

EasyLyse™ Bacterial Protein Extraction Solution

Cat. No. RP03750

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1. Introduction

The EasyLyse™ Bacterial Protein Extraction Solution is designed for lysing bacterial cells for the isolation of proteins, especially recombinant gene products expressed in *E. coli*, without significant loss of enzymatic activity.¹ EasyLyse Bacterial Protein Extraction Solution is formulated for ease of use as a homogeneous reagent in high-throughput applications. Unlike mechanical methods such as sonication, the enzymatic method utilized by EasyLyse Bacterial Protein Extraction Solution does not generate heat that could denature the protein of interest. Furthermore, by adjusting reaction conditions, users can lyse any amount of cells, from a single colony to several grams. EasyLyse Bacterial Protein Extraction Solution includes a stable non-avian, non-mammalian lytic enzyme that has a high specific activity. This high specific activity allows the addition of less enzyme, minimizing the amount of extraneous protein. The presence of a nuclease in the lysis reaction substantially improves handling and recovery of expressed proteins by decreasing the viscosity of cell lysates.

2. Product Specifications

Storage: Store the Enzyme Mix from the EasyLyse Bacterial Protein Extraction Solution at –20°C. The Lysis Buffer and MgCl₂ Solution may be stored at 4°C for ease of use.

Contaminating Activity Assays: All components of the EasyLyse Bacterial Protein Extraction Solution are free of detectable exo- and endonuclease and RNase activities except for the inherent nucleolytic properties of the Enzyme Mix.

3. Kit Contents

Desc.	Quantity
The EasyLyse Bacterial Protein Extraction Solution contains enough reagents to lyse 500, 1 ml bacterial cultures, or the 100 µl cultures in 48 microplates each with 96 wells.	
EasyLyse™ Lysis Buffer (10 mM Tris-HCl [pH 7.5], 1 mM EDTA, 1% non-denaturing detergent)	50 ml
EasyLyse™ Enzyme Mix	100 µl
1 M MgCl ₂ Solution	200 µl

4. Related Products

The following products are also available:

- PeriPreps™ Periplasting Kit
- Ready-Lyse™ Lysozyme Solution
- OmniCleave™ Endonuclease

5. Protocol for the Lysis of less than 1 ml of Bacterial Culture

One milliliter (up to 4 OD₆₀₀ or 16 mg cell pellet) of bacterial cell culture may be processed as described below. For proportionally fewer or more bacteria, the reagent amount can be scaled accordingly. For 100 µl of bacterial culture in each well of a 96-well plate, use 20 µl of EasyLyse Bacterial Protein Extraction Solution per well. For 1 ml of bacterial culture in a 1.5 ml microfuge tube, use 200 µl of EasyLyse Bacterial Protein Extraction Solution.

1. Pellet 1 ml of the cells in a microcentrifuge. (1 ml of *E. coli* cells [at 10⁹ cells/ml] will yield approximately 100-150 µg total cell protein.)
2. Remove the supernatant fluid and freeze the pellet at -20°C.
3. In a tube add in order: 0.5 ml of distilled water or buffer with protease inhibitors* and 2 µl of 1 M MgCl₂. Mix, and then add 0.5 ml of Lysis Buffer and 1 µl of Enzyme Mix. Mix by gentle pipetting. This mixture is enough for 5 x 1 ml of bacterial culture.
4. Thoroughly resuspend the cell pellet in 200 µl of the above solution.
5. Incubate 5 minutes at room temperature.
6. Pellet the cellular debris by centrifugation in a microfuge for 2 minutes.
7. Transfer the supernatant fluid to a clean tube.

Notes: Prepare only as much EasyLyse as needed in the next few hours.

Long-term storage may cause the solution to become viscous.

6. References:

1. Jarvis, B.W. (2003) *Epicentre Forum* **10** (3), 4.

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**Protease inhibitor cocktails containing EDTA are incompatible with the enzymatic removal of viscosity. Such cocktails may be added after step 5.*

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