

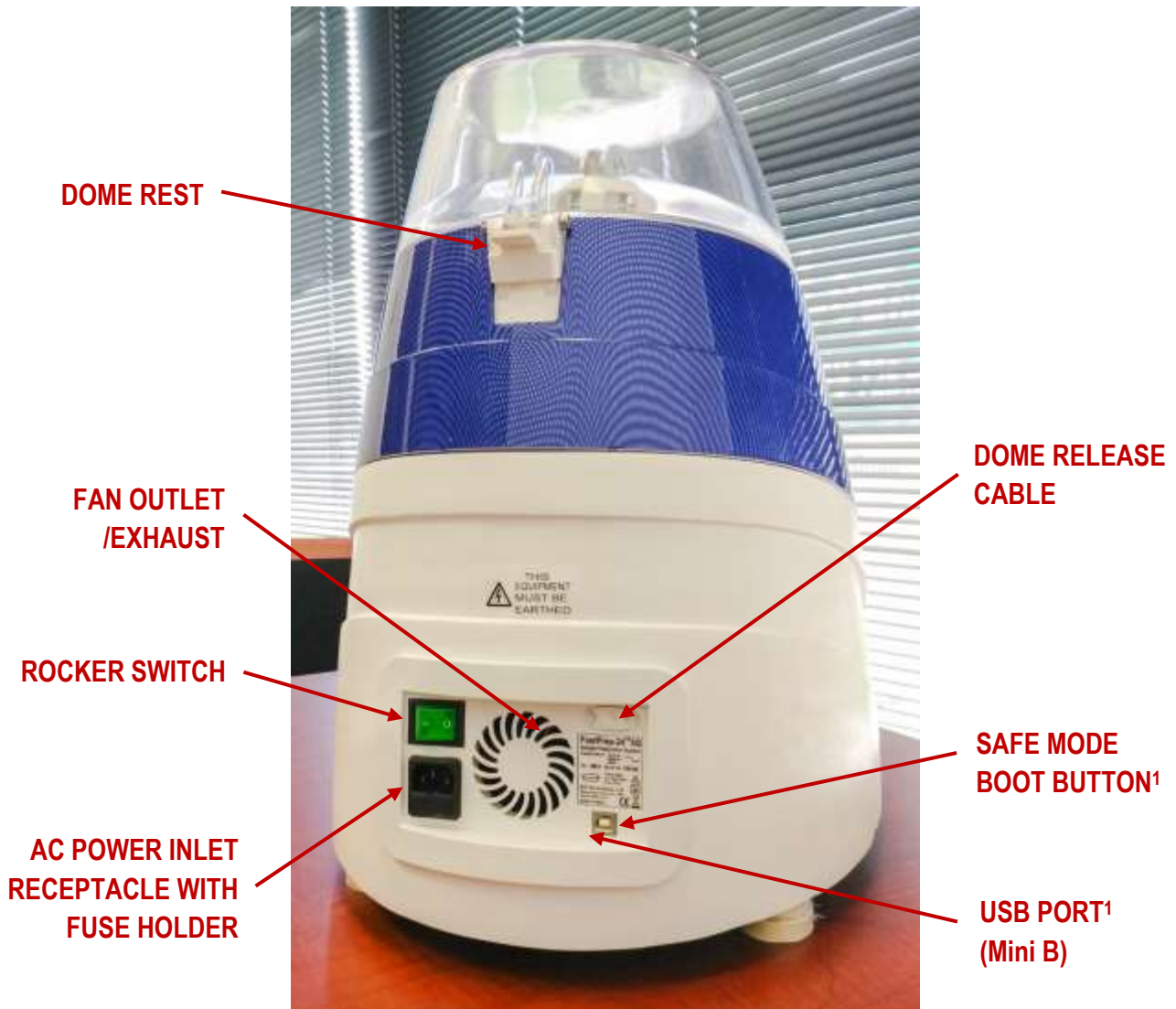
MP Biomedicals, LLC

FastPrep-24 5G Instruction Manual (v2.2)





**Figure I-1: Major Components of the FastPrep-24 5G (Front View)**



**Figure I-2: Major Components of the FastPrep-24 5G (Back Panel View)**

<sup>1</sup> Required for software update

## B. Principle of Operation

The FastPrep-24 5G is a high-speed, benchtop instrument intended for use in a sample preparation application where it is necessary to grind, lyse, or homogenize difficult and routine samples, including but not limited to, biological tissues, fluids and excretions; cell cultures; environmental samples; and other inorganic solid matrices.

The FastPrep-24 5G causes cellular disruption in samples by facilitating the collision of the sample with a sample specific lysing matrix, resulting in the mechanical disruption of the cellular membrane and release of the target analyte into the surrounding protective buffer. The FastPrep-24 5G is designed to maximize the quality and quantity of the yield through efficient cellular disruption, and the effective removal of inhibitors and removal or inhibition of nucleases and proteases.

The FastPrep-24 5G facilitates efficient and effective cellular lysis using Lysing Matrix tubes and a reciprocating motion. Individual samples are placed into individual tubes along with the appropriate lysing matrix; the tubes are sealed and disposable, minimizing the potential for contamination. The tubes are placed directly into the samples holder or adapter housed within the instrument, which produces a reciprocating motion that results in the collision of the sample with the lysing matrix. The rate of collision and energy of impact, critical factors in cellular disruption efficiency, are a function of the FastPrep-24 5G instrument speed setting and the specific gravity of the lysing matrix. The rate of collision is proportional to the speed, while the energy of impact is proportional to the square of the speed. The FastPrep-24 5G offers variable speed and time settings for optimal cellular disruption from a wide variety of sample types.

## B. Installation

The FastPrep-24 5G should be installed in an indoor location only, within an operating environment that meets all specifications as indicated. The FastPrep-24 5G should be placed on a clean, dry, stable surface within 1.2 m of an electrical outlet, and in a location that allows for a minimum of 5 cm space around the instrument base at all times to ensure proper ventilation.

1. Place the FastPrep-24 5G on a sturdy table or bench top.
2. Position the FastPrep-24 5G in its final installation position, ensuring easy access to the power cord and receptacle.
3. Disengage the 'Emergency Stop' by turning clockwise until it pops out. **(Device is shipped with 'Emergency Stop' engaged for safety and will not run until disengaged.)** ([Figure III-1](#))
4. To open the 'Dome', press ANY of the four options on the FastPrep-24 5G 'Home Screen' ([Figure V-1](#)) and press [OPEN]. Alternatively, pull the 'Dome Release Cable' on back plate of device to release the 'Dome Latch' ([Figure III-2](#)). Raise the 'Dome' gently until it reaches the rest position. For more on 'Dome' operation see ['Dome' Operation](#).
5. Remove any remaining foam from the chamber assembly.
6. Gently lower the 'Dome' to a closed position. Engage the 'Dome Latch' by pressing downward on the 'Dome' until the latch mechanism clicks.



***Figure III-1: Disengage 'Emergency Stop'***



***Figure III-2: 'Manual Dome Release Cable'***

### 1) *Connecting the Power*

The power cord connects to the back of the FastPrep-24 5G as seen in [Figure III-3](#). The FastPrep-24 5G can operate on either 100-120 VAC/60 Hz or 220-240 VAC/50 Hz power. Ensure that the main 'Rocker Switch' in the back of the instrument is in the OFF position. Connect the power cord to the instrument power fixture (below 'Rocker Switch') and then connect the other end to a compatible power supply outlet.



**Figure III-3: Power Cord Connection**

To ensure a secure connection, the FastPrep-24 5G should be located no more than 1.2 m from an appropriate electrical outlet.

**NOTE:** Ensure the 'Rocker Switch' (O/I), located on the rear panel, is in the OFF [O] position prior to connecting the power supply.

**IMPORTANT**

For safe use, ensure that the FastPrep-24 5G is properly grounded by connecting the power cord to an approved electrical outlet.

**2) Set-up, Controls and Functions****IMPORTANT**

To ensure safe operation and optimal performance of the FastPrep-24 5G instrument, read this Operations Manual before operating the instrument.

The FastPrep-24 5G instrument comes fully assembled and requires very little set-up once installed. Set-up of the FastPrep-24 5G, and control of the instrument during operation, is accomplished through the use of a 'Touch Screen' based central control panel as indicated in [Figure III-4](#).



**Figure III-4: FastPrep-24 5G Touch Screen Control Panel**



**INSTALLATION**

Users interface with the FastPrep-24 5G using a 'Touch Screen', which contains the different menu functions. The [main menu functions](#) of the FastPrep-24 5G are indicated below.

**FastPrep-24 5G Touch Screen Main Menu Functions**

Item Name	Operation	Function
<b>Display screen</b>	<i>Display</i>	Displays menus and programmed settings; counts down run times
<b>Recommended Programs</b>	<i>Press</i>	Allows user to access pre-defined program by sample type (i.e., plants, bacteria, environmental, human/animal, yeast & fungi, and feces)
<b>Saved Programs</b>	<i>Press</i>	Allows user to access saved custom programs
<b>Program Manually</b>	<i>Press</i>	Allows user to program custom parameters (i.e., speed, adapter, time, lysing matrix, quantity and unit, cycles and pause time)
<b>Admin Tools</b>	<i>Press</i>	Allows user to access administrative functions such as date/time set, export data, options, etc.

The FastPrep-24 5G has [custom programmable settings](#) as indicated:

**Variable Speed and Time Settings**

Item	Range	Increment
<b>Speed</b>	4.0 to 10.0 <sup>1</sup> m/s	0.5 m/s
<b>Adapter</b>	All FastPrep-24 Adapters	See adapter list <a href="#">(Appendix 5)</a>
<b>Time</b>	0 to 120 <sup>2</sup> sec	1 sec
<b>Lysing Matrix</b>	All MP Lysing Matrix Types	See Appendix 1
<b>Quantity</b>	Free entry	NA
<b>Quantity Unit</b>	mg, g, mL, cells	NA
<b>Cycles</b>	1 to 9	1
<b>Pause Time</b>	0 to 300 sec	1 sec

## SECTION IV: OPERATION

### A. Powering up the FastPrep-24 5G

Turn on the FastPrep-24 5G by switching the 'Rocker Switch' to the **[ON]** position ([Figure I-2](#)). The FastPrep-24 5G 'Touch Screen' will light up, and the instrument will display 2 splash screens of MP Biomedicals information, followed by the FastPrep-24 5G 'Home Screen' ([Figure V-1](#)).

**NOTE:**

Ensure that the 'Emergency Stop Button' has been pulled all the way out. The unit will not start if the 'Emergency Stop Button' is engaged ([Figure III-1](#)).

**IMPORTANT**

The samples and 'Sample Holder' must be secured properly before the instrument is operated. Failure to secure either could result in personal injury or damage to the instrument.

### B. 'Dome' Operation

The safety 'Dome' is opened and closed by an electromechanical latch assembly, which is operated via the 'Touch Screen' user interface.

1. To open the 'Dome', press any of the four options on the FastPrep-24 5G 'Home Screen'.
2. Press [OPEN]. The mechanism will activate and release the 'Dome Latch'.
3. Carefully lift the 'Dome' and slowly rotate backwards on its hinge until it contacts the 'Dome Rest'.
4. To close the 'Dome', carefully lower the 'Dome' back into the closed position and press firmly downward at the 'Dome Latch' until the 'Dome Latch' automatically engages.

- NOTE:** The [OPEN] button is available on all programming screens, but is not available on some Admin screens or when a run is in progress.
- NOTE:** An assay may be programmed but cannot be initiated with the 'Dome' open.
- NOTE:** In the event of power loss, or to open the 'Dome' manually, pull the 'Dome Release Cable' on the back panel of the device ([Figure III-2](#)).

### C. Loading and Securing the Samples, NEW Cam Lock Installation

The FastPrep-24 5G comes standard with a QuickPrep-3'Sample Holder'. The maximum sample load for a FastPrep-24 5G, using the QuickPrep-3'Sample Holder', is 24 each 2 mL tubes. Alternative 'Sample Holders' will have different sample load specifications; information on the alternative 'Sample Holders' available is provided in [Appendix 5](#) and information on the Lysing Matrices used with each 'Sample Holder' can be found in **Appendix 1**. For optimal performance, MP Biomedicals recommends the use of FastPrep® Purification Kits and Lysing Matrix with the FastPrep-24 5G instrument.



#### **IMPORTANT**

**ALL** 'Sample Holders' must be properly balanced for safe operation.

Samples are added to the lysing tubes as appropriate, with precautions taken when working with potentially infectious or hazardous substances. For convenience, MP Biomedicals offers many different Lysing Matrices for both challenging and routine sample types.



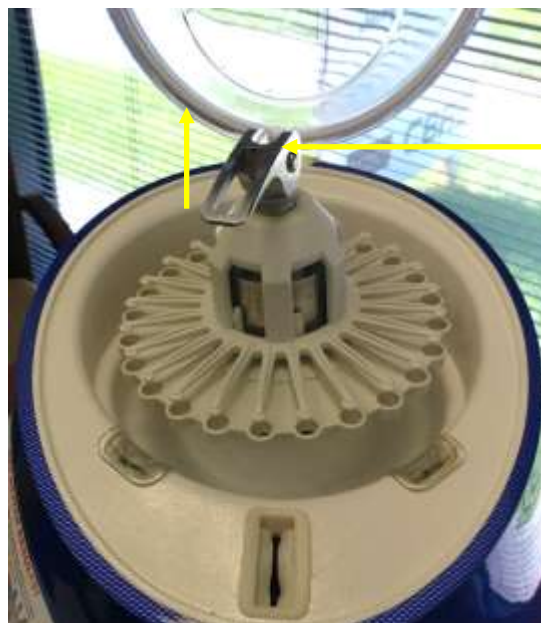
#### **IMPORTANT**

Use Standard Precautions when handling potentially infectious samples.

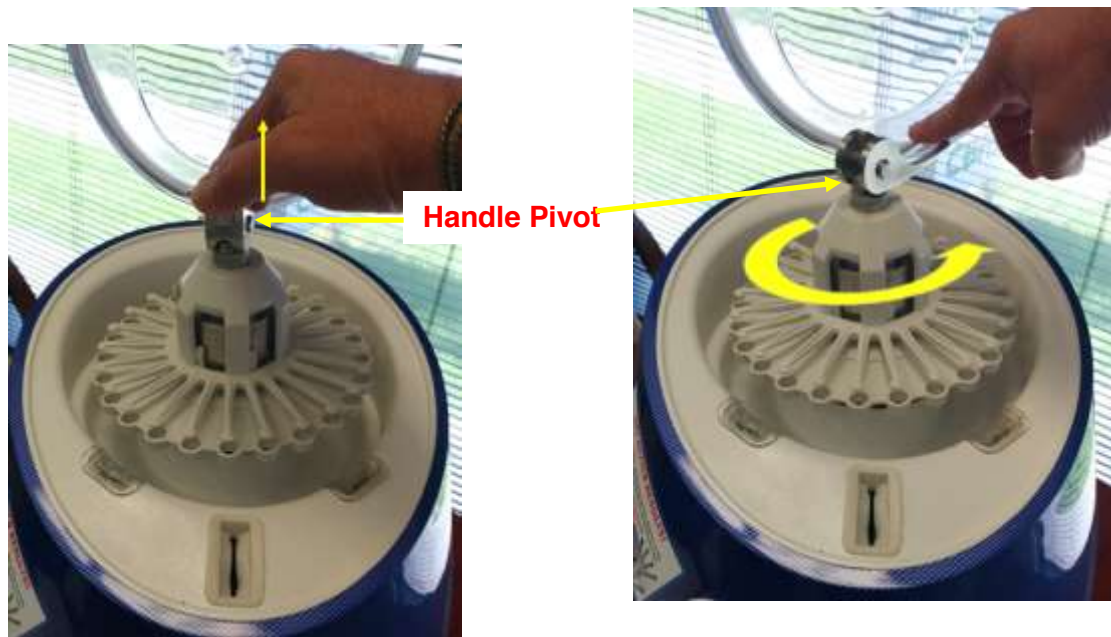
**NOTE:** *It is strongly recommended that only Lysing Matrix Tubes from MP Bio be used with the FastPrep-24 5G instrument.* While tubes from other suppliers may be compatible, MP Bio Lysing Matrix Tubes are designed with optimal dimensions and strength. Improper tube dimensions may result in lower lysing efficiency, increased chance of tube failure, and potential damage to 'Sample Holders.'

Once the samples are prepared, the samples are loaded onto the QuickPrep-3 Sample Holder. The QuickPrep-3 Sample Holder is then loaded onto the FastPrep-24 5G as follows:

1. At the FastPrep-24 5G 'Home Screen' [\(Figure V-1\)](#), press any of the 4 options.
2. Press the [OPEN] button to release the 'Dome Latch'.
3. Lift the 'Dome' and allow to rest in the open position.
4. Loosen the 'Cam Lock' by lifting handle upward and around the 'Handle Pivot', until the 'Cam Lock' is in the unlocked position [\(Figure IV-1.1\)](#). This requires moderate force and it may be necessary to steady the 'Sample Holder' with free hand. [\(Figure IV-1\)](#).
5. Rotate the 'Cam Lock', in the unlocked position, counter-clockwise to loosen until the threads disengage.



**CAM LOCK IN  
'LOCKED' POSITION**



*Cam Lock Unlocked Position*

**Figure IV-1: QuickPrep-3 and Cam Lock Removal**

6. Remove the 'Cam Lock' from device.
7. Remove the 'Sample Holder' assembly ([Figure IV-2](#)).

**CAM LOCK LOCKED POSITION**



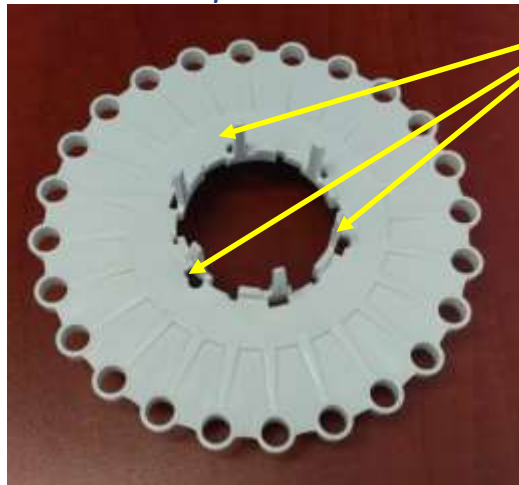
**CAM LOCK UNLOCKED POSITION**



**Figure IV-1.1: Cam Lock, Locked and Unlocked**



*Spoke Plate*



*Tube Deck*

**THREE (3)  
ALIGNMENT HOLES  
THAT ACCEPT  
LOCKING PIN (SEE  
STEP #11)**



*Assembled, Unlocked Position*

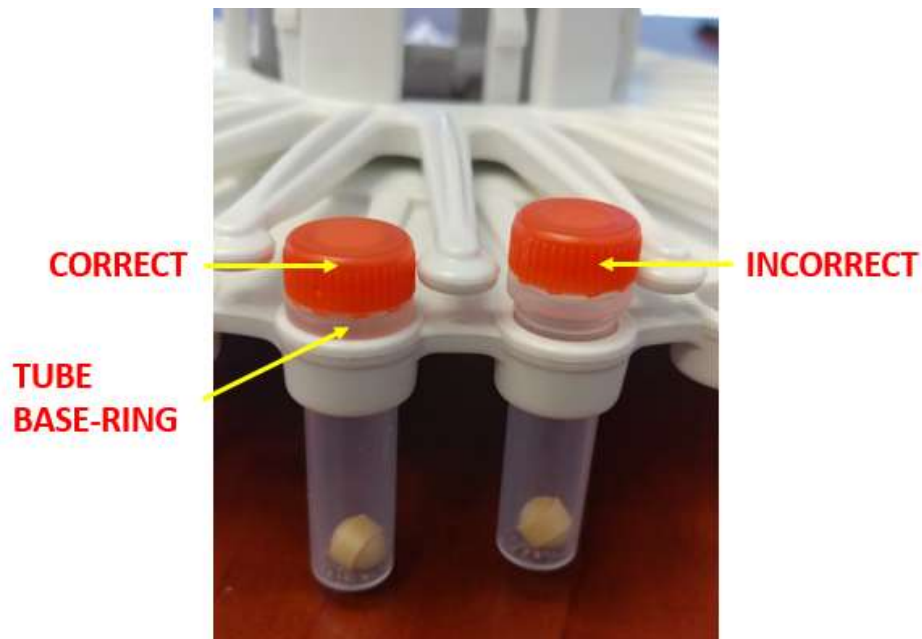
**Figure IV-2: QuickPrep-3 Assembly Components**

- Lift the 'Spoke Plate' slightly and rotate clockwise so that the retention spokes move away from the holes on the 'Tube Deck', leaving them open for loading ([Figure IV-3](#)).



**Figure IV-3: QuickPrep-3 Sample Loading Position**

- Load the sample tubes into the holes of the 'Tube Deck', and press so that they seat snugly and the 'Tube Base-Ring' contacts the 'Tube Deck' surface ([Figure IV-3.1](#)). For less than full loads, tubes must be balanced symmetrically.



**Figure IV-3.1: Tube Loading**

10. Lift the 'Spoke Plate' slightly again, and rotate it counter-clockwise so that the retention spokes are placed directly above each sample tube cap ([Figure IV-4](#)).



**Figure IV-4: Spoke Plate Placement**

11. When all the sample tubes have been loaded, place the 'Sample Holder' back into the FastPrep-24 5G. Align the locking pin of the 'Aluminum Three Step' with an alignment hole under the 'Sample Holder', ensuring its proper placement ([Figure IV-5](#)). **Rotate the 'Sample Holder' on the '3-Step' until the locking pin engages, no more than  $\frac{1}{3}$  turn, and the adapter will drop down on the pin ~5 mm ([Figure IV-6](#)).**



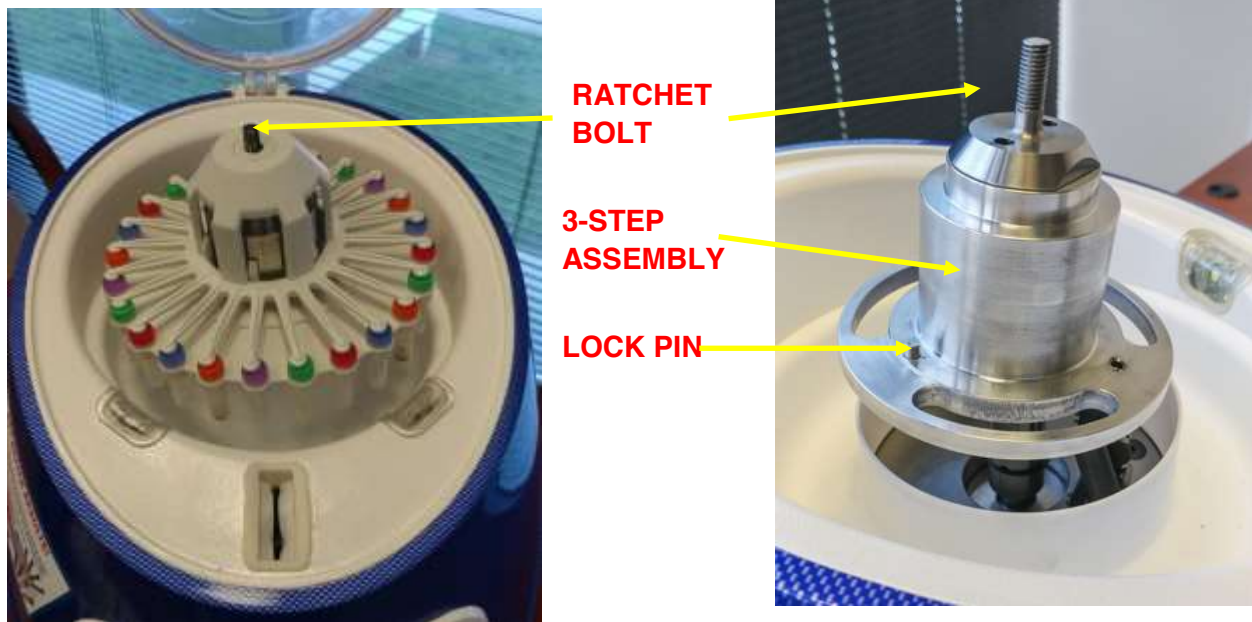
**WARNING**

Failure to properly position and secure the 'Sample Holder' within the FastPrep-24 5G may cause damage to the 'Sample Holder' and/or the instrument.

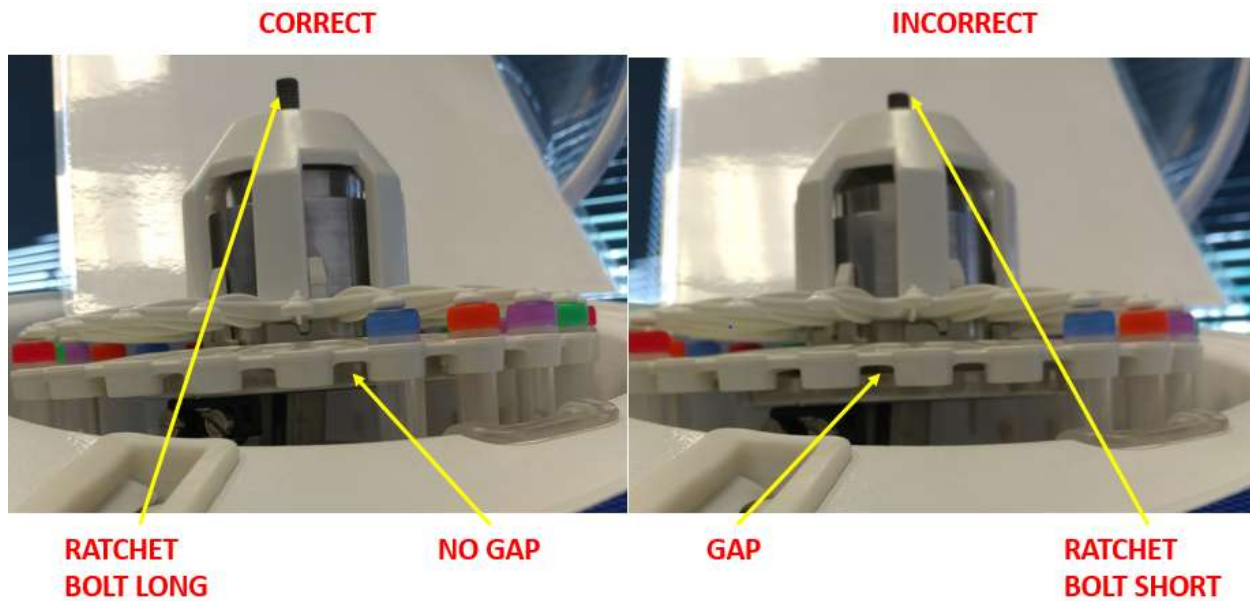
**NOTE:**

Refer to ([Figure IV-2](#)) and ([Figure IV-5](#)) for views of 'Alignment Holes' 'Three Step Assembly' and 'Locking Pin.'





**Figure IV-5: Sample Holder Placement**



**Figure IV-6: Rotate Sample Holder until Seated**

12. Place the 'Cam Lock' in the locked position onto the threaded 'Ratchet Bolt' and turn clockwise to engage and seat threads ([Figure IV-7](#)).



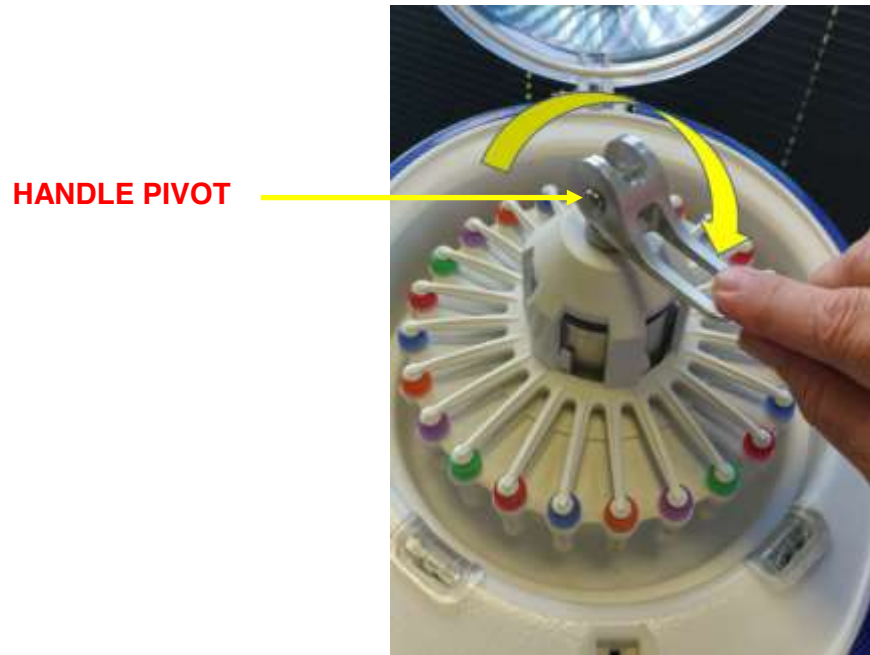
**Figure IV-7: Thread Cam Lock on Ratchet Bolt**

13. Rotate 'Cam Lock' clockwise to tighten. There should be no resistance and rotation should be done using one finger ([Figure IV-8](#)).



**Figure IV-8: Rotate Cam Lock Clockwise**

14. After ~ 3 complete clockwise revolutions, the 'Cam Lock' base will contact the 'Sample Holder' and resistance will be felt. Stop tightening at this point.
15. Lift the 'Cam Lock' handle straight up and around the 'Handle Pivot' to achieve the unlocked position. **(Figure IV-9) Make sure that the 'Cam Lock' DOES NOT ROTATE** around the 'Ratchet Bolt' while unlocking.



**Figure IV-9: Unlock Cam Lock, 180 Degrees about Pivot**

16. Rotate the unlocked 'Cam Lock' ~ 180 degrees (~ ½ turn) clockwise around the 'Ratchet Bolt' **(Figure IV-10) The degrees rotation may vary slightly and should be verified and adjusted if necessary, See Step #17.**



**Figure IV-10: Rotate Unlocked Cam Lock 180 Degrees**

17. Keep the 'Cam Lock' in the same position with respect to the 'Ratchet Bolt' and lift the handle upwards and around the 'Handle Pivot' to lock. Use free hand to steady the 'Sample Holder.' [\(Figure IV-11\)](#) As the handle is lifted, no resistance will be felt at first. **Resistance will be felt when the handle reaches vertical, or slightly past vertical. If resistance is felt before vertical, loosen the 'Cam Lock' slightly by turning a few degrees counterclockwise about the 'Ratchet Bolt.'** **Never turn 'Cam Lock' on 'Ratchet Bolt' in the locked position with resistance. Always unlock it before adjustments are made.**



#### WARNING

Tightening or loosening the 'Cam Lock' on the 'Ratchet Bolt' in the Locked Position with Resistance (Pressure) may cause damage to the 'Cam Lock' and/or the instrument.

#### NOTE:

It is recommended to steady the 'Sample Holder' with your free hand to allow a stronger grip to lock the 'Cam Lock' as well as to ensure no rotation around the 'Ratchet Bolt' occurs. See [\(Figure IV-11\)](#) and [\(Figure IV-12\)](#).



**Figure IV-11: Lift Handle Around Pivot**

18. Continue to pull the handle over the 'Handle Pivot' and press it downward, with force, until it stops. [\(Figure IV-12\)](#) It may be necessary to re-grip the handle.



**Figure IV-12: Press Handle Down Until Stop**

19. “Cam Lock” is now fully locked. [\(Figure IV-13\)](#) Tubes and ‘Sample Holder’ are properly positioned and secure.



**Figure IV-13: Cam Lock Fully Locked**

20. Close the ‘Dome’ and press down firmly until the ‘Dome Latch’ engages.

**NOTE:**

The FastPrep-24 5G ‘Dome’ contains an electromechanical lock mechanism. The ‘Dome Latch’ must be engaged for the instrument to operate.

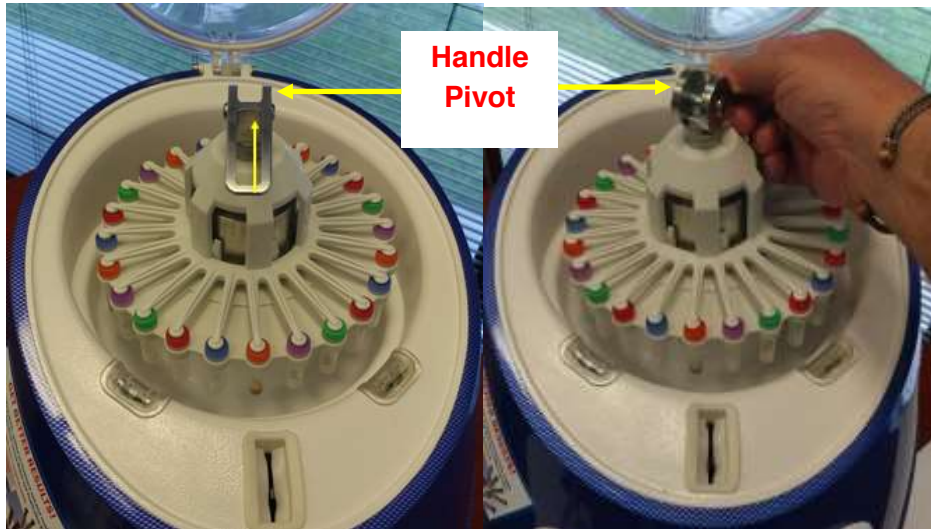
**WARNING**



When first installing the ‘Cam Lock’ system, carefully observe the instrument motion once the assay is started. If properly installed, ‘Cam Lock’ will remain fixed in place while the motor runs. If any movement of the ‘Cam Lock’ is observed (loosening, counterclockwise rotation) immediately engage the [\(EMERGENCY STOP BUTTON\)](#) and repeat the ‘Cam Lock’ installation procedure. Failure to stop the motor could result in personal injury or damage to the instrument

21. Once sample processing is complete, to remove ‘Sample Holder’ from instrument, first unlock ‘Cam Lock’ by lifting handle upward and around the

handle pivot ([Figure IV-14](#)), until the 'Cam Lock' is in the unlocked position ([Figure IV-15](#)). This requires moderate force. Steady the 'Sample Holder' with free hand for better grip and to eliminate any rotation around 'Ratchet Bolt.'



**Figure IV-14: Lift Cam Handle Upwards Figure IV-15 Cam Handle Unlocked**

22. Rotate the 'Cam Lock', in the unlocked position, counter-clockwise to loosen until the threads disengage ([Figure IV-16](#)). Remove 'Cam Lock' from device ([Figure IV-5](#)).



**Figure IV-16 Unscrew Unlocked Cam Lock**

23. 'Sample Holder' can now be removed from device.

#### D. Operating the FastPrep-24 5G

The FastPrep-24 5G is primarily operated using the FastPrep-24 5G custom software, accessed through the 'Touch Screen' interface. For details on the FastPrep-24 5G software operation, refer to [Section V: SOFTWARE](#).



#### IMPORTANT

The samples and 'Sample Holder' must be secured properly before the instrument is operated. Failure to do so could result in personal injury or damage to the instrument.

##### 1) 'Emergency Stop Button' Operation

The red 'Emergency Stop Button' ([Figure IV-17](#)), located directly below the 'Touch Screen' is a safety feature and can be used at any time. Engaging the 'Emergency Stop Button' will immediately cut all power directed to the FastPrep-24 5G instrument.

1. To engage the 'Emergency Stop Button', press the button firmly until it clicks. This will cut all power to the FastPrep-24 5G.
2. To restore power, firmly rotate the 'Emergency Stop Button' clockwise until it releases.





**Figure IV-17: 'Emergency Stop Button'**



**IMPORTANT**

Any unsaved programs will be lost when the 'Emergency Stop Button' is engaged.

**NOTE:**

The FastPrep-24 5G will not power up while the 'Emergency Stop Button' is engaged.

## SECTION V: SOFTWARE

### A. FastPrep-24 5G 'Touch Screen' Software Operation

#### 1) *Running a Recommended Program Assay:*

**NOTE:** It is recommended to allow a five (5) minute rest period between consecutive runs.

1. From the FastPrep-24 5G 'Home Screen', select [RECOMMENDED PROGRAMS] ([Figure V-1](#)). A list of Recommended Programs has been included in [Appendix 4](#).





**Figure V-1: FastPrep-24 5G Home Screen**

2. Press the appropriate category for the sample type (i.e., plants, bacteria, environmental, human/animal, yeast & fungi) ([Figure V-2](#)).





**Figure V-2: Recommended Programs, page 1 of 2**

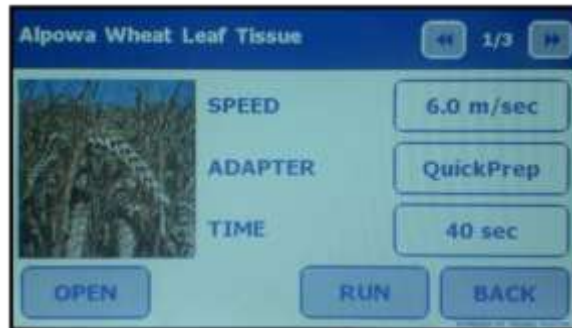
3. Scroll through the program listings using the [ / ] buttons located on the top right corner of the 'Touch Screen' ([Figure V-3](#)).



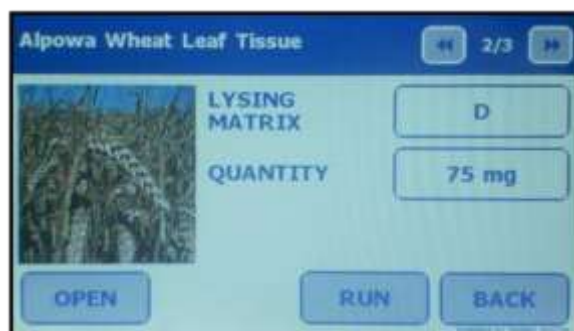
**Figure V-3: Plant Category, page 1 of 11**

4. Press the desired program button. The FastPrep-24 5G displays the program settings; use the [ / ] buttons located at the top right corner of the 'Touch Screen' to scroll through each page of parameters. ([Figures V-4a, V-4b and V-4c](#)).

**NOTE:** Recommended Programs are locked and cannot be edited. Program details are for viewing purposes only.



**Figure V-4a: Alpowa Wheat Leaf Tissue program, page 1 of 3**

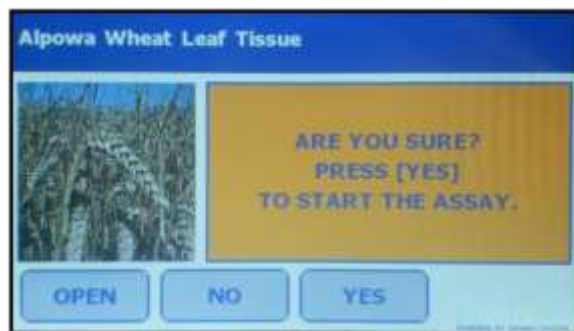


**Figure V-4b: Alpowia Wheat Leaf Tissue program, page 2 of 3**



**Figure V-4c: Alpowia Wheat Leaf Tissue program, page 3 of 3**

5. Press [RUN] to initiate the program. The FastPrep-24 5G prompts for confirmation of the program run ([Figure V-5](#)).



**Figure V-5: Confirmation Screen for Recommended Program Assay Run**

6. Press [YES] to initiate the assay run. The FP-24 5G starts the assay while displaying a countdown of the assay time remaining ([Figure V-6](#)).



**Figure V-6: FastPrep-24 5G ‘Touch Screen’ Countdown Display During Assay Run**

**NOTE:** Any assay may be aborted at any time during the assay run by pressing [STOP].

**NOTE:** If the Program contains multiple Cycles and Pauses, a separate countdown display will show during Pause time ([Figure V-7](#)).



**Figure V-7: FastPrep-24 5G ‘Touch Screen’ Countdown Display During Cycle Pause**

7. Upon completion of the assay, the FP-24 5G screen will display the message “ASSAY COMPLETED SUCCESSFULLY” ([Figure V-8](#)).



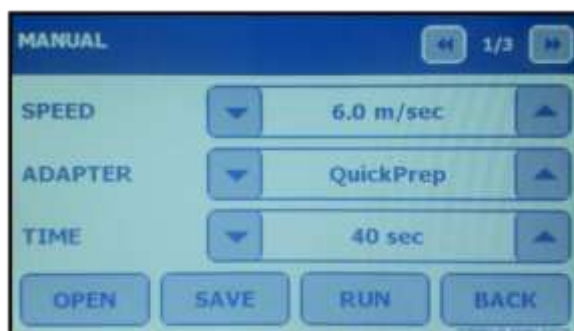
**Figure V-8: Confirmation Screen for Completion of Recommended Program Assay Run**

8. After an assay has been completed.
  - a. Press [OPEN] to release the dome lock mechanism and retrieve your samples.
  - b. Press [REPEAT] to run the same assay again.
  - c. Press [OK] to return to selected program main screen.

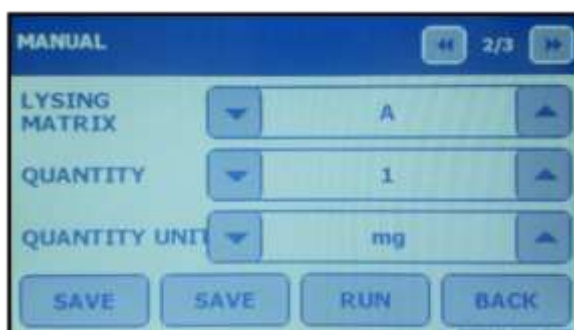
## **2) Manually Programming an Assay:**

The FastPrep-24 5G allows the end-user to program customized assays using variable speed, adapter, time, lysing matrix, quantity, quantity unit, cycles, and pause time parameters. To program a custom assay using the FastPrep-24 5G:

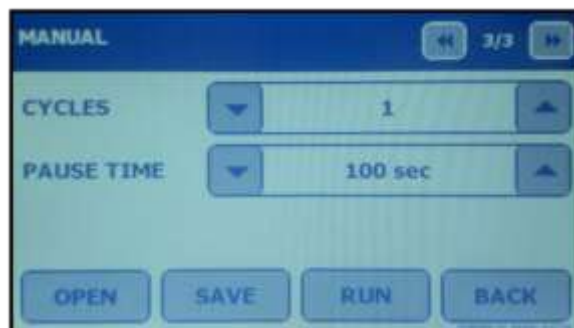
1. Press [PROGRAM MANUALLY] ([Figure V-1](#)) at the 'Home Screen'. The FP-24 5G Touch Screen will display the first of three total pages of programmable variables ([Figures V-9a](#), [V-9b](#) and [V-9c](#)).





**Figure V-9a: Manual Assay Parameters, page 1 of 3**





**Figure V-9b: Manual Assay Parameters, page 2 of 3**



**Figure V-9c: Manual Assay Parameters, page 3 of 3**

2. Press the up/down arrows [ / ] to program each parameter, using the scroll buttons in the top right corner of the screen to move from page to page. A complete list of parameters, parameter ranges, and default settings is found in the FastPrep-24 5G [programmable settings](#) in [Section 1](#).

**NOTE:** The up/down arrows [ / ] are equipped with a convenient Rapid Scroll Feature. Holding the arrows down will rapidly increase or decrease the desired setting. Pressing and immediately releasing the arrows will increase or decrease by one default setting per action.

**NOTE:** The Manual Program mode contains three (3) screens of programmable variables. Any assay parameters not programmed will run at default levels.

**NOTE:** Speed settings higher than 6.5 m/s are available only for the QuickPrep and QuickPrep-3 adapters. All other optional adapters are limited to a maximum speed of 6.5 m/s.

### IMPORTANT



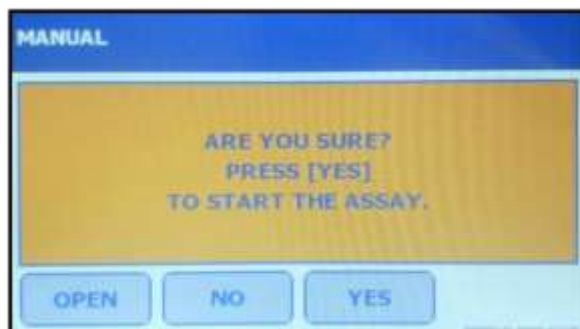
While the FastPrep-24 5G is capable of run times up to 120 seconds, ***it is highly recommended that any run time over 60 seconds be monitored very closely!*** Some Lysing Matrix combinations can generate significant heat after 60 seconds at high speeds and tube failure is possible.

3. Once all parameters are programmed, the end user can choose to save the assay for easy recall or to run the assay.

#### ***a) Running an Assay***

1. To run the program without saving, press [RUN] to initiate the program. The FastPrep-24 5G prompts “ARE YOU SURE? PRESS [YES] TO START THE ASSAY” for confirmation of the program run [\(Figure V-10\)](#).





**Figure V-10: Confirmation of Program Run**

2. Press [YES] to initiate the assay run. The FP-24 5G will start the assay while displaying a countdown of the assay time remaining ([Figure V-11](#)).



**Figure V-11: FastPrep-24 5G Countdown Display during Manual Assay Run**

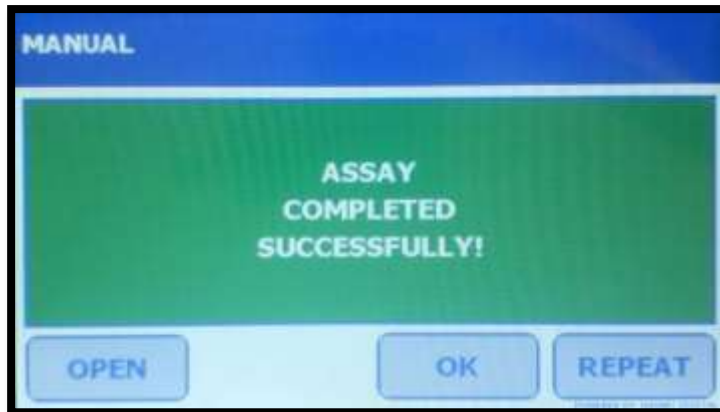
3. Upon completion of the assay, the FP-24 5G screen displays "ASSAY COMPLETED SUCCESSFULLY!" ([Figure V-12](#)).

**NOTE:**

All parameters entered in the [Program Manually] mode will be saved until the program is manually edited or the system is turned off. Once power is resumed, settings will revert to factory defaults.

4. After an assay has been completed ([Figure V-12](#)):
  - a. Press [OPEN] to release the dome lock mechanism and retrieve your samples.
  - b. Press [REPEAT] to run the same assay again.

- c. Press [SAVE] to save program.
- d. Press [OK] to return to selected program main screen.



**Figure V-12: Manual Assay Complete**

### ***b) Saving an Assay***

In the Program Manually mode, an assay may be saved immediately after programming ([Figure V-9](#)) or upon completion of the assay ([Figure V-12](#)). To save an assay:

1. Press [SAVE] at the bottom of screen. The FastPrep-24 5G will automatically display a keypad ([Figure V-13](#)).



**Figure V-13: FastPrep-24 5G Keypad**

2. Using the keypad, enter the program name. Alpha/numeric and punctuation is limited to 25 characters and spaces.

**NOTE:** Each saved assay must be given a unique name.

**NOTE:** The maximum number of saved programs allowable is twelve (12).

3. Press [ENTER] to save named program to memory. The FastPrep-24 5G prompts "ARE YOU SURE YOU WANT TO SAVE {ASSAY NAME}?". Press [YES] to save.
4. The FastPrep-24 5G displays "{ASSAY NAME} SAVED SUCCESSFULLY!".
5. Press [OK] to return to the Program Manually screen.
6. To access saved programs again, press [SAVED PROGRAMS] from the FastPrep-24 5G main menu.

**NOTE:** Each program must be saved under a unique name. Repeating a name will result in a program error "THE ASSAY WITH THE SAME NAME EXISTS. PLEASE CHANGE THE NAME OF ASSAY!". The name of the last saved program will remain on result line of the keypad entry screen until unit is powered off.

**NOTE:** A program cannot be edited once saved.





### **3) Using Saved Programs:**

The FastPrep-24 5G allows for up to twelve (12) programs to be created, named, and stored for later recall and use. To access the saved programs, press [SAVED PROGRAMS] from the FastPrep-24 5G 'Home Screen'. [\(Figure V-1\)](#)

#### **a) Retrieving a Saved Program**

To retrieve a previously saved program:

1. Press [SAVED PROGRAMS] from the FastPrep-24 5G 'Home Screen'.

2. Scroll through the pages using the [ / ] buttons until the program location is found ([Figure V-14](#)).
3. Press {ASSAY NAME} to open the program. View the program settings using the scroll [ / ] buttons located at the top right corner of the 'Touch Screen'.
4. Press [RUN] to start the program. The FastPrep-24 5G prompts, "ARE YOU SURE? PRESS [YES] TO START THE ASSAY".
5. Press [YES] to start the assay run.
6. When the run is completed, the FastPrep-24 5G displays "ASSAY COMPLETED SUCCESSFULLY!".





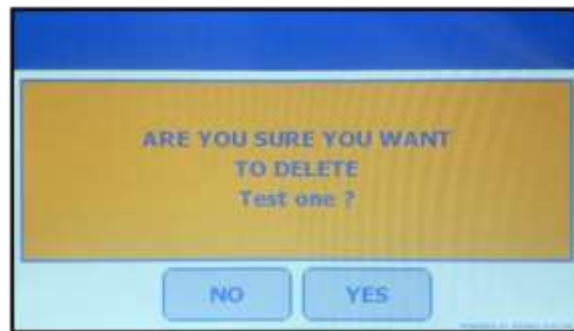
**Figure V-14: FastPrep-24 5G [SAVED PROGRAMS] Menu Listing**

7. After an assay has been completed:
  - a. Press [OPEN] to release the dome lock mechanism and retrieve your samples.
  - b. Press [REPEAT] to run the same assay again.
  - c. Press [OK] to return to selected program main screen.

**NOTE:** A program cannot be edited once saved.

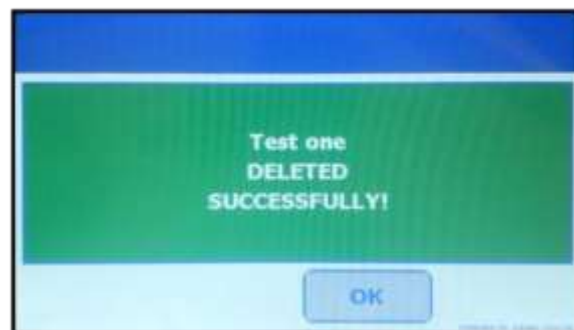
***b) Deleting a User-Programmed Assay:***

1. Press [SAVED PROGRAMS] from the FastPrep-24 5G 'Home Screen' ([Figure V-1](#)). Scroll through the pages using the scroll [ / ] buttons located at the top right corner of the 'Touch Screen'.
2. Press the {ASSAY NAME} to be deleted.
3. Press [DELETE] to delete program. The FastPrep-24 5G displays "ARE YOU SURE YOU WANT TO DELETE {ASSAY NAME}" to confirm deletion. Press [YES] to delete. ([Figure V-15](#))



**Figure V-15: Confirm Delete Program (Assay Name "Test one")**

4. Once the program is deleted, the FastPrep-24 5G displays "{ASSAY NAME} DELETED SUCCESSFULLY!". ([Figure V-16](#))



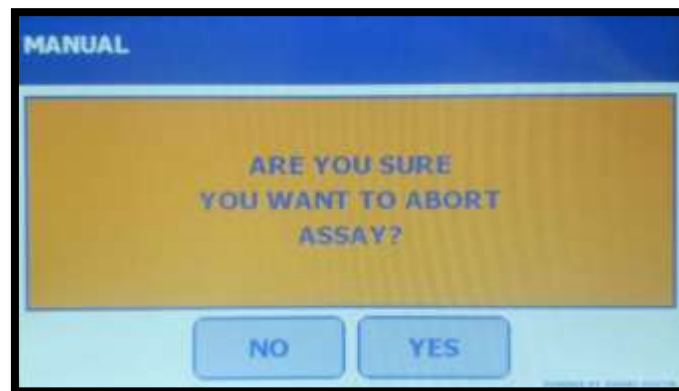
**Figure V-16: Program Deleted Successfully (Assay Name "Test one")**

5. Press [OK] to return to previous screen.

#### **4) Stopping Cycle in Progress:**

A cycle in progress on the FastPrep-24 5G can be stopped as needed. To stop a cycle in progress:

1. Press the [STOP] button located at the bottom of the screen ([Figure V-11](#)). The FastPrep-24 5G prompts “ARE YOU SURE YOU WANT TO ABORT ASSAY” ([Figure V-18](#)). Press the [YES] button to abort the assay, or press [NO] to return to the previous screen.



**Figure V-18: Assay Abort Screen**

2. If an assay is aborted, the FastPrep-24 5G displays a confirmation screen, prompting “SESSION IS ABORTED!” ([Figure V-19](#)). Press [OK] to return to the main menu or [OPEN] to open the Dome.



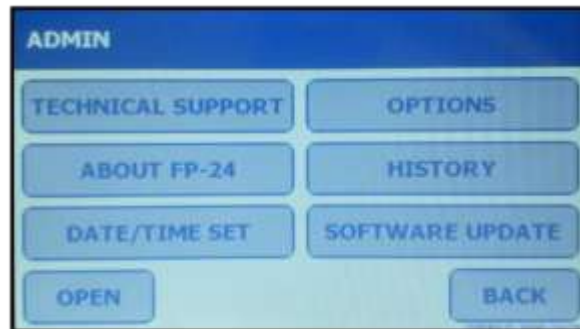
**Figure V-19: Confirmation Screen for Aborted Assay**

**NOTE:**

The FastPrep-24 5G can be stopped at any time in a cycle by pressing the RED emergency stop (E-stop) button.

## B. FastPrep-24 5G Administrative Functions

The FastPrep-24 5G allows end users to activate or deactivate system features, export data records, install software upgrade and access other onboard information. To access Administrative Functions [\(Figure V-20\)](#), press [ADMIN TOOLS] on the FastPrep-24 5G 'Home Screen'

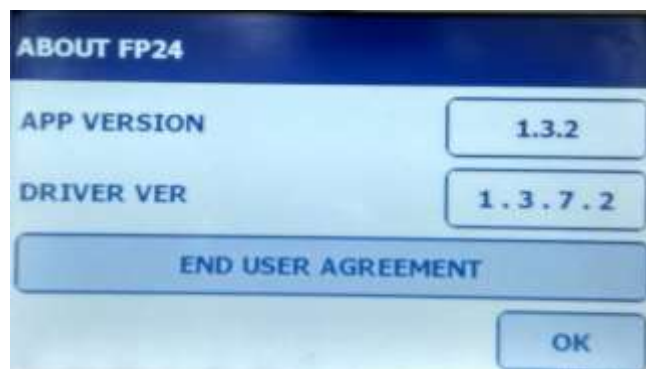


**Figure V-20: [ADMIN TOOLS] Main Menu**

### 1) About FastPrep-24 5G: System Versions and End-User Agreement

The 'About FP24' screen provides information on the FastPrep-24 5G, such as current software and firmware versions, as well as the end user agreement. To access information about the FastPrep-24

1. Press the [ABOUT FP24] button. The FP-24 5G will display the current application (software) and driver (firmware) versions. [\(Figure V-21\)](#).



**Figure V-21: About FastPrep-24 5G**

2. Press [END USER AGREEMENT] to view the MP Biomedicals End User Agreement ([Figure V-22](#)). Press the [UP]/[DOWN] buttons to scroll through the text.
3. Read and accept the terms of the End User Agreement by pressing [OK]. This will exit the 'End User Agreement' Screen and return to the About FP-24 screen.



**Figure V-22: End User Agreement**



4. Press [OK] to return to the 'Admin Tools' menu.

**NOTE:**

After accepting the terms, please register your New FastPrep-24 5G at [www.mpbio.com/registermynewfastprep](http://www.mpbio.com/registermynewfastprep) using a computer or smart phone.

## **2) Date /Time Set**

The 'Date / Time Set' menu allows the end-user to set the date and time on the instrument. The date is formatted using month, day and year, and the time is displayed using a 24 hour clock.

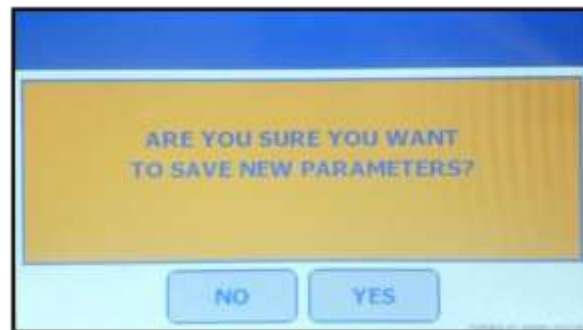
1. Press the [DATE/TIME SET] button on the 'Admin Tools' main menu.
2. Press the up/down arrows [ / ] to program each parameter ([Figure V-23](#)).





**Figure V-23: 'DATE/TIME SET' Screen**

3. Press [SAVE] to save changes. The FastPrep-24 5G prompts "ARE YOU SURE YOU WANT TO SAVE NEW PARAMETERS?". Press [YES] to save. ([Figure V-24](#)).



**Figure V-24: Confirm Parameters Screen**



4. The FP-24 5G will prompt "NEW PARAMETERS SAVED SUCCESSFULLY" ([Figure V-25](#)). Press [OK] to return to 'Admin Tools' menu.

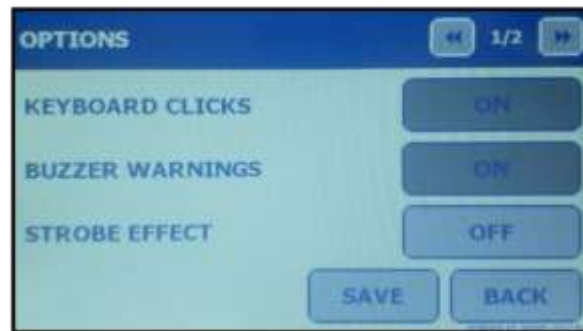


**Figure V-25: New Parameters Saved Successfully Screen**

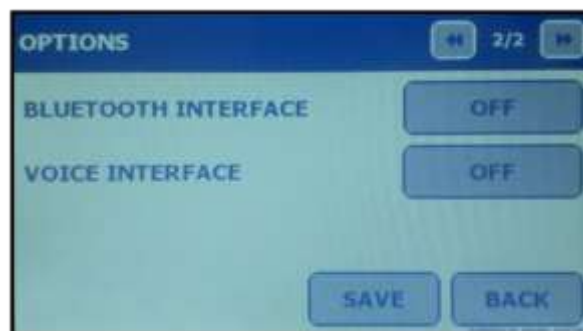
### 3) Optional Settings

Additional FastPrep-24 5G features, including the strobe light, keyboard clicks and voice interface, may be accessed through the 'Options' menu. To access the additional FP-24 features:

1. Press [OPTIONS] on the [ADMIN TOOLS] main menu.
2. Scroll through the pages using the [ / ] buttons located at the top right corner of the 'Touch Screen' ([Figure V-26a](#) and [V-26b](#)).



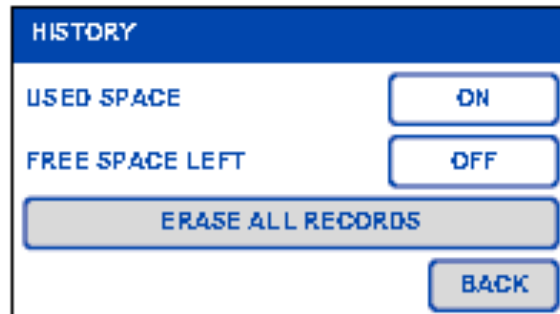
**Figure V-26a: Options Screen (Page 1)**



**Figure V-26b: Options Screen (Page 2)**

#### a) Keyboard Clicks

The 'Keyboard Clicks' feature controls the level of sound made when a button is pressed on the FastPrep-24 5G 'Touch Screen'. The Keyboard Clicks feature is controlled using a toggle button; press [ON] or [OFF] to turn on the sound or to silence respectively.



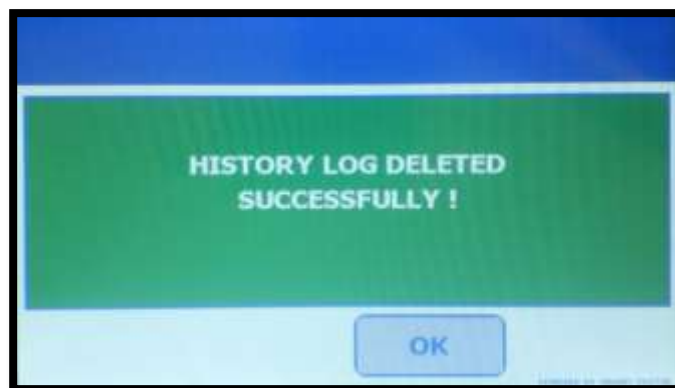
**Figure V-38: Purge File from History Screen**

9. The FP-24 5G prompts for “ARE YOU SURE YOU WANT TO DELETE HISTORY LOG?”. Press [YES] to erase [\(Figure V-39\)](#).



**Figure V-39: Purge Confirmation Screen**

10. The FP-24 5G prompts for “HISTORY LOG DELETED SUCCESSFULLY?”. Press [OK] to return to the previous screen [\(Figure V-40\)](#).



**Figure V-40: Purge Successful Screen**

## 6) Technical Support

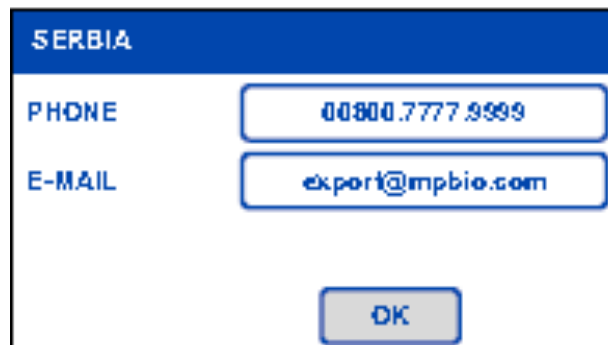
The FastPrep-24 5G contains onboard contact information for all of MP Biomedicals' technical services on a global basis; regions are listed by country. These technical services support all aspects of your FastPrep instrument, including technical support and supply of FastPrep-24 5G consumables such as Lysing Matrix Tubs and Purification kits. To access 'Technical Support':

1. Press [TECHNICAL SERVICE] from the 'Admin Tools' menu ([Figure V-21](#)).
2. Scroll through the different regions listed using the scroll buttons [ << / >> ] located at the top of the screen ([Figure V-41](#)).



**Figure V-41: Global Technical Services Listing by Country (page 1 of 4 shown)**

3. Press [COUNTRY NAME] to display the desired MP Biomedicals' Technical Services contact information, including email address and telephone number ([Figure V-42](#)).



**Figure V-42: Country Specific Service Listing**

## SECTION VI: MAINTENANCE

The FastPrep-24 5G is a robust instrument. Depending on the intensity and frequency of use certain wear parts and moving parts must be checked and are likely to require a more or less long-term replacement to keep the FastPrep-24 5G in good working condition

These are parts that undergo movement or friction..

Contact MP Biomedicals in the event of an instrument question or to subscribe for a yearly maintenance contract.

- An annual revision of your instrument
- Assistance within 48 hours
- An instrument always available
- A service tailored to your own needs

### A. Daily Maintenance

The FastPrep-24 5G should be cleaned following use of the instrument, or if a spill occurs during use. If a sample tube leaks during a cycle, the inside of the 'Dome' and surrounding areas may be contaminated. To clean the FastPrep-24 5G::

1. Turn the FastPrep-24 5G off and disconnect the power cord from the instrument.
2. Wipe the exterior of the FastPrep-24 5G with a paper towel moistened with 7X™ Cleaning Solution.
3. Dry the exterior of the FastPrep-24 5G with a dry paper towel.
4. Open the dome and remove the sample holder.
5. Remove the Bowl
6. Clean the sample holder and the bowl using 7X™ Cleaning Solution, rinse with distilled water, and dry using paper towels.
7. Wipe the interior of the FastPrep-24 5G with a paper towel moistened with 7X™ Cleaning Solution.
8. Wipe the interior of the FastPrep-24 5G with a damp paper towel to remove any residual 7X™ Cleaning Solution.
9. Dry the interior of the FastPrep-24 5G with a dry paper towel.
10. Replace the sample holder and **the bowl than close the dome**

### B. Yearly Maintenance

## APPENDIX 2: FASTPREP® LYSING MATRIX

## APPENDIX 2: MP FastPrep Lysing Matrix

Lysing matrices are critical components of the FastPrep System and help achieve optimal lysing performance. These MP FastPrep Lysing Matrix Tubes are prepared and dispensed under rigorous conditions, resulting in a premium product that is ready to use with confidence. All tubes are packaged in convenient dispensing boxes.

Matrices are available as part of MP FastPrep purification kits, as well as separately. A description of the MP FastPrep Lysing Matrix Tubes available from MP Biomedicals is included below.

MP FastPrep Lysing Matrix	Description	MP FastPrep Kit (when available)	Sample Type	Extraction Target
<b>A</b>	Contains garnet matrix and ¼-inch ceramic sphere with an orange cap: Use for all sample types except soil.	FastDNA™ Kit FastDNA™ Spin Kit	Animal Bacteria Yeast Fungi Plant	DNA RNA Proteins
<b>B</b>	Contains 0.1 mm silica spheres with a blue cap: Use for gram-positive and gram-negative bacteria.	FastRNA™ Pro Blue Kit FastRNA™ SPIN Kit for Microbes FastPROTEIN™ Blue Matrix	Bacteria Spores	DNA RNA Proteins
<b>C</b>	Contains 1-mm silica spheres with a red cap: Use for yeast and fungi.	FastRNA™ Pro Red Kit FastPROTEIN™ Red Matrix	Yeast Fungi	DNA RNA Proteins
<b>D</b>	Contains 1.4 mm ceramic spheres with a green cap: Use for plant and animal tissues.	FastDNA™ SPIN Kit for Plant and Animal Tissue FastRNA™ Pro Green Kit	Animal Plant	DNA RNA Proteins
<b>E</b>	Contains 1.4 mm ceramic spheres, 0.1 mm silica spheres, and one 4 mm glass bead with a purple cap: Use for soil and environmental samples.	FastDNA™ SPIN Kit for Soil FastRNA™ Pro Soil Kits	Soil Sediments Water Feces	DNA RNA Proteins
<b>F</b>	Contains 1.6 mm aluminum oxide particles and 1.6 mm silicon carbide particles with a white cap: Use for breaking tough, hard, or brittle cell membranes from plant, animal, bacteria, mold and other sample types.		Plant Animal Bacteria Molds Fungi Coral Emulsions Fixed Samples	DNA RNA Proteins
<b>G</b>	Contains 1.6 mm silicon carbide particles and 2 mm glass beads with a brown cap: Use for breaking tough, hard, or brittle cell membranes from yeast, fungi and spores, as well as brittle plant and animal tissue and more.		Plant Animal Yeast Fungi Spores	DNA RNA Proteins
<b>H</b>	Contains 2 mm glass beads and 2 mm yellow zirconium oxide beads with a yellow cap: Use for breaking tough, hard cells including organisms with dense exterior matrices.		Plant Animal Wood Seeds Very Dense Soils/Clays	DNA RNA Proteins

## APPENDIX 2: FASTPREP® LYSING MATRIX

			Bacterial Aggregates Whole Insects Ticks Ancient /Dried Samples	
I	Contains 2 mm yellow zirconia beads and a 4 mm black ceramic sphere with a clear cap: Use to break primarily by impaction, very tough, hard samples such as chitin exoskeletons and dry grinding of fungal spores		Seeds Very dense soils/clays Bacterial Aggregates Whole Insects Ticks Ancient /Dried Samples Dry Grinding Fungal Spores/Rusts	DNA RNA Proteins
J	Contains 2 mm yellow zirconia beads and 1.6 mm aluminum oxide particles and a pink cap: Use for high impaction and low shearing such as isolation of intact organelles and super-molecular structures from tissue, bacteria, molds, and fungi		Plant Animal Bacteria (gram +/-) Molds Fungi Coral Emulsions Fixed Samples Fungal Spores /Rusts	DNA RNA Proteins
K	Contains 0.8 mm zirconium silicate beads with a brown cap: Use to break spores, cysts and yeast polysaccharide capsules	GeneClean™ for Ancient DNA Kit	Non-viable Tissues Bone Preserved Tissues Animal By-Products Yeast Spores	DNA RNA Proteins
M	Contains one ¼" (6.35 mm) diameter zirconium oxide coated ceramic grinding sphere, and includes an extra bag of spheres so that 2 can be used to grind very difficult samples by impaction.		Tough Tissues Skeletal/Muscle Tissue Lung Tissue Heart Tissue Bone Tissue Seeds Spores	DNA RNA Proteins
S	Contains six (6) 1/8" (3.175 mm) diameter stainless steel beads: Use for RNA and protein extraction from difficult samples where lysis by impaction is preferable.		Tough Tissues Skeletal/Muscle Tissue Lung Tissue Heart Tissue Bone Tissue Seeds Spores	DNA RNA Proteins
SS	Contains fifty (50) ¼" (6.35 mm, 0.25 cal) stainless-steel grinding balls: Use for RNA extraction from difficult samples where lysis by impaction is preferable.		Tough Tissues Skeletal/Muscle Tissue Lung Tissue Heart Tissue Bone Tissue Seeds Spores	DNA RNA Proteins
Y	Contains 0.5 mm Ytria-Satbilized zirconium oxide spheres with a white cap: Use for yeast, fungi and algal samples.	FastRNA™ SPIN Kit for Yeast	Yeast Fungi Algae	DNA RNA Proteins
Z	Contains 2.0 mm Ytria-Satbilized zirconium oxide spheres with a natural (clear) cap: Use for tough plant and animal samples.		Animal Plant	DNA RNA Proteins

## APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

### APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

Category: Bacteria							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
<i>Listeria monocytogenes</i> cells	6.0	QuickPrep-3 / QuickPrep	30	3	300	B	10 <sup>9</sup> cells
<i>Streptococcus pyogenes</i> cells	6.0	QuickPrep-3 / QuickPrep	20	1	N/A	B	10 <sup>9</sup> cells
<i>Streptococcus mutans</i> cells	6.0	QuickPrep-3 / QuickPrep	30	1	N/A	B	10 <sup>9</sup> cells
<i>Staphylococcus aureus</i> cells	6.0	QuickPrep-3 / QuickPrep	40	2	300	B	10 <sup>8</sup> cells
<i>Photobacterium luminescens</i> cells	6.0	QuickPrep-3 / QuickPrep	30	2	300	B	10 <sup>9</sup> cells
<i>Escherichia coli</i> cells	6.0	QuickPrep-3 / QuickPrep	30	1	N/A	B	10 <sup>8</sup> cells
<i>Mycobacterium tuberculosis</i> cells	6.0	QuickPrep-3 / QuickPrep	45	2	300	B	10 <sup>8</sup> cells
<i>Lactococcus lactis</i> cells	6.0	QuickPrep-3 / QuickPrep	30	3	300	B	10 <sup>8</sup> cells
Category: Environmental							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
Sediment - Soil / Rocks	5.5	QuickPrep-3 / QuickPrep	30	2	300	E	50
Soil - Sandy Sample	4.0	QuickPrep-3 / QuickPrep	30	4	300	E	50
Soil - Litter	5.5	QuickPrep-3 / QuickPrep	30	1	N/A	E	50
Waste Water	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	E	1 mL
Marine Sediment	5.5	QuickPrep-3 / QuickPrep	40	2	300	E	500
Soil from Grassland	5.5	QuickPrep-3 / QuickPrep	30	2	300	E	500



## APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

Rhizosphere	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	E	500
Asphalt permeated soil	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	E	500
Category: Feces							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
Human Feces	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix E	300
Category: Human / Animal							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
Human Lung	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix D	50
Human Breast	6.0	QuickPrep-3 / QuickPrep	30	2	300	Lysing Matrix D	80
Human Kidney	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Human Thyroid Tumors	6.0	QuickPrep-3 / QuickPrep	30	3	300	Lysing Matrix A	100
Mouse Eye	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix D	10
Mouse Heart	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix D	70
Mouse Kidney	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Femur	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix A	40
Mouse Leg Muscle	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Intestine	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Ear	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix D	45
Mouse Tail	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix A	100

## APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

Mouse Spleen	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	70
Mouse Lung	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Liver	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Brain	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Mouse Pancreatic Cells (bHC9)	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	10 <sup>7</sup> cells
Human Ovary Biopsy	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	
Human Skin	6.0	QuickPrep-3 / QuickPrep	40	3	300	Lysing Matrix D	19
Category: Plant							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
Alpowa Wheat Leaf Tissue	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
Alpowa Wheat Seed	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
<i>Arabidopsis thaliana</i> Fresh Leaves (50 mg)	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
<i>Arabidopsis thaliana</i> Fresh Leaves (200 mg)	6.0	QuickPrep-3 / QuickPrep	40	2	300	Lysing Matrix D	200
Bartlett Pear Leaf Tissue	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
Classic Oat Leaf Tissue	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
Classic Oat Seed	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
Corn Leaf Tissue	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	100
Crest Barley Leaf Tissue	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	100
Crest Barley Root	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	300

## APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

<b>Kaybonnet Rice Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	100
<b>Kaybonnet Rice Seed</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
<b>Klages Barley Root</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	300
<b>Klages barley Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
<b>Tobacco Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
<b>Lafitte Rice Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	2	300	Lysing Matrix D	75
<b>Lafitte Rice Sprout Leaf</b>	6.0	QuickPrep-3 / QuickPrep	30	1	N/A	Lysing Matrix D	100
<b>Soybean Seed</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
<b>Corn Seed</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
<b>Oat FL 502 Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
<b>Oact FL 502 Seed</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	100
<b>Riser Oat Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	70
<b>Richland Soybean Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	100
<b>Tam Wheat Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	75
<b>Tam Wheat Root</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix A	80
<b>Tomato, Early Girl, Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix D	75
<b>Williams 82 Soybean Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	70
<b>Wrens Rye Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	100
<b>Pine Needle</b>	6.0	QuickPrep-3 / QuickPrep	30	1	N/A	Lysing Matrix A	100
<b>Basil Leaf Tissue</b>	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix D	50
<b>Cassava Root</b>	6.0	QuickPrep-3 / QuickPrep	60	1	N/A	Lysing Matrix A	80

## APPENDIX 3: RECOMMENDED PROGRAM SETTINGS

Category: Yeast & Fungi							
Preset Name	Speed (m/s)	Adapter	Time (seconds)	Cycles	Rest Time	Lysing Matrix	Quantity (mg)
<i>Saccharomyces cerevisiae</i> cells	6.0	QuickPrep-3 / QuickPrep	40	1	N/A	Lysing Matrix	10 <sup>8</sup> cells
<i>Schizosaccharomyces pombe</i> cells	5.0	QuickPrep-3 / QuickPrep	15	4	300	Lysing Matrix	10 <sup>8</sup> cells
<i>Candida albicans</i> cells	6.0	QuickPrep-3 / QuickPrep	30	2	300	Lysing Matrix	10 <sup>8</sup> cells
<i>Cryptococcus neoformans</i> cells	6.0	QuickPrep-3 / QuickPrep	30	4	300	Lysing Matrix	10 <sup>8</sup> cells
<i>Aspergillus fumigatus</i> cells	6.0	QuickPrep-3 / QuickPrep	30	2	300	Lysing Matrix	10 <sup>8</sup> cells
<i>Fusarium Solanicells</i>	6.0	QuickPrep-3 / QuickPrep	30	2	300	Lysing Matrix	10 <sup>8</sup> cells