



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

Introduction

Here, we describe the use of the Zephyr Genomics Workstation in automating genomic DNA purification with The Promega Wizard SV 96 Genomic DNA Purification System (Cat #A2370). Using this system, genomic DNA is purified by binding and eluting to a silica membrane using vacuum filtration. The results confirm the expected quantity and quality of genomic DNA generated using The Promega Wizard SV 96 Genomic DNA Purification reagents on the Zephyr Genomics Workstation.

DNA Yield and Quality

Genomic DNA was harvested from 10^5 HeLa cells/well using the Promega Wizard SV 96 Genomic DNA Purification reagents on the Genomics Workstation. The DNA was eluted in 250 μ L Nuclease-Free water and an average yield of 18ng/ μ L was obtained. The purity of DNA was consistently excellent as indicated by the A260/280 ratio.

	Yield (ng/ μ l)	Purity (A260/280)
Average	18	2.14
% CV	5.7	6.8

Table 1. Yield and Purity of DNA. Genomic DNA purified from the Genomics Workstation were analyzed on the Nanodrop Spectrophotometer. The DNA concentration was determined by measuring absorbance at 260nm. The purity was determined by calculating the ratio of the absorbance at 260nm and 280nm.

No Cross Contamination between Wells

The tissue culture cells 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.

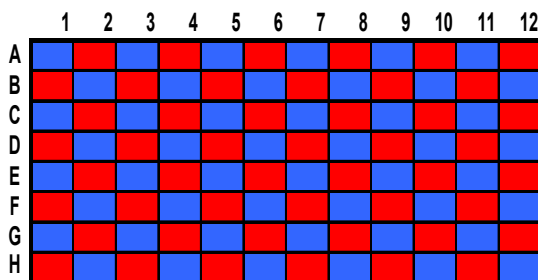


Figure 1. Source pattern of tissue culture cells. 10^5 HeLa cells were seeded in each of the red wells. The blue wells were left blank and did not contain any cells.

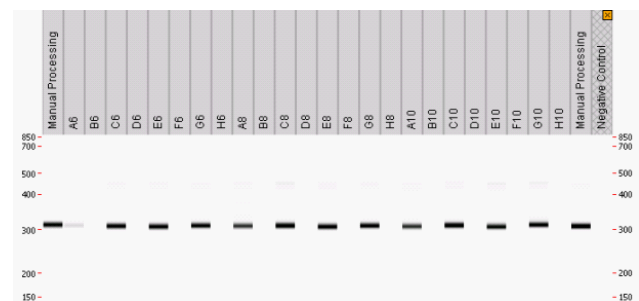


Figure 2. Virtual Gel image of PCR Assay. Eluates obtained from samples processed on the Genomics Workstation were subjected to PCR. 1 μ L of eluate were subjected to 35 cycles of PCR using primers specific to β -actin in a 20 μ L reaction. After thermocycling, the reactions were diluted with 40 μ L of TE buffer and analyzed on the LabChip GX using the HT DNA 5K assay.

Conclusion

Genomic DNA can be purified in a 96-well format using the Promega Wizard SV 96 Genomic Purification System in less than 45 minutes. An average yield of 18ng/well was obtained. The purity of DNA was consistently excellent as indicated by an average A260/280 ratio of 2.1. The DNA is suitable for downstream applications, such as PCR. No cross contamination between wells was detected between wells in a PCR assay. This straightforward and simplified approach to the automation of genomic 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:

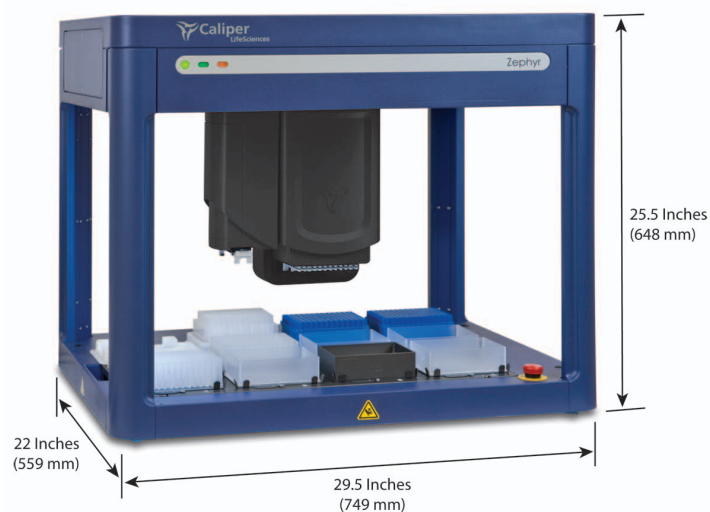
- DNA extraction
- RNA extraction
- Plasmid isolation
- PCR purification
- Sequencing reaction clean-up
- PCR setup
- Sequencing reaction setup
- DNA and RNA normalization

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.
A2370	Wizard SV 96 Genomic DNA Purification Kit	1 Plate
A2371	Wizard SV 96 Genomic DNA Purification Kit	4 Plate

Caliper's Other Genomic Solutions



LabChip GX



TurboVap 96



68 Elm Street
 Hopkinton, MA 01748-1668
 Tel: 1.508.435.9500
 www.caliperLS.com

©2010 Caliper Life Sciences. All rights reserved.
 Caliper, the Caliper logo, Zephyr, LabChip and TurboVap are tradenames and/or trademarks of Caliper Life Sciences, Inc. All other names are trademarks of their respective companies.