SANTA CRUZ BIOTECHNOLOGY, INC.

SCO1 (D-1): sc-398001

BACKGROUND

The SCO1 and SCO2 protein homologs belong to the SCO1/2 family of proteins. SCO1 and SCO2 both localize to the mitochondrion and are inner membrane proteins crucial for copper insertion or transport to the active site of cytochrome c oxidase (COX). COX is a crucial component in energy production because it functions as the terminal enzyme in the respiratory chain. SCO1 is predominantly expressed in highly oxidative phosphorylation tissues such as brain, heart and muscle, while SCO2 is ubiquitously expressed. Defects in the gene encoding for SCO1 may cause cytochrome c oxidase deficiency, a hetero-genous disorder. Defects in the gene encoding for SCO2 may cause cardioencephalomyopathy with cytochrome c oxidase deficiency, a fatal infantile disorder characterized by hypertrophic cardiomyopathy, lactic acidosis and gliosis.

REFERENCES

1. Jaksch, M., et al. 2001. Cytochrome c oxidase deficiency due to mutations in SCO2, encoding a mitochondrial copper-binding protein, is rescued by copper in human myoblasts. Hum. Mol. Genet. 10: 3025-3035.
2. Balatri, E., et al. 2003. Solution structure of SCO1: a thioredoxin-like protein involved in cytochrome c oxidase assembly. Structure 11: 1431-1443.
3. Horng, Y.C., et al. 2004. Specific copper transfer from the COX17 metallochaperone to both SCO1 and COX11 in the assembly of yeast cytochrome c oxidase. J. Biol. Chem. 279: 35334-35340.
4. Leary, S.C., et al. 2004. Human SCO1 and SCO2 have independent, cooperative functions in copper delivery to cytochrome c oxidase. Hum. Mol. Genet. 13: 1839-1848.

CHROMOSOMAL LOCATION

Genetic locus: SCO1 (human) mapping to 17p13.1; Sco1 (mouse) mapping to 11 B3.

SOURCE

SCO1 (D-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 183-210 within an internal region of SCO1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SCO1 (D-1) is available conjugated to agarose (sc-398001 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398001 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398001 PE), fluorescein (sc-398001 FITC), Alexa Fluor® 488 (sc-398001 AF488), Alexa Fluor® 546 (sc-398001 AF546), Alexa Fluor® 594 (sc-398001 AF594) or Alexa Fluor® 647 (sc-398001 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398001 AF680) or Alexa Fluor® 790 (sc-398001 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-398001 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

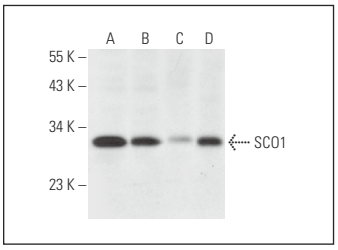
SCO1 (D-1) is recommended for detection of SCO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SCO1 siRNA (h): sc-61505, SCO1 siRNA (m): sc-61506, SCO1 shRNA Plasmid (h): sc-61505-SH, SCO1 shRNA Plasmid (m): sc-61506-SH, SCO1 shRNA (h) Lentiviral Particles: sc-61505-V and SCO1 shRNA (m) Lentiviral Particles: sc-61506-V.

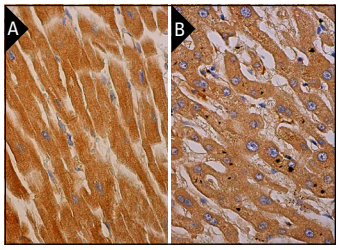
Molecular Weight of SCO1: 29 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or human liver extract: sc-363766.

DATA



SCO1 (D-1): sc-398001. Western blot analysis of SCO1 expression in Hep G2 (**A**), HeLa (**B**) and IMR-32 (**C**) whole cell lysates and human liver tissue extract (**D**).



SCO1 (D-1): sc-398001. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (**B**).

SELECT PRODUCT CITATIONS

1. Wei, X.B., et al. 2017. Synthesis of cytochrome c oxidase 1 (SCO1) inhibits Insulin sensitivity by decreasing copper levels in adipocytes. Biochem. Biophys. Res. Commun. 491: 814-820.
2. Xie, L., et al. 2022. Downregulation of hepatic ceruloplasmin ameliorates NAFLD via SCO1-AMPK-LKB1 complex. Cell Rep. 41: 111498.
3. Yang, F., et al. 2024. Deep learning enables the discovery of a novel cuproptosis-inducing molecule for the inhibition of hepatocellular carcinoma. Acta Pharmacol. Sin. 45: 391-404.

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.