Tinzyme Co., Limited

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Pyrophosphatase, Inorganic (yeast), GMP Grade

Product Number: GMP-M036

Shipping and Storage

At -20±5℃.

Description

Inorganic Pyrophosphatase catalyzes the hydrolysis of inorganic pyrophosphate into two orthophosphates: $P_2O_7^{4-} + H_2O \xrightarrow{PPase} 2HPO_4^{2-}$.

Applied in nucleic acid amplification experiments, PPase can hydrolyze the inorganic pyrophosphate generated by the polymerization to avoid its inhibition effect to synthesis of RNA strand.

This product is a recombinant inorganic pyrophosphatase (derived from yeast) expressed through large-scale fermentation of Escherichia coli. It is produced using pharmaceutical grade raw materials and strictly controls host protein residues, nucleic acid residues, etc. It complies with standardized product production and quality management regulations to ensure the traceability of the production process and all raw materials.

This product has completed the DMF record of FDA and passed the HALAL certification.

Quality Elements

Element	Standard
Appearance	Clear and transparent solution
Identification	Positive
Visible Particles	Meet the specification
pH	7.5-8.5
Activity	98U/ml-102U/ml
Purity	⩾95%
Endonuclease Residues	The degradation of substrate was ⩽10%
Exonuclease Residues	The degradation of substrate was ⩽10%
RNase Residues	The degradation of substrate was ⩽10%
Bacterial Endotoxins	<5EU/ml
Exogenous DNA Residues	⩽100pg/mg
Host-cell Protein Residues	⩽50ppm
Mycoplasma	Negative
Heavy Metal Residues	⩽10ppm

Complying to following regulations

1. ISO 9001:2015, certified facility.
2. The Pandect of Genetic Therapeutic Product for Human Chinese Pharmacopoeia Commission.
3. USP Chapter <1043>, Ancillary Materials for Cell, Gene, and Tissue-Engineered Products.
4. USP Chapter <92>, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.
5. Ph. Eur. General Chapter 5.2.12, Raw Materials of Biological Origin for the Production of Cell-based and Gene Therapy Medicinal Products.

Feature

1. Hydrolysis of inorganic pyrophosphate.
2. Facilitate Synthesis of DNA.

3. Increase RNA production in vitro synthesis.
4. Thermostability: optimum reaction temperature at 25℃; Inactivation, at 65℃, for 10 mins.

Application

1. For IVT, increase yield rate of RNA.
2. For PCR, increase yield rate of DNA.
3. Remove contamination of PPi in reagent of SNP genotyping by method of pyrophosphate assay.
4. Facilitate the synthesis of protein, RNA and DNA.
5. Catalyze the reaction of PPi + H_2O → 2Pi..

Unit definition

At standard reaction condition, within 1 minute, the amount of enzyme required to generate 1μmol phosphate from pyrophosphate is defined as one unit of enzyme activity.

Storage buffer

20mM Tris-HCl ,100mM NaCl ,1mM DTT, 0.1mM EDTA, 50% (v/v) Glycerol pH 8.0.

Package

Components	Volume
Pyrophosphatase, Inorganic (yeast), GMP Grade	100μl
Pyrophosphatase, Inorganic (yeast), GMP Grade	1ml
Pyrophosphatase, Inorganic (yeast), GMP Grade	10ml
Pyrophosphatase, Inorganic (yeast), GMP Grade	50ml

Note

1. The enzyme shows bioactivity in various reaction buffers. Usually, the enzyme can be directly added in HDA amplification, LAMP amplification, etc.
2. The amount of the enzyme needs to be optimized in different reactions, possibly functional at a concentration of 0.05 ~ 1U/ml.
3. The optimal reaction temperature of this enzyme is 25℃, it is active at 16 ~ 37℃, and the enzyme can be inactivated by 65℃ for 10min..
4. Mg^{2+} is indispensable for bioactivity of this enzyme.

Related Products

Product Number	Product name
GMP-M062	Vaccinia Capping Enzyme, GMP Grade
GMP-E121	T7 RNA Polymerase, GMP Grade
GMP-M072	mRNA Cap 2´-O-Methyltransferase, GMP Grade
GMP-E125	RNase Inhibitor, GMP Grade
GMP-M012	Poly(A) Polymerase, GMP Grade
GMP-DI05	DNase I Recombinant GMP grade
GMP-E131	T7 High Yield RNA Transcription kit, GMP Grade
D1331	dATP 100mM solution
D2331	dGTP 100mM solution
D3331	dCTP 100mM solution
D4331	dTTP 100mM solution