

Product Information

Lysozyme from chicken egg white

Free of DNA contaminants, suitable for microbiome research

SAE0152

CAS RN 12650-88-3

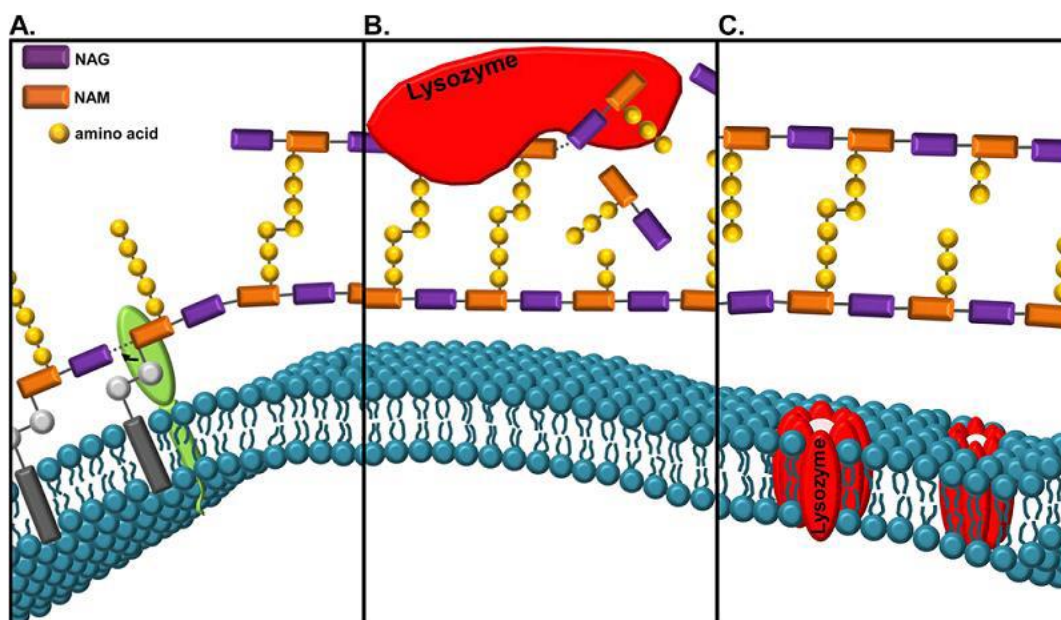
EC 3.2.1.17

Synonyms: Muramidase; Lysozyme c; Mucopolysaccharide N-acetylmuramoylhydrolase

Product Description

Lysozyme is a single chain polypeptide of 129 amino acids crosslinked with four disulfide bridges.¹ Lysozyme hydrolyzes $\beta(1\rightarrow4)$ 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}

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 $\geq 90\%$ with the remainder ($\sim 10\%$) 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: $\geq 40,000$ units/mg protein

Unit definition: One unit will produce a change in A450 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 and Stability

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

References

1. Jolles, P., Angew. Chem, Int. Ed. Engl., 8(4), 227-239 (1969).
2. Rupley, J.A., Biochim. Biophys. Acta, 83, 245-255 (1964).
3. Holler, E. et al., Biochemistry, 14(11), 2377-2385 (1975).
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).

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

The life science business of Merck operates
as MilliporeSigma in the U.S. and Canada.

Merck and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2022-2024 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

SAE0152pis Rev 06/24

