



## Lysozyme

Lysozyme Lyophilized powder 20000 U / mg	500 mg
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### For research use only

Cat No: YT9056

Size: 500 mg

Store at  $-20^{\circ}\text{C}$ 

Synonyms: Muramidase; Lysozyme c; Mucopeptide N-acetylmuramoylhydrolase

### Product Description

**YTA Lysozyme** is a single chain polypeptide of 129 amino acids cross-linked with four disulfide bridges. It hydrolyzes  $\beta$  (1-4) linkages between N-acetyl muraminic acid and N-acetyl-D-glucosamine residues in peptidoglycan and between N-acetyl-D-glucosamine residues in chitodextrin. Lysozyme is an enzyme used for the extraction of proteins and nucleic acid from bacteria. The enzyme is often used for lysing bacterial cells by hydrolyzing the peptidoglycan present in 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. However, these cells may be hydrolyzed more easily in the presence of EDTA that chelates metal ions in the outer bacterial membrane. This lysozyme preparation is purified from chicken egg white, crystallized three times, dialyzed, and supplied as a lyophilized powder. It is suitable for use as a lysing agent in the purification of plasmid DNA using a boiling lysing technique.

### Specification:

**Grade:** for molecular biology , **mol wt :** single-chain 14.3 kDa , **Optimal pH:** 6.0–9.0

**Inhibitors:** SDS, Alcohols, N-acetylc-D-glucosamine, Oxidizing agents

### Substrates:

The natural substrate for lysozyme is the peptidoglycan layer of bacterial cell walls. Lysozyme has an antibacterial effect on Gram-positive bacteria, aerobic spore forming bacteria, *Bacillus subtilis*, *Bacillus licheniformis*, and the like, and does not adversely affect human cells without cell walls. Lysozyme can also bind directly to negatively charged viral proteins, forming complex salts with DNA, RNA, and apoproteins, inactivating viruses. Therefore, the enzyme has antibacterial, anti-inflammatory, anti-viral and the like.

### Preparation Instructions:

For gram positive bacteria cell lysis, use a freshly prepared lysozyme solution (10 mg/ml) in 10 mM Tris-HCl, pH 8.0. The product is also soluble in deionized water (10 mg/ml) yielding a clear to slightly hazy colorless solution. Aqueous solutions should retain activity for at least one month when stored between  $2-8^{\circ}\text{C}$ .

The volume of solution used for preparation depends on the concentration you need in test. Notice that you can make a stock solution with higher concentration and make a aliquot of lower concentration in lower volume.

Concentration (mg/ml)	Volume of solution
500 mg	1ml
100 mg	5ml
50 mg	10ml
20 mg	25ml
10mg	50ml

### Storage/Stability:

The product, as supplied, should be stored at  $-20^{\circ}\text{C}$ . When stored at  $-20^{\circ}\text{C}$ , the enzyme retains activity for at least 4 years. Solutions (pH 4–5) remain active for several weeks if refrigerated.

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