Fast, Reliable Automated PCR Reaction Setup

Using the Biomek 4000 Laboratory Automation Workstation

A PCR Reaction Setup application is offered on the Biomek 4000 Laboratory Automation Workstation, the newest addition to Beckman Coulter's line of automated liquid handlers. This application guides the user through the process of setting up a PCR reaction for 1-192 samples in 96-well plates with any combinations of Master Mix, Primers, and Samples. It is the ultimate automation solution for complicated PCR reaction setup problem.

Supports 1-192 high throughput configurations with up to two master mix, two primers, and two sample source labware (Figure 2).

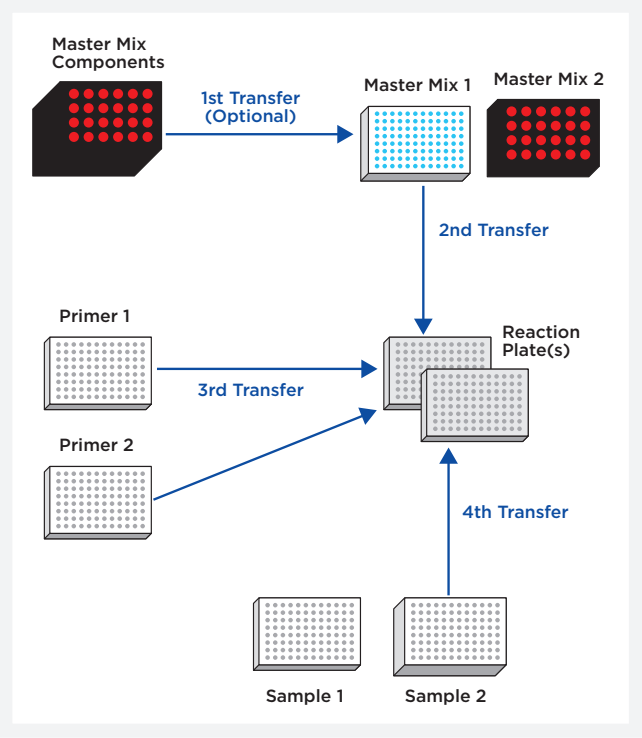

Figure 1. PCR Reaction Plate Setup Process.

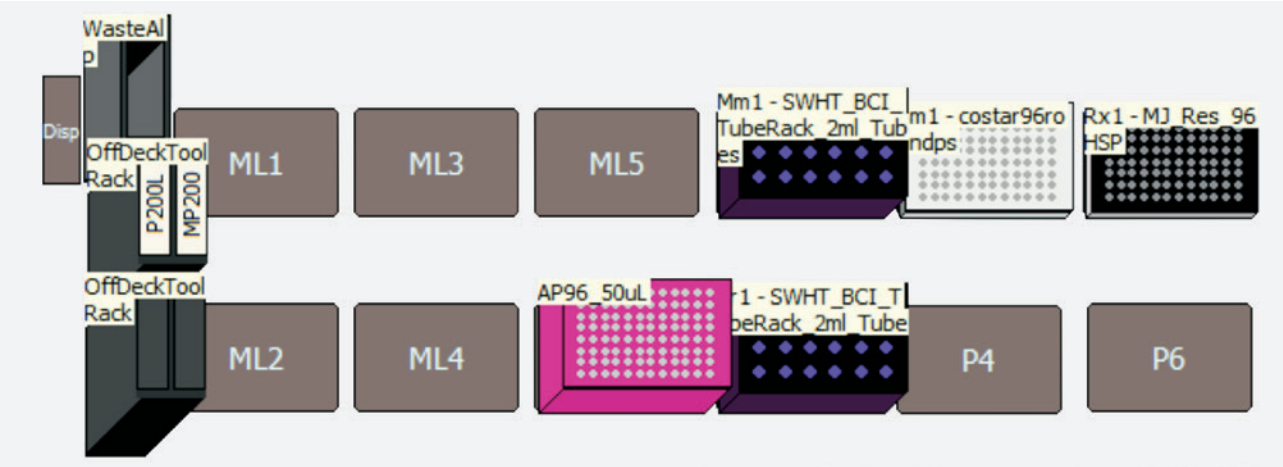

Figure 2. Up to two 96-well PCR reaction plates can be created in one reaction setup process.

Discovery *in motion.*

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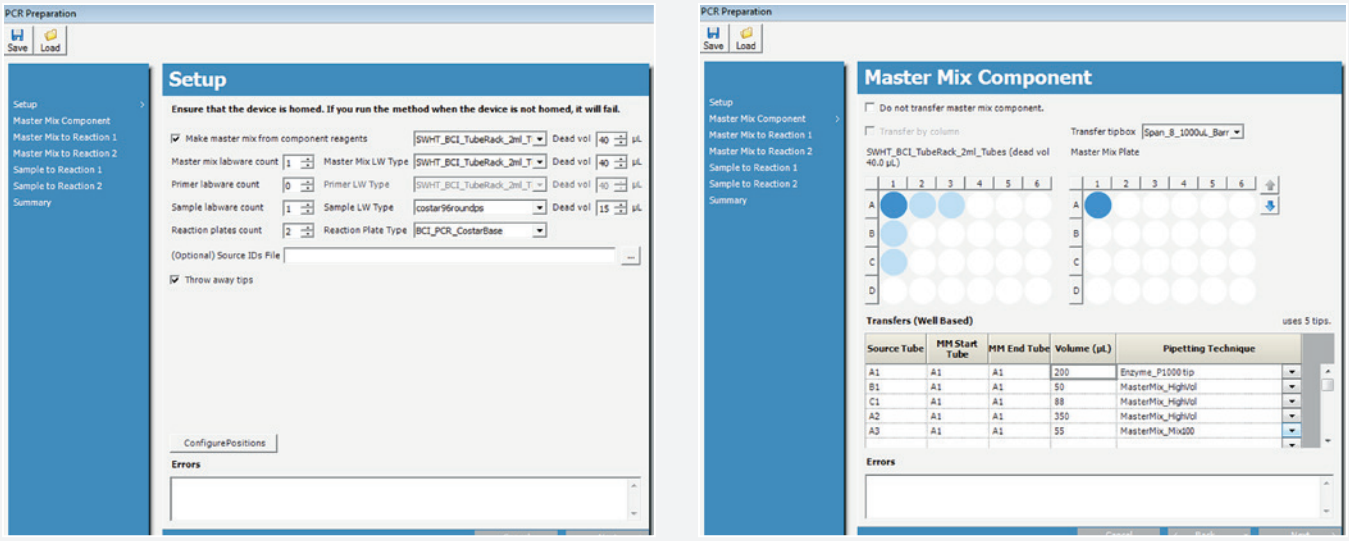
Supports both ready PCR master mix and master mix made from individual PCR components (Figure 3).



(3a) (3b)

Figure 3. Master Mix was made from individual PCR components, i.e., AmpliTaq DNA polymerase, dNTP, MgCl2, Triton X-100, water, and primers. All PCR components can be transferred from tubes from source labware (3a) to A1 tube of destination labware (3b).

RESULTS

The PCR reaction setup process has flexible sample and reagent test combinations, only limited by the number of available tips and reagent volumes. The result is you get excellent PCR products.

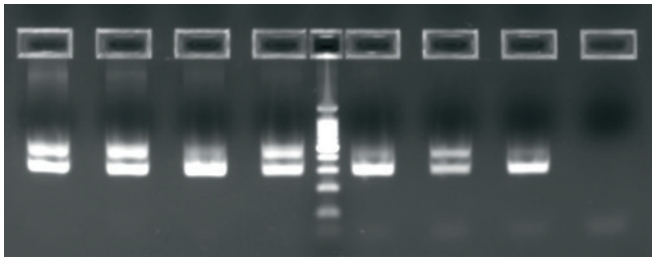


Figure 4. β-actin PCR products (285 bp) from human genomic DNA dilution series (Lane #1-7: 480 ng/µL to 7.5 ng/µL; Lane #8: water as negative control, and middle Lane: 100 bp ladder).

Using automation helps eliminate cross contamination in PCR reactions (Figure 5).

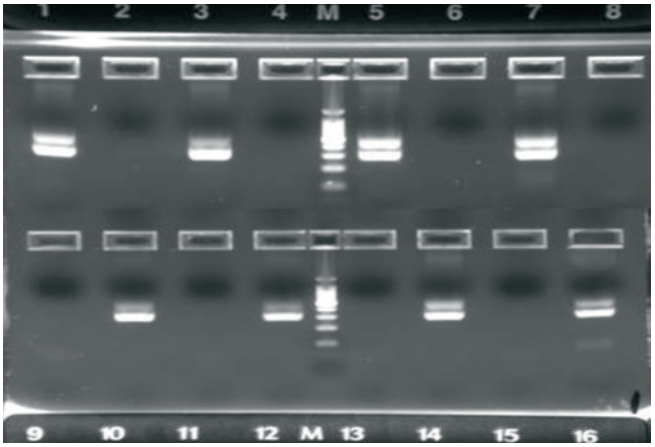


Figure 5. Cross-contamination test had shown no presence of the β-actin PCR products in the adjacent negative wells where human gDNA template was replaced with water.

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