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Product Information

Lysozyme from chicken egg white
free of DNA contaminants
suitable for Microbiome research

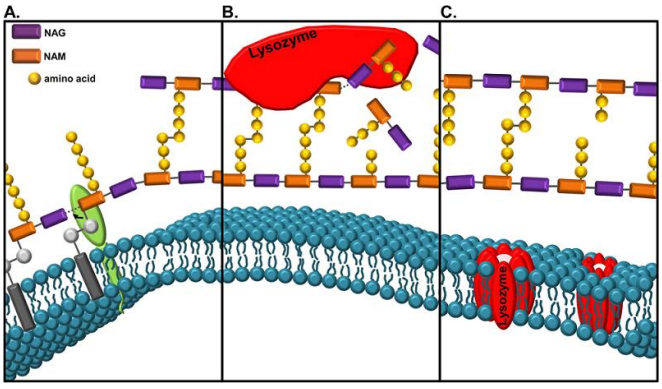
Catalog Number **SAE0152**
Storage Temperature –20 °C

CAS RN 12650-88-3
EC 3.2.1.17
Synonyms: Muramidase; Lysozyme c; Mucopeptide N-acetylmuramoylhydrolase

Product Description

Lysozyme is a single chain polypeptide of 129 amino acids crosslinked with four disulfide bridges.[1] Lysozyme hydrolyzes β(1→4) linkages between *N*-acetylmuraminic acid and *N*-acetyl-D-glucosamine residues in peptidoglycan, and between *N*-acetyl-D-glucosamine residues in chitodextrin.[2-4] Lysozyme is often used to lyse bacterial cells by hydrolyzing the peptidoglycan layer of the cell walls. Gram-positive cells are quite susceptible to this hydrolysis, as their cell walls have a high proportion of peptidoglycan. Gram-negative bacteria are less susceptible, due to the presence of an outer membrane and a lower proportion of peptidoglycan. Lysozyme is commonly used for isolation of nucleic acids.[6,7]

Figure 1.
Lysozyme Hydrolysis Activity



Lysozyme is active over a broad pH range (6.0–9.0).[5]

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

This lysozyme product is purified from chicken egg white, crystallized three times, dialyzed, and supplied as a lyophilized powder. Protein content by UV absorbance is ≥90% with the remainder (~10%) as buffer salts, such as sodium acetate and sodium chloride.

This 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, using universal primer sets.

Lysozyme activity: ≥40,000 units/mg protein

Unit definition: One unit will produce a change in A_{450} of 0.001 per minute at pH 6.24 and 25 °C, using a suspension of *Micrococcus lysodeikticus* as substrate, in a 2.6 mL reaction mixture (1 cm light path).

Precautions and Disclaimer

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

A solution of lysozyme can be prepared in DNA-free water at 10 mg/mL.

Storage/Stability

Stock solutions of lysozyme can be stored at –20 °C in frozen aliquots.

References

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4. Ragland, S.A., and Criss, A.K., *PLOS Pathog.*, **13(9)**, e1006512 (2017).
5. Davies, R.C. *et al*., *Biochim. Biophys. Acta*, **178(2)**, 294-305 (1969).
6. Holtje, J.V., *EXS*, **75**, 105-110 (1996).
7. Yuan, S. *et al*., *PLoS One*, **7(3)**, e33865 (2012).

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