SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-1 (C-8): sc-515404

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 prooxidant 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 (C-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 30-53 within an internal region of SOD-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515404 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

SOD-1 (C-8) 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).

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.

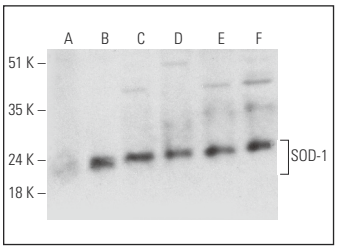
Molecular Weight of SOD-1: 23 kDa.

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

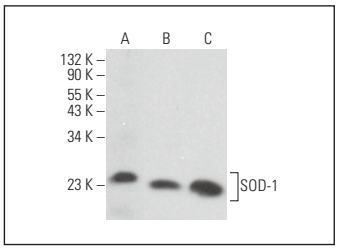
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



SOD-1 (C-8): sc-515404. Western blot analysis of SOD-1 expression in non-transfected 293T: sc-117752 (**A**), mouse SOD-1 transfected 293T: sc-123711 (**B**), HeLa (**C**), Jurkat (**D**), Hep G2 (**E**) and DU 145 (**F**) whole cell lysates.



SOD-1 (C-8): sc-515404. Western blot analysis of SOD-1 expression in HEL 92.1.7 (**A**), U-698-M (**B**) and NTERA-2 cl.D1 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lee, H.J., et al. 2019. Neuroprotective effects of *Scrophularia buergeriana* extract against glutamate-induced toxicity in SH-SY5Y cells. Int. J. Mol. Med. 43: 2144-2152.
2. Chhunchha, B., et al. 2020. Clock protein BMAL1 and Nrf2 cooperatively control aging or oxidative response and redox homeostasis by regulating rhythmic expression of Prdx6. Cells 9: 1861.
3. Choi, D.H., et al. 2021. Treadmill exercise alleviates brain iron dyshomeostasis accelerating neuronal Amyloid-β production, neuronal cell death, and cognitive impairment in transgenic mice model of Alzheimer's disease. Mol. Neurobiol. 58: 3208-3223.
4. Kim, H.L., et al. 2023. Effects of *Scrophularia buergeriana* extract (Brainon®) on aging-induced memory impairment in SAMP8 mice. Curr. Issues Mol. Biol. 45: 1287-1305.
5. Buhr, T.J., et al. 2023. The persistence of stress-induced physical inactivity in rats: an investigation of central monoamine neurotransmitters and skeletal muscle oxidative stress. Front. Behav. Neurosci. 17: 1169151.

RESEARCH USE

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

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.