

## GEL/PCR Extraction & Purification Kit

### Description

The DE-001 Gel/PCR Extraction & Purification Kit is designed to recover or concentrate DNA Fragments (50bp-10Kb) from agarose gel, PCR or other enzymatic reaction. The unique dual purpose application and high yield DNA column make this kit exceptional value.

### Features

- With simple steps, quick and easy to use.
- Highly pure DNA (suitable for PCR).
- No phenol/chloroform extraction and ethanol precipitation required.

### Applications

- PCR
- Fluorescent or Radioactive Sequencing
- Restriction Digestion
- DNA Labeling
- Ligation and Transformation

### Sample Source

Up to 300mg agarose gel slice  
Up to 100  $\mu$ l PCR product or other enzymatic reaction

### DNA Size Range

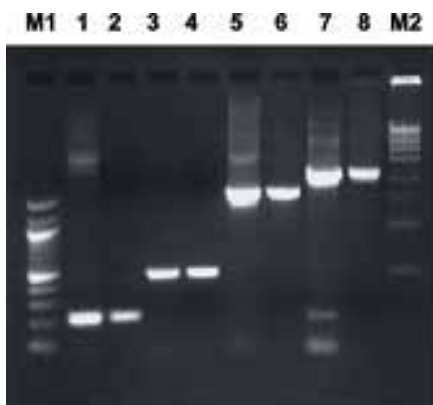
100bp ~20kb  
Binding Capacity of Spin Filter  
20 ~100  $\mu$ l of PCR product

### Recovery Rate

80 ~90% for GEL extraction  
90~95% for PCR Clean-Up

### Handling Time

10 minutes for PCR clean up  
20 minutes for GEL extraction



### The Quality of DNA After Purification

DNA fragments before and after extraction with the GEL/PCR Extraction & Purification Mini Kit

Lane 1, 3, 5, 7 before extraction: 200bp, 500bp, 2Kb, 3Kb.

Lane 2, 4, 6, 8 after extraction: 200bp, 500bp, 2Kb, 3Kb

M1: 100bp DNA Ladder

M2: 1Kb DNA Ladder

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| Kit Contents:           | DE-001<br>(100 preps) | DE-002<br>(300 preps) |
|-------------------------|-----------------------|-----------------------|
| FSDf-001 FSDf Buffer    | 80 ml                 | 240 ml                |
| FSWB-001 Wash Buffer*   | 25 ml                 | 50 ml                 |
| FSEB-001 Elution Buffer | 6 ml                  | 30 ml                 |
| FSDf-001 FSDf Column    | 100 pcs               | 300 pcs               |
| 2 ml Collection Tube    | 100 pcs               | 300 pcs               |

\*For DE-001 100 preps kit add 100 ml of ethanol (96-100%) to Wash Buffer when first open.

\*For DE-002 300 preps kit add 200 ml of ethanol (96-100%) to Wash Buffer when first open.

### Specification:

Sample: up to 300 mg of agarose gel  
 up to 100 µl of reaction solution  
 Recovery: 70% ~ 85% for Gel extraction  
 90% ~ 95% for PCR clean-up  
 Operation time: 20 min  
 Elution volume: 40 µl

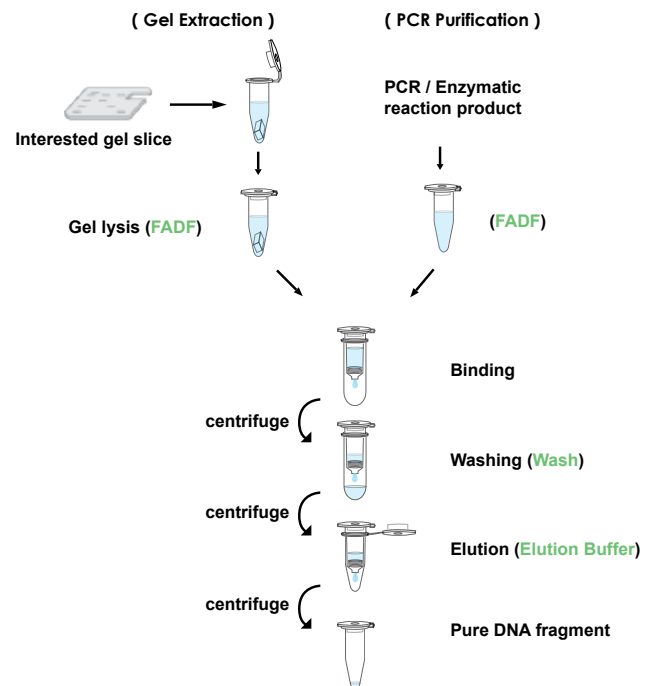
### Important Notes:

1. Buffers provided in this kit contain irritants.  
Wear gloves and lab coat when handling these buffers.
2. All centrifuge steps are done at full speed  
(14,000 rpm or 10,000 x g) in a microcentrifuge.

### • Gel Extraction Protocol:

HINT: Prepare a 55 °C dry bath or water bath for step 4.

1. Excise the the agarose gel with a clean scalpel.  
 • **Remove the extra agarose gel to minimize the size of the gel slice.**
2. Transfer up to 300 mg of the gel slice into a microcentrifuge tube.(not provided).  
 • **The maximum volume of the gel slice is 300mg.**
3. Add 500 µl of FSDf Buffer to the sample and mix by vortexing.  
 • **For > 2% agarose gels, add 1000 µl of FSDf Buffer.**
4. Incubate at 55 °C for 10-15 minutes and vortex the tube every 2-3 min until the gel slice dissolved completely.  
 • **During incubation, interval vortex can accelerate the gel dissolved.**  
 • **Make sure that the gel slice has been dissolved completely before proceed the next step.**
5. Cool down the sample mixture to room temperature. And place a FSDf Column in a Collection Tube.
6. Transfer 800 µl of the sample mixture to FSDf Column.  
 Centrifuge for 30 seconds then discard the flow-through.  
 • **If the sample mixture is more than 800 µl, repeat this step for the rest sample mixture.**
7. Add 750 µl of Wash Buffer (ethanol added) to the FSDf Column.  
 Centrifuge for 30 seconds then discard the flow-through.  
 • **Make sure that ethanol (96-100 %) has been added into Wash Buffer when first open.**



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8. Centrifuge again for an additional 3 minutes to dry the column.  
• **Important step ! This step will avoid the residual liquid to inhibit subsequent enzymatic reactions.**

9. Place the FSDF Column to a new microcentrifuge tube (not provided).

10. Add 40 µl of Elution Buffer or ddH<sub>2</sub>O to the membrane center of the FSDF Column.  
Stand the FSDF Column for 2 min.

• **Important step !** For effective elution, make sure that the elution solution is dispensed onto the membrane center and is absorbed completely.

• **Important :** Do not elute the DNA using less than suggested volume (40µl). It will lower the final yield.

11. Centrifuge for 2 min to elute the DNA.

12. Store the DNA at 4 °C or -20 °C.

### • **PCR Clean-Up Protocol:**

1. Transfer up to 100 µl of PCR product (excluding oil) and add 5 volumes of FSDF Buffer to a microcentrifuge tube(not provided) then mix by vortexing.

• **The maximum volume of PCR product is 100 µl (excluding oil). Do not exceed this limit. If PCR product is more than 100 µl, separate it into multiple tubes.**

2. Place a FSDF column into a Collection Tube.

3. Transfer the sample mixture to the FSDF Column. Centrifuge for 30 seconds then discard the flow-through.

4. Add 750 µl of Wash Buffer (ethanol added) to the FSDF Column.  
Centrifuge for 30 seconds then discard the flow-through.

• **Make sure that ethanol (96-100 %) has been added into Wash Buffer when first open.**

5. Centrifuge again for an additional 3 minutes to dry the column.

• **Important step ! This step will avoid the residual liquid to inhibit subsequent enzymatic reactions.**

6. Place the FSDF Column to a new microcentrifuge tube (not provided).

7. Add 40 µl of Elution Buffer or ddH<sub>2</sub>O to the membrane center of the FSDF Column.  
Stand the FSDF Column for 2 min.

• **Important step !** For effective elution, make sure that the elution solution is dispensed onto the membrane center and is absorbed completely.

• **Important :** Do not elute the DNA using less than suggested volume (40µl). It will lower the final yield.

8. Centrifuge for 2 min to elute the DNA.

9. Store the DNA at 4 °C or -20 °C.

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## • Troubleshooting

### *The gel slice is hard to dissolve:*

The size of the gel slice is too large

- **If the gel slice is more than 300 mg, separate it into multiple tubes.**
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### *Low or none recovery of DNA fragment:*

(For Gel Purification) The column is loaded with too much agarose gel

- **The maximum volume of the gel slice is 300 mg per column**

(For PCR Clean-Up) Apply more than 100 µl of PCR product

- **If PCR product is more than 100 µl, separate it into multiple tubes.**

Elution of DNA fragment is not efficient

- **Make sure the pH of Elution Buffer or ddH<sub>2</sub>O is between 7.0-8.5.**
- **Make sure the elution solution has been completely absorbed by the membrane before centrifugation.**

The size of DNA fragment is larger than 5 Kb

- **Preheat the elution solution to 60°C before use.**
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### *Eluted DNA contains non-specific DNA fragment*

(For Gel Purification) Contaminated scalpel

- **Using a clean scalpel.**

DNA fragment is denatured

- **Incubate eluted DNA at 95°C for 2 minutes, then cool down slowly to reanneal denatured DNA.**
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### *Poor performance in the downstream applications*

Salt residue remains in eluted DNA fragment

- **Wash the column twice with Wash Buffer**

Ethanol residue remains in eluted DNA fragment

- **Make sure you have discarded the flow-through after washing with Wash Buffer and centrifuged for an additional 3 minutes.**
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