

# COX5b (W10): sc-100523

## 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

1. Hodge, M.R., et al. 1989. Inverse regulation of the yeast COX5 genes by oxygen and heme. *Mol. Cell. Biol.* 9: 1958-1964.
2. 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.
3. Bachman, N.J., et al. 1996. Phylogenetic footprinting of the human cytochrome c oxidase subunit Vb promoter. *Arch. Biochem. Biophys.* 333: 152-162.
4. Burke, P.V., et al. 1998. Structure/function of oxygen-regulated isoforms in cytochrome c oxidase. *J. Exp. Biol.* 201: 1163-1175.
5. David, P.S., et al. 2005. Effects of a transition from normoxia to anoxia on yeast cytochrome c oxidase and the mitochondrial respiratory chain: implications for hypoxic gene induction. *Biochim. Biophys. Acta* 1709: 169-180.
6. Dang, C., et al. 2006. Identification of dysregulated genes in cutaneous squamous cell carcinoma. *Oncol. Rep.* 16: 513-519.
7. Yamasaki, H., et al. 2007. Regulation of copper homeostasis by micro-RNA in arabidopsis. *J. Biol. Chem.* 282: 16369-16378.

## CHROMOSOMAL LOCATION

Genetic locus: COX5B (human) mapping to 2q11.2.

## SOURCE

COX5b (W10) is a mouse monoclonal antibody raised against recombinant COX5b of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of 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

COX5b (W10) is recommended for detection of COX5b of 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) 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 shRNA Plasmid (h): sc-72982-SH and COX5b shRNA (h) Lentiviral Particles: sc-72982-V.

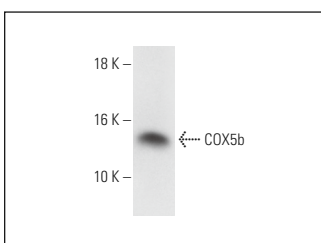
Molecular Weight of COX5b: 14 kDa.

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

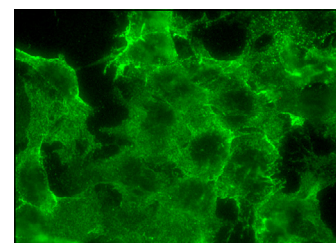
## RECOMMENDED SUPPORT REAGENTS

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



COX5b (W10): sc-100523. Western blot analysis of COX5b expression in Hep G2 whole cell lysate.



COX5b (W10): sc-100523. Immunofluorescence staining of methanol-fixed Hep G2 cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Zhao, Y., et al. 2012. COX5B regulates MAVS-mediated antiviral signaling through interaction with ATG5 and repressing ROS production. *PLoS Pathog.* 8: e1003086.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.