SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-1 (72B1): sc-58421

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 it 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, Downs syndrome and Alzheimer's disease. In familial ALS, several mutations in SOD-1 predominate, and they result in the loss of zinc binding and the loss of scavenging activity of SOD-1 and correlate with an increase in neurotoxicity and motor neuron death.

REFERENCES

1. 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.
2. Bewley, G.C. 1988. cDNA and deduced amino acid sequence of murine Cu-Zn superoxide dismutase. Nucleic Acids Res. 16: 2728.
3. Beckman, J.S., et al. 1993. ALS, SOD and peroxynitrite. Nature 364: 584.
4. Orrell, R., et al. 1995. A novel SOD mutant and ALS. Nature 374: 504-505.
5. Singh, R.J., et al. 1998. Reexamination of the mechanism of hydroxyl radical adducts formed from the reaction between familial amyotrophic lateral sclerosis-associated Cu/Zn superoxide dismutase mutants and H_2O_2. Proc. Natl. Acad. Sci. USA 95: 6675-6680.
6. Shaw, C.E., et al. 1998. Mutations in all five exons of SOD-1 may cause ALS. Ann. Neurol. 43: 390-394.
7. Bruijn, L.I., et al. 1998. Aggregation and motor neuron toxicity of an ALS-linked SOD-1 mutant independent from wildtype SOD-1. Science 281: 1851-1854.

CHROMOSOMAL LOCATION

Genetic locus: SOD1 (human) mapping to 21q22.11.

SOURCE

SOD-1 (72B1) is a mouse monoclonal antibody raised against full length SOD-1 of human origin.

PRODUCT

Each vial contains IgG_1 in 100 µl of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

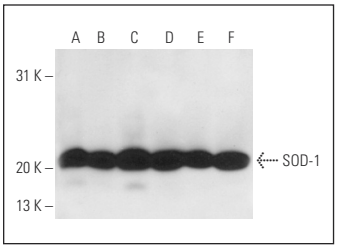
SOD-1 (72B1) is recommended for detection of SOD-1 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

Suitable for use as control antibody for SOD-1 siRNA (h): sc-36523, SOD-1 shRNA Plasmid (h): sc-36523-SH and SOD-1 shRNA (h) Lentiviral Particles: sc-36523-V.

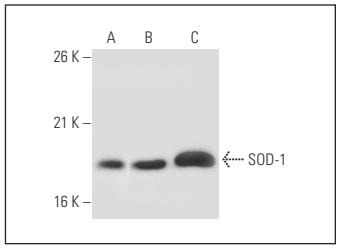
Molecular Weight of SOD-1: 23 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or SOD-1 (m): 293T Lysate: sc-123710.

DATA



SOD-1 (72B1): sc-58421. Western blot analysis of SOD-1 expression in HeLa (**A**), Jurkat (**B**), Hep G2 (**C**), DU 145 (**D**), Hs68 (**E**) and CCD-1064Sk (**F**) whole cell lysates.



SOD-1 (72B1): sc-58421. Western blot analysis of SOD-1 expression in non-transfected 293T: sc-117752 (**A**), mouse SOD-1 transfected 293T: sc-123710 (**B**) and HeLa (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ju, W., et al. 2007. A critical role of luteolin-induced reactive oxygen species in blockage of tumor necrosis factor-activated nuclear factor-κB pathway and sensitization of apoptosis in lung cancer cells. Mol. Pharmacol. 71: 1381-1388.
2. Rubio, V., et al. 2018. Different roles of Nrf2 and NFκB in the antioxidant imbalance produced by esculetin or quercetin on NB4 leukemia cells. Chem. Biol. Interact. 294: 158-166.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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.