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Product Information

Anti-Superoxide Dismutase (SOD) antibody, Mouse monoclonal
Clone SD-G6, purified from hybridoma cell culture

Product Number **SAB4200807**

Product Description

Monoclonal Anti-Superoxide Dismutase (SOD, mouse IgG1 isotype) is derived from the SD-G6 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with recombinant human copper-zinc superoxide dismutase (Cu-Zn-SOD). The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents (Product Number ISO2). The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-Superoxide Dismutase (SOD) recognizes natural (human erythrocyte SOD), recombinant SOD (human Cu-Zn-SOD and human placental SOD), and the enzymatically inactive form of these enzymes. Reactivity has been observed with SOD from human, rat, and dog origin, no reactivity was observed with SOD from bovine, *Bacillus stearothermophilus,* or *E. coli* (Fe or Mn) origin. The antibody is recommended to use in various immunological techniques, including ELISA, immunohistochemistry, and immunofluorescence.[1] The antibody does not recognize SOD in immunoblotting.

Superoxide Dismutase (SOD) is a family of metalloenzymes widely distributed in both plants and animals. Superoxide dismutases appear to protect cells against reactive free radicals by scavenging the superoxide radicals produced by ionization radiation or through other mechanisms. The SOD enzyme catalyzes the conversion of single electron reduced species of molecular oxygen to hydrogen peroxide and oxygen.

There are several classes of SOD that differ in their metal binding ability, distribution in different cell compartments, and sensitivity to various reagents. In mammalian tissues, there are three types of superoxide dismutase: cellular Cu-Zn-SOD (SOD-1), mitochondrial manganese Mn-SOD (SOD-2), and extracellular EC-SOD (SOD-3). These enzymes are encoded by three separate genes on the human chromosome and have different expression in tissues and diseases.[3]

Among the three types, Cu, Zn superoxide dismutase (SOD1) is widely distributed and comprises 90% of the total SOD. This ubiquitous enzyme, which requires Cu and Zn for its activity, has great physiological significance and therapeutic potential.[2]

Patients with the familial major motor neuron disorder Amyotrophic Lateral Sclerosis (ALS) have multiple mutations in the SOD1 gene that may lead to protein aggregation into biochemically distinct, high molecular weight, insoluble protein complexes, suggesting their toxic effects are the consequence of protein dysfunction with an increase of oxidative stress.[1-2]

Superoxide Dismutases have been proposed as clinically useful for a wide variety of applications including prevention of oncogenesis, tumor promotion, tumor invasiveness, radiation damage, reduction of the cytotoxic and cardiotoxic effects of anticancer drugs, as a measure against the aging process and as antiinflammatory agents.[3]

In human patient samples, Cu-Zn SOD expression is low in many, but not all tumors and its activity is decreased compared to normal tissue.[3] SOD is also clinically important to a wide variety of neurodegenerative, cardiovascular, and chronic immune diseases.[4] The specific activity of Cu-Zn SOD is increased in erythrocytes from patients with Down's syndrome,[5] renal failure, and liver disease.[3]

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: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the 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 in working aliquots. Repeated freezing and thawing 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
Indirect ELISA: a working concentration of 0.3-0.6 μg/ml is recommended using 5 μg/mL of Superoxide Dismutase from human erythrocytes for coating.

Note: In order to obtain best results in different techniques and preparations, it is recommended to determine optimal working concentration by titration test.

References

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5. Muchová, J. et al., *Physiol. Res.*, 63, 535-42 (2014).

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