SOD

Recombinant Bacterial

SUPEROXIDE DISMUTASE

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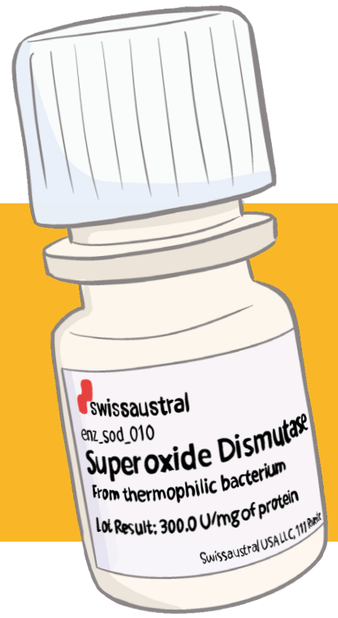
Enzymes from extremophiles (extremozymes) are inherently more stable, active and robust than their mesophilic counterparts.

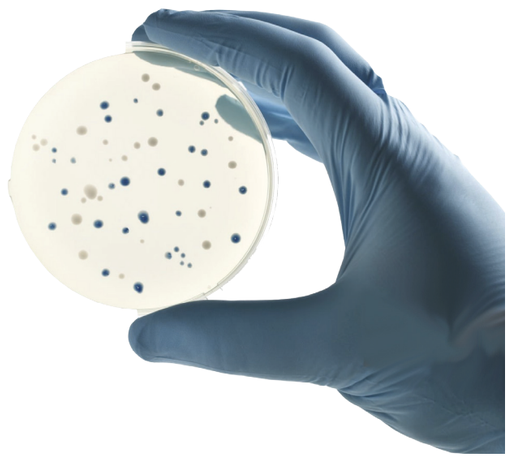
Superoxide dismutase is a manganese-containing enzyme that efficiently catalyzes the dismutation (or partitioning) of superoxide radicals (O_2^-) into hydrogen peroxide (H_2O_2) and molecular oxygen (O_2). They play a key role preventing oxidative damage of superoxide radicals produced as by-products of oxygen metabolism.



Swissaustral has developed a High-performance™ SUPEROXIDE DISMUTASE enzyme product

It is derived from an extremophilic bacterium that grows optimally at 70 °C (thermophile)

Swissaustral SOD
is more active in a broad range of temperatures (30 - 70 °C)



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Key Characteristics

Extremely reliable: maintains high activity in a wide range of temperatures (20 - 80 °C).

Exceptional thermostability: maintains over 50% of its activity after 2.5 days at 50°C.

Optimal activity at 50 °C, pH 7.0, which makes it ideal for industrial processes requiring high temperatures for long periods of time.

Robust: tolerant to organic solvents such as DMF and methanol, expanding its applicability in industrial biocatalysis.

Low inhibition by products and substrates: tolerant to inhibitors such as EDTA, KCN, H_2O_2, and various salts such as $CaCl_2$, $NiCl_2$, NaCl, $ZnCl_2$ which broadens its applicability in industrial biocatalysis.

Potential Applications

Pharmaceuticals
Antioxidant enzyme that protects cells from oxidative damage. It is incorporated into pharmaceuticals for anti-inflammatory purposes.

Cosmetics
As additive in sunscreens for UV radiation protection. Formulation of topical treatments for oxidative stress related skin conditions. Prevents hair graying.

Food & Beverage
Superoxide dismutases are commonly used as a food preservative.

Stabilizer
Additive for extended shelf life and stabilization of compounds sensitive to oxidative degradation. Preservation of organs for transplantation and animal semen for livestock breeding.

Research & Diagnostics
Protection against oxidative stress in biomedical research. Biosensors for detecting reactive oxygen species (ROS) under extreme conditions.

Agriculture
Superoxide dismutases are used as an additive to enhance plant stress tolerance.

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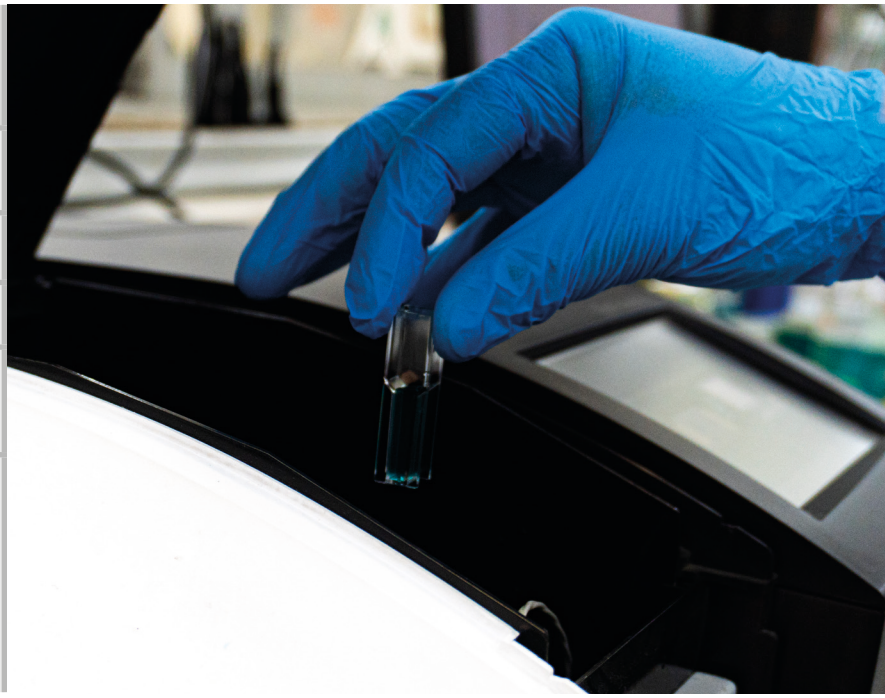
Specifications

Enzyme name:	**SUPEROXIDE DISMUTASE** (manganase SOD)
EC number:	EC 1.15.1.1
CAS number:	9054-89-1
Molecular mass:	~ 47 kDa
Number of subunits:	Two. Each subunit has ≈ 24 kDa
Production source:	From thermophilic origin. Fast and sustainable recombinant production in a non-pathogenic *Escherichia coli* strain. Free from any animal or plant related contamination.
Unit definition (*):	One superoxide dismutase unit (U) is defined as the amount of enzyme that causes 50% of maximum inhibition of NBT reduction
Temperature range:	20 - 80 °C (optimal: 50°C)
pH range:	6.0 -10.0 (optimal: 7.0 - 8.0)
Thermal stability:	Maintains over 50% of its activity after 64 h at 50°C

Available format

	Lyophilized SOD
Product Number	**enz_sod_010**
Presentation	Lyophilized powder
Activity	≥ 300 U/mg
Other components	0.05M Tris Buffer pH 8.0, 0.85M NaCl
Storage conditions	At -20 °C, it maintains the reported activity (≥ 300 U/mg) for at least 1 year



Disclaimer: Swissaustral enz_sod_010 is not produced in a GMP facility. This enzyme product is for research purposes only and not intended for human or animal consumption or applications.

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