SANTA CRUZ BIOTECHNOLOGY, INC.

# COX4I2 (Y-16): sc-86386

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*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. Cytochrome c oxidase IV (COX4) is a nuclear-encoded subunit of COX that may play a role in regulating COX activity. COX4 is expressed ubiquitously in adult human tissue with the strongest levels of expression in the pancreas and moderate expression levels in heart, skeletal muscle and placenta. Two isoforms exist for COX4, namely COX4I1 and COX4I2, and they are encoded by two different genes. COX4I2 (cytochrome c oxidase subunit 4 isoform 2), also known as COX4B, COX4-2, COX4L2 or COXIV-2, is the less common isoform and is incorporated into the COX apoenzyme under hypoxic conditions to optimize COX activity.

## REFERENCES


1. Zeviani, M., Nakagawa, M., Herbert, J., Lomax, M.I., Grossman, L.I., Sherbany, A.A., Miranda, A.F., DiMauro, S. and Schon, E.A. 1987. Isolation of a cDNA clone encoding subunit IV of human cytochrome c oxidase. Gene 55: 205-217.
2. Lomax, M.I., Hewett-Emmett, D., Yang, T.L. and Grossman, L.I. 1992. Rapid evolution of the human gene for cytochrome c oxidase subunit IV. Proc. Natl. Acad. Sci. USA 89: 5266-5270.
3. Makris, G.J., Samuelson, L.C. and Lomax, M.I. 1997. The gene encoding subunit IV of cytochrome c oxidase maps to mouse chromosome 8. Mamm. Genome 7: 789-790.
4. Bachman, N.J., Wu, W., Schmidt, T.R., Grossman, L.I. and Lomax, M.I. 1999. The 5′ region of the COX4 gene contains a novel overlapping gene, NOC4. Mamm. Genome 10: 506-512.
5. Hüttemann, M., Kadenbach, B. and Grossman, L.I. 2001. Mammalian subunit IV isoforms of cytochrome c oxidase. Gene 267: 111-123.
6. Vizirianakis, I.S., Pappas, I.S. and Tsiftsoglou, A.S. 2002. Differentiation-dependent repression of c-Myc, B22, COX II and COX IV genes in murine erythroleukemia (MEL) cells. Biochem. Pharmacol. 63: 1009-1017.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 123864. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Semenza, G.L. 2007. Oxygen-dependent regulation of mitochondrial respiration by hypoxia-inducible factor 1. Biochem. J. 405: 1-9.
9. Fukuda, R., Zhang, H., Kim, J.W., Shimoda, L., Dang, C.V. and Semenza, G.L. 2007. HIF-1 regulates cytochrome oxidase subunits to optimize efficiency of respiration in hypoxic cells. Cell 129: 111-122.


## CHROMOSOMAL LOCATION

Genetic locus: COX4I2 (human) mapping to 20q11.21; Cox4i2 (mouse) mapping to 2 H2.

## SOURCE

COX4I2 (Y-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of COX4I2 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-86386 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

COX4I2 (Y-16) is recommended for detection of COX4I2 of mouse and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other COX family members.

Suitable for use as control antibody for COX4I2 siRNA (h): sc-72981, COX4I2 siRNA (m): sc-142525, COX4I2 shRNA Plasmid (h): sc-72981-SH, COX4I2 shRNA Plasmid (m): sc-142525-SH, COX4I2 shRNA (h) Lentiviral Particles: sc-72981-V and COX4I2 shRNA (m) Lentiviral Particles: sc-142525-V.

Molecular Weight of COX4I2: 20 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.