

## Product Information

## Lysostaphin from *Staphylococcus staphylolyticus*

Free of DNA contaminants, suitable for Microbiome research, lyophilized powder,  $\geq 500$  units/mg protein

**SAE0091**

### Product Description

CAS Registry Number: 9011-93-2

E.C. 3.4.24.75

Synonym: Glycyl-glycine Endopeptidase

Lysostaphin is a zinc metalloenzyme isolated from a bacterial culture of *Staphylococcus staphylolyticus*. It has specific lytic action against *Staphylococcus* species, including *S. aureus*.<sup>1,2</sup> Lysostaphin has hexosaminidase, amidase, and endopeptidase activities. Lysostaphin cleaves polyglycine crosslinks in the cellular wall of *Staphylococcus* species, which leads to cell lysis.<sup>3,4</sup>

Purified extracellular lysostaphin from *S. staphylolyticus* is a single polypeptide chain with a molecular mass of 26,926 Da, containing 246 amino acid residues.<sup>5</sup> Lysostaphin has an isoelectric point of 9.5 and a pH optimum of 7.5.<sup>6</sup>

Studies of microbial communities have been revolutionized by the adoption of culture-independent analytical techniques like 16S rRNA gene sequencing and metagenomics.<sup>7-9</sup> As DNA contamination during sample preparation is a major problem of these sequence-based approaches, DNA extraction reagents free of DNA contaminants are essential.

This purified lysostaphin 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. Several references<sup>10,11</sup> cite use of product SAE0091 in their protocols.

### 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.

### Product

The product is a lyophilized powder containing 50-70% protein, with the balance primarily as NaCl.

Specific Activity:  $\geq 500$  units/mg protein

Unit Definition: One unit will reduce the turbidity ( $A_{620}$ ) of a suspension of *S. aureus* cells from 0.250 to 0.125 in 10 minutes at pH 7.5 at 37 °C in a 6.0 mL reaction mixture.

### Storage/Stability

Store the product at  $-20$  °C. When stored properly and unopened at  $-20$  °C, the enzyme has a recommended retest date of 3 years.

### Preparation Instructions

The product is soluble in water (10 mg/mL), yielding a clear to slightly hazy solution. We recommend that fresh solutions be prepared, as the product loses activity in solution.

We do not specifically suggest the freezing of lysostaphin solutions in aliquots. Other researchers have reported freezing of lysostaphin stock solutions, but we ourselves have not tested these conditions:

- One published reference cites storage of 200 units/mL stock solutions of lysostaphin in a buffer of 0.05 M Trizma®-HCl and 0.145 M NaCl at pH 7.4.<sup>12</sup>
- A second reference indicates storage of 2 mg/mL stock solutions in 20 mM sodium acetate buffer (pH 4.5) in frozen aliquots.<sup>13</sup>

## References

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