[Cat. No.] K-7250, K-7260, K-7270

Introduction

AccuRapid™ Protein Expression Kit is designed for *in vitro* transcription and translation from target DNA, which produces recombinant proteins in a cell-free system. This is why it is called a cell-free protein expression. This kit is composed of *E. coli* extract and Master mix, and these are used with a template DNA bearing a gene of interest (either plasmid or PCR product).
rNTPs and T7 RNA polymerase are used to synthesize mRNA from a template DNA. And ribosomes, tRNAs, amino acids, and etc. are required for a translation step to synthesize recombinant proteins. These materials are supplied by optimized *E. coli* extract and Master mix. *AccuRapid*™ Protein Expression Kit is based on the T7 expression system.

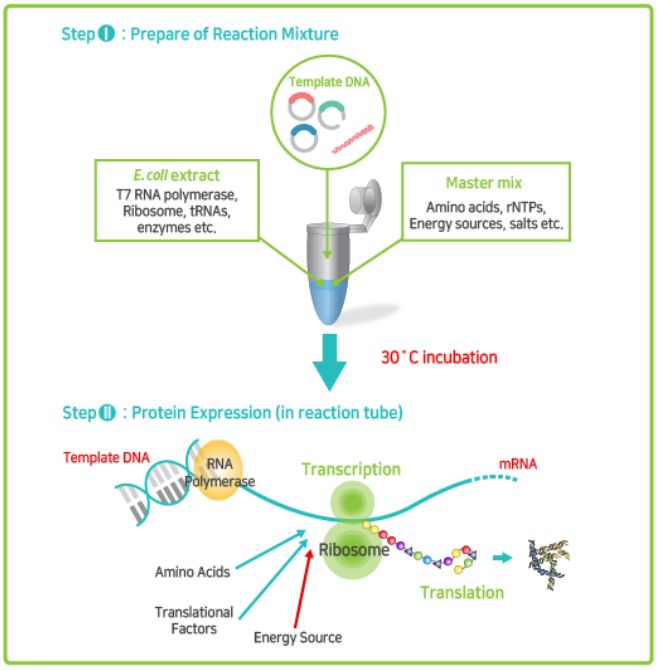


Figure 1. Workflow for protein expression

Features & Benefits

- Convenient: Includes all necessary components for transcription and translation.
- Rapid: Synthesizes target proteins quickly (within 3 hrs) and economically.
- Flexible: Synthesizes proteins from various types of DNA (plasmid or PCR product).
- Advanced expression technologies: Expression of proteins (cell-toxic proteins, antibodies, membrane proteins, viral proteins, etc.) difficult to be done in the existing *in vivo* technology is made possible.

Components

	K-7250 *AccuRapid*™ Cell-Free Protein Expression Kit	K-7260 *AccuRapid*™ Midi Protein Expression Kit	K-7270 *AccuRapid*™ Maxi Protein Expression Kit
Master mix	0.54 ml	1.2 ml x 2 ea	4.8 ml
E. coli extract	0.3 ml	0.28 ml x 5 ea	2.8 ml
DEPC DW	1 ml	1 ml x 2 ea	3 ml
Positive Control DNA	5 µl	16 µl	10 µl

*** Note:** For research use only. Not for use in diagnostic or therapeutic procedures.

Specifications

	K-7250	K-7260	K-7270
Reactions	45 µl x 24 rxns	1 ml x 5 rxns	10 ml x 1 rxn
Expression	Yes (T7 system, Batch type)		
Purification	No		
Target protein size	≤ 150 kDa		
Protein Yield	≤ 300 µg/ml		

Storage

Store at a temperature between -70°C and -20°C.

Online Resources

Korean **English**

Visit our **product page** for additional information and protocols.

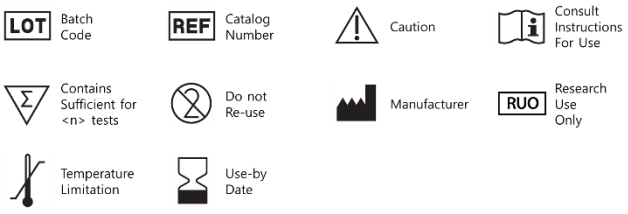
Ordering Information

Description	Cat. No.
AccuRapid™ Cell-Free Protein Expression Kit	K-7250
AccuRapid™ Midi Protein Expression Kit	K-7260
AccuRapid™ Maxi Protein Expression Kit	K-7270

Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

Explanation of Symbols

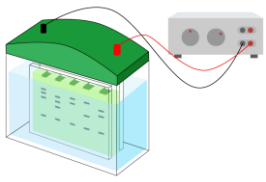


Experimental Procedures

<table>
<tr><th colspan="2">Steps</th><th>Procedure Details</th></tr>
<tr><td colspan="3">Preparation of template DNA
• A plasmid or a linear DNA (PCR products) can be used as a template DNA.
• The template DNA must include a T7 promoter, a ribosomal binding site (RBS), a T7 terminator, and a 6x histidine tag at either N- or C-terminal.</td></tr>
<tr><td colspan="3">Cell-free protein expression</td></tr>
<tr><td>1</td><td> 
Thawing materials</td><td>1. Thaw Master mix, E. coli extract, DEPC DW, and Positive Control DNA on ice.
* Note: The pBIVT-AcGFP of about 3.8 kb size is provided as a Positive Control DNA, which has a molecular weight of about 28 kDa.

2. Briefly spin down them and then place the tube on ice.
* Note: Make sure that the Master mix and E. coli extract are evenly resuspended before use (be careful not to create bubbles in the extract).</td></tr>
<tr><td>2</td><td> 
Preparation of reaction mixture</td><td>3. Prepare the reaction mixture (one reaction).
• Preparation of reaction mixture
<table>
<tr><th rowspan="2">Components</th><th rowspan="2">Negative</th><th rowspan="2">Positive</th><th>K-7250</th><th>K-7260</th><th>K-7270</th></tr>
<tr><th>45 µl reaction</th><th>1 ml reaction</th><th>10 ml reaction</th></tr>
<tr><td>Master mix</td><td>21 µl</td><td>21 µl</td><td>21 µl</td><td>0.47 ml</td><td>4.7 ml</td></tr>
<tr><td>E. coli extract</td><td>12 µl</td><td>12 µl</td><td>12 µl</td><td>0.27 ml</td><td>2.7 ml</td></tr>
<tr><td>Template DNA</td><td>-</td><td>1 µl</td><td>Variable</td><td>Variable</td><td>Variable</td></tr>
<tr><td>DEPC DW</td><td>12 µl</td><td>11 µl</td><td>Variable</td><td>Variable</td><td>Variable</td></tr>
<tr><td>Total volume</td><td>45 µl</td><td>45 µl</td><td>45 µl</td><td>1 ml</td><td>10 ml</td></tr>
</table>
* Note: Please refer to our website (www.bioneer.com) for additional information about template DNA amount.

4. Gently mix the reaction mixture by tapping or pipetting.</td></tr>
<tr><td>3</td><td> 
Incubation for protein expression</td><td>5. Incubate the reaction mixture at 30°C for 3 hrs in a water bath or a heat block.

6. Briefly spin down the reaction mixture.</td></tr>
<tr><td colspan="3">Identification of protein expression</td></tr>
<tr><td>4</td><td> 
Analysis with SDS-PAGE</td><td>7. Analyze the mixture using SDS-PAGE, western blot, or bioactivity assay.

ex) Protocol for SDS-PAGE.
<table>
<tr><td>Expression sample</td><td>5 µl</td></tr>
<tr><td>4X Loading dye</td><td>5 µl</td></tr>
<tr><td>Distilled water (D.W.)</td><td>10 µl</td></tr>
<tr><td>Total volume</td><td>20 µl</td></tr>
</table>
- Denaturize at 95°C for 5 min and then load 5 µl of each sample on the SDS-PAGE gel.
- Run SDS-PAGE.
- Stain the gel with Coomassie Blue R-250.</td></tr>
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