SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-2 (18): sc-130345

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.

CHROMOSOMAL LOCATION

Genetic locus: SOD2 (human) mapping to 6q25.3.

SOURCE

SOD-2 (18) is a mouse monoclonal antibody raised against recombinant SOD-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SOD-2 (18) is available conjugated to agarose (sc-130345 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-130345 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-130345 PE), fluorescein (sc-130345 FITC), Alexa Fluor® 488 (sc-130345 AF488), Alexa Fluor® 546 (sc-130345 AF546), Alexa Fluor® 594 (sc-130345 AF594) or Alexa Fluor® 647 (sc-130345 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-130345 AF680) or Alexa Fluor® 790 (sc-130345 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SOD-2 (18) is recommended for detection of SOD-2 of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

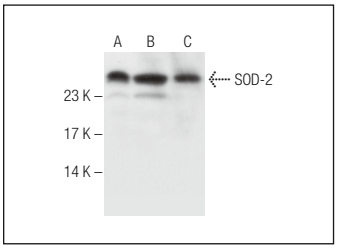
Molecular Weight of SOD-2: 25 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, Caco-2 cell lysate: sc-2262 or U-87 MG cell lysate: sc-2411.

STORAGE

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

DATA



SOD-2 (18): sc-130345. Western blot analysis of SOD-2 expression in HL-60 (**A**), Caco-2 (**B**) and U-87 MG (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Mandraffino, G., et al. 2010. Smoke exposure and circulating progenitor cells: evidence for modulation of antioxidant enzymes and cell count. Clin. Biochem. 43: 1436-1442.
2. Li, B.S., et al. 2016. Role of mechanical strain-activated PI3K/Akt signaling pathway in pelvic organ prolapse. Mol. Med. Rep. 14: 243-253.
3. Zhou, W., et al. 2017. Oxidative stress induced autophagy in cancer associated fibroblast enhances proliferation and metabolism of colorectal cancer cells. Cell Cycle 16: 73-81.
4. Bak, D.H., et al. 2018. Anti-apoptotic effects of human placental hydrolysate against hepatocyte toxicity *in vivo* and *in vitro*. Int. J. Mol. Med. 42: 2569-2583.
5. Cheleschi, S., et al. 2019. MicroRNA-34a and microRNA-181a mediate visfatin-induced apoptosis and oxidative stress via NFκB pathway in human osteoarthritic chondrocytes. Cells 8: 874.
6. Lee, H., et al. 2020. Asymptomatic *Clostridium perfringens* inhabitation in intestine can cause inflammation, apoptosis, and disorders in brain. Foodborne Pathog. Dis. 17: 52-65.
7. Kim, D., et al. 2021. *Lactobacillus fermentum* SMFM2017-NK4 isolated from kimchi can prevent obesity by inhibiting fat accumulation. Foods 10: 772.
8. Castiglione Morelli, M.A., et al. 2022. Are the follicular fluid characteristics of recovered coronavirus disease 2019 patients different from those of vaccinated women approaching *in vitro* fertilization? Front. Physiol. 13: 840109.
9. Castiglione Morelli, M.A., et al. 2023. A pilot study on biochemical profile of follicular fluid in breast cancer patients. Metabolites 13: 441.

RESEARCH USE

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