

ThermoPhage™ Lysozyme

Product information

Product Lys164: 100 µl enzyme solution containing 1 mg/ml enzyme in a storage buffer (25 mM K/PO₄ pH 8.0, 50 mM KCl, 0.1% Triton X-100, 10 mM 2-mercaptoethanol, 50% glycerol and 0.2 mM ZnSO₄). Store at -80°C.

Enzyme activity

The enzyme breaks the cell wall of certain bacteria probably through hydrolysis of linkages between sugar residues and peptides of the cell wall peptidoglycan. The enzyme has optimum activity at pH 8.0 and >80% activity at temperatures between 40 and 99°C (Figure 1).

Description

ThermoPhage™ lysozyme originates from a thermophilic bacteriophage known to infect thermophilic bacteria of the genus *Thermus*. The enzyme promotes lysis of certain bacterial species but has activity spectrum very different from the commonly used Hen egg white lysozyme (HEWL). The enzyme has high activity against bacteria of the genus *Thermus* including *Thermus thermophilus* and *Thermus aquaticus* (Table 1) and is highly thermostable retaining 87% lytic activity after 6 h incubation at 95°C (Figure 2).

Applications

The enzyme is suitable for efficient lysis of *Thermus* bacteria such as for increasing total DNA or plasmid DNA isolation (Figure 3). Reactions and enzyme dilutions can be done in a 10 mM K/PO₄ buffer at pH 8.0. The use of EDTA is not recommended.

A small scale protocol for plasmid or genomic DNA isolation: 5 ml of overnight cell culture is centrifuged for 5 min. at 10000 rpm at room temperature. The pellet is suspended in 100 µl of 10 mM K/PO₄ buffer at pH 8.0 and ThermoPhage™ Lysozyme added to a final conc. of 0.02 mg/ml. The suspension is kept at 60°C for 20 min.

Figure 1. Temperature profile

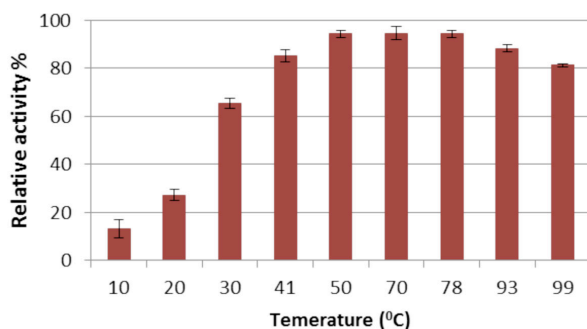


Table 1. Relative activity (%)

Bacterial species	TP Lysozyme	HEWL
<i>Thermus thermophilus</i> HB8	100	43
<i>Thermus aquaticus</i>	100	41
<i>Deinococcus radiodurans</i>	25	21
<i>Echerichia coli</i>	34	100
<i>Salmonella panama</i>	10	35
<i>Pseudomonas fluorescense</i>	13	40
<i>Serratia marcescens</i>	28	35
<i>Enterococcus faecalis</i>	4	0
<i>Bacillus subtilis</i>	2	0
<i>Bacillus cereus</i>	15	75
<i>Staphylococcus aureus</i>	0	0
<i>Staphylococcus intermedius</i>	0	5
<i>Staphylococcus epidermis</i>	0	0
<i>Sarcina lutea</i>	2	48
<i>Streptococcus pyogenes</i>	0	11
<i>Lactococcus lactis</i>	0	11

Figure 2. Thermostability

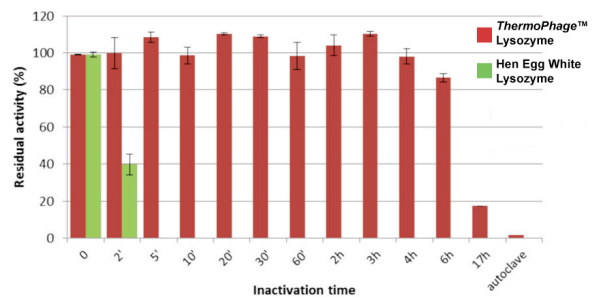


Figure 3. DNA isolation

	Plasmid DNA			Control genomic DNA		
TP Lysozyme	-	+	+	+	+	+
M	-	-	EcoRI HindIII	-	EcoRI	HindIII

