

SOD-2 (B-1): sc-133254

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 post-translationally 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; Sod2 (mouse) mapping to 17 A1.

SOURCE

SOD-2 (B-1) is a mouse monoclonal antibody raised against amino acids 1-222 representing full length 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.

APPLICATIONS

SOD-2 (B-1) 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).

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: A-10 cell lysate: sc-3806, Neuro-2A whole cell lysate: sc-364185 or SH-SY5Y cell lysate: sc-3812.

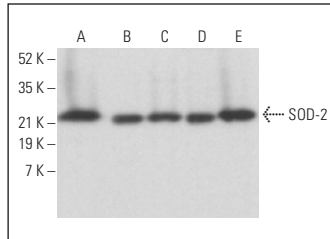
STORAGE

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

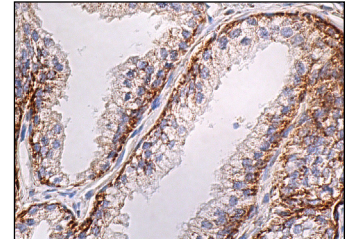
RESEARCH USE

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

DATA



SOD-2 (B-1): sc-133254. Western blot analysis of SOD-2 expression in SH-SY5Y (A), AT3B-1 (B), A-10 (C), Sol8 (D) and Neuro-2A (E) whole cell lysates.



SOD-2 (B-1): sc-133254. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing staining of the basement membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Chandrasekhar, K., et al. 2010. Blue light exposure targets NADPH oxidase to plasma membrane and nucleus in wheat coleoptiles. *J. Plant Growth Regul.* 29: 232-241.
- He, J., et al. 2013. Activation of the aryl hydrocarbon receptor sensitizes mice to nonalcoholic steatohepatitis by deactivating mitochondrial sirtuin deacetylase Sirt3. *Mol. Cell. Biol.* 33: 2047-2055.
- Zhang, D., et al. 2014. Regulation of SOD2 and β -arrestin1 by interleukin-6 contributes to the increase of IGF-1R expression in docetaxel resistant prostate cancer cells. *Eur. J. Cell Biol.* 93: 289-298.
- Georgiou, D.K., et al. 2015. Ca²⁺ binding/permeation via calcium channel, CaV1.1, regulates the intracellular distribution of the fatty acid transport protein, CD36, and fatty acid metabolism. *J. Biol. Chem.* 290: 23751-23765.
- Borowiec, A.S., et al. 2016. Cold/menthol TRPM8 receptors initiate the cold-shock response and protect germ cells from cold-shock-induced oxidation. *FASEB J.* 30: 3155-3170.
- Bin, F., et al. 2017. Silymarin protects against renal injury through normalization of lipid metabolism and mitochondrial biogenesis in high fat-fed mice. *Free Radic. Biol. Med.* 110: 240-249.
- Škiljic, D., et al. 2018. Effects of 17 β -estradiol on activity, gene and protein expression of superoxide dismutases in primary cultured human lens epithelial cells. *Curr. Eye Res.* 43: 639-646.
- Amano, H., et al. 2019. Telomere dysfunction induces sirtuin repression that drives telomere-dependent disease. *Cell Metab.* 29: 1274-1290.e9.
- Schleicher, E.M., et al. 2020. Dual genome-wide CRISPR knockout and CRISPR activation screens identify mechanisms that regulate the resistance to multiple ATR inhibitors. *PLoS Genet.* 16: e1009176.

CONJUGATES

See **SOD-2 (E-10): sc-137254** for SOD-2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.