SANTA CRUZ BIOTECHNOLOGY, INC.

COX3 (N-20): sc-23986

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cytochrome c oxidase subunit III (COX3), also designated COIII, MTCO3 or oxidative phosphorylation (OxPhos) Complex IV, subunit III, 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. Apoptosis in mammalian cells may be triggered by inhibition of mitochondrial COX. Specifically, reduction of COX3 has been associated with apoptosis and studies have shown that overexpression of COX3 results in a reduction of signals associated with apoptosis.

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.

CHROMOSOMAL LOCATION

Genetic locus: MT-CO3 (human) mapping to MT; Mt-co3 (mouse) mapping to MT.

SOURCE

COX3 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of COX3 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-23986 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

COX3 (N-20) is recommended for detection of cytochrome c oxidase III of mouse, rat and 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).

COX3 (N-20) is also recommended for detection of cytochrome c oxidase III in additional species, including equine, canine, bovine, porcine and feline.

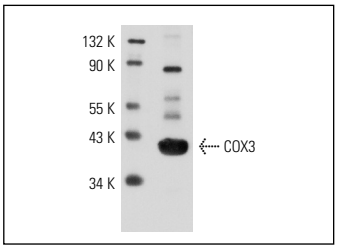
Molecular Weight of COX3: 30 kDa.

Positive Controls: mouse thymus extract: sc-2406.

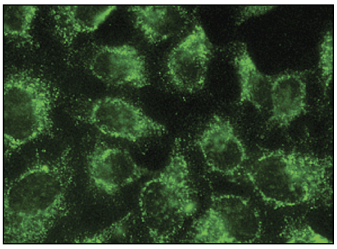
RECOMMENDED SECONDARY REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



COX3 (N-20): sc-23986. Western blot analysis of COX3 expression in mouse thymus extract.



COX3 (N-20): sc-23986. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Brandina, I., et al. 2006. Enolase takes part in a macromolecular complex associated to mitochondria in yeast. Biochim. Biophys. Acta 1757: 1217-1228.
2. Graessmann, M., et al. 2007. Chemotherapy resistance of mouse WAP-SVT/t breast cancer cells is mediated by osteopontin, inhibiting apoptosis downstream of caspase-3. Oncogene 26: 2840-2850.
3. Quadrilatero, J., et al. 2008. Evidence for a pro-apoptotic phenotype in skeletal muscle of hypertensive rats. Biochem. Biophys. Res. Commun. 368: 168-174.
4. Buroker, N.E., et al. 2008. Cardiac PPARα protein expression is constant as alternate nuclear receptors and PGC-1 coordinately increase during the postnatal metabolic transition. PPAR Res. 2008: 279531.