Pyrophosphatase, Inorganic (*E. coli*) (GMP-grade)

Introductions

Inorganic pyrophosphatase (PPase) is a ubiquitous enzyme that catalyzes the hydrolysis of inorganic pyrophosphate to orthophosphate. This product is a yeast-derived inorganic pyrophosphatase expressed by recombinant Escherichia coli, which can catalyze the hydrolysis of one molecule of inorganic pyrophosphate into two molecules of orthophosphate. It can be used in molecular biology to increase the yield of mRNA in in vitro transcription reactions. The production process of this product strictly controls host protein residues, nucleic acid residues, etc., and complies with GMP production and quality management practices.

PPase reaction principle: $P_2O_7^{-4} + H_2O \rightarrow 2HPO_4^{-2}$

Composition and storage conditions

Components \ Size	2 KU	20 KU	Storage
Pyrophosphatase, Inorganic (*E. coli*) (2 KU/mL)	1 mL	10 mL	-70°C or below
Shipping: Dry Ice	**Shelf life:** 2 years		

Quality Control

Parameter	Standard
Appearance	Clear and transparent solution
pH	7.5-8.5
Purity	≥ 95%
Activity	1.6-2.4 KU/mL
Concentration	2.0±0.4 mg/mL
Endonuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
Exonuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
RNase Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%

Non-specific nuclease Residues	0.1 U enzyme incubated with substrate at 37°C for 4 hours, substrate degradation < 10%
Bacterial Endotoxins	≤ 200 EU/mg
Host Protein Residues	≤ 100 ppm
Host DNA Residues	≤ 5 ng/mg

Usage

Use 1–3 units of enzyme per mL in vitro RNA synthesis reaction.

Product description

1. **Enzyme activation unit (U) definition：** 1 U is the amount of enzyme that will generate 1 µmol of phosphate per minute from inorganic pyrophosphate under standard reaction conditions (a 10-minute reaction at 25°C in 20 mM Tris-HCl, pH 8.0, 2 mM MgCl2 and 2 mM PPi).

2. **Stored solution composition：** 20 mM Tris-HCl, 100 mM NaCl,1 mM Dithiothreitol, 0.1 mM EDTA, 50% Glycerol, pH 8.0

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