

Product Information

Mutanolysin

from *Streptomyces globisporus* ATCC 21553

free of DNA contaminants

suitable for Microbiome research

Catalog Number **SAE0092**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 55466-22-2

Product Description

The Gram-positive bacterium *Streptomyces globisporus* ATCC 21553 (also known as the B-1829 strain of *Streptomyces*) produces three extracellular bacteriolytic enzymes, the lytic enzymes N-acetylmuramidase M1 and N-acetylmuramidase M2, and the proteolytic enzyme N-Acetylmuramyl-L-alanine amidase.¹⁻⁵ Collectively, these enzymes are referred to as mutanolysin.² Particular properties of the three enzymes include the following:

N-acetylmuramidase M1:

Activity: β -1,4-N,6-O-diacetylmuramidase¹

Molecular mass: $\sim 20\text{ kDa}$,^{3,4} $\sim 27\text{ kDa}$ ⁶

N-acetylmuramidase M2:

Activity: β -1,4-N-acetylmuramidase¹

Molecular mass: $\sim 11\text{ kDa}$ ^{3,4}

N-Acetylmuramyl-L-alanine amidase:⁵

Activity: cleavage at the lactylamide bond of bacterial peptidoglycans

Molecular mass: $\sim 18.5\text{ kDa}$

Isoelectric point: 6.6

The crystal structure of the N-acetylmuramidase M1 constituent of mutanolysin has been reported.⁷

For isolation of nucleic acids, mutanolysin has been used in the lysis of Gram-positive bacteria (e.g. *Listeria*, *Lactobacillus*, *Lactococcus*),⁸ and also generally on bacteria that are difficult to lyse with lysozyme.⁹

This product is supplied as a lyophilized powder containing Ficoll® and sodium succinate buffer salts.

The study of microbial communities has been revolutionized in recent years by the widespread adoption of culture-independent analytical techniques such as metagenomics and 16S rRNA gene sequencing.^{10,11} Since DNA contamination during sample preparation is a major problem with these sequence-based approaches, DNA extraction reagents free of DNA contaminants are essential.

This purified mutanolysin product undergoes strict quality control testing to ensure the absence of detectable levels of contaminating DNA, using 35 cycles of PCR amplification of 16S and 18S rDNA with universal primer sets.

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.

Preparation Instructions

Solutions of mutanolysin can be prepared in 50 mM TES, pH 7.0, with 1 mM MgCl_2 , at the equivalent of 1 mg/mL. Mutanolysin can also be dissolved in water¹² or TE buffer.¹³

Storage/Stability

Stock solutions of mutanolysin can be stored at $-20\text{ }^{\circ}\text{C}$ in frozen aliquots at concentrations of 1,000 units/mL in water,¹² or at 3,000 units/mL in TE buffer.¹³

References

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