



Biomek Automated Genomic Sample Prep Accelerates Research

Biomek i-Series¹ Automated Beckman Coulter AMPure XP PCR Purification System

Introduction

The Beckman Coulter AMPure XP kit is a highly efficient PCR purification system that delivers superior quality DNA with no salt carryover. The AMPure XP protocol utilizes Solid Phase Reversible Immobilization (SPRI) magnetic bead-based technology which requires no centrifugation or filtration. This kit is a staple in NGS sample prep and can be easily used in manual and automated 96- and 384-well formats. Here we will demonstrate automated performance on the Biomek i5 Multichannel 96 Genomics Workstation.

The AMPure XP PCR Purification system is automated on all Biomek platforms and provides:

- Standardized workflow for improved results
- Reduction in costly errors
- Reduced hands-on-time and increased throughput
- Quick implementation with ready-to-implement methods
- Knowledgeable support for reagents, automation and methods all from single vendor

Spotlight: Biomek i5 Multichannel 96 Genomics Workstation

System features deliver reliability and efficiency to increase user confidence and walk-away time

- 300uL or 1200uL Multichannel head with 1-300uL and 1-1200uL pipetting capability
- Enhanced Selective Tip pipetting to transfer custom array of samples
- Independent 360° rotating gripper with offset fingers
- 25 positions
- Orbital Shakers and 96 channel Tip washing for controlling sample processing
- Optional Enclosure



Figure 1. Biomek i5 Multichannel 96 Genomics Workstation with optional enclosure on a Biomek Cart. Large Deck capacity to increase walk away time.

Demonstrated Method Interface (DMI):

Three simple modules that provide the user full instructions to better ensure error-free method setup and provides users maximum flexibility for scheduling their day

1. **Biomek Method Launcher (BML)** — secure interface for selecting methods without affecting method integrity and manual control



Figure 2. Biomek Method Launcher provided an easy interface to start the method



Figure 3. Manual Control can be run through the launcher interface

2. **Method Options Selector (MOS)** — Select run-time options and maximize flexibility in daily scheduling and method execution

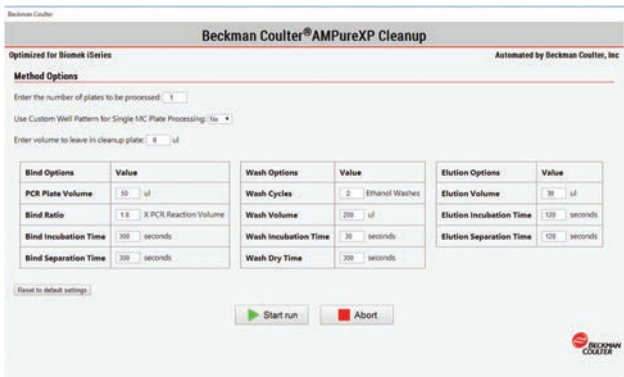


Figure 4. Beckman Coulter AMPure XP Method Options Selector showing the different features and run options

3. **Guided Labware Setup (GLS)** — Generated based on options selected in the MOS, and provides the user specific text and graphical setup instructions with reagent calculation

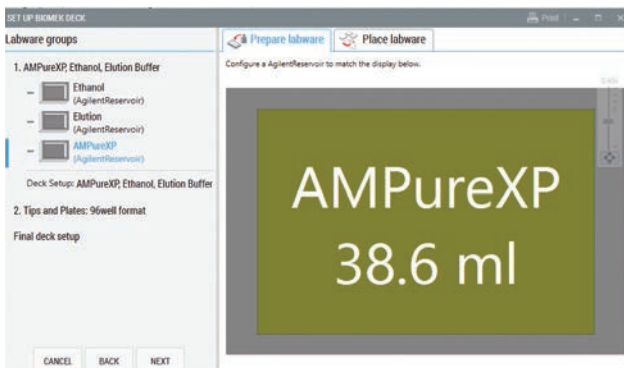


Figure 5. Guided Labware Setup showing reagent volumes and guides the user for correct deck setup

Fast and efficient process with scalable throughput to maximize yield



Major Process Description	1 Plate
AMPure XP Method	25 mins
Hands On Time	10 mins
**Timing does not include thawing of reagents	

Table 1. Beckman Coulter AMPure XP estimated run times on i5 Span-8

Figure 6. Beckman Coulter AMPure XP workflow.

Experimental Design and Results²

Thermo Marker (500bp) was diluted to 60ng/uL and 50uL was used for AMPure XP cleanup. 5 technical replicates were aliquoted in PCR plate in a checkerboard pattern. After the cleanup on i5 Multichannel, the samples were analyzed on Agilent TapeStation 2200³ with High Sensitivity D1000 kit.

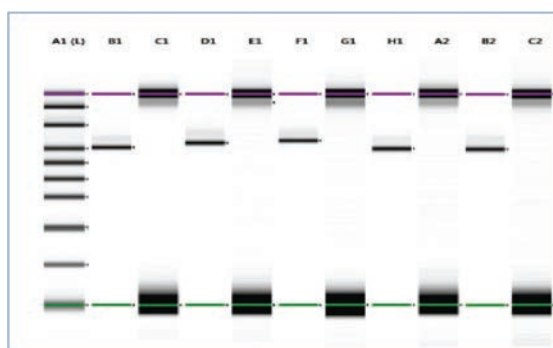


Figure 7. Samples were analyzed on Agilent TapeStation using HS D1000 kit. The replicates behaved in a consistent manner and the alternate empty wells show no cross contamination. Recovery of the samples was approximately 95% and gel and trace show no impurity.

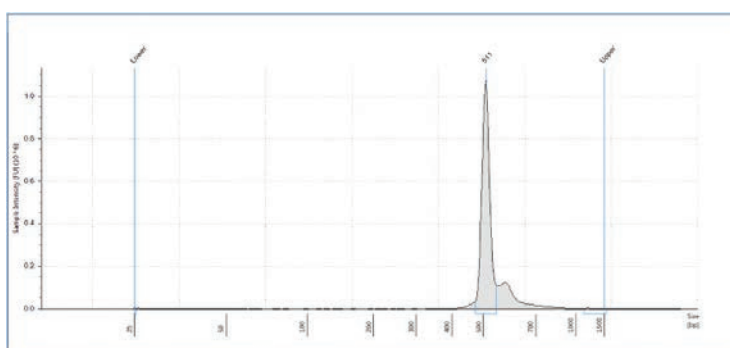


Figure 8. Electropherogram showing the sample running around expected size of the marker.

Summary

The data shows that Beckman Coulter AMPure XP PCR purification system automated on the new Biomek i-Series Workstation continues the tradition of delivering a high yield of quality DNA.

1. Product in development
2. Data obtained during development
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