Instructions For Use

Biomek 4000

RNAdvance Blood Application

Total RNA Isolation from PAXgene Preserved Blood

B39494AA
October 2013

Beckman Coulter, Inc.
250 S. Kraemer Blvd.
Brea, CA 92821 U.S.A.

BECKMAN COULTER

Biomek 4000 RNAdvance Blood Application Instructions for Use
PN B39494AA (October 2013)

Find us on the World Wide Web at:
www.beckmancoulter.com

Made in USA

Revision History

This document applies to the latest software listed and higher versions. When a subsequent software version changes the information in this document, a new issue will be released.

AA/Initial Issue, October 2013
Biomek Software version 4.1 or higher

Safety Notice

Read all product manuals and consult with Beckman Coulter-trained personnel before attempting to operate instrument. Do not attempt to perform any procedure before carefully reading all instructions. Always follow product labeling and manufacturer's recommendations. If in doubt as to how to proceed in any situation, contact your Beckman Coulter Representative.

Alerts for Warning, Caution, Important, and Note

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT IMPORTANT is used for comments that add value to the step or procedure being performed. Following the advice in the Important adds benefit to the performance of a piece of equipment or to a process.

NOTE NOTE is used to call attention to notable information that should be followed during installation, use, or servicing of this equipment.

Contents

Illustrations

Tables

Introduction

Intended Use

The product is not intended or validated for use in the diagnosis of disease or other conditions.

Overview

This introductory section contains the following topics:

How to Use This Manual

Use this manual to configure, test and operate the RNAdvance Blood method. It contains information on:

- Instrument Requirements
- System Configuration Settings
- Method Operation

About This Manual

NOTE Screens in this manual may differ slightly from the screens in your RNAdvance Blood method.

The information in this *Instructions for Use* manual is organized as follows:

Chapter 1, Instrument Requirements
Contains deck configuration and general settings for operating the RNAdvance Blood method.

Chapter 2, Method Operation
Contains the settings and procedures for operating the RNAdvance Blood method.
The manual also includes a List of Abbreviations, a Glossary, and an Index.

Conventions

- Selections that appear on a screen are in **bold face**.
- Information that is to be typed (entered) is in ***bold face and italics*** font.
- The software path to a specific function or screen appears with the greater than (>) symbol between succeeding screen options, like this: Select **Control Panel > Network and Sharing**.
- Links to information in another part of the document for additional information are in blue. To access the linked information, select the blue text.

CHAPTER 1

Instrument Requirements

Instrument Requirements

Biomek 4000 with software version 4.1 or higher. Contact your Beckman Coulter Representative for the Method CD for your platform, call 1-800-369-0333, or email ***reagentsupport@beckman.com*** if your sales contact information is unknown.

Deck Configuration

See Figure 1.1 for the recommended deck layout.

Figure 1.1 Recommended Deck Layout

Table 1.1 Requirements for RNAdvance Blood Method

Type	Qty	Description	Part number
Tools	1	Gripper Tool	987371
	1	MP200 Eight-Tip Pipette Tool	986146
	1	MP1000 Eight-Tip Pipette Tool	A91112

Table 1.1 Requirements for RNAdvance Blood Method

Type	Qty	Description	Part number
ALPs	1	Liquid Waste ALP	B21398
	1	Disposal ALP	609751
	5	Labware Holder	609120
	4	Tip Rack Holder	391910
	1	Static Peltier Device	A93938
	1	Orbital Shaker	379448
	1	Peltier Adaptor Plate (96 well round bottom)	A49568
	1	Off Deck Tool Rack Kit (left)	B21395
Magnet Plate	1	Super Magnet Plate	A32782
Reservoirs	2	Reservoir Frame	372795
	2	Half Reservoir	372786
	3	Quarter Reservoir	372790
	1	IMReservoir96 (Fisher Scientific)	50-995-860
	1	Quarter Reservoir (divided by length)	372788
Consumables	3	Biomek Span-8 P1000 Tips, Pre-Sterile with Barrier	B01124
	1	Biomek AP96 P250 Tips, Pre-Sterile with Barrier	717253
	1	96 Well PCR Plate[a]	AB-2800
	1	RK Riplate Deepwell Plate (Worldwide Medical)	99181000

a. ABGene 2800 or equivalent.

System Configuration Settings

Customer Default Settings

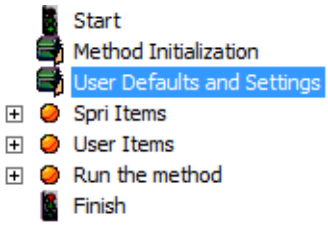
The system configuration settings section contains additional selections. Adjust the following fields as needed.

To adjust user defaults and settings

1 Open the Biomek Software.

2 Open the RNAdvance Blood method by clicking **File > Open.** The method opens and the method outline displays. See Figure 1.2.

Figure 1.2 Configure Method Outline



3 From the method outline click **User Defaults and Settings.** See Figure 1.2. The screen in Figure 1.3 displays.

Figure 1.3 RNAdvance Blood Customer Default Values

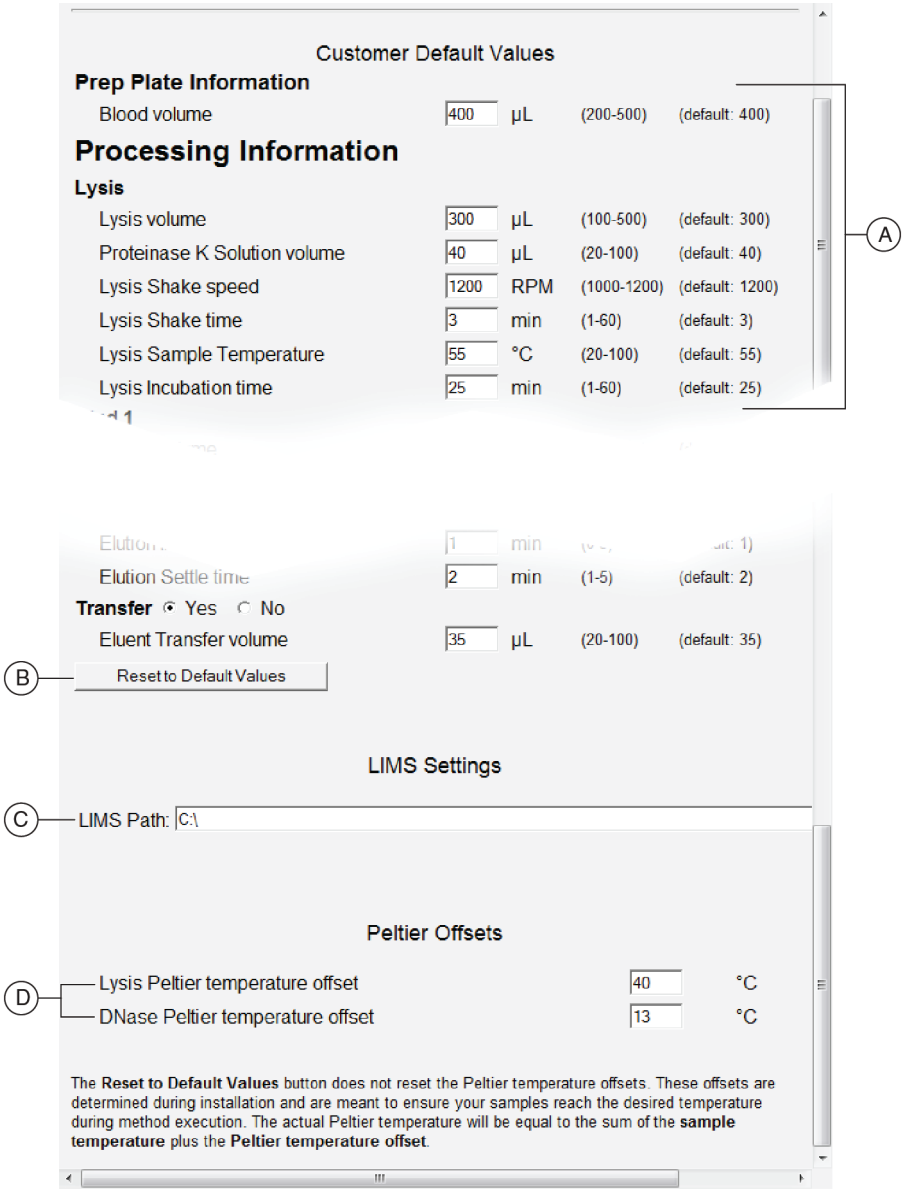


Table 1.2 RNAdvance Blood Customer Default Value Descriptions

Screen Element	Purpose	Do this
A Default Protocol Settings	These values can be adjusted for customer specified processes. These values will feed into the application interface as the default values.	Change values as needed based on your specific protocol.
B Reset to Default Values	Resets all values (except the Peltier Offset values), back to the factory default values.	Click the button to revert all values to the default values.
C LIMS Folder	File location to save Laboratory Information Management System (LIMS) data.	Enter the file path where you would like application data saved. For example: ***c:\Program Files\LIMS***
D Peltier Offsets	During installation the Peltier Offset temperature values are determined based on the particular Peltier installed. Only change these values when recommended by Beckman Coulter.	Do not change.

NOTE It is recommended that you save the new version of the method under a different name to preserve the original. This allows you to go back to the original as a starting point if needed.

IMPORTANT Changing default protocol settings may cause invalid method results. Beckman Coulter's warranty applies only for unchanged Customer Default Protocol Settings.

To restore the Beckman Coulter Agencourt Default settings, click the **Reset to Default Values** Button.

IMPORTANT The Reset to Default Values button does not reset the Peltier temperature offsets. These offsets are determined during installation and are meant to ensure your samples reach the desired temperature during method execution. The actual Peltier temperature is equal to the sum of the set temperature, plus the offset temperature. The formula would be as follows:

Sample Temp + Peltier Temp Offset = Actual Peltier Temp

For example, to determine the actual temperature of the Peltier for Lysis:

If the Lysis Temperature is set to 55°C, and the Lysis Peltier Temperature Offset is set to 40°C, the actual temperature of the Peltier would be:

55°C + 40°C = **95°C**

CHAPTER 2

Method Operation

Installation

Your Beckman Coulter Field Applications Scientist performs all Biomek and RNAdvance Blood Application installation and setup services. For service, see your Beckman Coulter Representative.

Operating the RNAdvance Blood Method

NOTE For more information about Agencourt RNAdvance Blood and the Agencourt RNAdvance Blood protocol, see www.beckmancoulter.com. The automated method has been optimized for automation and may differ from the manual protocol.

Starting the RNAdvance Blood Method and Establishing Default Protocol Settings

The RNAdvance Blood Method is shipped with a set of standard protocol values. But these values may need to be modified for your laboratory. These values populate the RNAdvance Blood method application.

To open and start the method

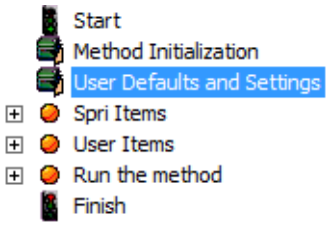
1 Open the Biomek software.

2 Open the RNAdvance Blood Project by clicking **Project > Open Project.**

3 Open the RNAdvance Blood method by clicking **File > Open**. Select **RNAdvanceMethod**.

NOTE Your method structure may look larger and may not have + and – icons to expand and collapse the structure. To change the appearance of the method structure, click **Options** > **Preferences** and then click **View** in the menu bar on the left. Use this option to change the appearance of the method structure.

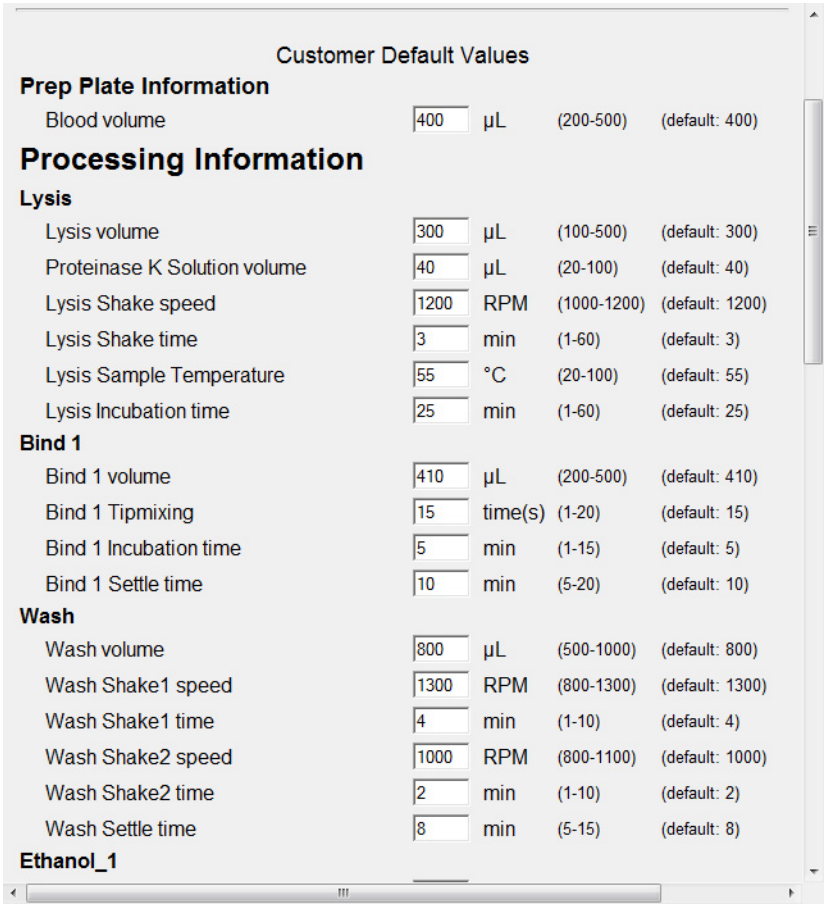
Figure 2.1 Method Outline



4 From the method outline, click **User Defaults and Settings**. See Figure 2.1. The User Defaults and Settings screen displays.

NOTE You can skip steps 4 and 5 if already configured previously.

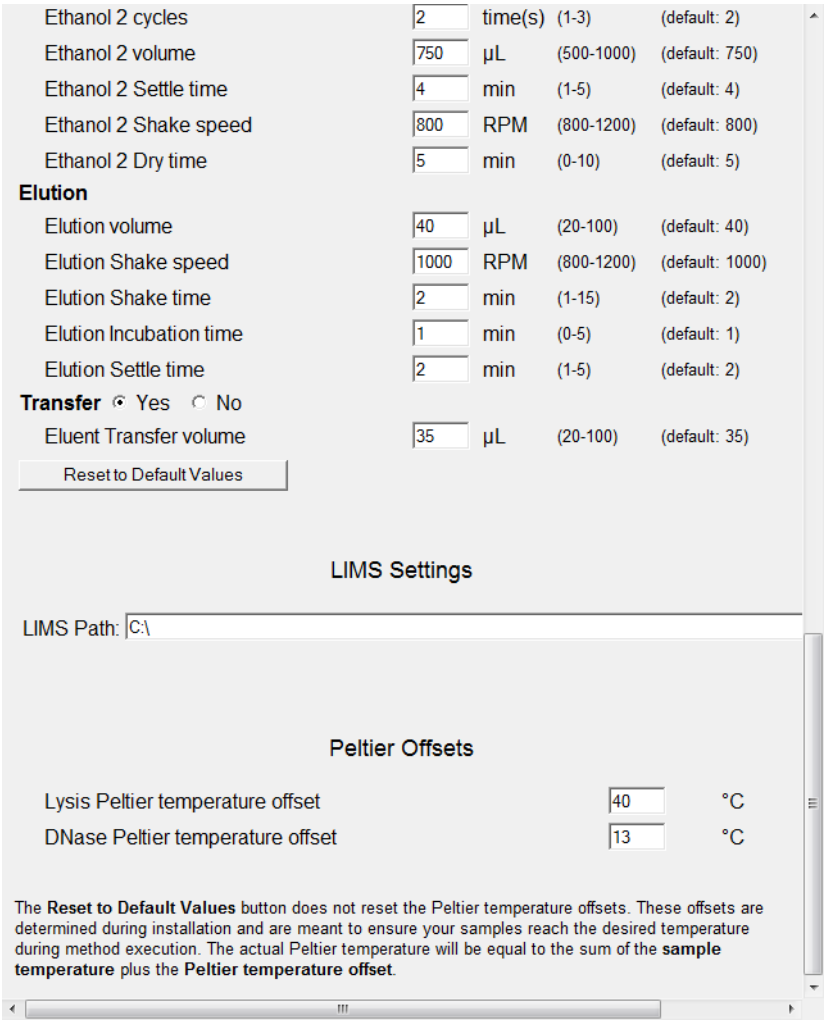
Figure 2.2 User Defaults and Settings, Top portion shown



Customer Default Values

Prep Plate Information				
Blood volume	400	µL	(200-500)	(default: 400)
Processing Information				
Lysis				
Lysis volume	300	µL	(100-500)	(default: 300)
Proteinase K Solution volume	40	µL	(20-100)	(default: 40)
Lysis Shake speed	1200	RPM	(1000-1200)	(default: 1200)
Lysis Shake time	3	min	(1-60)	(default: 3)
Lysis Sample Temperature	55	°C	(20-100)	(default: 55)
Lysis Incubation time	25	min	(1-60)	(default: 25)
Bind 1				
Bind 1 volume	410	µL	(200-500)	(default: 410)
Bind 1 Tipmixing	15	time(s)	(1-20)	(default: 15)
Bind 1 Incubation time	5	min	(1-15)	(default: 5)
Bind 1 Settle time	10	min	(5-20)	(default: 10)
Wash				
Wash volume	800	µL	(500-1000)	(default: 800)
Wash Shake1 speed	1300	RPM	(800-1300)	(default: 1300)
Wash Shake1 time	4	min	(1-10)	(default: 4)
Wash Shake2 speed	1000	RPM	(800-1100)	(default: 1000)
Wash Shake2 time	2	min	(1-10)	(default: 2)
Wash Settle time	8	min	(5-15)	(default: 8)
Ethanol_1				

Figure 2.3 Default GUI Values, Bottom portion shown



5 Change or ensure that each variable is the correct default value. These values can be changed at run time. For details on this screen see Table 1.2.

IMPORTANT Changing default protocol settings may cause invalid method results. Beckman Coulter's warranty applies only for unchanged Customer Default Protocol Settings.

To restore default settings, click the **Reset to Default Values** Button.

IMPORTANT The Reset to Default Values button does not reset the Peltier temperature offsets. These offsets are determined during installation and are meant to ensure your samples reach the desired temperature during method execution. The actual Peltier temperature is equal to the sum of the set temperature, plus the offset temperature. The formula would be as follows:

Sample Temp + Peltier Temp Offset = Actual Peltier Temp

For example, to determine the actual temperature of the Peltier for Lysis:

If the Lysis Temperature is set to 55°C, and the Lysis Peltier Temperature Offset is set to 40°C, the actual temperature of the Peltier would be:

55°C + 40°C = **95°C**

6 From the Biomek software, click **Execution** > **Run** 

.

Configuring the RNAdvance Blood Method

The graphical user interface appears and allows you to make some selections. To achieve optimal performance for different sample types, you may need to adjust some selections.

The RNAdvance Blood Method contains a graphical user interface to ensure proper processing of samples. This interface contains four tabs, three of which step you through the setup process until the method is ready to run.

The four tabs include:

Quick Start — Use this Tab to configure the sample and finals plates, and to track reagent lot numbers. See the Quick Start Tab on page 2-6.

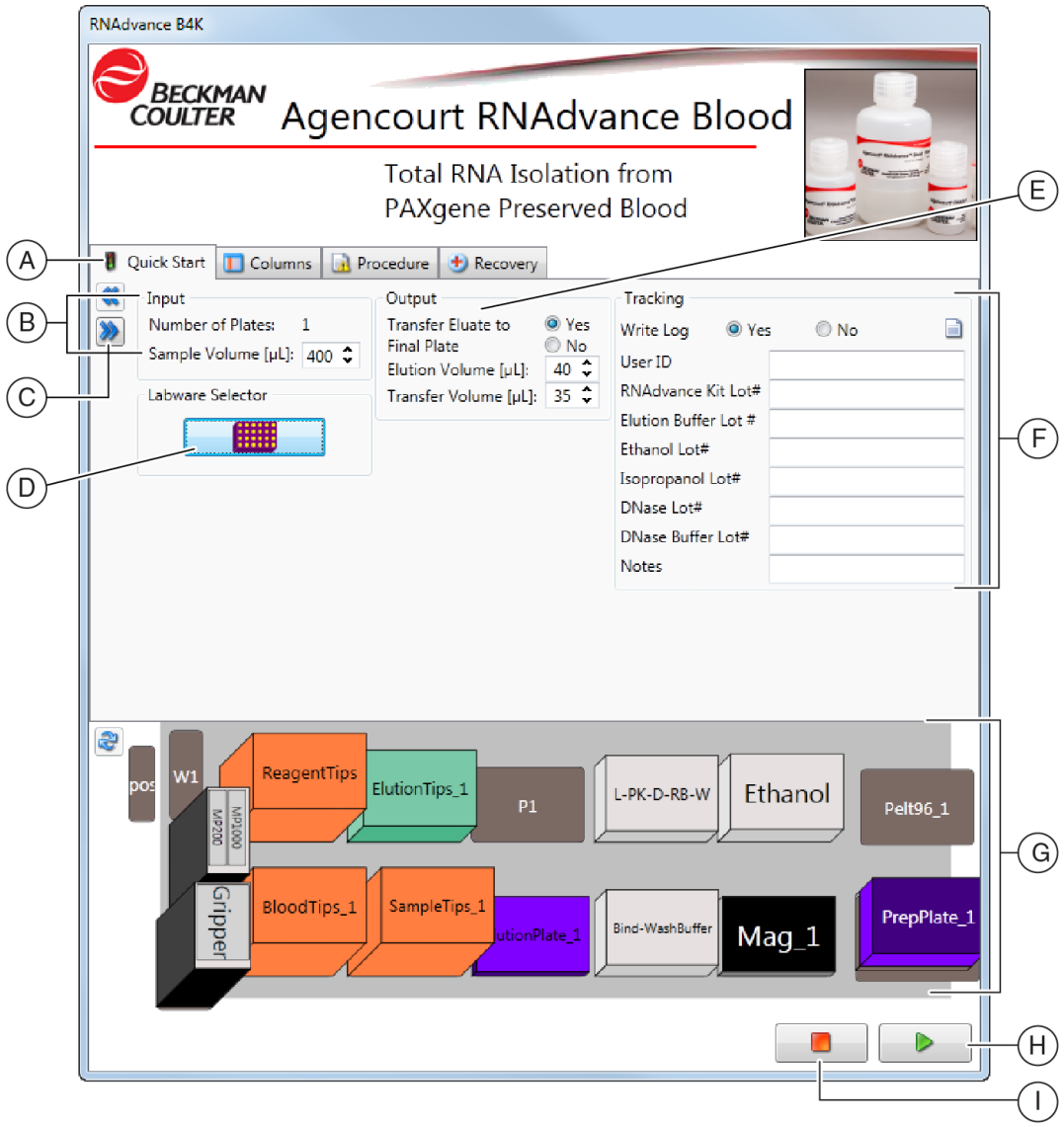
Columns — Use this Tab to define the number and location of active columns on the sample plates. See the Columns Tab on page 2-9.

Procedure — Use this Tab to configure the protocols. See the Procedure Tab on page 2-11.

Recovery — Use this Tab only if you need to restart the method and recover it at the point it was interrupted. See the Recovery Tab on page 2-18.

Quick Start Tab

Figure 2.4 Quick Start Tab



A. Quick Start Tab
B. Input Values
C. Forward Button
D. Labware Selector
E. Output Values
F. Tracking
G. Deck Display
H. Run Button
I. Abort Button

Table 2.1 Describing the RNAdvance Blood Primary Screen

Screen Element	Purpose	Do this	Notes
A Quick Start Tab	Allows you to define the sample inputs, outputs and whether to track the method.	Complete all fields.	N/A
B Input Values	Allows you to define the sample volume of the run.	Complete all fields.	N/A
C Forward Button	Allows you to advance to the next screen.	Click the button to advance.	Use this button or just click the next tab.
D Labware Selector	Allows you to determine the define the elution plate.	Select the desired elution plate type.	
E Output Values	Allows you to define the elution and transfer volumes.	Select whether to transfer to a final plate and then select the correct elution and (if transferring) transfer volumes.	Most laboratories choose to transfer the eluate to a new plate.
F Tracking	Allows you to track RNAdvance Blood reagents automatically by Lot numbers.	To track RNAdvance Blood reagents automatically, click Yes and record the User ID and the applicable lot numbers.	N/A
G Deck Display	Displays the correct deck setup based on your inputs.	Check the Deck Display against the Biomek 4000 Deck.	N/A
H Run Button	Allows you to start running the method.	Click the Run button.	This Button appears on all four tabs.
I Abort Button	Allows you to stop the method.	While the Application GUI is displayed, click this button to abort.	This Button appears on all four tabs.

To complete the Quick Start Tab Run Settings

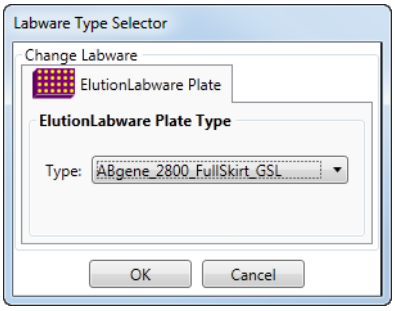
1 On the **Quick Start Tab** select the sample volume in µL.

2 Select whether to transfer the eluate to the final plate.

NOTE Most laboratories choose to transfer the eluate to a new plate.

3 Click the **Labware Selector**. The Labware Selector screen displays. See Figure 2.5.

Figure 2.5 Labware Selector



4 Select the Elution Labware Plate Type used in your RNAdvance Method. Click **OK**.

5 If transferring, select the Elution and Transfer Volume in µL. The default volume that Beckman Coulter recommends is 40 µL.

6 Select the Transfer Volume in µL. The default volume that Beckman Coulter recommends is 30 µL.

NOTE Beckman Coulter recommends a transfer volume of at least 10µL less than the elution volume to avoid any bead carryover.

7 Select whether the application should write a log file. If **Yes**, follow the steps below. If **No**, skip to step 8.

a. Enter the **User ID**.

b. Enter the **RNAdvance Kit Lot #**.

c. Enter the **Elution Buffer Lot #**.

d. Enter the **Ethanol Lot #**

e. Enter the **Isopropanol Lot #**.

f. Enter the **DNase Lot #**.

g. Enter the **DNase Buffer Lot #**.

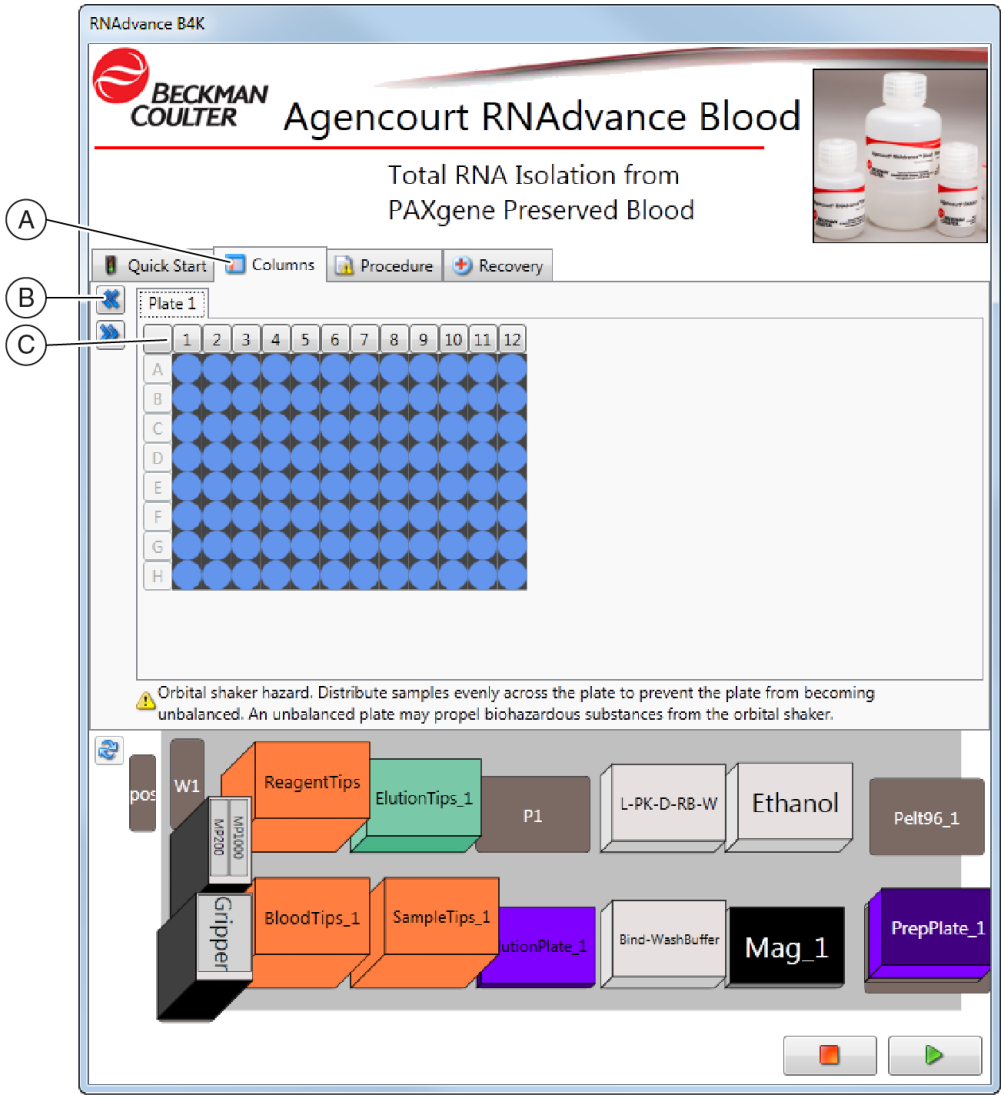
h. Enter **Notes** if needed.

NOTE If this feature is used, the RNAdvance Blood application will record a log file to the computer folder defined on the Configure Method screen. See Customer Default Settings on page 1-3 for information on how to access this screen.

8 Click the **Columns Tab** or the » button. The Columns Tab Setup Screen is displayed.

Columns Tab

Figure 2.6 Columns Tab showing Sample Plate Selection



A. Columns Tab
B. Back Button
C. 96-Well Plate Column

⚠ WARNING

Orbital shaker hazard. Distribute samples evenly across the plate to prevent the plate from becoming unbalanced. An unbalanced plate may propel hazardous substances from the orbital shaker. Refer to the *Biomek 4000 ALPs and Accessories Manual* for complete safety information.

Table 2.2 Describing the Columns Screen

Screen Element	Purpose	Do this	Notes
A Columns Tab	Allows you to define active columns.	Select columns in any order. Rows cannot be selected.	Any combination of individual columns can be made active, but cells cannot be made active as rows or as individual wells.
B Back Button	Allows you to return to the previous tab.	Select this button to return to the Quick Start Tab.	N/A
C 96-Well Plate	Allows you to visualize and select columns more easily.	Click on the heading buttons above the column to select and deselect columns to be run on the Biomek 4000.	Figure 2.6 shows all columns selected. Your application may be different.

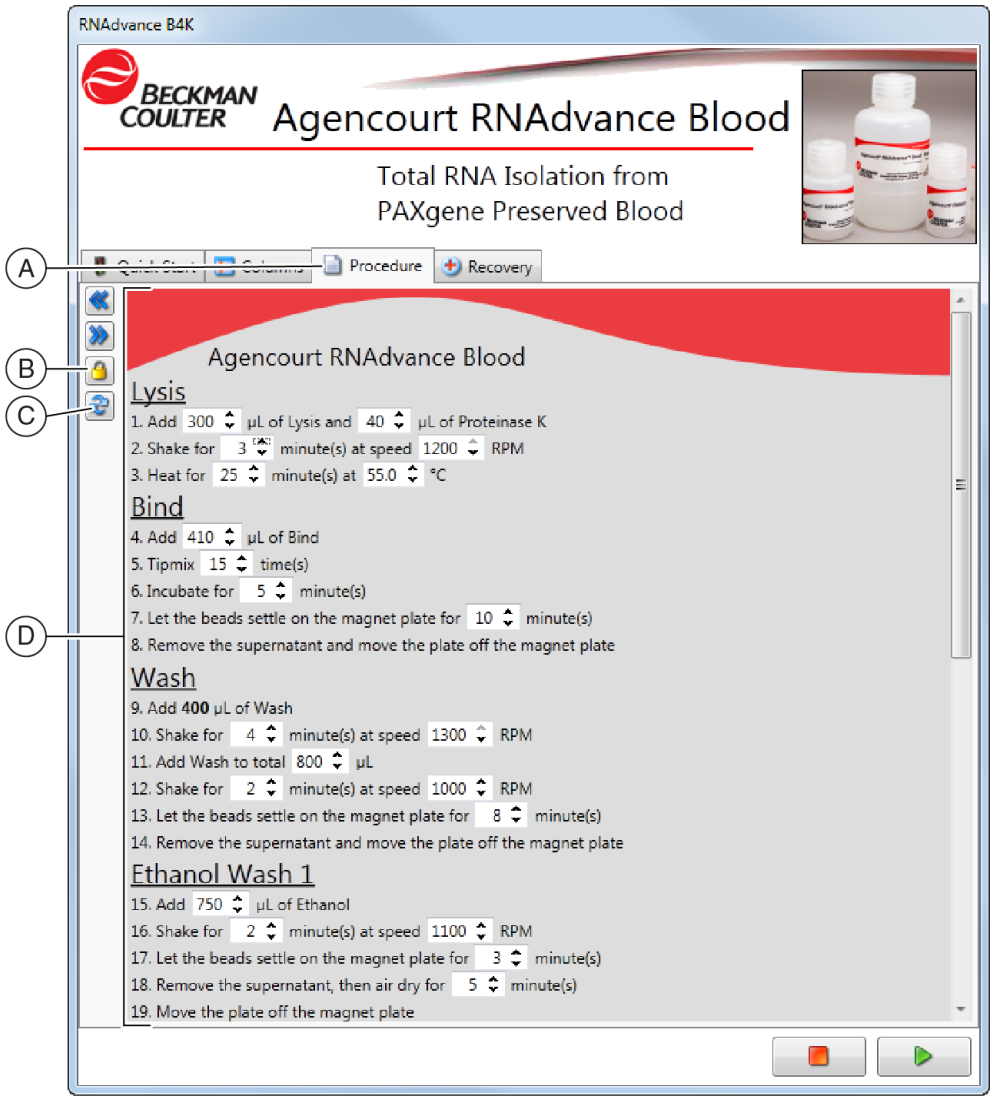
To complete the Columns Tab

1 On the **Columns Tab**, select the active columns by clicking the appropriate 96-Well Plate Column Heading. To highlight all or none of the cells, click the top-left Well Plate Column Heading. This acts as a toggle.

2 Click the **Procedure Tab** or the  button. The Procedure Tab Setup Screen displays.

Procedure Tab

Figure 2.7 Procedure Tab, Top portion shown



A. Procedure Tab
B. Lock/Unlock Button
C. Reset Default Values
D. Procedure Values

Table 2.3 Describing the Procedures Screen

Screen Element	Purpose	Do this	Notes
A Procedure Tab	Allows you to define and confirm all values in the RNAdvance Blood method.	Select all correct values. Changed values are highlighted in yellow.	The starting values are determined by the User Default and Settings step. See Customer Default Settings on page 1-3.
B Lock/Unlock Indicator	Indicates whether the method protocol inputs are locked with a password.	To lock the protocol values, click the lock tab and enter a password.	Only the values on the Procedures Tab are locked.
C Reset Default Values	Returns all values to the defaults established in the User Defaults and Settings step. See Customer Default Settings on page 1-3.	Click this button to return all values to the default values.	All manual entries will be lost without recourse.
D Procedure Values	Allows you to change values in the RNAdvance Blood method.	Select the correct procedure values. Changed values are highlighted in yellow.	For a list of all procedure value defaults, minimums and maximums, see Table 2.4.

The values for these steps originate from the Default Protocol Settings. You can access these settings from the User Defaults and Settings step. See Customer Default Settings on page 1-3.

Use this Tab to customize the automated protocol at runtime. Most RNAdvance Blood variables can be adjusted. All protocol settings are written to memory when the run starts and recalled for subsequent runs.

Table 2.4 lists all automated method steps and the default, minimum and maximum values.

Table 2.4 Procedure Default, Minimum and Maximum Values

Step	Step Description	Units	Default	Minimum	Maximum
Lysis					
1	Lysis Volume	µL	300	100	500
2	Proteinase K Solution Volume	µL	40	20	100
3	Lysis Shake speed on the Orbital Shaker	RPM	1200	1000	1200
	Lysis Shake time	minutes	3	1	60
4	Lysis Sample temperature[a]	°C	55	20	100
	Lysis Incubation time	minutes	25	1	60
Bind 1					
5	Bind 1 Volume	µL	410	200	500
6	Bind 1 Tipmixing	minutes	15	1	20
7	Bind 1 Incubation time	minutes	5	1	15
8	Bind 1 Settle time	minutes	10	5	20
Wash					

Table 2.4 Procedure Default, Minimum and Maximum Values *(Continued)*

Step	Step Description	Units	Default	Minimum	Maximum
9	Wash Volume	µL	800	500	1000
10	Wash Shake 1 speed on the Orbital Shaker	RPM	1300	800	1300
11	Wash Shake 1 time	minutes	4	1	10
12	Wash Shake 2 speed on the Orbital Shaker	RPM	1000	800	1100
13	Wash Shake 2 time	minutes	2	1	10
14	Wash Settle time	minutes	8	5	15
Ethanol 1					
15	Ethanol 1 Volume	µL	750	500	1000
16	Ethanol 1 Shake speed	RPM	1100	800	1200
17	Ethanol 1 Shake time	minutes	2	1	5
18	Ethanol 1 Settle time	minutes	3	1	10
19	Ethanol 1 Dry time	minutes	5	1	15
DNase					
17	DNase Solution Volume	µL	100	20	150
19	DNase Shake speed on the Orbital Shaker	RPM	1000	800	1200
	DNase Shake time	minutes	2	1	5
20	DNase Sample Temperature[b]	°C	37	20	100
	DNase Incubation time	minutes	15	1	20
Rebind with Bind 2					
21	Bind 2 Volume	µL	200	100	500
22	Bind 2 Shake Speed on the Orbital Shaker	RPM	1000	800	1200
	Bind 2 Shake time	minutes	8	1	10
23	Bind 2 Incubate time	minutes	5	1	10
24	Bind 2 Settle time	minutes	5	1	10
Ethanol 2					
25	Ethanol 2 Cycles	time(s)	2	1	3
26	Ethanol 2 Volume	µL	750	500	1000
27	Ethanol 2 Settle time	minutes	4	1	5
28	Ethanol 2 Shake Speed on the Orbital Shaker	RPM	800	800	1200
29	Ethanol 2 Dry time	minutes	5	0	10
Elution					
30	Elution volume	µL	40	20	100

Table 2.4 Procedure Default, Minimum and Maximum Values *(Continued)*

Step	Step Description	Units	Default	Minimum	Maximum
31	Elution Shake speed on the Orbital Shaker	RPM	1000	800	1200
32	Elution Shake time	minutes	2	1	15
33	Elution Incubation time	minutes	1	0	5
34	Elution Settle time	minutes	2	1	5
Transfer					
35	Eluent Transfer volume	µL	35	20	100

a.Set Lysis Sample Temperature to the desired Temperature in the well. See D Peltier Offsets in RNAdvance Blood Customer Default Values.

b.Set DNase Sample Temperature to the desired Sample Temperature in the well. See D Peltier Offsets in RNAdvance Blood Customer Default Values.

IMPORTANT Changing default protocol settings may cause undesirable results. Beckman Coulter's warranty applies only for unchanged Default Protocol Settings.

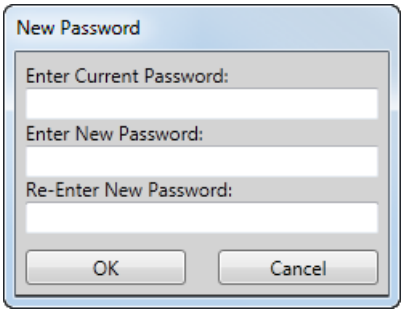
To complete the Procedures Tab

1 On the **Procedures Tab** change or ensure that each variable is correct. Use the up and down arrow keys to select values. A value with a yellow background indicates that the value has changed from the default values.

NOTE To change the default values so that the variables here populate according to custom values, see Customer Default Settings on page 1-3.

2 **Optional**: To lock the values of the procedure, which prevents inadvertent changes to variables, click the **Lock/Unlock Button** . The Lock/Unlock screen displays.

Figure 2.8 Lock/Unlock Password



NOTE For first-time use, leave the first field, **Enter Current Password**, blank.

a. Enter a new password.

b. Re-enter the password.

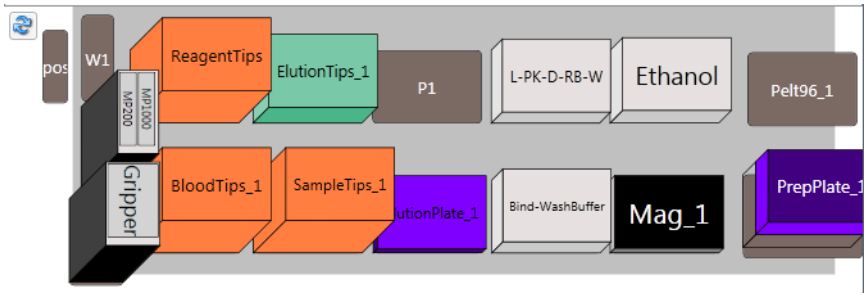
c. Click **OK**. All variables become non-editable. To change locked values, click the Lock/Unlock Button and enter the password.

NOTE If a password is forgotten, contact Reagent Support at ***reagentsupport@beckman.com***.

3 **Optional:** To reset all variables to the default values, click the Reset Default Values Button . All changed variables revert to default values.

Once the method begins running the software prompts you to set up reagents, tools and labware. See Table 2.5 for the sequence of this setup. Follow the prompts on the screen for actual values.

Figure 2.9 Instrument Setup



Running the RNAdvance Blood Method

IMPORTANT To ensure best possible outcomes, the RNAdvance Blood bottle containing Bind 1 must be shaken and mixed so that the beads are homogenous in solution. Run the procedure immediately following the placement and filling of RNAdvance Blood reagents. Failure to run the method immediately following the filling of reagents may cause the method to produce poor results.

After entering all protocol variables, positioning labware, and filling all reagent reservoirs, the RNAdvance Blood Method is ready to run.

To run the RNAdvance Blood Method

1 Confirm that all values in the user interface are correct for all RNAdvance Blood application variables. See Configuring the RNAdvance Blood Method.

2 From any of the user interface tabs, click the green run arrow .

Table 2.5 Reagent and Deck Setup Guide

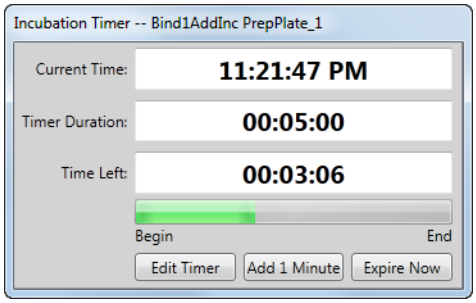
Step	Reagent/Tool/ Labware type	Labware Name	Notes
Mix Reagents	DNase	N/A	Nuclease Free Water DNase I buffer DNase I Use freshly prepared DNase I solution
	Ethanol	N/A	Use freshly prepared 70% ethanol
Put Tools on the Deck	Gripper	N/A	N/A
	MP1000	N/A	N/A
Put Labware on the Deck	p1000 Barrier Tips	ReagentTips SampleTips_1 BloodTips	N/A
	p200 Barrier Tips	ElutionTips_1	N/A
	96R Super Magnet Plate	Mag_1	N/A
	p1000 Barrier Tips	SampleTips_1	N/A
	96-well plate	ElutionPlate_1	N/A
	Half Modular Reservoir	Res-Bind-WashBuffer	Bind 1 in Section 1 Washbuffer in Section 2
	AGCT_96RitterDeep Square_GSL	PrepPlate1_1	Sample in selected columns 1-8
	RNABlood_Mod_Res	Res-LY-PK-DN-RB-EL	Lysis in section 1 PK in section 2 DNase in section 3 Bind2 in section 4 Elute in section 5 Sections 6 and 7 are empty
	IMReservoir96	Res-Ethanol	Ethanol in section 1

The Biomek instrument may appear to be idle at times, during which a timer appears. When this occurs an incubation time is being observed before the next step can be performed. See Figure 2.10.

Options for the timer include

- Editing the timer duration to the precise number of hours, minutes and seconds.
- Adding one minute to the elapsed time.
- Expiring the timer immediately.

Figure 2.10 Editing or Expiring the Timer



When the method ends, the tips are unloaded and the Biomek Start arrow returns to green.

Recovering from an Interrupted Method

There are several reasons a method may be interrupted:

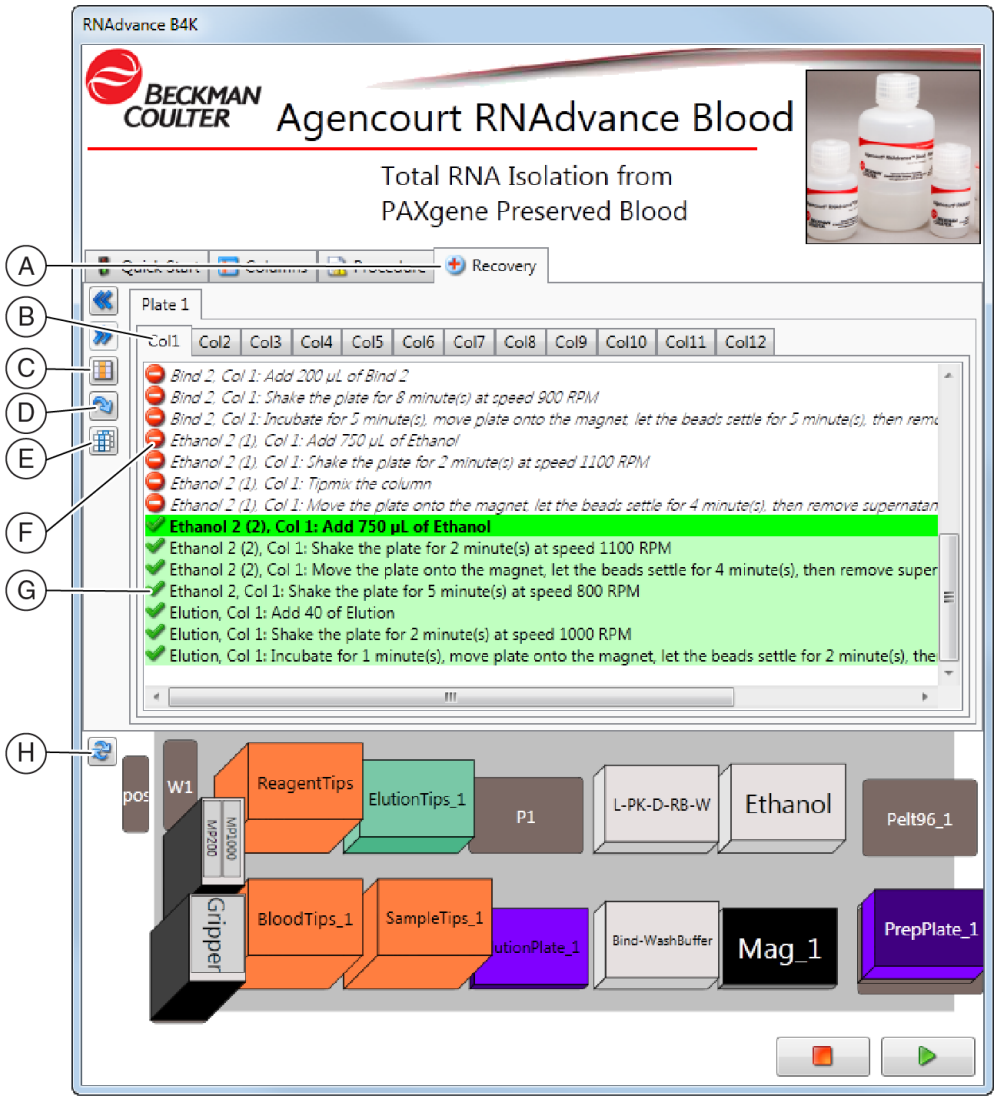
- Power failure
- Tips did not load properly
- Insufficient reagent
- Instrument crash

The RNAdvance Blood Method provides ways to recover or restart the method efficiently:

- Restart from the point where the method stopped.
- Reset all steps for the plate.
- Reset the deck: return all moveable labware to their starting positions.

Recovery Tab

Figure 2.11 Recovery Tab



A. Recovery Tab
B. Plate Column
C. Reset Current Selection
D. Reset Current Plate
E. Set All Sections of Current Plate to Match Current Selection
F. Finished Tasks
G. Unfinished Tasks
H. Reset the Deck

Table 2.6 Describing Recovery Tab

Screen Element	Purpose	Do this
A Recovery Tab	Allows you to see where the RNAdvance Blood Method was interrupted to more efficiently recover it.	Use this tab to reset the specific columns to be run again.
B Plate Column	Allows you to visualize the individual columns of the Plate.	Click the column tab to check the status of each column.
C Reset Current Selection	Allows you to restart the current column to the beginning of the method.	Click this button to restart the selected column to the beginning of the method.
D Reset Current Plate	.Allows you to restart the method from the beginning.	Click this button to restart the RNAdvance Blood method from the beginning.
E Set All Sections of Current Plate to Match Current Selection	Allows you to set all active columns to the state of the currently selected column.	Click this button to set all active columns to start from the state of the currently selected column.
F Finished Tasks	Cleared checkboxes show completed tasks by column.	To rerun a step for a column, check the appropriate checkbox.
G Unfinished Tasks	Checked checkboxes show unfinished tasks. The green bar indicates the task next in line.	To skip a step for a column, clear (uncheck) the appropriate checkbox.
H Reset the Deck	Moves all labware to the starting position.	Click this button to show how the deck should be reset.

To Recover the RNAdvance Blood Method

1 Address the source of the interruption.

2 Restart the RNAdvance Blood Method. The **Recovery** tab will be displayed.

3 Confirm that the state of the deck on the Biomek 4000 matches the Deck Display. If the deck on the Biomek 4000 does NOT match the Deck Display, correct the deck on the Biomek 4000 to match it by dragging labware in the Deck Display.

4 Click any Tasks that show finished, but need to be recovered.

For example, if you can see that column eight does not have Bind 1 reagent, but the Recovery Tab shows that it was added, click that task in the Column 8 tab to make it an unfinished task.

5 Click the **Run** button  .

Abbreviations

µL — microliter

ALP — Automated Labware Positioner

DNA — Deoxyribonucleic Acid

GUI — Graphical User Interface

mL — milliliter

LIMS — Laboratory Information Management System

m — meter

RNA — Ribonucleic Acid

SPRI — Solid Phase Reverse Immobilization

Vol — Volume

Glossary

assay — procedure of repeat testing to determine the assigned value for a given lot and level of control.

beads — in SPRI technology, magnetic, uniform microparticles.

dead volume — in an automated system, the amount or volume of a sample or reagent that cannot be picked up by the pipette tip.

elution buffer — buffer which elutes DNA from magnetic particles.

ethanol wash — washes the magnetic beads with 85% ethanol to remove contaminants.

gripper — a tool that includes mechanical fingers to grip labware. Gripper fingers grasp labware along the long side and move the labware from one location on the Biomek deck to another. The gripper contains two fingers: a double gripper located to the front and a single gripper located to the back of the tool.

PAXgene — Preservative and stabilizer for nucleic acids in whole blood.

reservoir — one-well labware receptacle holding liquid to be used in a method.

samples — PAXgene preserved human blood.

supernatant — a liquid lying above a solid residue after crystallization, precipitation, centrifugation, or other process.

Index

L

M

O

P

Q

R

S

T

U

W

Beckman Coulter, Inc.
Customer End User License Agreement

This Product contains software that is owned by Beckman Coulter, Inc. or its suppliers and is protected by United States and international copyright laws and international trade provisions. You must treat the software contained in this Product like any other copyrighted material. This license and your right to use the Product terminate automatically if you violate any part of this agreement.

This is a license agreement and not an agreement for sale. Beckman Coulter hereby licenses this Software to you under the following terms and conditions:

You May:

1. Use this software in the computer supplied to you by Beckman Coulter;
2. Maintain one copy of this software for backup purposes (the backup copy shall be supplied by Beckman Coulter);
3. After written notification to Beckman Coulter, transfer the entire Product to another person or entity, provided you retain no copies of the Product software and the transferee agrees to the terms of this license agreement.

You May Not:

1. Use, copy or transfer copies of this Software except as provided in this license agreement;
2. Alter, merge, modify or adapt this Software in any way including disassembling or decompiling;
3. Loan, rent, lease, or sublicense this Software or any copy.

Limited Warranty

Beckman Coulter warrants that the software will substantially conform to the published specifications for the Product in which it is contained, provided that it is used on the computer hardware and in the operating system environment for which it was designed. Should the media on which your software arrives prove defective, Beckman Coulter will replace said media free of charge within 90 days of delivery of the Product. This is your sole remedy for any breech of warranty for this software.

Except as specifically noted above, Beckman Coulter makes no warranty or representation, either expressed or implied, with respect to this software or its documentation including quality, performance, merchantability, or fitness for a particular purpose.

No Liability for Consequential Damages

In no event shall Beckman Coulter or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or other pecuniary loss) arising out of the use of or inability to use the Beckman Coulter Product software. Because some states do not allow the exclusion or limitation of liability for consequential damages, the above limitation might not apply to you.

General

This agreement constitutes the entire agreement between you and Beckman Coulter and supersedes any prior agreement concerning this Product software. It shall not be modified except by written agreement dated subsequent to the date of this agreement signed by an authorized Beckman Coulter representative. Beckman Coulter is not bound by any provision of any purchase order, receipt, acceptance, confirmation, correspondence, or otherwise, unless Beckman Coulter specifically agrees to the provision in writing. This agreement is governed by the laws of the State of Florida.

www.beckmancoulter.com