Product Information

Cu/Zn SOD (human) Polyclonal Antibody

Catalog No. 10011388

Contents: This vial contains affinity-purified antibody at 1 mg/ml in PBS, pH 7.0, containing 0.1% sodium azide and 50% glycerol

Synonym: Cu/Zn Superoxide Dimutase, SOD1

Antigen: Human Cu/Zn SOD

Host: Rabbit

Cross Reactivity: (+) human, murine, bovine, monkey, coral, canine, hamster, porcine, rabbit, ovine, and rat Cu/Zn SOD. Detects a 23 kDa (human) and 19 kDa (other species) proteins corresponding to the molecular mass of Cu/Zn SOD on SDS-PAGE immunoblots.

Stability: ≥1 year at -20°C

Applications: Western blot (WB), immunoprecipitation, EIA, and immunohisochemistry.[1,2] The recommended starting concentration for WB is 0.2 µg/ml, which was found to be sufficient for detection of Cu/Zn SOD in 20 µg of HeLa cell lysate. Other applications were not attempted and therefore optimal working dilutions should be determined empirically.

Superoxide dismutase (SOD) is an endogenously produced intracellular enzyme present in almost every cell in the body.[3] It works by catalyzing the dismutation of the superoxide radical O_2^- to O_2 and H_2O_2, which are then metabolized to H_2O and O_2 by catalase and glutathione peroxidase.[4,5] In general, SODs play a major role in antioxidant defense mechanisms.[6]

There are two main types of SOD in mammalian cells. One form, SOD1, contains Cu and Zn ions as a homodimer and exists in the cytoplasm. The two subunits of 16 kDa each are linked by two cystines forming an intra-subunit disulphide bridge.[3] The second form, SOD2, is a manganese-containing enzyme and resides in the mitochondrial matrix. It is a homotetramer of 80 kDa. The third form, SOD3 or EC-SOD, is like SOD1 in that it contains Cu and Zn ions, however it is distinct in that it is a homotetramer, with a mass of 30 kDa and it exists only in the extra-cellular space.[1] SOD3 can also be distinguished by its heparin-binding capacity.[7]

References

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2. Katsuki, H., Tomita, M., Takenaka, C., *et al.* Superoxide dismutase activity in organotypic midbrain-striatum co-cultures is associated with resistance of dopaminergic neurons to excitotoxicity. *J. Neurochem.* **76**, 1336-1345 (2001).
3. Furukawa, Y. and O'Halloran, T.V. Posttranslational modifications in Cu,Zn-superoxide dismutase and mutations associated with amyotrophic lateral sclerosis. *Antioxidants & Redox Signaling* **8(5-6)**, 847-867 (2006).
4. Bannister, J.V., Bannister, W.H., and Rotilio, G. Aspects of the structure, function, and applications of superoxide dismutase. *Crit. Rev. Biochem. Mol. Biol.* **22(2)**, 111-180 (1987).
5. Hassan, H.M. Biosynthesis and regulation of superoxide dismutases. *Free Radic. Biol. Med.* **5(5-6)**, 377-385 (1988).
6. Gao, B., Flores, S.C., Leff, J.A., *et al.* Synthesis and anti-inflammatory activity of a chimeric recombinant superoxide dismutase: SOD2/3. *Am. J. Physiol. Lung Cell Mol. Physiol.* **284**, L917-L925 (2003).
7. Adachi, T., Ohta, H., Yamada, H., *et al.* Quantitative analysis of extracellular-superoxide dismutase in serum and urine by ELISA with monoclonal antibody. *Clin. Chim. Acta* **212(3)**, 89-102 (1992).

Related Products

Superoxide Dismutase Assay Kit - Cat. No. 706002 • Hydrogen Peroxide (urinary) Assay Kit - Cat. No. 706011 • Catalase Assay Kit - Cat. No. 707002 • Antioxidant Assay Kit - Cat. No. 709001 • Cu/Zn SOD (rat) Polyclonal Antibody - Cat. No. 10011387 • Mn (rat) SOD Polyclonal Antibody - Cat. No. 10011389 • Mn SOD (human) Polyclonal Antibody - Cat. No. 10011390 • GRP90 Monoclonal Antibody (Clone 9G10) - Cat. No. 10011424 • DNA/RNA Damage Monoclonal Antibody (Clone 15A3) - Cat. No. 10011446

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