SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-1 (B-1): sc-271014

SANTA CRUZ BIOTECHNOLOGY

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 (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 120-146 at the C-terminus of SOD-1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-271014 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

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

SOD-1 (B-1) is also recommended for detection of SOD-1 in additional species, including equine, bovine and porcine.

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: SOD-1 (m2): 293T Lysate: sc-123711, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

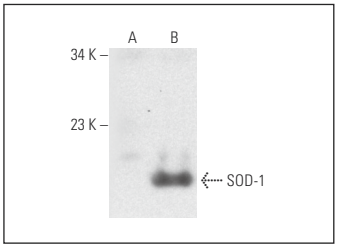
RESEARCH USE

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

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 (B-1): sc-271014. Western blot analysis of SOD-1 expression in non-transfected: sc-117752 (**A**) and mouse SOD-1 transfected: sc-123711 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Peng, A., et al. 2011. The green tea polyphenol (-)-epigallocatechin-3-gallate ameliorates experimental immune-mediated glomerulonephritis. Kidney Int. 80: 601-611.
2. Dirks-Naylor, A.J., et al. 2014. Effects of acute doxorubicin treatment on hepatic proteome lysine acetylation status and the apoptotic environment. World J. Biol. Chem. 5: 377-386.
3. Lennon-Edwards, S., et al. 2015. Antioxidant defense is increased in aged hearts following ω-3 supplementation in the absence of changes in inflammation. Physiol. Res. 64: 433-438.
4. Roslan, J., et al. 2016. Quercetin ameliorates oxidative stress, inflammation and apoptosis in the heart of streptozotocin-nicotinamide-induced adult male diabetic rats. Biomed. Pharmacother. 86: 570-582.
5. Schweikl, H., et al. 2017. Critical role of superoxide anions and hydroxyl radicals in HEMA-induced apoptosis. Dent. Mater. 33: 110-118.
6. You, Z.P., et al. 2018. Homocysteine induces oxidative stress to damage trabecular meshwork cells. Exp. Ther. Med. 15: 4379-4385.
7. Yu, Q., et al. 2019. Chronic aerobic exercise improves insulin sensitivity and modulates Nrf2 and NFκB/IκBα pathways in the skeletal muscle of rats fed with a high fat diet. Mol. Med. Rep. 20: 4963-4972.
8. Liao, Y., et al. 2020. Inflammation mobilizes copper metabolism to promote colon tumorigenesis via an IL-17-STEAP4-XIAP axis. Nat. Commun. 11: 900.
9. Chen, J., et al. 2021. Gastrodin prevents homocysteine-induced human umbilical vein endothelial cells injury via PI3K/Akt/eNOS and Nrf2/ARE pathway. J. Cell. Mol. Med. 25: 345-357.

CONJUGATES

See **SOD-1 (G-11): sc-17767** for SOD-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.