Isoforms of yeast cytochrome c oxidase subunit V affect the binuclear reaction center and alter the kinetics of interaction with the isoforms of yeast cytochrome c. *J. Biol. Chem.* 270: 110-118.
- Bachman, N.J., et al. 1996. Phylogenetic footprinting of the human cytochrome c oxidase subunit VB promoter. *Arch. Biochem. Biophys.* 333: 152-162.

CHROMOSOMAL LOCATION

Genetic locus: COX5B (human) mapping to 2q11.2; Cox5b (mouse) mapping to 1 B.

SOURCE

COX5b (C-5) is a mouse monoclonal antibody raised against amino acids 35-129 mapping at the C-terminus of COX5b of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

COX5b (C-5) is available conjugated to agarose (sc-374416 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374416 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374416 PE), fluorescein (sc-374416 FITC), Alexa Fluor® 488 (sc-374416 AF488), Alexa Fluor® 546 (sc-374416 AF546), Alexa Fluor® 594 (sc-374416 AF594) or Alexa Fluor® 647 (sc-374416 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374416 AF680) or Alexa Fluor® 790 (sc-374416 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

COX5b (C-5) is recommended for detection of COX5b of mouse, rat and 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), 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 COX5b siRNA (h): sc-72982, COX5b siRNA (m): sc-72983, COX5b shRNA Plasmid (h): sc-72982-SH, COX5b shRNA Plasmid (m): sc-72983-SH, COX5b shRNA (h) Lentiviral Particles: sc-72982-V and COX5b shRNA (m) Lentiviral Particles: sc-72983-V.

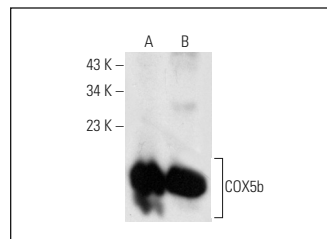
Molecular Weight of COX5b: 14 kDa.

Positive Controls: human heart extract: sc-363763, Hep G2 cell lysate: sc-2227 or HeLa nuclear extract: sc-2120.

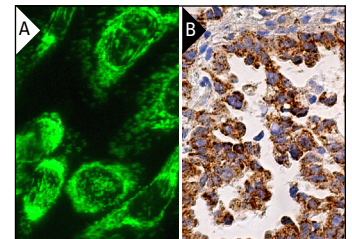
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



COX5b (C-5): sc-374416. Western blot analysis of COX5b expression in Hep G2 whole cell lysate (A) and human heart tissue extract (B).



COX5b (C-5): sc-374416. Immunofluorescence staining of formalin-fixed SW480 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung cancer tissue showing cytoplasmic staining of tumor cells (B).

SELECT PRODUCT CITATIONS

- Karra, A.G., et al. 2023. Increased expression of the mitochondrial glucocorticoid receptor enhances tumor aggressiveness in a mouse xenograft model. *Int. J. Mol. Sci.* 24: 3740.

RESEARCH USE

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