PRODUCT INFORMATION

Mn-SOD (human) Polyclonal Antibody

Item No. 33129

Overview and Properties

Contents:	This vial contains 25 or 100 µg of protein A-affinity purified polyclonal antibody.
Synonyms:	IPOB, Manganese Superoxide Dismutase, MVCD6, SOD2
Immunogen:	Human Mn-SOD
Species Reactivity:	(+) Human, bovine, canine, chicken, frog, gerbil, guinea pig, hamster, monkey, mouse, ovine, rabbit, sheep, wood frog
Cross Reactivity:	(+) Mn-SOD
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.4, with 50% glycerol and 0.09% sodium azide
Concentration:	1 mg/ml
Host:	Rabbit
Applications:	ELISA, Immunocytochemistry (ICC), Immunohistochemistry (IHC), Immunoprecipitation (IP), and Western blot (WB); the recommended starting dilution is 1:100 for IHC and 1:5,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Description

Manganese SOD (Mn-SOD) is an antioxidant enzyme that protects cells from oxidative stress by scavenging superoxide anions.[1] It exists as a homotetramer where each monomer is composed of an N-terminal α-hairpin domain and a C-terminal α/β domain that contains Mn-binding catalytic active sites.[1,2] SOD2 is expressed in the mitochondria and is localized to the mitochondrial matrix where it catalyzes the dismutation of superoxide to hydrogen peroxide and oxygen by alternating reduction and reoxidation of Mn at the enzyme active site.[1] Genetic deletion of *Sod2* in mice induces metabolic acidosis and lipid accumulation in the liver and skeletal muscle, and is perinatal lethal.[3] Transgenic *SOD2* overexpression reduces superoxide levels in the hippocampal CA1 region and 3 the lifespan of aged mice.[4] *SOD2* expression is reduced in tumors from patients with hepatocellular carcinoma (HCC) and this decrease is associated with increased tumor number, metastasis, and reduced survival.[5] *SOD2* SNPs have been found in patients with non-Hodgkin's lymphoma, lung cancer, or colorectal cancer.[6] Cayman's Mn-SOD (human) Polyclonal Antibody can be used for ELISA, immunocytochemistry (ICC), immunohistochemistry (IHC), immunoprecipitation (IP), and Western blot (WB) applications.

References

1. Fukai, T. and Ushio-Fukai, M. Superoxide dismutases: Role in redox signaling, vascular function, and diseases. *Antioxid. Redox Signal.* **15(6)**, 1583-1606 (2011).
2. Perry, J.J.P., Shin, D.S., Getzoff, E.D., *et al.* The structural biochemistry of the superoxide dismutases. *Biochim. Biophys. Acta* **1804(2)**, 245-262 (2010).
3. Li, Y., Huang, T.T., Carlson, E.J., *et al.* Dilated cardiomyopathy and neonatal lethality in mutant mice lacking manganese superoxide dismutase. *Nat. Genet.* **11(4)**, 376-381 (1995).
4. Hu, D., Cao, P., Thiels, E., *et al.* Hippocampal long-term potentiation, memory, and longevity in mice that overexpress mitochondrial superoxide dismutase. *Neurobiol. Learn. Mem.* **87(3)**, 372-384 (2007).
5. Wang, R., Yin, C., Li, X.-X., *et al.* Reduced SOD2 expression is associated with mortality of hepatocellular carcinoma patients in a mutant p53-dependent manner. *Aging (Albany NY)* **8(6)**, 1184-1200 (2016).
6. Kang, S.W. Superoxide dismutase 2 gene and cancer risk: Evidence from an updated meta-analysis. *Int. J. Clin. Exp. Med.* **8(9)**, 14647-14655 (2015).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM