

Product Information

Lambda Protein Phosphatase from bacteriophage lambda recombinant, expressed in *E. coli*

Catalog Number **P9614**
Storage Temperature -70°C

Synonyms: λ -PPase

Product Description

Lambda protein phosphatase is a Mn^{2+} dependent, protein phosphatase from the ORF221 open reading frame of bacteriophage lambda. It is a recombinant protein expressed in *E. coli*, consisting of 221 amino acid residues with a molecular mass of 25 kDa.¹ Lambda protein phosphatase can be used to remove phosphate groups from serine, threonine, tyrosine, and histidine residues.²

The enzyme is inhibited by vanadate ions² and can be heat inactivated at 65°C for 1 hour in the presence of 50 mM EDTA.

Components

Lambda Protein Phosphatase (Catalog No. P9614) is supplied as a solution containing $\geq 400,000$ units per mL of 100 mM NaCl, 50 mM HEPES, pH 7.5, 0.1 mM MnCl_2 , 0.1 mM EGTA, 2 mM dithiothreitol, 0.01% Brij® 35, and 50% glycerol.

Unit Definition: One unit will hydrolyze 1 nmole of *p*-nitrophenyl phosphate per minute at pH 7.5 at 30°C .

10× Lambda Protein Phosphatase Buffer (Catalog No. L9288), 500 mM Tris-HCl, pH 7.5, 1 mM Na_2EDTA , 50 mM dithiothreitol, and 0.1% Brij 35

10× MnCl_2 (Catalog No. M0564), 20 mM MnCl_2 solution

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on dry ice and storage at or below -70°C is recommended. After initial thawing, it is recommended that the product be stored in working aliquots and refrozen at -70°C to avoid repeated freeze/thaw cycles.

Procedure

The dephosphorylation activity of the enzyme will vary depending on the protein substrate. One must empirically determine the optimal reaction conditions for a particular phosphorylated substrate. The reaction buffer is prepared by a 10-fold dilution of the supplied 10× Lambda Protein Phosphatase Buffer. The reaction buffer is supplemented with 1× MnCl_2 solution (2 mM, a 10-fold dilution of Catalog No. M0564) and incubated at 30°C .

The information to follow is a general guideline for the dephosphorylation reaction. One hundred units of the lambda protein phosphatase will cleave ~100% of phosphates present in phosphorylated myelin basic protein (phosphate concentration is equivalent to 5 μM) in 30 minutes in a 50 μL reaction.

References

1. Cohen, P.T.W., and Cohen, P., Discovery of a protein phosphatase activity encoded in the genome of bacteriophage lambda. Probable identity with open reading frame 221. *Biochem. J.*, **260**, 931-934 (1989).
2. Zhuo, S. et al., Expression, purification, crystallization, and biochemical characterization of a recombinant protein phosphatase. *J. Biochem.*, **268**, 17754-17761 (1993).

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