

Lysozyme Solution

Product	Con.	Cat#	Size
Lysozyme Solution	10mg/ml	IBS-BL004	10ml

Components : 10mg/ml Lysozyme in 10mM Tris-HCl pH 8.0

Storage Conditions : Freeze

Aqueous solution should retain activity for at least one month when stored between 2-8°C and at least 1 year when stored in -20°C

Introduction : Lysozyme is a single chain polypeptide of 129 amino acids cross-linked with four disulfide bridges. It hydrolyzes b(1-4) linkages between N-acetylmuraminic acid and N-acetyl-D-glucosamine residues in peptidoglycan and between N-acetyl-D-glucosamine residues in chitodextrin. The enzyme is often used for lysing bacterial cells by hydro-lyzing 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.

Substrates : The natural substrate for lysozyme is the peptidoglycan layer of bacterial cell walls. However, a variety of low molecular mass substrates including murein degradation products as well as synthetic compounds have been used for various photometric, isotopic, and immunological lysozyme assays.

Function : The enzyme functions by attacking peptidoglycans (found in the cell walls of bacteria, especially Gram-positive bacteria) and hydrolyzing the glycosidic bond that connects N-acetylmuramic acid with the fourth carbon atom of N-acetylglucosamine. It does this by binding to the peptidoglycan molecule in the binding site within the prominent cleft between its two domains. This causes the substrate molecule to adopt a strained conformation similar to that of the transition state. According to Phillips-Mechanism, the lysozyme binds to a hexasaccharide. The lysozyme then distorts the fourth sugar in hexasaccharide (the D ring) into a half-chair conformation. In this stressed state, the glycosidic bond is easily broken.