

Product Information

Anti-Superoxide Dismutase (MnSOD) (DD-17)–Cy3™ produced in rabbit, affinity isolated antibody

Catalog Number **S1450**

Product Description

Anti-Superoxide Dismutase (MnSOD) (DD-17) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 183-199 of human Superoxide Dismutase (MnSOD) (GeneID 6648) conjugated to KLH. The corresponding sequence is conserved in many eukaryotes. The product is prepared by conjugation of the affinity purified antibody to Cy3, and the conjugate is purified by gel filtration to remove unbound Cy3 fluorophore.

Anti-Superoxide Dismutase (MnSOD) (DD-17)–Cy3 recognizes human, rat, and mouse superoxide dismutase (MnSOD). The antibody may be used for the detection and localization of superoxide dismutase by direct immunofluorescence staining.

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 Cu,ZnSOD (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, it 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 ageing, 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

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: 1-2 mg/mL
Molar Ratio (F/P): 3-9

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet 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 at -20 °C in working aliquots. Protect from prolonged exposure to light. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Direct immunofluorescence: a working antibody concentration of 2-5 μ g/mL is recommended using human HeLa, rat NRK, and mouse 3T3 cells.

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

References

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