SANTA CRUZ BIOTECHNOLOGY, INC.

COX2 (12C4): sc-65239

The Power to Question

BACKGROUND

Cytochrome c oxidase subunit II (COX2), also designated COII, MTCO2 or oxidative phosphorylation (OxPhos) complex IV, subunit II, is one of three mitochondrial DNA (mtDNA) encoded subunits (MTCO1-3) of respiratory complex IV. Cytochrome c oxidase is a hetero-oligomeric enzyme composed of 13 subunits localized to the mitochondrial inner membrane and is the terminal enzyme complex of the electron transport chain. Complex IV catalyzes the reduction of molecular oxygen to water. The energy released is used to transport protons across the mitochondrial inner membrane. The resulting electrochemical gradient is necessary for the synthesis of ATP. Complex IV contains 13 polypeptides; COX1, COX2 and COX3 (MTCO1-3) make up the catalytic core and are encoded by mtDNA while subunits IV, Va, Vb, VIa, VIb, VIc, VIIa, VIIb, VIIc and VIII are nuclear-encoded. Defects in COX2 are associated with tumor formation.

REFERENCES

1. Kadenbach, B., et al. 1983. Separation of mammalian cytochrome c oxidase into 13 polypeptides by a sodium do-decyl sulfate-gel electrophoretic procedure. Anal. Biochem. 129: 517-521.
2. Capaldi, R.A., et al. 1983. Structure of cytochrome c oxidase. Biochim. Biophys. Acta 726: 135-148.
3. Shoffner, J.M. and Wallace, D.C. 1995. Oxidative phosphorylation diseases. In Scriver, C.R., Beaudet, A.L., Sly, W.S. and Valle, D., eds., The Metabolic and Molecular Basis of Inherited Disease. New York: McGraw-Hill, 1535-1609.
4. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 516030. World Wide Web URL: http://www.ncbi.nlm. nih.gov/omim/
5. Barrientos, A., et al. 2002. Cytochrome oxidase in health and disease. Gene 286: 53-63.
6. Cannino, G., et al. 2004. Analysis of cytochrome C oxidase subunits III and IV expression in developing rat brain. Neuroscience 128: 91-98.
7. Boerner, J.L., et al. 2004. Phosphoryl-ation of Y845 on the epidermal growth factor receptor mediates binding to the mitochondrial protein cytochrome c oxidase subunit II. Mol. Cell. Biol. 24: 7059-7071.

CHROMOSOMAL LOCATION

Genetic locus: COX2 (human) mapping to MT.

SOURCE

COX2 (12C4) is a mouse monoclonal antibody raised against purified mitochondrial COX2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

COX2 (12C4) is recommended for detection of cytochrome c oxidase II 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

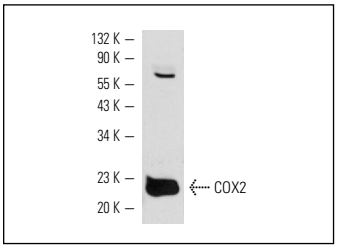
Molecular Weight of COX2: 21 kDa.

Positive Controls: Human heart extract: sc-363763.

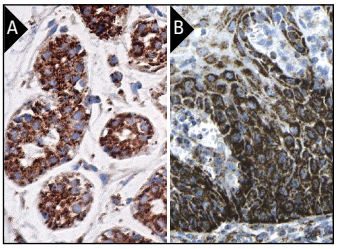
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



COX2 (12C4): sc-65239. Western blot analysis of COX2 expression in human heart tissue extract.



COX2 (12C4): sc-65239. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing cytoplasmic staining of follicle and non-follicle cells and surface epithelial cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

STORAGE

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

PROTOCOLS

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