

# Product Information



## Mn SOD (human) Polyclonal Antibody

Item No. 10011390

<b>Contents:</b>	This vial contains affinity-purified antibody at 1 mg/ml in PBS, pH 7.0, containing 0.1% sodium azide and 50% glycerol
<b>Synonym:</b>	Manganese Superoxide Dismutase, SOD2
<b>Antigen:</b>	Human Mn SOD
<b>Host:</b>	Rabbit
<b>Cross Reactivity:</b>	(+) Human, rat, mouse, bovine, canine, chicken, gerbil, guinea pig, porcine, hamster, monkey, rabbit, ovine, and <i>Xenopus</i> Mn SOD. Detects a 25 kDa protein corresponding to the molecular mass of Mn SOD on SDS-PAGE immunoblots.
<b>Stability:</b>	≥1 year at -20°C
<b>Applications:</b>	Western blot, (WB) immunoprecipitation, and immunohistochemistry. The recommended starting concentration for WB is 0.2 µg/ml, which is sufficient for detection of Mn SOD in 20 µg of rat brain tissue extract. 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.<sup>1</sup> It works by catalyzing the dismutation of the superoxide radical  $O_2^-$  to  $O_2$  and  $H_2O_2$ .<sup>2,3</sup>

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.<sup>1</sup> 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.<sup>4</sup> SOD3 can also be distinguished by its heparin-binding capacity.<sup>5</sup>

### References

1. 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).
2. 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).
3. Hassan, H.M. Biosynthesis and regulation of superoxide dismutases. *Free Radic. Biol. Med.* **5(5-6)**, 377-385 (1988).
4. Wispé, J.R., Clark, J.C., Burhans, M.S., *et al.* Synthesis and processing of the precursor for human manganese-superoxide dismutase. *Biochim. Biophys. Acta* **994(1)**, 30-36 (1989).
5. 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

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**WARNING: THIS PRODUCT IS NOT FOR HUMAN OR ANIMAL DISEASE DIAGNOSIS OR THERAPEUTIC DRUG USE.**

#### MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent under separate cover to the MSDS supervisor at your institution.

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