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## Lysozyme 20,000 u/mg

Synonyms: Muramidase; Lysozyme c; Mucopolysaccharidase

grade	for molecular biology
Cat number	YT9056
form	lyophilized powder ( 500 mg )
Storage	-20 °C
specific activity	20,000 units/mg protein
mol wt	single-chain 14.3 kDa
Optimal pH	6.0-9.0
Inhibitors	SDS, Alcohols, N-acetyl-D-glucosamine, Oxidizing agents

### 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.

### 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 *E. coli* 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 °C.

### Storage/Stability:

The product, as supplied, should be stored at -20 °C. When stored at -20 °C, the enzyme retains activity for at least 4 years. Solutions (pH 4-5) remain active for several weeks if refrigerated.