thermo scientific

PRODUCT INFORMATION

Pyrophosphatase, Inorganic (from yeast)

Pub. No. MAN0011985
Rev. Date 21 September 2016 (Rev. B.00)

#_

Lot: _ **Expiry Date: _**

Store at -20 °C

Components	#EF0221
Pyrophosphatase, Inorganic (from yeast)	10 U 0.1 U/µL
Storage (Dilution) Buffer	1 mL

www.thermofisher.com

For Research Use Only. Not for use in diagnostic procedures.

Description

Pyrophosphatase, Inorganic catalyzes the hydrolysis of inorganic pyrophosphate to two orthophosphates. The enzyme requires a divalent metal cation, with Mg^{2+} conferring the highest activity (1).

Applications

- High yield RNA synthesis by *in vitro* transcription (2).
- DNA polymerization reactions: preventing accumulation of pyrophosphate (3, 4).
- Removal of contaminant PP_i in reagents used for SNP genotyping by methods based on the detection of pyrophosphate (5).

Source

E.coli cells with a cloned *ppa* gene of *Saccharomyces cerevisiae*.

Molecular Weight

This enzyme is homodimer. It is consists of two identical subunits of 32 kDa.

Definition of Activity Unit

One unit of the enzyme hydrolysis 1 µmol of inorganic pyrophosphate in 1 min at 25 °C.
Enzyme activity is assayed in the following mixture:
100 mM Tris-HCl (pH 7.2), 2 mM $MgCl_2$ and
2 mM inorganic pyrophosphate (PP_i).

Storage (Dilution) Buffer

The enzyme is supplied in: 10 mM Tris-HCl (pH 7.5), 0.1 mM EDTA and 50% (v/v) glycerol.

Inhibition and Inactivation

- Inhibitors: imidodiphosphate, α,ω-glycol disphosphates, methanedial diphosphate, 1,2-ethanedial diphosphate (6).
- Inactivation by heating is not complete, reliably removed by spin column or phenol/chloroform extraction.

Note

The enzyme can be diluted with supplied storage (dilution) buffer.

CERTIFICATE OF ANALYSIS

Endodeoxyribonuclease Assay

No detectable degradation was observed after incubation of supercoiled plasmid DNA with Pyrophosphatase, Inorganic.

Ribonuclease Assay

No detectable degradation was observed after incubation of [^{3}H]-RNA with Pyrophosphatase, Inorganic.

Labeled Oligonucleotide (LO) Assay

No detectable degradation after incubation of single stranded and double stranded radiolabeled oligonucleotides with Pyrophosphatase, Inorganic.

Quality authorized by:  Jurgita Zilinskiene

(continued on back page)

References

1. Cooperman, B.S., The mechanism of action of yeast inorganic pyrophosphatase, Meth. Enzymol., 87, 526-548, 1982.
2. Cunningham, P.R. and Ofengand, J., Use of inorganic pyrophosphatase to improve the yield of *in vitro* transcription reactions catalyzed by T7 RNA polymerase, Biotechniques, 9, 713-714, 1990.
3. Tabor, S., Richardson, C.C., DNA sequence analysis with a modified bacteriophage T7 DNA polymerase. Effect of pyrophosphorolysis and metal ions, J. Biol. Chem., 265, 8322-8328, 1990.
4. Dean, B.F., et al., Rapid amplification of plasmid and phage DNA using phi29 DNA polymerase and multiply-primed Rolling Circle amplification, Genome Res., 11, 1095-1099, 2001.
5. Zhou, G.H., et al., Quantitative detection of single nucleotide polymorphisms for a pooled sample by a bioluminometric assay coupled with modified primer extension reactions (BAMPER), Nucleic Acids Res., 29, E93, 2001.
6. Sperow, J.W., et al., Yeast Inorganic Pyrophosphatase, The Journal of Biological Chemistry, 6, 2062-2065, 1973.

LIMITED USE LABEL LICENSE: Internal Research and Development Use Only.

The purchase of this product conveys to the buyer the limited, non-exclusive, non-transferable right (without the right to resell, repackage, or further sublicense) to use this product for internal research and development purposes. No other license is granted to the buyer whether expressly, by implication, by estoppel or otherwise. In particular, the purchase of the product does not include or carry any right or license to use, develop, or otherwise exploit this product commercially and no rights are conveyed to the buyer to use the product or components of the product for purposes including but not limited to provision of services to a third party, generation of commercial databases or clinical diagnostics. This product is sold pursuant to authorization from Thermo Fisher Scientific and Thermo Fisher Scientific reserves all other rights. For information on purchasing a license for uses other than internal research and development purposes, please contact outlicensing@lifetech.com or Out Licensing, Life Technologies Inc., 5791 Van Allen Way, Carlsbad, California 92008.

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively *for research purposes and in vitro use only.* The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Please refer to www.thermofisher.com for Material Safety Data Sheet of the product.

© 2016 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries.