

Comparing Yield and Quality of Genomic DNA extracted from Four Different Cell Types

Experimental Conditions

Materials Required

- ◆ Exgene™ Cell SV mini (106-101)
- ◆ Manual DNA extraction kit (Supplier : A)
- ◆ 200 U of lyticase or 20 U of zymolase (for yeast cell lysis)
- ◆ 30 mg/ml of lysozyme or 300 µl/ml of lysostaphin (for gram-positive cell lysis)
- ◆ Ice (maintaining the normal state of the enzyme solution and Proteinase K solution)
- ◆ Microcentrifuge tube (for sample preparation)
- ◆ Microcentrifuge (≤15,000 x g)
- ◆ Vortex mixer
- ◆ Heating block
- ◆ Absolute ethanol (≥95.0%, C₂H₅OH, CAS No. 64-17-5)
- ◆ Pipette & sterile pipette tips
- ◆ Suitable protector (e.g., lab coat, disposable gloves, goggles, etc.)

Sample Information

- ◆ Sample type :
 - K562 (5 x 10⁶ cells), cultured cells
 - DH5α (2 x 10⁹ cells), gram negative bacteria
 - *Lactobacillus* (2 x 10⁹ cells), gram positive bacteria
 - Total yeast (5 x 10⁷ cells)
- ◆ Extraction conditions
 - Sample amount : according to each protocol
 - Elution volume : 50 µl

Protocol

K562 : The protocol is according to [A. Protocol for Blood and Body Fluid/Cultured Cells using Microcentrifuge](#) (page 18~20).

DH5α : The protocol is according to [K. Protocol for Gram Negative Bacteria](#) (page 37) and then the next step is according to [G. Protocol for Animal Tissue](#) (step 3 on page 31).

Lactobacillus : The protocol is according to [L. Protocol for Gram Positive Bacteria](#) (page 38~39) and then the next step is according to [G. Protocol for Animal Tissue](#) (step 5 on page 31).

Total yeast : The protocol is according to [M. Protocol for Yeast](#) (page 40~41) and then the next step is according to [G. Protocol for Animal Tissue](#) (step 3 on page 31).

* For more details and methods, please refer to [the handbook of Exgene™ Blood/Clinic/Cell SV mini protocol](#).

Result

Kit	K562 (A)			
	Yield (ng/µl)	A _{260/280}	A _{260/230}	CV (%)
Exgene™ Cell SV	18.49	1.99	2.09	1.84
Supplier A	17.02	1.98	2.11	1.71

Kit	DH5α (B)			
	Yield (ng/µl)	A _{260/280}	A _{260/230}	CV (%)
Exgene™ Cell SV	17.19	1.99	2.08	3.19
Supplier A	15.93	1.98	2.06	1.98

Kit	<i>Lactobacillus</i> (C)			
	Yield (ng/µl)	A _{260/280}	A _{260/230}	CV (%)
Exgene™ Cell SV	15.04	1.99	2.11	0.68
Supplier A	13.57	1.98	2.14	2.58

Kit	Yeast (D)			
	Yield (ng/µl)	A _{260/280}	A _{260/230}	CV (%)
Exgene™ Cell SV	11.14	2.01	2.07	2.09
Supplier A	9.95	2.00	2.07	1.03

Table 1. Comparison of average yield, purity and CV (coefficient of variation) values of DNA extracted from 4 samples using each DNA extraction kit

The DNA were extracted from four samples using Exgene™ Cell SV mini and Supplier A's DNA extraction kit. All eluates were analyzed with a absorbance using NanoDrop™ 2000. The absorbance was performed in triplicated and then the results were averaged. The yield and CV values were calculated based on the measured absorbance values.

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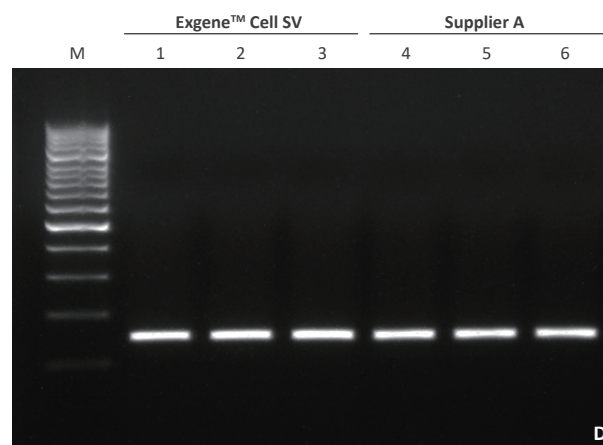
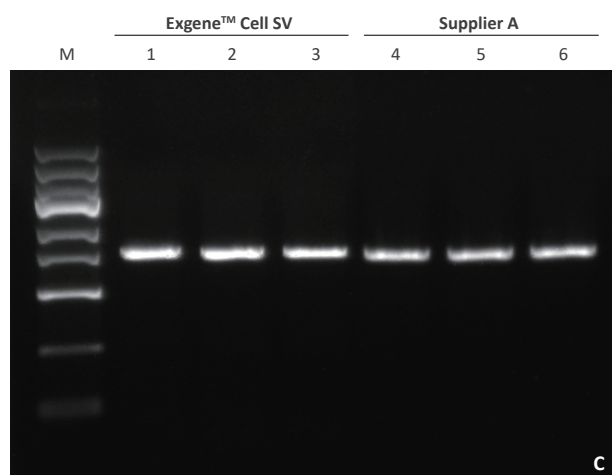
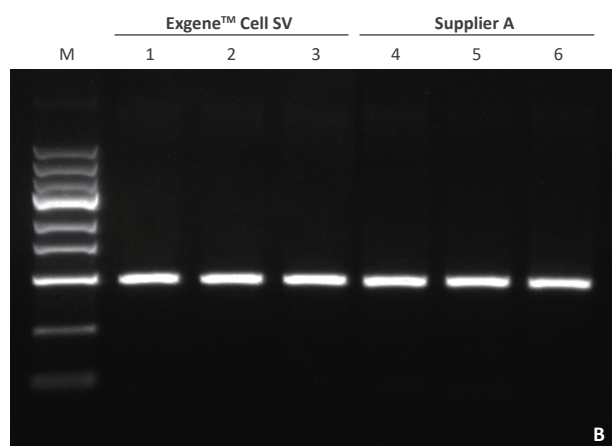
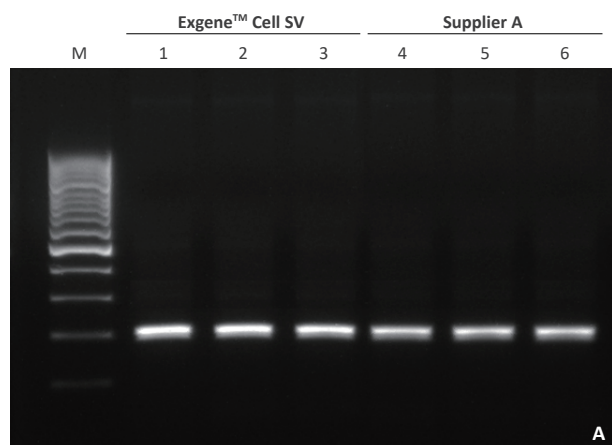


Figure 1. Comparison of gel-electrophoresis of DNA extracted from four samples using each DNA extraction kit

After DNA templates were extracted from four samples with Exgene™ Cell SV mini and Supplier A's DNA extraction kit, All DNA templates were performed in triplicate with conventional PCR methods. Eluted PCR products were analyzed with gel-electrophoresis using ethidium bromide staining.

• **Figure and PCR primer information**

Figure A : K562 cells, human GAPDH primer

Figure B : DH5α, bacteria universal primer

Figure C : *Lactobacillus*, *uvrC* primer

Figure D : Total yeast, *Scer* primer

• **Lane information**

Lane M : GENESTA™ 100 bp DNA ladder (GA-010) or GENESTA™ 250 bp DNA ladder (GA-025)

Lane 1~3 : Exgene™ Cell SV mini

Lane 4~6 : DNA Extraction kit from Supplier A

• **PCR instrument and kit information**

MultiGene™ Optimax Thermal Cycler (TC9610, Supplier : L)

2X Taq PCR Master Mix (TAQ-OV-500R, Supplier : M)