

# Extraction of large DNA fragments with the FastGene® Gel/PCR Extraction Kit

Cat. No. FG-91202, FG-91302

## Introduction

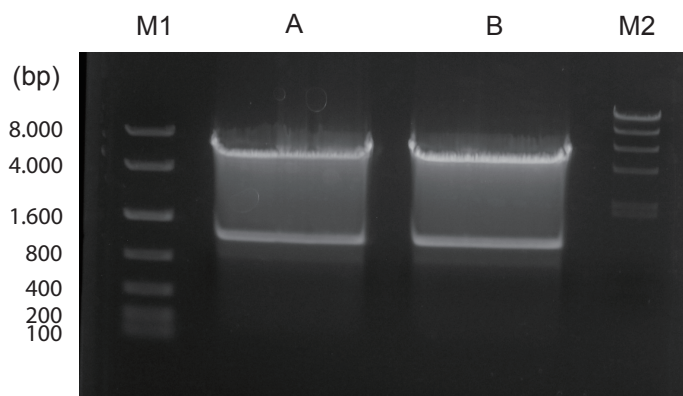
It is a well-known problem that the recovery of DNA fragments larger than 1 kb proves to be difficult and leads to the loss of large amounts of DNA. The FastGene® Gel/PCR Extraction Kit was used for the isolation of two DNA bands resulted from a restriction digest.

## Methods

A 6.9 kb large plasmid was digested with a restriction enzyme. The restriction digest was analysed by agarose gel electrophoresis at 100 V for 20 min. The 0.7 % agarose gel was produced using 1 x TAE buffer. The target fragments were excised out of the gel and transferred in a 1.5 ml tube. The fragments were purified with the FastGene® Gel/PCR Extraction Kit. For the DNA elution 20 µl of GP3 elution buffer was used. 100 ng of each purified DNA fragment were electrophoresed again at 100 V for 20 min.

## Results

The plasmid contains two restriction sites for the used restriction enzyme, so that the digest results in two fragments with the size 5.4 kb and 1.5 kb.



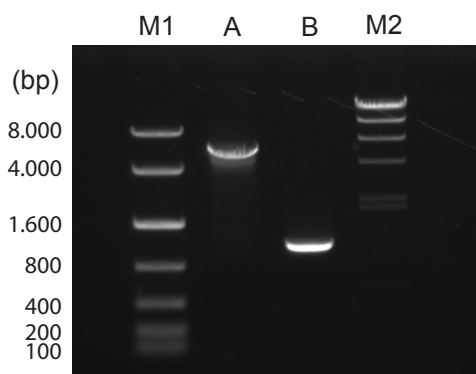
M1: Ladder - KAPA Express Ladder (Cat. No.. KK6304)  
A: Sample  
B: Sample  
M2: Ladder - Lambda/HindIII (commercially available)

Electrophoretic conditions: 0.7 % agarose gel, 100 V, 20 min 1 x TAE

The gel electrophoresis of 100 ng of both obtained DNA fragments shows that independent of the DNA fragment size, a good recovery could be achieved.

## Conclusions

1. **Excellent purification independent of DNA size**
2. **Downstream application can be performed without difficulties**



M1: KAPA Express Ladder (Cat. No.. KK6304)  
A: With the FastGene® Gel/PCR Extraction Kit purified 5.4 kb DNA fragment  
B: With the FastGene® Gel/PCR Extraction Kit purified 1.5 kb DNA fragment  
M2: Lambda/HindIII (commercially available)  
Electrophoretic conditions: 0.7 % agarose gel, 100 V, 20 min 1 x TAE

The table shows that 30% of the 5.4 kb and 60% of the 1.5 kb large fragment could be recovered by the FastGene® Gel/PCR Extraction Kit. A recovery rate of 30% for large plasmids is very high.

DNA Fragment	DNA conc. (ng/µl)	Vol. (µl)	DNA yield (ng)	Recovery rate (%)
5.4 kb	50.0	20	1000	30
1.5 kb	33.0	20	660	60

Concluding, the customer highlighted the fast preparation, easy handling, high recovery rate for large fragments and the unproblematic performance of downstream applications.