AUTOMATED PROTOCOL

Identity Automation™ DNA Normalization and PowerPlex® Setup Protocol for the Beckman Coulter Biomek® 4000

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All technical literature is available at: www.promega.com/protocols/
Visit the web site to verify that you are using the most current version of this Automated Protocol.
E-mail Promega Technical Services if you have questions on use of this system: genetic@promega.com

1. Description

This document describes the automated protocol for the Identity Automation™ DNA Normalization and PowerPlex® Setup method on the Beckman Coulter Biomek® 4000 automated liquid-handling workstation. For additional information about Identity Automation™ methods for human identification applications, please visit:
www.promega.com/idautomation/

For troubleshooting PowerPlex® chemistry issues, please refer to the appropriate PowerPlex® Technical Manual.
Note: All Promega Technical Manuals are available at: **www.promega.com/protocols/**

The automated method for DNA normalization and PowerPlex® reaction setup is compatible with all Promega PowerPlex® Systems. The automated method supports amplification of extracted DNA (Normalization Protocol), direct amplification of swabs extracted with SwabSolution™ Reagent (Swab Protocol), direct amplification of nonFTA punches pretreated with PunchSolution™ Reagent (Punch Protocol) and direct amplification of FTA® punches (FTA® Protocol). In addition, the automated method enables multiple amplification plates to be prepared during a single automated method run for direct-amplification protocols, supporting setup of 1–2 plates for the Swab Protocol or 1–4 plates for the Punch and FTA® Protocols. For more information visit:
www.promega.com/products/genetic-identity/str-analysis/

Note: STR Normalization Manager™ Software is required for use of this automated method.

2. Product Requirements

PRODUCT	SIZE	CAT.#
STR Normalization Manager™ Software	**3 CD-ROM**	**DG1820**

Not for Medical Diagnostic Use.

3. Materials to be Supplied by the User

Normalization Protocol

- TE^{-4} buffer [10mM Tris (pH 8.0), 0.1mM EDTA] or Water, Amplification Grade (Cat.# DW0991), for sample dilution

Swab Protocol

- SwabSolution™ Kit (Cat.# DC8271)

Punch Protocol

- PunchSolution™ Kit (Cat.# DC9271)

4. Before You Begin

We recommend wearing gloves and changing them often, especially after handling highly concentrated DNA. It is important to use designated work areas for pre- and post-amplification steps.

4.A. Sample Considerations

Samples must be in 96-well format (96-well plate or strip tubes).

Amplification of Extracted DNA

Centrifuge extracted DNA samples briefly to remove any air bubbles that might be present in the wells, as air bubbles can interfere with sample aspiration. If quantitation data are imported into the STR Normalization Manager™ Software, the well locations noted in your data file must match the sample well layout.

Direct Amplification of DNA from Swabs

If swab heads are present in the deep-well plate during automated sample transfer, be sure that the substrate is completely covered. The liquid handler will aspirate a small volume of swab extract from near the top of the liquid. If the disposable tips strike the swab head, the tips may fail to aspirate sample or become bent, causing the tips to crash into the amplification plate or cross-contaminate nontarget wells. Whole swabs should be cut or snapped off uniformly and close to the head to prevent these issues.

Direct Amplification of DNA from Storage Card Punches

Static may be problematic when adding punches to amplification plate wells. For FTA® card punches, adding PCR amplification mix or amplification-grade water to the well before adding the punch may help alleviate static problems. For nonFTA card punches, adding PunchSolution™ Reagent to the well before adding the punch during pretreatment may help alleviate static problems.

4.B. Preparation of Solutions

We recommend that you wear gloves while preparing solutions. PCR amplification reagents (primer pair mix, master mix, etc.) should be completely thawed and vortexed well prior to use. The automated method provides the option to robotically prepare PCR amplification mix at volumes less than 1.3ml in a 1.5ml microcentrifuge tube. Larger volumes of PCR amplification mix must be prepared manually and placed into an appropriate tube or trough. Manually prepared PCR amplification mix must be vortexed thoroughly (several 5- to 10-second pulses) prior to placing the mix on the deck.

5. Automated Processing Requirements for the Biomek® 4000 Workstation

Confirm that you have the required instrument and labware listed in Sections 5.A and 5.B for use of the Identity Automation™ DNA Normalization and PowerPlex® Setup method on the Biomek® 4000 workstation. For automation of additional products, including full workflow automation, refer to Section 8 of this manual and the appropriate automated protocol for the chemistry of interest.

Promega

5.A. Instrumentation Requirements

Minimum Installation Requirements

The following is a list of Beckman Coulter parts and their corresponding part numbers that are required for the Identity Automation™ DNA Normalization and PowerPlex® Setup method on a Biomek® 4000 workstation.

Description	Quantity	Beckman Coulter Part Number
Biomek® 4000 Basic Liquid Handling Package: Includes Biomek® 4000 Laboratory Automated Workstation, Biomek® Software Version 4.x with Windows® 7 Automation Controller, Monitor and Mouse, P200L Single Channel Pipette Tool with LLS, MP200 Eight Channel Pipette Tool, Accu Frame Autoframing Tool, Tip Rack Holder (Qty 2), Labware Holder (Qty 3), Tool Holder, and Starter Kit with assorted BCI Labware, basic on-site training, basic application support and complete system installation	1	B22867
Biomek® 4000 Integration Deck	1	A95573
Module Accessory, Left Side, Biomek® 3000/4000	1	987264
Holder, Tip Rack	2	391910
Holder, Labware, Gray	2	609120
Tool Rack, Holds Five Liquid-Handling Tools	1	609119[1]
Large Disposal Option (optional but recommended)	1	609751[1]

[1]The Gripper Tool Rack and Disposal Option are also available as part of the Gripper Tool System, Biomek® 3000/4000 (Cat.# 986129). The Gripper Tool System is not required for DNA Normalization and PowerPlex® Setup; it is required for full workflow automation (Section 8).

5.B. Additional Hardware, Labware and Consumables Required

The following additional items are required for the Identity Automation™ DNA Normalization and PowerPlex® Setup method on a Biomek® 4000 workstation.

Additional Hardware Required

Hardware Supplier	Cat.#	Description	Number Required
Promega	V1601	Four-Position Tube Holder	2
Promega	A2661	Heat Block Adapter	1 (Swab Protocol only)
Promega	V8251	Plate Clamp 96 (for use with nonskirted plates and strip tubes)	1–2 (optional)[1]
Promega	V8261	Plate Stand (for use with nonskirted plates and strip tubes)	1–2 (optional)[1]

[1]The Plate Clamp 96 and Plate Stand are optional for securing nonskirted 96-well plates or MicroAmp® Strip Tubes. The Applied Biosystems MicroAmp® 96-Well Base, Part Number N801-0531, or other base also may be suitable.

Consumables Required

Consumable Supplier	Cat.#	Description	Number Required (Per Plate Processed)		
			Normalization Protocol	Swab Protocol	Punch and FTA® Protocols
Beckman Coulter	717253	Biomek® AP96 P250 Tips, Pre-sterile with Barrier (case of 10 boxes)	<¼ box	<¼ box	<¼ box
Beckman Coulter	A21586	Biomek® P50 Tips, Pre-sterile with Barrier (case of 10 boxes)	1–3 boxes	1 box	1 box
Beckman Coulter	372786	Half Reservoir (case of 24)	1		
Promega	V6821	1.1ml Square-Well, V-Bottom Deep Well Plate (case of 25)	2		
Promega	V6781	2.2ml, Square-Well Deep Well Plate (for pretreatment with SwabSolution™ Reagent; case of 50)		1	
User-selected		96-well PCR plate or strip tubes for PowerPlex® amplification	1	1	1
User-selected		96-well PCR plate or strip tubes containing DNA samples	1		
User-selected		1.5ml microcentrifuge tube (for preparing single-tube PCR amplification mix volumes <1.3ml)	1[1]	1[1]	1[1]
Beckman Coulter	372788	Quarter Reservoir, Divided by Length (case of 48) (for preparing PCR amplification mix volumes of up to 20ml)	1[1]	1[1]	1[1]
Beckman Coulter	372790	Quarter Reservoir (case of 48) (for preparing PCR amplification mix volumes >20ml)	1[1]	1[1]	1[1]

[1]Only one tube or reservoir type is required per run; the type depends on the PCR amplification mix volume and user choice.

5.C. Biomek® 4000 Initial Deck Configuration

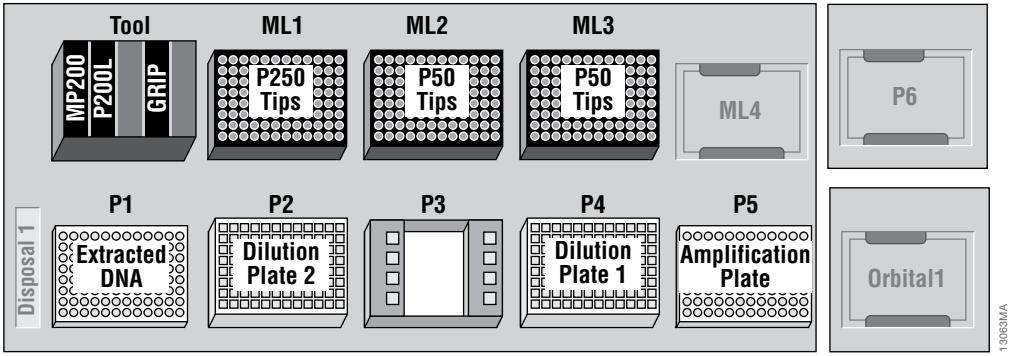

Figure 1. Biomek® 4000 initial deck configuration. Shown is an example illustrating labware for extracted DNA normalization and PowerPlex® setup. A Gripper Tool and Right Side Module (Positions P6 and Orbital1) are shown but are not required for this method. Refer to Section 5.A. for required hardware.

Position Tool	Tool rack with, from left to right, MP200 tool, P200L tool, Gripper tool
Position ML1	Tip rack holder, Biomek® AP96 P250 Tips
Position ML2	Tip rack holder, Biomek® P50 Tips
Position ML3	Tip rack holder, Biomek® P50 Tips (additional boxes as needed)
Position ML4	Tip rack holder, Biomek® P50 Tips (additional boxes as needed)
Position P1	Gray labware holder, Strip tubes or 96-well plate containing DNA samples (extracted DNA)
Position P2	Gray labware holder, Empty 1.1ml Square-Well, V-Bottom Deep Well Plate (second dilution plate) as required for sample dilution
Position P3	Gray labware holder, Frame and reservoirs for reagents (see Figure 2 for configuration)
Position P4	Gray labware holder, Empty 1.1ml Square-Well, V-Bottom Deep Well Plate (first dilution plate) as required for sample dilution
Position P5	Gray labware holder, amplification plate or tubes
Disposal 1	Large Disposal Option (optional)

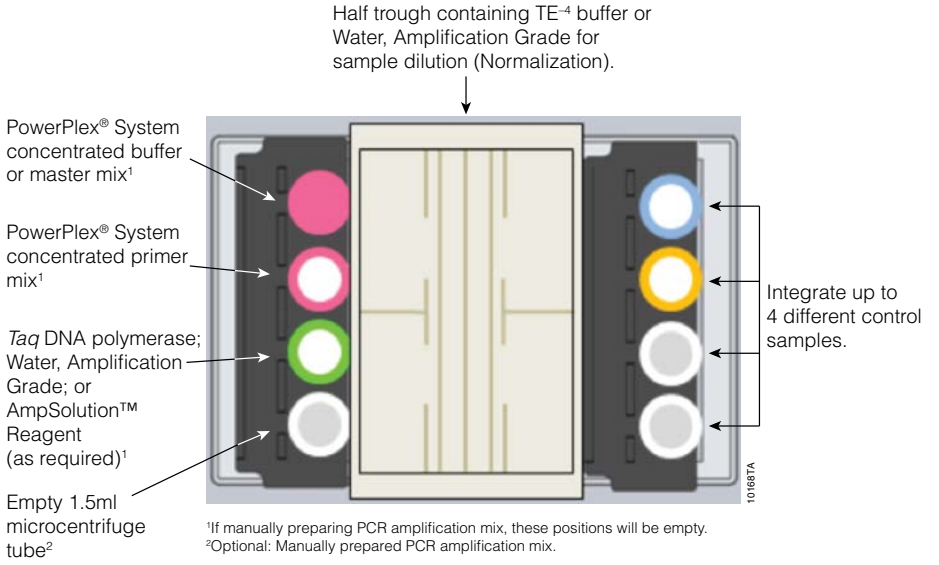

Figure 2. Configuration of PowerPlex® reagents and tubes in the Four-Position Tube Holders at deck position P3. It is important to secure all open caps in the Four-Position Tube Holder so that they do not interfere with pipetting steps. The minimum volume for each reagent is determined by the number of samples processed. The instrument will prompt you to add the appropriate minimum volume of these reagents. For PCR amplification mix volumes greater than 1.3ml, the tube holder on the left is replaced with a Quarter-Divided or Quarter Trough and PCR amplification mix is prepared manually.

Variable and Data Inputs

A series of variables is used to set the state of the system and sample processing requirements at run time. These variables may be set and prompted based on specific laboratory needs. Declaration of these variables can be found by selecting the Start icon in the automated method script.

Change_Tips_Each_AmpDispense

The Change_Tips_Each_AmpDispense variable determines whether tips are changed during dispense of PCR amplification mix to amplification wells containing sample card punches. When this variable is set to "True", disposable tips are changed between each well; when this variable is set to "False", the same disposable tips are used to dispense to all wells. Changing tips is recommended when dispensing reagents to plates containing sample card punches.

Change_Tips_Every_Transfer

Samples to be diluted will be transferred through 1 or 2 dilution plates on the deck. For most reaction setups this process can be completed using a single tip per sample. If a user prefers to change tips after each intermediate dilution step, set the variable Change_Tips_Every_Transfer to "True".

5.C. Biomek® 4000 Initial Deck Configuration (continued)

Overridable	Prompt	Variable Name	Value
☐	☐	Change_Tips_Each_AmpDisper	False
☐	☐	Change_Tips_Every_Transfer	False
☐	☑	First_P250_Tip	1
☐	☑	First_P50_Tip	1
☐	☐	FTADispense	Bottom
☐	☐	Manual_MM_Prep	False
☐	☐	Optimize	Automatic
☐	☐	Swab_SamplePlateVolume	750
☐	☐	TipDisposal	True
☐	☐	UseMP200	True
☐	☐	UseMP200_RMM	True

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Figure 3. Variables for tip usage and PCR amplification mix preparation.

First_P250_Tip

The First_P250_Tip variable corresponds to the position of the first P250 tip in the box at position ML1, counting per column, starting in the upper left corner. If sufficient tips to perform the run are not available with a partial tip box, the user will be prompted to replace this tip box with a full box of P250 tips.

First_P50_Tip

The First_P50_Tip variable corresponds to the position of the first P50 tip in the tip box at position ML2. Up to two additional boxes of P50 tips may be required for dilution and transfer of samples to the amplification plate. If sufficient tips to perform the run are not available with a partial tip box plus two additional full boxes, the user will be prompted to replace this tip box with a full box of P50 tips.

FTA_Dispense

The FTA_Dispense variable directs liquid handling during dispense of the PCR amplification mix for the FTA® Protocol runs. Set this variable to "Bottom" if samples are to be punched into the plate after dispense of the PCR amplification mix; the PCR amplification mix will be contact dispensed to the bottom of each amplification well, and the same disposable tips will be used to dispense to all wells. Set this variable to "Side" if samples are already present in the wells; the PCR amplification mix will be dispensed above the well bottom with the tips in contact with the side of the amplification well to ensure reagent delivery but avoid contact with sample punches at the bottom of the well.

Manual_MM_Prep

The Manual_MM_Prep variable determines whether the PCR amplification mix will be prepared by the Biomek® 4000 workstation ("False") or prepared manually by the operator ("True"). When this variable is set to "False" the operator will be prompted to place the required reagents on the deck. When this variable is set to "True" the operator will be prompted to manually prepare the PCR amplification mix and place it on the deck. PCR amplification mix volumes greater than 1.3ml must be prepared manually.

TipDisposal

When a Large Disposal Option (Disposal 1 in Figure 1) is present, the TipDisposal variable can be set to "True" so that used tips will be dropped at the Large Disposal (trash). Otherwise, with the TipDisposal variable set to "False", used tips will be placed back into the tip boxes.

Optimize

The Optimize variable allows the user to choose 50µl or 200µl disposable tips to dispense the PCR amplification mix. For PCR amplification mix dispense volumes of less than 10µl, the 50µl disposable tips will provide better volume delivery consistency, making them the better choice for normalization and STR amplification of extracted DNA samples. The larger capacity of the 200µl disposable tips provides significantly faster PCR amplification mix dispensing and shorter method run times. The 200µl tips provide excellent volume delivery consistency at 10µl and above but also may be suitable for reduced-volume direct-amplification protocols for which volume consistency is less important. Set the Optimize variable to "Speed" to force the use of 200µl tips for all volumes. Set the Optimize variable to "Accuracy" to force the use of 50µl tips for all volumes. Set the Optimize variable to "Automatic" to enable automatic tip selection based on PCR amplification mix dispense volume. The default tip selection always will be 50µl tips when tip changes are required for the Punch or FTA® Protocol runs.

Swab_SamplePlateVolume

This variable sets the sample volume for swab extract samples (Swab Protocol). This volume is used to determine the sample aspiration heights. Aspiration is programmed at just below the liquid surface to avoid collision with swab heads that may be present in the sample wells.

5.C. Biomek® 4000 Initial Deck Configuration (continued)

UseMP200

Use of the MP200 (8-channel) tool to transfer samples can significantly shorten method run time. When this variable is set to "True", the MP200 tool can be used for diluent transfer, sample dilutions and sample transfer to the amplification plate. Only full columns of 8 samples handled in exactly the same way can be processed with the MP200 tool. Any wells that cannot be processed with the MP200 tool will be processed one at a time using the P200L tool.

UseMP200_RMM

Use of the MP200 tool to transfer PCR amplification mix from a trough to each amplification plate can significantly shorten method run time. When this variable is set to "True", the MP200 tool can be used to transfer PCR amplification mix when all 8 wells in a column of the amplification plate are used. Any wells that cannot be processed with the MP200 tool will be processed one at a time using the P200L tool.

STR Normalization Manager™ Software

The Promega STR Normalization Manager™ Software is the user interface for entering information about the samples that will be processed in the Identity Automation™ DNA Normalization and PowerPlex® Setup method run.

Information about sample number, sample well locations, dilution strategy, PCR amplification mix preparation and dispense, and incorporation of amplification controls are automatically exported for use by the Biomek® 4000 method.

On-site method installation by Promega includes training, installation and initial setup of the STR Normalization Manager™ Software for your laboratory. For more information visit:
www.promega.com/a/idautomation/overview.html

6. Description of the Identity Automation™ DNA Normalization and PowerPlex® Setup Method

This overview describes the general liquid-handling steps required for the Identity Automation™ DNA Normalization and PowerPlex® Setup method on the Biomek® 4000 workstation.

Note: The Identity Automation™ DNA Normalization and PowerPlex® Setup method does not provide automated transfer of SwabSolution™ Reagent or PunchSolution™ Reagent or on-deck heated incubation for sample preprocessing.

1. **Diluent Transfer:** The liquid handler transfers diluent to one or two dilution plates. The number of dilution plates used and the volumes transferred depend on the dilution required for the samples being processed. If no samples require dilution, this step will be skipped.
2. **Preparation of PCR Amplification Mix:** If the liquid handler prepares the PCR amplification mix, the required volume of each reaction component is transferred to a 1.5ml microcentrifuge tube and tip-mixed. Alternatively, manually prepared amplification mix may be placed on the worktable in a 1.5ml tube, a Quarter Reservoir, Divided by Length, or a Quarter Reservoir.
3. **Dispense of PCR Amplification Mix.** The liquid handler transfers the PCR amplification mix to appropriate wells of each amplification plate or set of strip tubes, dispensing by column from column 1 to column 12. PCR amplification mix may be transferred using 50µl or 200µl tips depending on script settings and end-user input during installation. When possible, PCR amplification mix is aspirated in bulk and dispensed to multiple wells of the amplification plate to minimize run time. Programming is provided for changing tips between wells containing sample punches (Punch and FTA® Protocols) to prevent cross-contamination. When working with multiple amplification plates, the workstation dispenses reagents in the order that the plates were configured in the STR Normalization Manager™ Software.
4. **Sample Dilution and Transfer to the Amplification Plate.** Samples and controls are processed from column 1 to column 12 depending on the final amplification plate layout. The liquid-handling robot processes each DNA sample and control through one of three dilution pathways to achieve the desired template amount in the final PCR amplification reaction.

   Direct Transfer: Sample and diluent volumes are aspirated separately and transferred directly to the amplification wells.

   One Dilution: Samples are diluted through a single dilution plate; up to a 100-fold dilution can be achieved.

   Two Dilution: Samples are diluted through two dilution plates; up to 100-fold dilution can be achieved in each dilution plate for a maximum 10,000-fold dilution.

   Table 1 shows how each dilution pathway achieves the desired template amount in each PCR amplification reaction.

6. Description of the Identity Automation™ DNA Normalization and PowerPlex® Setup Method (continued)

Table 1. Direct-Transfer, One-Dilution and Two-Dilution Strategies Applied Across a Range of Starting Sample Dilutions. All volumes are in microliters (µl).

Sample Concentration (ng/µl)	Dilution Pathway	Volume into First Dilution	Volume of Diluent into First Dilution	Volume into Second Dilution	Volume of Diluent into Second Dilution	Volume into Final Plate	Volume of Diluent into Final Plate	Template DNA Amplified (ng)
0.01	Direct Transfer	0	0	0	0	17.5	0	0.175
0.02		0	0	0	0	17.5	0	0.35
0.03		0	0	0	0	17.5	0	0.525
0.04	Direct Transfer	0	0	0	0	17.5	0	0.70
0.05		0	0	0	0	17.5	0	0.875
0.075		0	0	0	0	13.33	4.17	1.0
0.1	Direct Transfer	0	0	0	0	10	7.5	1.0
0.25		0	0	0	0	4	13.5	1.0
0.5		0	0	0	0	2	15.5	1.0
0.6	One Dilution	0	0	2.38	22.62	17.5	0	1.0
0.7		0	0	2.04	22.96	17.5	0	1.0
0.8		0	0	2	26	17.5	0	1.0
1	One Dilution	0	0	2	33	17.5	0	1.0
2		0	0	2	68	17.5	0	1.0
4		0	0	2	138	17.5	0	1.0
6	Two Dilution	2	198	45	2.25	17.5	0	1.0
8		2	198	45	18	17.5	0	1.0
10		2	198	45	33.75	17.5	0	1.0
20	Two Dilution	2	198	45	112.5	17.5	0	1.0
30		2	198	38.1	161.9	17.5	0	1.0
50		2	198	22.86	177.14	17.5	0	1.0
75	Two Dilution	2	198	15.25	184.76	17.5	0	1.0
100		2	198	11.43	188.57	17.5	0	1.0
250		2	198	4.57	195.43	17.5	0	1.0
500	Two Dilution	2	198	2.29	197.71	17.5	0	1.0
600		2	198	16.67	183.33	2	15.5	1.0
750		2	198	2	198	13.33	4.17	1.0
1,000	Two Dilution	2	198	2	198	10	7.5	1.0
2,500		2	198	2	198	4	13.5	1.0
5,000		2	198	2	198	2	15.5	1.0
6,000	Two Dilution	2	198	2	198	2	15.5	1.2

7. Important Considerations

1. Always use aerosol-resistant tips to minimize the risk of cross-contamination.
2. All PowerPlex® System reagents must be thoroughly mixed by vortexing before placing them on the deck for a run. This includes manually prepared PCR amplification mix containing DNA polymerase; vigorous mixing will ensure homogeneity and will not harm performance. Mix as directed in the appropriate PowerPlex® System Technical Manual.
3. The calculations for PCR amplification mix preparation include excess reagent to ensure that enough PCR amplification mix is prepared for all amplification wells.
4. Pipetting techniques used must be calibrated to ensure accurate volume handling for both samples and amplification reagents. Calibration checks are performed as part of Promega standard installation service.
5. The Promega STR Normalization Manager™ Software has been integrated into methods for the Identity Automation™ DNA Normalization and PowerPlex® Setup on the Tecan Freedom EVO®, Beckman Coulter Biomek® 3000, Biomek® 4000, Biomek® NX^P and Biomek® FX^P platforms. For more information or to inquire about the potential to integrate this software onto other instruments, please visit: **www.promega.com/a/idautomation/overview.html**

8. Automated Processing Requirements for Full Workflow on the Biomek® 4000 Workstation

Full Workflow Requirements

The following is a list of Beckman Coulter parts and their corresponding part numbers that are required for full workflow automation on the Biomek® 4000 workstation (Differex™ System, DNA IQ™ System, Plexor® HY System and DNA Normalization and PowerPlex® Setup methods).

Description	Quantity	Beckman Coulter Part Number
Biomek® 4000 Basic Liquid Handling Package: Includes Biomek® 4000 Laboratory Automated Workstation, Biomek® Software Version 4.x with Windows® 7 Automation Controller, Monitor and Mouse, P200L Single Channel Pipette Tool with LLS, MP200 Eight Channel Pipette Tool, Accu Frame Autoframing tool, Tip Rack Holder (Qty 2), Labware Holder (Qty 3), Tool Holder, and Starter Kit with assorted BCI Labware, basic on-site training, basic application support and complete system installation	1	B22867
Biomek® 4000 Integration Deck	1	A95573
Module Accessory, Left Side, Biomek® 3000/4000	1	987264
Gripper Tool System, Biomek® 3000/4000: Includes Gripper Tool, Gripper Tool Rack, Calibration Plate, Disposal Option, Disposal Bags, and spare Gripper Pads	1	986129
Holder, Tip Rack	2	391910
Holder, Labware, Gray	2	609120
Standard Single-Position ALP	1	719357
Orbital Shaker ALP	1	379448

Additional Hardware, Software, Labware and Consumables Required

The following additional items are required for Identity Automation™ full workflow processing on a Biomek® 4000 workstation.

Additional Promega Hardware and Software Required for Full Workflow (Differential Extraction, DNA Purification, DNA Quantitation, Normalization and STR Analysis)

		Number Required for the Indicated Automated Method			
Cat.#	**Description**	**Differex™ Method**	**DNA IQ™ Method**	**Plexor® HY Method**	**PowerPlex® Normali-zation**
V6041	MagnaBot® Flat Top Magnetic Separation Device	1			
A2661	Heat Block Adapter	1			
V6761	V&P Scientific Heating Block (110V, for North America use only)		1		
V8151	MagnaBot® 96 Magnetic Separation Device		1		
Z3301	1/4 inch Foam Spacer		1		
V6741	Deep Well Heat Transfer Block		1		
DG1820	STR Normalization Manager™ Software				1
V1601	Four-Position Tube Holder			2	2
V8251	Plate Clamp 96 (for use with nonskirted plates and strip tubes)			1–2 (optional)[1]	1–2 (optional)[1]
V8261	Plate Stand (for use with nonskirted plates and strip tubes)			1–2 (optional)[1]	1–2 (optional)[1]

[1]The Plate Clamp 96 and Plate Stand are optional for securing nonskirted 96-well plates or MicroAmp® Strip Tubes on the worktable. The Applied Biosystems MicroAmp® 96-Well Base, Part Number N801-0531, or other base also may be suitable.

8. Automated Processing Requirements for Full Workflow on the Biomek® 4000 Workstation (continued)

Additional Consumables Required for Full Workflow Automation (Differential Extraction, DNA Purification, DNA Quantitation, Normalization and STR Analysis)

			Number Required (Per Plate Processed) for the Indicated Automated Method(s)			
Supplier	**Cat.#**	**Description**	**Differex™ Method**	**DNA IQ™ Method**	**Plexor® HY Method**	**PowerPlex® Normalization**
Beckman Coulter	717253	Biomek® AP96 P250 Tips, Pre-sterile with Barrier (case of 10 boxes)	1 box	2 boxes	<¼ box	<¼ box
Beckman Coulter	A21586	Biomek® P50 Tips, Pre-sterile with Barrier (case of 10 boxes)			1 box	1–3 boxes
Beckman Coulter	372786	Half Reservoir (case of 24)		1		1
Beckman Coulter	372788	Quarter Reservoir, Divided by Length (case of 48) (for preparing PCR amplification mix volumes of up to 20ml)	1	1		1[1]
Beckman Coulter	372790	Quarter Reservoir (case of 48)	2	1		1[1]
Promega	V6771	1.2ml, Round-Bottom Deep Well Plate		2		
Promega	V6781	2.2ml, Square-Well Deep Well Plate	2–3	1[2]		
Promega	V1391	Slicprep™ 96 Device	1	1[2]		
Promega	V6821	1.1ml, Square-Well, V-Bottom Deep Well Plate				2
User-selected		96-well PCR plate or strip tubes for PowerPlex® amplification				1
User-selected		96-well PCR plate or strip tubes for Plexor® HY amplification			1	
User-selected		96-well PCR plate or strip tubes for standard curve preparation			1	
User-selected		96-well PCR plate or strip tubes for purified DNA samples	1			
User-selected		1.5ml microcentrifuge tube			2	1[1]

[1]Only one tube or reservoir type is required per run; the type depends on the PCR amplification mix volume and user choice.

[2]The 2.2ml, Square Well Plate or SlicPrep™ 96 Device may be used; both are not required for the DNA IQ™ method. Samples processed using the Differex™ System do not require an additional plate for DNA purification using the DNA IQ™ System.