



# Automation of the Millipore MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Filter Plate on the Zephyr Genomics Workstation

## Introduction

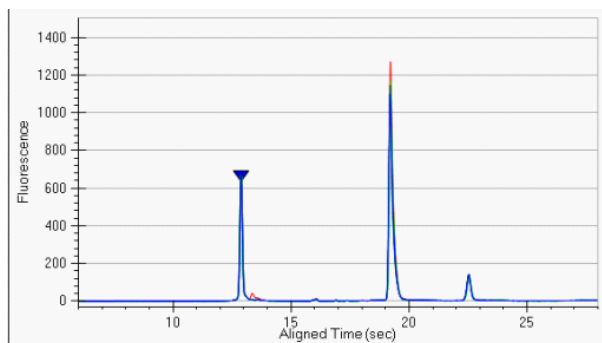
Here, we describe the use of the Zephyr Genomics Workstation in automating PCR purification with The Millipore MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Filter Plate (Cat #MSNU03010). Using this system, PCR products are purified using a size-exclusion membrane using vacuum filtration. The results confirm the expected yield and quality of PCR products purified using The Millipore MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Filter Plate on the Zephyr Genomics Workstation.

## Yield and Quality

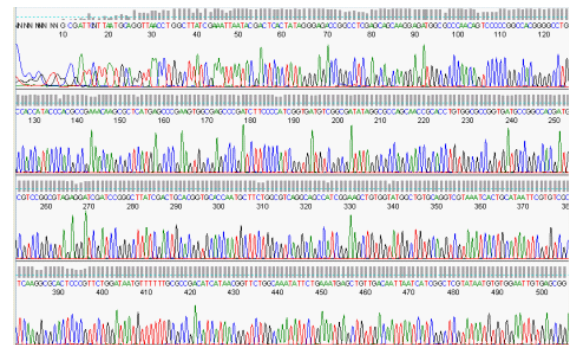
50  $\mu$ L PCR reactions were purified with the Millipore MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Filter Plate on the Genomics Workstation. The purified PCR products were resuspended in 100  $\mu$ L TE buffer. An average yield of greater than 80% was obtained. Primers were consistently removed in the process and the purified PCR products were suitable for DNA sequencing.

PCR Product Size (BP)	Yield (%)	CV (%)	Max (%)	Min (%)	
1008	89.5	5.2	98.8	82.4	n=16
555	83.4	4.6	89.4	81.6	n=16

**Table 1.** Average product recovery (%). Recovery of purified PCR products. 50  $\mu$ L PCR reactions were purified with the ExelaPure 96-Well UF PCR Purification Kit. Samples were resuspended in 100  $\mu$ L of TE buffer. Percent recovery was determined by DNA quantification on the LabChip GX using the HT DNA 5K assay.



**Figure 1.** Electropherogram of PCR products. PCR products purified with the MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Plate using the Genomics Workstation (blue traces), along with unpurified PCR product, (red trace) were analyzed by the LabChip GX using the HT DNA 5K assay.



**Figure 2.** Chromatogram of DNA Sequencing. PCR products purified with the MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Plate using the Genomics Workstation was sequenced using BigDye Terminator v3.1 chemistry. An accurate sequence was obtained for the full length of the PCR product.

## Conclusion

PCR products can be purified in a 96-well format using the Millipore MultiScreen<sub>HTS</sub> PCR<sub>96</sub> Filter Plate in approximately 15 minutes. An average recovery of 90% was obtained for a 1008bp PCR fragment. Excess primers and salts from the starting PCR reaction mix was efficiently removed. The DNA is suitable for downstream applications, including primer extension sequencing. The process is simple, fast and fully automated on the Zephyr Genomics Workstation.

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

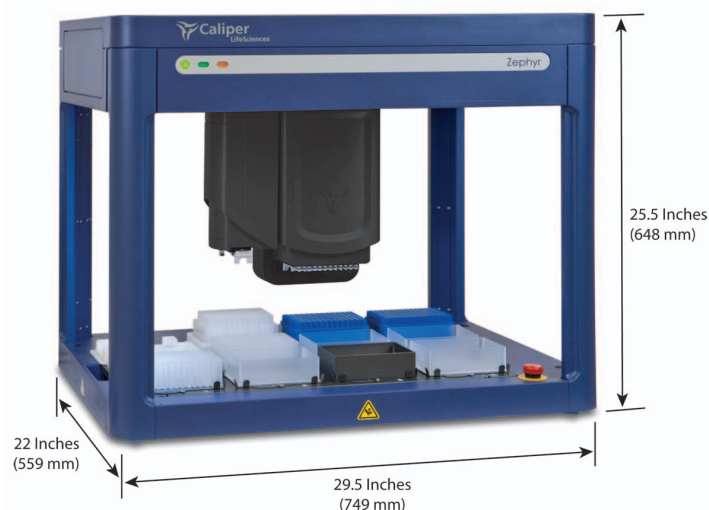
- DNA extraction
- RNA extraction
- Plasmid isolation
- PCR purification
- Sequencing reaction clean-up
- PCR setup
- Sequencing reaction setup
- DNA and RNA normalization

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's Other Genomic Solutions



LabChip GX



TurboVap 96

### 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

### Millipore

Product No.	Consumable Kit Name	Qty.
MSNU03010	Millipore Montage PCR 96 Cleanup Kit	10 Plate
MSNU03050	Millipore Montage PCR 96 Cleanup Kit	50 Plate



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.