SANTA CRUZ BIOTECHNOLOGY, INC.

COQ2 (I-17): sc-66429

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

COQ2 is a 374 amino acid protein encoded by the mouse gene Coq2. Coenzyme Q (COQ) is an isoprenoid quinine that functions as an electron carrier in the mitochondrial respiratory chain in eukaryotes. COQ proteins having shorter isoprenoid chains, especially COQ1 and COQ2, selectively inhibit the *in vitro* activity of eukaryotic DNA polymerase (pol) γ, which is a mitochondrial pol. These compounds do not influence the activities of nuclear DNA replicative pols such as α, δ and ε, and nuclear DNA repair-related pols such as β, ι, κ and λ. COQ may also inhibit DNA topoisomerase II (Topo II) activity, although the enzymatic characteristics, including modes of action, amino acid sequences and three-dimensional structures, are markedly different from those of pol γ. These compounds do not inhibit the activities of prokaryotic pols such as *Escherichia coli* pol I, and other DNA metabolic enzymes such as HIV reverse transcriptase, T7 RNA polymerase and bovine deoxyribonuclease I. COQ1, which has the shortest isoprenoid chains, has the strongest inhibitory effect on pol γ and Topo II activities among COQ1-COQ10, with 50% inhibitory concentration (IC50) values of 12.2 and 15.5 microM, respectively. COQ1 has been shown to prevent the growth of human promyelocytic leukemia cells, HL-60.

REFERENCES

1. Forsgren, M., et al. 2004. Isolation and functional expression of human COQ2, a gene encoding a polyprenyl transferase involved in the synthesis of CoQ. Biochem. J. 382: 519-526.
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3. Yonezawa, Y., et al. 2006. Inhibitory effect of coenzyme Q on eukaryotic DNA polymerase γ and DNA topoisomerase II activities on the growth of a human cancer cell line. Cancer Sci. 97: 716-723.
4. Quinzii, C., et al. 2006. A mutation in para-hydroxybenzoate-polyprenyl transferase (COQ2) causes primary coenzyme Q deficiency. Am. J. Hum. Genet. 78: 345-349.
5. Montero, R., et al. 2006. Muscle coenzyme Q concentrations in patients with probable and definite diagnosis of respiratory chain disorders. Biofactors 25: 109-115.
6. Quinzii, C.M., et al. 2007. Human coenzyme Q deficiency. Neurochem. Res. 32: 723-727.
7. Montero, R., et al. 2007. Clinical, biochemical and molecular aspects of cerebellar ataxia and coenzyme Q deficiency. Cerebellum 6: 118-122.
8. López-Martín, et al. 2007. Missense mutation of the COQ2 gene causes defects of bioenergetics and *de novo* pyrimidine synthesis. Hum. Mol. Genet. 16: 1091-1097.

CHROMOSOMAL LOCATION

Genetic locus: Coq2 (mouse) mapping to 5 E4.

SOURCE

COQ2 (I-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of COQ2 of mouse 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-66429 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

COQ2 (I-17) is recommended for detection of COQ2 precursor of mouse and rat 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).

COQ2 (I-17) is also recommended for detection of COQ2 precursor in additional species, including canine.

Suitable for use as control antibody for COQ2 siRNA (m): sc-62145, COQ2 shRNA Plasmid (m): sc-62145-SH and COQ2 shRNA (m) Lentiviral Particles: sc-62145-V.

Molecular Weight of COQ2 isoforms: 45/40/35 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.