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ProductInformation

Anti-Superoxide Dismutase (MnSOD) (DD-17)
Developed in Rabbit
Affinity Isolated Antibody

Product Number **S 5069**

Product Description

Anti-Superoxide Dismutase (MnSOD) (DD-17) is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 183-199 of human Superoxide Dismutase (MnSOD) with N-terminal added cysteine, conjugated to KLH. The corresponding sequence is conserved in many eukaryotes. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Superoxide Dismutase (MnSOD) (DD-17) recognizes human and rat Superoxide Dismutase (MnSOD). The antibody may be detected by various immunochemical techniques including immunoblotting (~24 kDa), immunoprecipitation, indirect immunofluorescence, and immunohistochemistry. Detection of the superoxide dismutase (MnSOD) band by immunoblotting is specifically inhibited with the immunizing peptide.

Superoxide anions are generated within cells in both normal and pathological conditions and are toxic to biological systems. Superoxide Dismutase (SOD) [1] is a metalloprotein enzyme catalyzing the dismutation of the cytotoxic superoxide radical (O^{2}-) to molecular oxygen and hydrogen peroxide. Superoxide dismutase is widely distributed in the animal and plant kingdoms. The three common mammalian endogenous isozymes are the homodimeric copper-zinc SOD (Cu,ZnSOD, SOD1) found primarily in the cytosol, the homotetrameric glycosylated copper-zinc SOD, extracellular SOD (EC-SOD, SOD3), and the homotetrameric mitochondrial manganese SOD (MnSOD, SOD2). All three are nuclear-encoded. MnSOD is composed of four subunits, each containing one Mn^{2+}. Following synthesis in the cytosol, MnSOD is modified for transport into the mitochondrion where it resides in the matrix. MnSOD is essential for survival of aerobic life.[2, 3] MnSOD, like the two other isozymes, is constitutively expressed. Nevertheless, since it is the one whose levels undergo a substantial increase in response to oxidative stress, it is often referred to as an inducible enzyme. Various inflammatory mediators in multiple tissues may cause dramatic elevations of mRNA and protein levels of MnSOD. MnSOD is inducible by tumor necrosis factor (TNF) and protects cells from TNF-mediated apoptosis.[4] When over-expressed, it also protects neurons from NMDA and nitric oxide-induced neurotoxicity.[5] Decline in MnSOD activity occurs in aging, progeria, cancer, asthma, and transplant rejection.[6] MnSOD has been proposed to function as a tumor suppressor by modulating the activity of redox-sensitive transcription factors and specific signal mediators.[7, 8]

Reagent

Anti-Superoxide Dismutase (MnSOD) (DD-17) is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide.

Antibody Concentration: Approx. 0.6 mg/ml

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 2-4 µg/ml is recommended using a whole extract of rat brain and a chemiluminescent detection reagent.

By immunoblotting, a working antibody concentration of 1-2 µg/ml is recommended using a human HeLa mitochondria extract and a chemiluminescent detection reagent.

By indirect immunofluorescence, a working antibody concentration of 10-20 µg/ml is recommended using methanol-acetone-fixed rat NRK cells.

By immunohistochemistry, a working concentration of 10-20 µg/ml is recommended by biotin/ExtraAvidin™-peroxidase staining of formalin-fixed, paraffin-embedded human heart sections.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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