



# Automation of the Promega Wizard SV 96 Plasmid DNA Purification System on the Zephyr Genomics Workstation

## Introduction

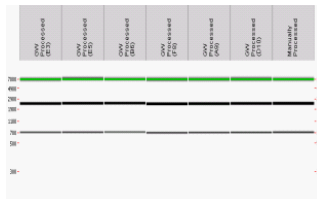
Here, we describe the use of the Zephyr Genomics Workstation in automating plasmid DNA purification with The Promega Wizard SV 96 Plasmid DNA Purification System (Cat #A A2250). Using this system, plasmid DNA is purified by binding and eluting to a silica membrane using vacuum filtration. The results confirm the quantity and high quality of plasmid DNA generated using The Promega Wizard SV 96 Plasmid DNA Purification reagents on the Zephyr Genomics Workstation.

## DNA Yield and Quality

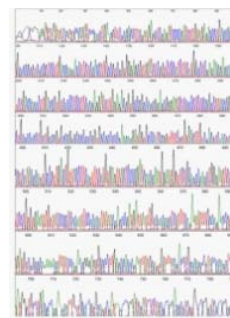
Plasmid DNA was extracted from 1 mL of overnight bacterial culture with the Promega Wizard SV 96 Plasmid DNA Purification reagents on the Genomics Workstation. The purified plasmid DNA was eluted with 100 µL nuclease-free water. An average yield of 3.16 µg/well was obtained. The purity of DNA was consistently excellent as indicated by the A260/280 ratio. Restriction digest of the plasmid yielded the expected banding pattern. Sequencing of the purified plasmids yielded an average Phred20 score of 775.

Sample	Yield (µg/well)	Purity (A260/A280)
Genomic Workstation	+/ 3.16 - 0.24	+/ 2.05 - 0.04
Manually Processed	+/ 3.41 - 0.47	+/ 1.99 - 0.02

**Table 1.** Yield and Purity of Plasmid DNA. Plasmid DNA purified from the Genomics Workstation, along with plasmid DNA processed manually, were analyzed on the Nanodrop Spectrophotometer. The DNA concentration and the purity was determined by measuring absorbance at 260nm and 280nm.



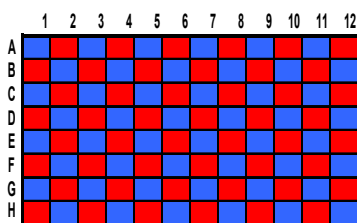
**Figure 1.** Virtual Gel image of Restriction Enzyme Digestion. Plasmid DNA purified from the Genomics Workstation, along with plasmid processed manually, were digested with the XhoI restriction enzyme. The digestion products were then analyzed by the LabChip GX using the HT DNA 5K assay.



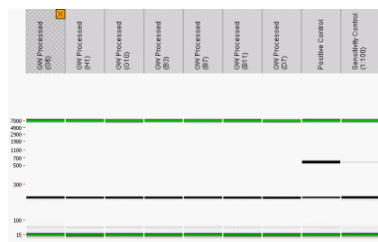
**Figure 2.** Chromatogram of Plasmid Sequencing. Plasmid DNA purified from the Genomics Workstation was submitted for single primer extension sequencing using BigDye Terminator v3.1.

## No Cross Contamination Between Wells

Two bacterial cultures were seeded into every other well such that cross-contamination could be assessed using a PCR-based assay. Elution from each well were used in PCR reaction to detect cross contamination between wells. DNA was amplified only from samples that were process from wells containing cells, indicating that contamination of adjacent wells did not occur.



**Figure 3.** Source pattern of tissue culture cells. A 250bp PCR product will be amplified from Plasmid A (red squares) and a 600np PCR product will be amplified from Plasmid B (Blue squares) using a set of control primers.



**Figure 4.** Virtual Gel Image of PCR Products. Plasmid DNA purified from the Genomics Workstation and random samples of one plasmid, distributed evenly across the 96-well plate, was subjected to PCR. In all samples, only one specific PCR product was amplified (lanes 1-7). Two products were amplified in the positive control containing the two different plasmids templates (lane 8). PCR sensitivity was tested with a template containing the two plasmids in a 1:00 ratio (lane 10).

## Conclusion

Plasmid DNA can be purified in a 96-well format using the Promega Wizard SV 96 Plasmid DNA Purification System in approximately 90 minutes. The purified DNA obtained was of the expected yield and purity. The DNA is suitable for downstream applications, including restriction enzyme digestion, sequencing and PCR. No cross contamination between wells was detected. This straightforward and simplified approach to the automation of plasmid DNA purification allows for greater throughput, reduces errors and ensures reproducibility.

Zephyr's small foot print fits on to a standard lab bench, requiring no special table, while offering flexibility for molecular biology applications:

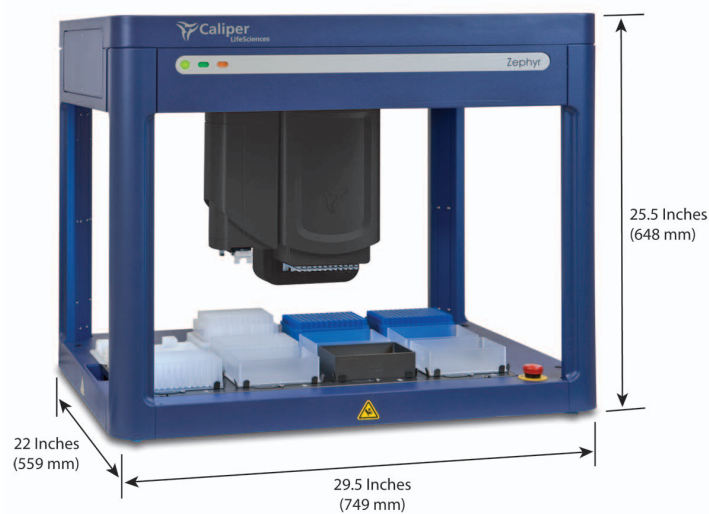
- DNA extraction
- RNA extraction
- Plasmid isolation
- PCR purification
- Sequencing reaction clean-up
- PCR setup
- Sequencing reaction setup
- DNA and RNA normalization

Additional applications which can be automated on the Zephyr Genomics Workstation:

- LabChipGX sample preparation for RNA quality assessment or DNA fragment analysis

#### What's included with your Zephyr Genomics Workstation

- PC controller and monitor
- Vacuum filtration station and pump
- Waste bottle
- Plate/lid gripper
- Ultrasonic detector
- Genomics Workstation GUI and Maestro software
- Startup Kit



#### Performance

##### Volume range:

High Volume Head (HVH) 1 - 200 µL

##### Precision:

High Volume Head (HVH) 1 - 5 µL: CV <5%  
 5 - 200 µL: CV <2%  
 2 - 25 µL or 50 µL: CV 5%

##### Weight:

75 kg (185 lbs) Base Unit

##### Operating Temperature:

15 - 35 °C (59 - 95 °F)

##### Operating Humidity:

0 - 85% RH, non condensing

##### Air Supply:

Regulated 35 - 65 psi

##### Power Input:

115 VAC, 50/60 Hz, 1000 VA max. or  
 230 VAC, 50/60 Hz, 1000 VA max.

#### Caliper Life Sciences

Part No.	Description
125282	Zephyr Genomics Workstation with HV Head - 110V
125283	Zephyr Genomics Workstation with HV Head - 220V
119728	Optional Zephyr Environmental Enclosure
103263	TurboVap 96 Concentration Workstation
122000	LabChip GX Analyzer

#### Promega

Product No.	Consumable Kit Name	Qty.
A2250	Wizard SV 96 Plasmid DNA Purification Kit	1 Plate
A2255	Wizard SV 96 Plasmid DNA Purification Kit	5 Plate

#### Caliper's Other Genomic Solutions



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