

COX5b (B-2): sc-374417



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 up-regulated 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.

CHROMOSOMAL LOCATION

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

SOURCE

COX5b (B-2) 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.

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.

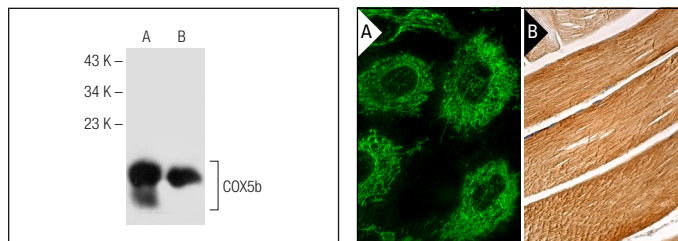
Molecular Weight of COX5b: 14 kDa.

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

STORAGE

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

DATA



COX5b (B-2): sc-374417. Western blot analysis of COX5b expression in Hep G2 whole cell lysate (A) and human heart tissue extract (B).

COX5b (B-2): sc-374417. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (B).

SELECT PRODUCT CITATIONS

- Gómez-Serrano, M., et al. 2017. Differential proteomic and oxidative profiles unveil dysfunctional protein import to adipocyte mitochondria in obesity-associated aging and diabetes. *Redox Biol.* 11: 415-428.
- Lobo-Jarne, T., et al. 2018. Human COX7A2L regulates complex III biogenesis and promotes supercomplex organization remodeling without affecting mitochondrial bioenergetics. *Cell Rep.* 25: 1786-1799.e4.
- Mohanraj, K., et al. 2019. Inhibition of proteasome rescues a pathogenic variant of respiratory chain assembly factor COA7. *EMBO Mol. Med.* 11: e9561.
- Timón-Gómez, A., et al. 2020. Distinct roles of mitochondrial HIGD1A and HIGD2A in respiratory complex and supercomplex biogenesis. *Cell Rep.* 31: 107607.
- Timón-Gómez, A., et al. 2020. Protocol for the analysis of yeast and human mitochondrial respiratory chain complexes and supercomplexes by blue native electrophoresis. *STAR Protoc.* 1: 100089.
- Nýltová, E., et al. 2022. Coordination of metal center biogenesis in human cytochrome c oxidase. *Nat. Commun.* 13: 3615.
- Fernández-Vizarrá, E., et al. 2022. Two independent respiratory chains adapt OXPHOS performance to glycolytic switch. *Cell Metab.* E-published.

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.