

# Geneaid™ Midi Plasmid Kit & Geneaid™ Midi Plasmid Kit (Endotoxin Free)

**PI002, PIE02** (2 Preparation Sample Kit)

**PI025, PIE25** (25 Preparation Kit)

## Advantages

**Sample:** cultured bacterial cells (high-copy = 50-200 ml, low-copy = 100-300 ml)

**Yield:** >400 µg of transfection grade plasmid DNA from 100 ml of cultured bacterial cells

**Format:** anion-exchange resin column, gravity flow

**Endotoxin Removal:** <0.1 EU/µg DNA verified by LAL when using PER Buffer

**Operation Time:** within 120 minutes (only 80 minutes when combined with the Presto™ Plasmid Concentrator)

**Elution Volume:** 500 µl-2 ml

**Kit Storage:** dry at room temperature (15-25°C) for up to 2 years, PM1 and RNase A mixture should be stored at 2-8°C for up to 6 months

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## Introduction

The Geneaid™ Midi Plasmid Kit uses pre-packed anion-exchange resin columns to purify plasmid DNA from 50-300 ml of cultured bacterial cells. TrueBlue Lysis Buffer (an optional color indicator) is included with the kit in order to prevent common handling errors, ensuring efficient cell lysis and neutralization. A modified alkaline lysis method and RNase treatment are used to obtain clear cell lysate with minimal genomic DNA/RNA contaminants. Using an efficient gravity-flow procedure, plasmid DNA is bound to the column and contaminants are efficiently removed. The purified plasmid DNA is eluted then precipitated with isopropanol for desalting. The entire procedure can be completed without ultracentrifuges, HPLC or other toxic reagents and the purified plasmid DNA is suitable for transfection, sequencing reactions, ligation, PCR, in-vitro transcription, microinjection, restriction enzyme digestion and gene gun.

## Quality Control

The quality of the Geneaid™ Midi Plasmid Kit is tested on a lot-to-lot basis by isolating plasmid DNA from a 100 ml overnight *E. coli* (DH5 $\alpha$ ) culture, containing plasmid pBluescript (A600 > 2 U/ml). More than 400  $\mu$ g of plasmid DNA is quantified with a spectrophotometer. The purified plasmid (1  $\mu$ g) is used in *EcoRI* digestion and analyzed by electrophoresis.

## Kit Components

Component	PI002/PIE02	PI025/PIE25
PM1 Buffer <sup>1</sup>	10 ml	110 ml
PM2 Buffer <sup>2</sup>	10 ml	110 ml
PM3 Buffer	10 ml	110 ml
PER Buffer (PIE02, PIE25 Only)	4 ml	40 ml
PEQ Buffer	12 ml	130 ml
PW Buffer	30 ml	120 ml x 1 240 ml x 1
PEL Buffer	25 ml	220 ml
RNase A (50 mg/ml)	Added	200 $\mu$ l
Plasmid Midi Columns	2	25
TrueBlue Lysis Buffer	150 $\mu$ l	1.5 ml

<sup>1</sup>For PI025, PIE25 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle. PM1 Buffer and RNase A mixture should be stored at 2-8°C for up to 6 months. For PI002, PIE02 samples, RNase A was already added to PM1 Buffer.

<sup>2</sup>If precipitates have formed in PM2 Buffer, warm in a 37°C water bath, followed by gentle shaking to dissolve.



**During the procedure, always wear a lab coat, disposable gloves, and protective goggles.**

## Quick Protocol Diagram



Harvest cultured bacterial cells by centrifuge to form a cell pellet, followed by resuspension



Lyse bacterial cells (optional color indicator will turn blue when lysis is successful)



Neutralize suspension (optional color indicator will become clear when neutralization is successful). When using PIE02 and PIE25, neutralization is followed by PER Buffer treatment to remove endotoxin.



DNA binding to silica resin while contaminants remain suspended



Wash (removal of contaminants while DNA remains bound to silica resin)



Elution and precipitation of pure plasmid DNA which is ready for subsequent reactions

## Recommended Culture Volumes

Plasmid Type	Pellet Wet Weight	OD600 = 2	OD600 = 4	OD600 = 6
High-copy number	0.75 g	200 ml	100 ml	66 ml
Low-copy number	1.12 g	300 ml	150 ml	100 ml

## Geneaid™ Midi Plasmid Kit Protocol

Please read the entire instruction manual prior to starting the Protocol Procedure.

### IMPORTANT BEFORE USE!

1. For PI025 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle. PM1 Buffer and RNase A mixture should be stored at 2-8°C for up to 6 months. For PI002 samples, RNase A was already added to PM1 Buffer.
2. If precipitates have formed in PM2 Buffer, warm in a 37°C water bath followed by gentle shaking to dissolve.

### Additional Requirements

50 ml centrifuge tubes, isopropanol, 75% ethanol, TE or ddH<sub>2</sub>O

## Protocol Procedure With Color Indicator

### 1. Harvesting

Transfer **cultured bacterial cells** to a 50 ml centrifuge tube then centrifuge at  $\geq 3,000 \times g$  for 15 minutes at room temperature to form a cell pellet. Discard the supernatant completely. Use a narrow pipette tip to ensure the supernatant is completely removed. Repeat the Harvesting step as required for up to 200 ml of high-copy or 100-300 ml of low-copy cultured bacterial cells using the same 50 ml centrifuge tube.

NOTE: Using 2 OD<sub>600</sub> - 6 OD<sub>600</sub> units of bacterial culture is recommended. Do not use overgrown bacterial cultures ( $\leq 16$  hours incubated in a flask at 37°C with 150-180 rpm shaking). Use fresh bacterial cultures only. Solid medium and liquid medium (i.e. LB medium) should contain an antibiotic such as ampicillin.

### 2. Equilibration

During centrifugation, place a **Plasmid Midi Column** in a new 50 ml centrifuge tube. Equilibrate the **Plasmid Midi Column** by adding **5 ml of PEQ Buffer**. Allow the column to empty completely by gravity flow. Discard the flow-through and place the **Plasmid Midi Column** back in the 50 ml centrifuge tube then set it aside for Step 6.

### 3. Resuspension

Add **4 ml of PM1 Buffer (make sure RNase A was added)** and **40  $\mu$ l of TrueBlue Lysis Buffer** to a new 50 ml centrifuge tube. Mix by shaking gently.

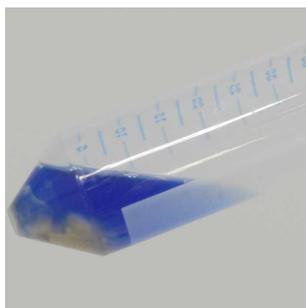
NOTE: It is normal for precipitates to form after mixing TrueBlue Lysis Buffer with PM1 Buffer.

Transfer the mixture to the 50 ml centrifuge tube containing the cell pellet. Resuspend the cell pellet by vortex, pipette or scraping the tube across the top of a 1.5 ml microcentrifuge tube rack until all traces of the cell pellet have been completely dissolved.

## 4. Cell Lysis

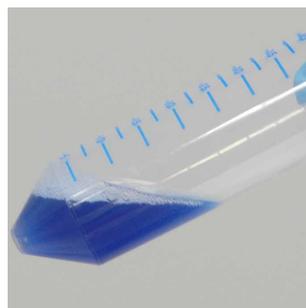
Add **4 ml of PM2 Buffer** to the resuspended sample then mix gently by inverting the tube 10 times. Close PM2 Buffer bottle immediately after use to avoid CO<sub>2</sub> acidification. Do not vortex to avoid shearing the genomic DNA. Let stand at room temperature for at least 2 minutes to ensure the lysate is homogeneous. Do not exceed 5 minutes.

NOTE: After adding PM2 Buffer, any precipitates will be completely dissolved and the color of the suspension will become blue. If the suspension contains colorless regions or brownish cell clumps, continue mixing until the suspension is completely blue.



Insufficient Mixing

If colorless regions or brownish cell clumps are present, continue mixing until the suspension is completely blue.

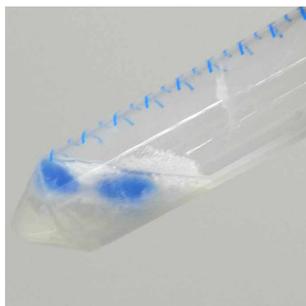


Correct Mixing

## 5. Neutralization

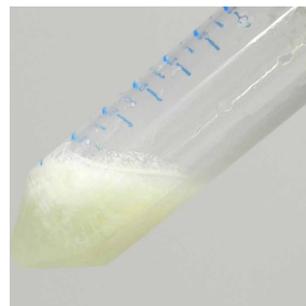
Add **4 ml of PM3 Buffer** and mix immediately by inverting the tube 10 times. Do not vortex to avoid shearing the genomic DNA. Centrifuge at  $\geq 3,000 \times g$  for 20 minutes at room temperature.

NOTE: After adding PM3 Buffer, the suspension will become colorless. If blue regions remain in the suspension, continue mixing until it becomes colorless.



Insufficient Mixing

If blue regions are present, continue mixing until the suspension is completely colorless.



Correct Mixing

## 6. DNA Binding

Transfer the supernatant to the equilibrated **Plasmid Midi Column**. Allow the column to empty completely by gravity flow. Discard the flow-through then place the **Plasmid Midi Column** back in the 50 ml centrifuge tube.

## 7. Wash

Wash the **Plasmid Midi Column** by adding **12 ml of PW Buffer** and allow the column to empty completely by gravity flow then discard the flow-through.

## 8. Elution

Place the **Plasmid Midi Column** in a clean 50 ml centrifuge tube then add **8 ml of PEL Buffer** to elute the DNA by gravity flow. Discard the **Plasmid Midi Column** once it has emptied completely.

## 9. DNA Precipitation

Add **6 ml (0.75 volumes) of isopropanol** to the eluted DNA from Step 8. Mix the tube completely by inverting then centrifuge at  $\geq 3,000 \times g$  for 20 minutes (preferably at  $15,000 \times g$  for 30 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then wash the DNA pellet with **5 ml of 75% ethanol**. Centrifuge at  $\geq 3,000 \times g$  for 5 minutes (preferably at  $15,000 \times g$  for 10 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then air-dry the DNA pellet for 10 minutes. Once the DNA pellet is dry, add **500  $\mu\text{l}$ –2 ml (or a suitable volume) of TE<sup>1</sup> or water<sup>2</sup>** then place the tube in a  $60^{\circ}\text{C}$  water bath for 5-10 minutes to dissolve the DNA pellet.

NOTE: Following both centrifugation steps, extra caution is needed when removing the supernatant to avoid contacting the DNA pellet.

<sup>1</sup>Using TE (10 mM Tris-HCl, 1 mM EDTA, pH8.0) is beneficial as EDTA preserves DNA for long term storage. However, EDTA will affect PCR and other sensitive downstream applications.

<sup>2</sup>If using water, ensure the water pH is  $\geq 8.0$ .  $\text{ddH}_2\text{O}$  should be fresh as ambient  $\text{CO}_2$  can quickly cause acidification.

## IMPORTANT BEFORE USE!

1. For PI025 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle. PM1 Buffer and RNase A mixture should be stored at 2-8°C for up to 6 months. For PI002 samples, RNase A was already added to PM1 Buffer.

2. If precipitates have formed in PM2 Buffer, warm in a 37°C water bath followed by gentle shaking to dissolve.

### Additional Requirements

50 ml centrifuge tubes, isopropanol, 75% ethanol, TE or ddH<sub>2</sub>O

## Protocol Procedure Without Color Indicator

### 1. Harvesting

Transfer **cultured bacterial cells** to a 50 ml centrifuge tube then centrifuge at  $\geq 3,000 \times g$  for 15 minutes at room temperature to form a cell pellet. Discard the supernatant completely. Use a narrow pipette tip to ensure the supernatant is completely removed. Repeat the Harvesting step as required for up to 200 ml of high-copy or 100-300 ml of low-copy cultured bacterial cells using the same 50 ml centrifuge tube.

NOTE: Using 2 OD<sub>600</sub> - 6 OD<sub>600</sub> units of bacterial culture is recommended. Do not use overgrown bacterial cultures ( $\leq 16$  hours incubated in a flask at 37°C with 150-180 rpm shaking). Use fresh bacterial cultures only. Solid medium and liquid medium (i.e. LB medium) should contain an antibiotic such as ampicillin.

### 2. Equilibration

During centrifugation, place a **Plasmid Midi Column** in a new 50 ml centrifuge tube. Equilibrate the **Plasmid Midi Column** by adding **5 ml of PEQ Buffer**. Allow the column to empty completely by gravity flow. Discard the flow-through and place the **Plasmid Midi Column** back in the 50 ml centrifuge tube then set it aside for Step 6.

### 3. Resuspension

Add **4 ml of PM1 Buffer (make sure RNase A was added)**. Resuspend the cell pellet by vortex, pipette or scraping the tube across the top of a 1.5 ml microcentrifuge tube rack until all traces of the cell pellet have been completely dissolved.

### 4. Cell Lysis

Add **4 ml of PM2 Buffer** to the resuspended sample then mix gently by inverting the tube 10 times. Close PM2 Buffer bottle immediately after use to avoid CO<sub>2</sub> acidification. Do not vortex to avoid shearing the genomic DNA. Let stand at room temperature for at least 2 minutes to ensure the lysate is homogeneous. Do not exceed 5 minutes.

## 5. Neutralization

Add **4 ml of PM3 Buffer** and mix immediately by inverting the tube 10 times. Do not vortex to avoid shearing the genomic DNA. Centrifuge at  $\geq 3,000 \times g$  for 20 minutes at room temperature.

## 6. DNA Binding

Transfer the supernatant to the equilibrated **Plasmid Midi Column**. Allow the column to empty completely by gravity flow. Discard the flow-through then place the **Plasmid Midi Column** back in the 50 ml centrifuge tube.

## 7. Wash

Wash the **Plasmid Midi Column** by adding **12 ml of PW Buffer** and allow the column to empty completely by gravity flow then discard the flow-through.

## 8. Elution

Place the **Plasmid Midi Column** in a clean 50 ml centrifuge tube then add **8 ml of PEL Buffer** to elute the DNA by gravity flow. Discard the **Plasmid Midi Column** once it has emptied completely.

## 9. DNA Precipitation

Add **6 ml (0.75 volumes) of isopropanol** to the eluted DNA from Step 8. Mix the tube completely by inverting then centrifuge at  $\geq 3,000 \times g$  for 20 minutes (preferably at  $15,000 \times g$  for 30 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then wash the DNA pellet with **5 ml of 75% ethanol**. Centrifuge at  $\geq 3,000 \times g$  for 5 minutes (preferably at  $15,000 \times g$  for 10 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then air-dry the DNA pellet for 10 minutes. Once the DNA pellet is dry, add **500  $\mu\text{l}$ –2 ml (or a suitable volume) of TE<sup>1</sup> or water<sup>2</sup>** then place the tube in a  $60^{\circ}\text{C}$  water bath for 5-10 minutes to dissolve the DNA pellet.

NOTE: Following both centrifugation steps, extra caution is needed when removing the supernatant to avoid contacting the DNA pellet.

<sup>1</sup>Using TE (10 mM Tris-HCl, 1 mM EDTA, pH8.0) is beneficial as EDTA preserves DNA for long term storage. However, EDTA will affect PCR and other sensitive downstream applications.

<sup>2</sup>If using water, ensure the water pH is  $\geq 8.0$ . ddH<sub>2</sub>O should be fresh as ambient CO<sub>2</sub> can quickly cause acidification.

# Geneaid™ Midi Plasmid Kit (Endotoxin Free) Protocol

Please read the entire instruction manual prior to starting the Protocol Procedure.

## IMPORTANT BEFORE USE!

1. For PIE25 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle. PM1 Buffer and RNase A mixture should be stored at 2-8°C for up to 6 months. For PIE02 samples, RNase A was already added to PM1 Buffer.
2. If precipitates have formed in PM2 Buffer, warm in a 37°C water bath followed by gentle shaking to dissolve.

### Additional Requirements

50 ml centrifuge tubes, isopropanol, 75% ethanol, TE or ddH<sub>2</sub>O

## Protocol Procedure With Color Indicator

### 1. Harvesting

Transfer **cultured bacterial cells** to a 50 ml centrifuge tube then centrifuge at  $\geq 3,000 \times g$  for 15 minutes at room temperature to form a cell pellet. Discard the supernatant completely. Use a narrow pipette tip to ensure the supernatant is completely removed. Repeat the Harvesting step as required for up to 200 ml of high-copy or 100-300 ml of low-copy cultured bacterial cells using the same 50 ml centrifuge tube.

NOTE: Using 2 OD600 - 6 OD600 units of bacterial culture is recommended. Do not use overgrown bacterial cultures ( $\leq 16$  hours incubated in a flask at 37°C with 150-180 rpm shaking). Use fresh bacterial cultures only. Solid medium and liquid medium (i.e. LB medium) should contain an antibiotic such as ampicillin.

### 2. Equilibration

During centrifugation, place a **Plasmid Midi Column** in a new 50 ml centrifuge tube. Equilibrate the **Plasmid Midi Column** by adding **5 ml of PEQ Buffer**. Allow the column to empty completely by gravity flow. Discard the flow-through and place the **Plasmid Midi Column** back in the 50 ml centrifuge tube then set it aside for Step 7.

### 3. Resuspension

Add **4 ml of PM1 Buffer (make sure RNase A was added)** and **40  $\mu$ l of TrueBlue Lysis Buffer** to a new 50 ml centrifuge tube. Mix by shaking gently.

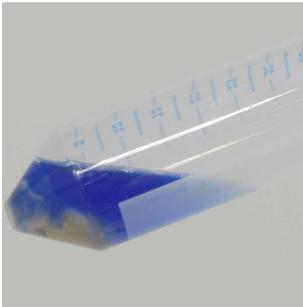
NOTE: It is normal for precipitates to form after mixing TrueBlue Lysis Buffer with PM1 Buffer.

Transfer the mixture to the 50 ml centrifuge tube containing the cell pellet. Resuspend the cell pellet by vortex, pipette or scraping the tube across the top of a 1.5 ml microcentrifuge tube rack until all traces of the cell pellet have been completely dissolved.

## 4. Cell Lysis

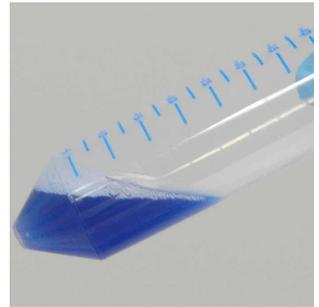
Add **4 ml of PM2 Buffer** to the resuspended sample then mix gently by inverting the tube 10 times. Close PM2 Buffer bottle immediately after use to avoid CO<sub>2</sub> acidification. Do not vortex to avoid shearing the genomic DNA. Let stand at room temperature for at least 2 minutes to ensure the lysate is homogeneous. Do not exceed 5 minutes.

NOTE: After adding PM2 Buffer, any precipitates will be completely dissolved and the color of the suspension will become blue. If the suspension contains colorless regions or brownish cell clumps, continue mixing until the suspension is completely blue.



Insufficient Mixing

If colorless regions or brownish cell clumps are present, continue mixing until the suspension is completely blue.

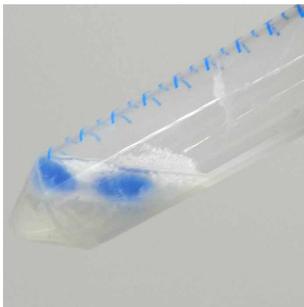


Correct Mixing

## 5. Neutralization

Add **4 ml of PM3 Buffer** and mix immediately by inverting the tube 10 times. Do not vortex to avoid shearing the genomic DNA. Centrifuge at  $\geq 3,000 \times g$  for 20 minutes at room temperature.

NOTE: After adding PM3 Buffer, the suspension will become colorless. If blue regions remain in the suspension, continue mixing until it becomes colorless.



Insufficient Mixing

If blue regions are present, continue mixing until the suspension is completely colorless.



Correct Mixing

## 6. Endotoxin Removal

NOTE: Invert PER Buffer bottle 3-5 times immediately prior to use.

Transfer the supernatant to a clean 50 ml centrifuge tube. Add **1.2 ml of PER Buffer** then mix by inverting 5-10 times. Incubate on ice for 30 minutes.

NOTE: Following PER Buffer addition, the mixture will become cloudy.

## 7. DNA Binding

Following ice incubation, **transfer the mixture** to the equilibrated **Plasmid Midi Column**. Allow the column to empty completely by gravity flow. Discard the flow-through then place the **Plasmid Midi Column** back in the 50 ml centrifuge tube.

## 8. Wash

Wash the **Plasmid Midi Column** by adding **12 ml of PW Buffer** and allow the column to empty completely by gravity flow then discard the flow-through.

## 9. Elution

Place the **Plasmid Midi Column** in a clean 50 ml centrifuge tube then add **8 ml of PEL Buffer** to elute the DNA by gravity flow. Discard the **Plasmid Midi Column** once it has emptied completely.

## 10. DNA Precipitation

Add **6 ml (0.75 volumes) of isopropanol** to the eluted DNA from Step 9. Mix the tube completely by inverting then centrifuge at  $\geq 3,000 \times g$  for 20 minutes (preferably at  $15,000 \times g$  for 30 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then wash the DNA pellet with **5 ml of 75% ethanol**. Centrifuge at  $\geq 3,000 \times g$  for 5 minutes (preferably at  $15,000 \times g$  for 10 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then air-dry the DNA pellet for 10 minutes. Once the DNA pellet is dry, add **500  $\mu\text{l}$ –2 ml (or a suitable volume) of TE<sup>1</sup> or water<sup>2</sup>** then place the tube in a  $60^{\circ}\text{C}$  water bath for 5-10 minutes to dissolve the DNA pellet.

NOTE: Following both centrifugation steps, extra caution is needed when removing the supernatant to avoid contacting the DNA pellet.

<sup>1</sup>Using TE (10 mM Tris-HCl, 1 mM EDTA, pH8.0) is beneficial as EDTA preserves DNA for long term storage. However, EDTA will affect PCR and other sensitive downstream applications.

<sup>2</sup>If using water, ensure the water pH is  $\geq 8.0$ .  $\text{ddH}_2\text{O}$  should be fresh as ambient  $\text{CO}_2$  can quickly cause acidification.

## IMPORTANT BEFORE USE!

1. For PIE25 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle. PM1 Buffer and RNase A mixture should be stored at 2-8°C for up to 6 months. For PIE02 samples, RNase A was already added to PM1 Buffer.

2. If precipitates have formed in PM2 Buffer, warm in a 37°C water bath followed by gentle shaking to dissolve.

### Additional Requirements

50 ml centrifuge tubes, isopropanol, 75% ethanol, TE or ddH<sub>2</sub>O

## Protocol Procedure Without Color Indicator

### 1. Harvesting

Transfer **cultured bacterial cells** to a 50 ml centrifuge tube then centrifuge at  $\geq 3,000 \times g$  for 15 minutes at room temperature to form a cell pellet. Discard the supernatant completely. Use a narrow pipette tip to ensure the supernatant is completely removed. Repeat the Harvesting step as required for up to 200 ml of high-copy or 100-300 ml of low-copy cultured bacterial cells using the same 50 ml centrifuge tube.

NOTE: Using 2 OD600 - 6 OD600 units of bacterial culture is recommended. Do not use overgrown bacterial cultures ( $\leq 16$  hours incubated in a flask at 37°C with 150-180 rpm shaking). Use fresh bacterial cultures only. Solid medium and liquid medium (i.e. LB medium) should contain an antibiotic such as ampicillin.

### 2. Equilibration

During centrifugation, place a **Plasmid Midi Column** in a new 50 ml centrifuge tube. Equilibrate the **Plasmid Midi Column** by adding **5 ml of PEQ Buffer**. Allow the column to empty completely by gravity flow. Discard the flow-through and place the **Plasmid Midi Column** back in the 50 ml centrifuge tube then set it aside for Step 7.

### 3. Resuspension

Add **4 ml of PM1 Buffer (make sure RNase A was added)**. Resuspend the cell pellet by vortex, pipette or scraping the tube across the top of a 1.5 ml microcentrifuge tube rack until all traces of the cell pellet have been completely dissolved.

### 4. Cell Lysis

Add **4 ml of PM2 Buffer** to the resuspended sample then mix gently by inverting the tube 10 times. Close PM2 Buffer bottle immediately after use to avoid CO<sub>2</sub> acidification. Do not vortex to avoid shearing the genomic DNA. Let stand at room temperature for at least 2 minutes to ensure the lysate is homogeneous. Do not exceed 5 minutes.

## 5. Neutralization

Add **4 ml of PM3 Buffer** and mix immediately by inverting the tube 10 times. Do not vortex to avoid shearing the genomic DNA. Centrifuge at  $\geq 3,000 \times g$  for 20 minutes at room temperature.

## 6. Endotoxin Removal

NOTE: Invert PER Buffer bottle 3-5 times immediately prior to use.

Transfer the supernatant to a clean 50 ml centrifuge tube. Add **1.2 ml of PER Buffer** then mix by inverting 5-10 times. Incubate on ice for 30 minutes.

NOTE: Following PER Buffer addition, the mixture will become cloudy.

## 7. DNA Binding

Following ice incubation, **transfer the mixture** to the equilibrated **Plasmid Midi Column**. Allow the column to empty completely by gravity flow. Discard the flow-through then place the **Plasmid Midi Column** back in the 50 ml centrifuge tube.

## 8. Wash

Wash the **Plasmid Midi Column** by adding **12 ml of PW Buffer** and allow the column to empty completely by gravity flow then discard the flow-through.

## 9. Elution

Place the **Plasmid Midi Column** in a clean 50 ml centrifuge tube then add **8 ml of PEL Buffer** to elute the DNA by gravity flow. Discard the **Plasmid Midi Column** once it has emptied completely.

## 10. DNA Precipitation

Add **6 ml (0.75 volumes) of isopropanol** to the eluted DNA from Step 9. Mix the tube completely by inverting then centrifuge at  $\geq 3,000 \times g$  for 20 minutes (preferably at  $15,000 \times g$  for 30 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then wash the DNA pellet with **5 ml of 75% ethanol**. Centrifuge at  $\geq 3,000 \times g$  for 5 minutes (preferably at  $15,000 \times g$  for 10 minutes) at  $4^{\circ}\text{C}$ . Carefully remove the supernatant then air-dry the DNA pellet for 10 minutes. Once the DNA pellet is dry, add **500  $\mu\text{l}$ -2 ml (or a suitable volume) of TE<sup>1</sup> or water<sup>2</sup>** then place the tube in a  $60^{\circ}\text{C}$  water bath for 5-10 minutes to dissolve the DNA pellet.

NOTE: Following both centrifugation steps, extra caution is needed when removing the supernatant to avoid contacting the DNA pellet.

<sup>1</sup>Using TE (10 mM Tris-HCl, 1 mM EDTA, pH8.0) is beneficial as EDTA preserves DNA for long term storage. However, EDTA will affect PCR and other sensitive downstream applications.

<sup>2</sup>If using water, ensure the water pH is  $\geq 8.0$ . ddH<sub>2</sub>O should be fresh as ambient CO<sub>2</sub> can quickly cause acidification.

# Troubleshooting



## Low Yield

### **Incomplete buffer preparation.**

For PI025, PIE25 add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle then store at 2-8°C for up to 6 months. For PI002 and PIE02 samples, RNase A was already added to PM1 Buffer. If precipitates have formed in PM2 Buffer, warm in a 37°C water bath followed by gentle shaking to dissolve.

### **Incomplete cell culture preparation.**

We recommend using a single freshly isolated *E. coli* colony to inoculate into 50-100 ml of LB medium. Solid and liquid medium should contain antibiotics. Do not use overgrown bacterial cultures ( $\leq 16$  hours incubated in a flask at 37°C with 150-180 rpm shaking).

### **Culture growth medium was not removed completely.**

Following centrifugation in the Harvesting step, use a narrow pipette tip to ensure the supernatant is completely removed.

### **Cell pellet was not resuspended completely.**

Resuspend the cell pellet completely by vortex or pipette.

### **Bacterial cells were not lysed completely.**

Using 2 OD600 - 6 OD600 units of bacterial culture is recommended.

When using TrueBlue Lysis Buffer: Following PM2 Buffer addition, the color of the suspension will become blue. If the suspension contains colorless regions or brownish cell clumps, continue mixing until the suspension is completely blue. Do not vortex to avoid shearing the genomic DNA.

### **Bacterial cells were not neutralized completely.**

When using TrueBlue Lysis Buffer: Following PM3 Buffer addition, the suspension will become colorless. If blue regions remain in the suspension, continue mixing until it becomes colorless. Do not vortex to avoid shearing the genomic DNA.

### **Incorrect DNA Rehydration.**

If using water to dissolve the DNA pellet, ensure the water pH is  $\geq 8.0$ . ddH<sub>2</sub>O should be fresh as ambient CO<sub>2</sub> can quickly cause acidification.

**No yield of plasmid DNA.**

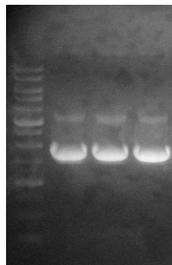
Increase volume of low-copy number plasmid to 300 ml. We recommend using a single freshly isolated *E. coli* colony to inoculate into 50-100 ml of LB medium. Solid and liquid medium should contain antibiotics. Do not use overgrown bacterial cultures.

**Eluted DNA Does Not Perform Well In Downstream Applications****RNA contamination.**

Add provided RNase A to PM1 Buffer then mix by shaking for a few seconds. Check the box on the bottle then store at 2-8°C for up to 6 months.

**Genomic DNA contamination.**

Do not use overgrown bacterial cultures. Use only fresh cultures as they will contain less genomic DNA than old cultures. During PM2 and PM3 Buffer addition, mix gently to prevent genomic DNA shearing. After adding PM3 Buffer, mix thoroughly then incubate the lysate on ice for 10-15 minutes to enhance precipitation and reduce genomic DNA contamination.

**Geneaid™ Midi Plasmid Kit Functional Test Data**

**Figure 1.** Plasmid DNA from a 100 ml overnight *E. coli* (DH5α) culture, containing plasmid pBluescript (OD600 = 3.65) was purified using the Geneaid™ Midi Plasmid Kit. The purified supercoiled plasmid DNA was used in *EcoRI* digestion and analyzed by electrophoresis on a 1% agarose gel. M = Geneaid 1 Kb DNA Ladder

Test	DNA Conc.	260/280	260/230	Yield
1	211.2 µg/ml	1.87	2.27	422.4 µg
2	216.6 µg/ml	1.87	2.27	433.2 µg
3	224.8 µg/ml	1.87	2.28	449.6 µg

M 1 2 3

**Related Plasmid DNA Extraction Products**

Plasmid DNA Purification		
Product	Package Size	Catalogue Number
Presto™ Mini Plasmid Kit	100/300 preps	PDH100/300
Presto™ Midi Plasmid Kit	25 preps	PIF025
Presto™ Midi Plasmid Kit (Endotoxin Free)	25 preps	PIFE25
High-Speed Plasmid Mini Kit (10-50 Kb)	100/300 preps	PDL100/300
High-Speed Plasmid Advance Kit (50-100 ml)	25 preps	PA025
Geneaid™ Midi Plasmid Kit	25 preps	PI025
Geneaid™ Midi Plasmid Kit (Endotoxin Free)	25 preps	PIE25
Presto™ Plasmid DNA Concentration Kit	250/500/1000 preps	PC0250/500/1000
Geneaid™ Maxi Plasmid Kit	10/25 preps	PM010/25
Geneaid™ Maxi Plasmid Kit (Endotoxin Free)	10/25 preps	PME10/25
Presto™ 96 Well Plasmid Kit	4/10 x 96 preps	96PDV04/10, 96PDC04/10

For additional product information please visit [www.geneaid.com](http://www.geneaid.com). Thank you!

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