

# SOD-3 (1H12): sc-58427

## 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. ROS are implicated in a wide range of degenerative processes, including Alzheimer disease, Parkinson disease and ischemic heart disease. 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. 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. SOD-3, also designated extracellular superoxide dismutase (EC-SOD), is an extracellular zinc and copper binding protein that destroys radicals that are toxic to biological systems but that are normally produced within cells. SOD-3 is found in extracellular fluids such as lymph, plasma and synovial fluid.

## REFERENCES

- Levanon, D., et al. 1985. Architecture and anatomy of the chromosomal locus in human chromosome 21 encoding the Cu/Zn superoxide dismutase. *EMBO J.* 4: 77-84.
- Bewley, G.C. 1988. cDNA and deduced amino acid sequence of murine Cu/Zn superoxide dismutase. *Nucleic Acids Res.* 16: 2728.
- Beckman, J.S., et al. 1993. ALS, SOD and peroxynitrite. *Nature* 364: 584.
- Sandstrom, J., et al. 1994. 10-fold increase in human plasma extracellular superoxide dismutase content caused by a mutation in heparin-binding domain. *J. Biol. Chem.* 269: 19163-19166.
- Li, Y., et al. 1995. Dilated cardiomyopathy and neonatal lethality in mutant mice lacking manganese superoxide dismutase. *Nat. Genet.* 11: 376-381.
- Adachi, T., et al. 1996. An arginine 213 to glycine mutation in human extracellular-superoxide dismutase reduces susceptibility to Trypsin-like proteinases. *J. Biochem.* 120: 184-188.
- Adachi, T., et al. 1996. Substitution of glycine for arginine 213 in extracellular-superoxide dismutase impairs affinity for heparin and endothelial cell surface. *Biochem. J.* 313: 235-239.

## CHROMOSOMAL LOCATION

Genetic locus: SOD3 (human) mapping to 4p15.2.

## SOURCE

SOD-3 (1H12) is a mouse monoclonal antibody raised against full length SOD-3 of human origin.

## PRODUCT

Each vial contains IgG<sub>2b</sub> in 100 µl of PBS with 50% glycerol.

## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, store at -20° C. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## APPLICATIONS

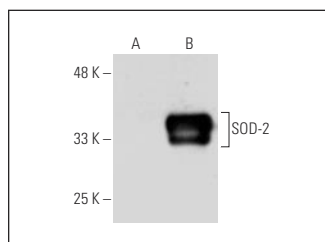
SOD-3 (1H12) is recommended for detection of SOD-3 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:2500) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

Suitable for use as control antibody for SOD-3 siRNA (h): sc-44699, SOD-3 shRNA Plasmid (h): sc-44699-SH and SOD-3 shRNA (h) Lentiviral Particles: sc-44699-V.

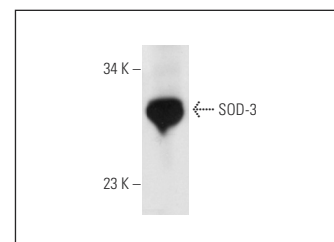
Molecular Weight of SOD-3: 32 kDa.

Positive Controls: JAR cell lysate: sc-2276, Daudi cell lysate: sc-2415 or WI-38 whole cell lysate: sc-364260.

## DATA



SOD-3 (1H12): sc-58427. Western blot analysis of SOD-2 expression in non-transfected (A) and human SOD-2 transfected (B) Bosc23 whole cell lysates.



SOD-3 (1H12): sc-58427. Western blot analysis of SOD-3 expression in Daudi whole cell lysate.

## SELECT PRODUCT CITATIONS

- Zhang, H.L., et al. 2018. Identification of differentially expressed proteins in the gastric mucosal atypical hyperplasia tissue microenvironment. *Oncol. Lett.* 16: 2355-2365.
- Tang, H., et al. 2018. CPNE1 is a target of miR-335-5p and plays an important role in the pathogenesis of non-small cell lung cancer. *J. Exp. Clin. Cancer Res.* 37: 131.
- Alghamdi, A.S., et al. 2022. Binding of equine seminal lactoferrin/superoxide dismutase (SOD-3) complex is biased towards dead spermatozoa. *Animals* 13: 52.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.