

SOD-1 (24): sc-101523



The Power to Question

BACKGROUND

Cu-Zn superoxide dismutase-1 (SOD-1) is a well characterized cytosolic scavenger of oxygen free radicals that requires copper and zinc binding to potentiate its enzymatic activity. Enzymatically, SOD-1 facilitates the dismutation of oxygen radicals to hydrogen peroxide and also catalyzes pro-oxidant reactions, which include the peroxidase activity and hydroxyl radical generating activity. SOD-1 is ubiquitously expressed in somatic cells and functions as a homodimer. Defects in the gene encoding SOD-1 have been implicated in the progression of neurological diseases, including amyotrophic lateral sclerosis (ALS), a neurodegenerative disease characterized by the loss of spinal motor neurons, Down syndrome and Alzheimer's disease. In familial ALS, several mutations in SOD-1 predominate, resulting in the loss of zinc binding, the loss of scavenging activity of SOD-1, and correlate with an increase in neurotoxicity and motor neuron death.

CHROMOSOMAL LOCATION

Genetic locus: SOD1 (human) mapping to 21q22.11; Sod1 (mouse) mapping to 16 C3.3.

SOURCE

SOD-1 (24) is a mouse monoclonal antibody raised against full-length recombinant SOD-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SOD-1 (24) is available conjugated to agarose (sc-101523 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-101523 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-101523 PE), fluorescein (sc-101523 FITC), Alexa Fluor® 488 (sc-101523 AF488), Alexa Fluor® 546 (sc-101523 AF546), Alexa Fluor® 594 (sc-101523 AF594) or Alexa Fluor® 647 (sc-101523 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-101523 AF680) or Alexa Fluor® 790 (sc-101523 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SOD-1 (24) is recommended for detection of SOD-1 of mouse, rat and 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)], 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-1 siRNA (h): sc-36523, SOD-1 siRNA (m): sc-36522, SOD-1 shRNA Plasmid (h): sc-36523-SH, SOD-1 shRNA Plasmid (m): sc-36522-SH, SOD-1 shRNA (h) Lentiviral Particles: sc-36523-V and SOD-1 shRNA (m) Lentiviral Particles: sc-36522-V.

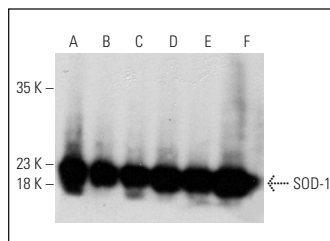
Molecular Weight of SOD-1: 23 kDa.

Positive Controls: DU 145 cell lysate: sc-2268, MCF7 whole cell lysate: sc-2206 or U266 whole cell lysate: sc-364800.

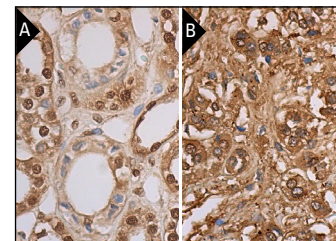
STORAGE

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

DATA



SOD-1 (24) HRP: sc-101523 HRP. Direct western blot analysis of SOD-1 expression in HEK293T (A), Hep G2 (B), DU 145 (C), MCF7 (D), HeLa (E) and U266 (F) whole cell lysates.



SOD-1 (24): sc-101523. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic and nuclear staining of cells in tubules (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic and nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Gu, Q., et al. 2013. HIV-TAT mediated protein transduction of Cu/Zn-superoxide dismutase-1 (SOD1) protects skin cells from ionizing radiation. *Radiat. Oncol.* 8: 253.
- Tokuda, E., et al. 2015. Regulation of intracellular copper by induction of endogenous metallothioneins improves the disease course in a mouse model of amyotrophic lateral sclerosis. *Neurotherapeutics* 12: 461-476.
- Ryu, M.J. and Chung, H.S. 2016. Fucoidan reduces oxidative stress by regulating the gene expression of HO-1 and SOD-1 through the Nrf2/ERK signaling pathway in HaCaT cells. *Mol. Med. Rep.* 14: 3255-3260.
- Malivindi, R., et al. 2018. Influence of all-*trans* retinoic acid on sperm metabolism and oxidative stress: its involvement in the physiopathology of varicocele-associated male infertility. *J. Cell. Physiol.* 233: 9526-9537.
- Wang, Z., et al. 2019. The role of P2Y6 receptors in the maintenance of neuropathic pain and its improvement of oxidative stress in rats. *J. Cell. Biochem.* 120: 17123-17130.
- Chen, K., et al. 2020. Steroid-induced osteonecrosis of the femoral head reveals enhanced reactive oxygen species and hyperactive osteoclasts. *Int. J. Biol. Sci.* 16: 1888-1900.
- García-Arroyo, F.E., et al. 2021. Osthon ameliorates kidney damage and metabolic syndrome induced by a high-fat/high-sugar diet. *Int. J. Mol. Sci.* 22: 2431.
- Rajendran, N.K., et al. 2021. *In vitro* wound healing potential of photobio-modulation is possibly mediated by its stimulatory effect on AKT expression in adipose-derived stem cells. *Oxid. Med. Cell. Longev.* 2021: 6664627.

RESEARCH USE

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

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