SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-2 (E-10): sc-137254

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The superoxide dismutase family is composed of three metalloenzymes (SOD-1, SOD-2 and SOD-3) that catalyze the oxido-reduction of reactive oxygen species (ROS) such as superoxide anion. The SOD-2 precursor is a 222 amino acid protein that is encoded by nuclear chromatin, synthesized in the cytosol and imported posttranslationally into the mitochondrial matrix. Unlike SOD-1, which is a homodimeric cytosolic Cu-Zn enzyme, SOD-2 is a homotetrameric manganese enzyme (also known as MnSOD) that functions in the mitochondrion. ROS are implicated in a wide range of degenerative processes, including Alzheimer's disease, Parkinson's disease and ischemic heart disease. Homozygous mutant mice, which lack SOD-2, exhibit dilated cardiomyopathy, accumulation of lipid in liver and skeletal muscle, metabolic acidosis, oxidative DNA damage and respiratory chain deficiencies in heart and skeletal muscle. Polymorphisms in the SOD-2 gene have also been implicated in nonfamilial, idiopathic, dilated cardiomyopathy in humans.

REFERENCES

1. Wispé, J.R., et al. 1989. Synthesis and processing of the precursor for human mangano-superoxide dismutase. Biochem. Biophys. Acta 994: 30-36.
2. Nishi, H., et al. 1995. DNA typing of HLA class II genes in Japanese patients with dilated cardiomyopathy. J. Mol. Cell. Cardiol. 27: 2385-2392.
3. Li, Y., et al. 1995. Dilated cardiomyopathy and neonatal lethality in mutant mice lacking manganese superoxide dismutase. Nat. Genet. 11: 376-381.

CHROMOSOMAL LOCATION

Genetic locus: SOD2 (human) mapping to 6q25.3; Sod2 (mouse) mapping to 17 A1.

SOURCE

SOD-2 (E-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 22-58 near the N-terminus of SOD-2 of human origin.

PRODUCT

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

SOD-2 (E-10) is available conjugated to agarose (sc-137254 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-137254 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137254 PE), fluorescein (sc-137254 FITC), Alexa Fluor® 488 (sc-137254 AF488), Alexa Fluor® 546 (sc-137254 AF546), Alexa Fluor® 594 (sc-137254 AF594) or Alexa Fluor® 647 (sc-137254 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137254 AF680) or Alexa Fluor® 790 (sc-137254 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-137254 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

SOD-2 (E-10) is recommended for detection of SOD-2 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).

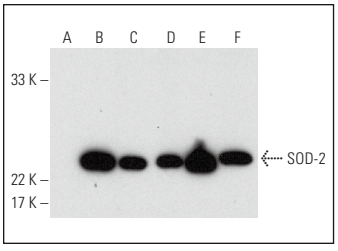
SOD-2 (E-10) is also recommended for detection of SOD-2 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for SOD-2 siRNA (h): sc-41655, SOD-2 siRNA (m): sc-41656, SOD-2 siRNA (r): sc-270084, SOD-2 shRNA Plasmid (h): sc-41655-SH, SOD-2 shRNA Plasmid (m): sc-41656-SH, SOD-2 shRNA Plasmid (r): sc-270084-SH, SOD-2 shRNA (h) Lentiviral Particles: sc-41655-V, SOD-2 shRNA (m) Lentiviral Particles: sc-41656-V and SOD-2 shRNA (r) Lentiviral Particles: sc-270084-V.

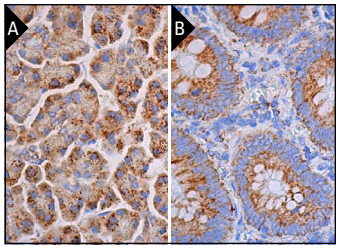
Molecular Weight of SOD-2: 25 kDa.

Positive Controls: SOD-2 (h2): 293 Lysate: sc-113078, mouse liver extract: sc-2256 or U-87 MG cell lysate: sc-2411.

DATA



SOD-2 (E-10): sc-137254 HRP. Direct western blot analysis of SOD-2 expression in non-transfected 293: sc-110760 (**A**), human SOD-2 transfected 293: sc-113078 (**B**) and U-87 MG (**C**) whole cell lysates and rat liver (**D**), human liver (**E**) and mouse liver (**F**) tissue extracts.



SOD-2 (E-10): sc-137254. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of exocrine glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Zgheib, C., et al. 2012. Chronic treatment of mice with leukemia inhibitory factor does not cause adverse cardiac remodeling but improves heart function. Eur. Cytokine Netw. 23: 191-197.
2. Braun, B.C., et al. 2020. The antioxidative enzyme SOD2 is important for physiological persistence of corpora lutea in lynxes. Sci. Rep. 10: 3681.
3. Hundsberger, H., et al. 2021. Concentration-dependent pro- and antitumor activities of quercetin in human melanoma spheroids: comparative analysis of 2D and 3D cell culture models. Molecules 26: 717.

RESEARCH USE

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