

SOD-2 (A-2): sc-133134

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 non-familial, idiopathic, dilated cardiomyopathy in humans.

CHROMOSOMAL LOCATION

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

SOURCE

SOD-2 (A-2) 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.

SOD-2 (A-2) is available conjugated to agarose (sc-133134 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-133134 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133134 PE), fluorescein (sc-133134 FITC), Alexa Fluor® 488 (sc-133134 AF488), Alexa Fluor® 546 (sc-133134 AF546), Alexa Fluor® 594 (sc-133134 AF594) or Alexa Fluor® 647 (sc-133134 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133134 AF680) or Alexa Fluor® 790 (sc-133134 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SOD-2 (A-2) 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).

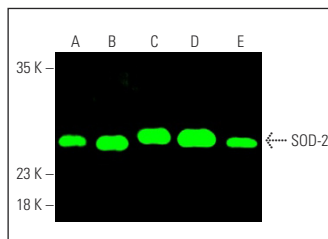
Suitable for use as control antibody for SOD-2 siRNA (h): sc-41655, SOD-2 siRNA (m): sc-41656, SOD-2 siRNA (r): sc-270084, SOD-2 shRNA Plasmid (h): sc-41655-SH, SOD-2 shRNA Plasmid (m): sc-41656-SH, SOD-2 shRNA Plasmid (r): sc-270084-SH, SOD-2 shRNA (h) Lentiviral Particles: sc-41655-V, SOD-2 shRNA (m)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

Molecular Weight of SOD-2: 25 kDa.

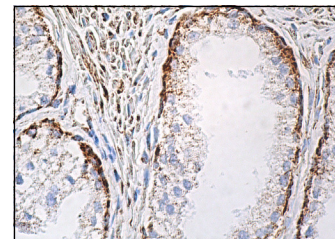
STORAGE

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

DATA



SOD-2 (A-2): sc-133134. Near-Infrared western blot analysis of SOD-2 expression in SH-SY5Y (A), A-673 (B), Sol8 (C), A-10 (D) and U-87 MG (E) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_{2b} BP-CFL 680: sc-542749.



SOD-2 (A-2): sc-133134. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing basement membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Calaf, G.M., et al. 2011. Protective role of curcumin in oxidative stress of breast cells. *Oncol. Rep.* 26: 1029-1035.
- El Kebir, D., et al. 2014. Toll-like receptor 9 signaling delays neutrophil apoptosis by increasing transcription of Mcl-1. *PLoS ONE* 9: e87006.
- Conceição, E.P., et al. 2015. Early redox imbalance is associated with liver dysfunction at weaning in overfed rats. *J. Physiol.* 593: 4799-4811.
- Liu, C., et al. 2016. The Imp2l mutation causes age-dependent degeneration of cerebellar granule neurons prevented by antioxidant treatment. *Aging Cell* 15: 167-176.
- Shima, Y., et al. 2017. MLL is essential for NUP98-HOXA9-induced leukemia. *Leukemia* 31: 2200-2210.
- Penolazzi, L., et al. 2018. MicroRNA-221 silencing attenuates the degenerated phenotype of intervertebral disc cells. *Aging* 10: 2001-2015.
- Penolazzi, L., et al. 2019. Reciprocal regulation of TRPS1 and miR-221 in intervertebral disc cells. *Cells* 8: 1170.
- Hu, D., et al. 2020. Age-related changes in mineralocorticoid receptors in rat hearts. *Mol. Med. Rep.* 22: 1859-1867.
- Mahadev Bhat, S., et al. 2021. Organic dust exposure induces stress response and mitochondrial dysfunction in monocytic cells. *Histochem. Cell Biol.* 155: 699-718.
- Kim, E., et al. 2022. Ginger-derived compounds exert in vivo and in vitro anti-asthmatic effects by inhibiting the T-helper 2 cell-mediated allergic response. *Exp. Ther. Med.* 23: 49.

RESEARCH USE

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

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA