

COX1 (1D6): sc-58347

BACKGROUND

Cytochrome c oxidase subunit I, COX1 (also designated COI, MTCO1 or oxidative phosphorylation (OxPhos) complex IV, subunit I) 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 electro-chemical 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, VIc and VIII are nuclear-encoded.

REFERENCES

1. Kadenbach, B., et al. 1983. Separation of mammalian cytochrome c oxidase into 13 polypeptides by a sodium dodecyl 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., 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.

CHROMOSOMAL LOCATION

Genetic locus: COX1 (human) mapping to MT; Mt-co1 (mouse) mapping to MT.

SOURCE

COX1 (1D6) is a mouse monoclonal antibody raised against purified mitochondrial COX1 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.

Available as phycoerythrin (sc-58347 PE) or fluorescein (sc-58347 FITC) conjugates for flow cytometry, 100 tests.

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.

APPLICATIONS

COX1 (1D6) is recommended for detection of cytochrome c oxidase I of mouse, rat, human and bovine 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10⁶ cells).

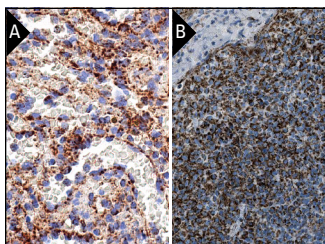
Molecular Weight of COX1: 57 kDa.

Positive Controls: Mouse heart extract: sc-2254, mouse brain extract: sc-2253 or 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



COX1 (1D6): sc-58347. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of cells in white and red pulps (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing cytoplasmic staining in follicle and non-follicle cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

SELECT PRODUCT CITATIONS

1. Fahanik-Babaei, J., et al. 2011. Electro-pharmacological profile of a mitochondrial inner membrane big-potassium channel from rat brain. *Biochim. Biophys. Acta* 1808: 454-460.
2. Horvath, L., et al. 2011. Knockdown of GAD67 protein levels normalizes neuronal activity in a rat model of Parkinson's disease. *J. Gene Med.* 13: 188-197.