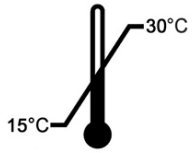
User's Guide

CE

ExiPrep™16 Plus

Fully Automated Nucleic Acid Extraction System

REF A-5030



IVD Fully Automated Nucleic Acid Extraction System

BIONEER

Innovation • Value • Discovery

ExiPrep™16 Plus
Fully Automated Nucleic Acid Extraction System

User's Guide

Version No.: 1.2 (2013-12)

Please read all the information in booklet before using the instrument

Bioneer
8-11, Munpyeongseo-ro, Daedeok-gu,
Daejeon, 306-220, Republic of Korea
Tel: +82-42-930-8777
Fax: +82-42-930-8600
Email: sales@bioneer.com
www.bioneer.com

CE

MANUFACTURER : Bioneer Corporation
8-11, Munpyeongseo-ro, Daedeok-gu, Daejeon, 306-220
Republic of Korea

EUROPEAN REPRESENTATIVE EC REP : MT Promedt Consulting GmbH
Altenhofstr. 80
D-66386 St. Ingbert, Germany

PRODUCT : *ExiPrep*™16 Plus,
Fully Automated Nucleic Acid Extraction System

CATALOG NO. REF A-5030

Contents

I. Getting Started

Thank you for purchasing this Bioneer product.

We will try our best to provide satisfactory results to our customers.
This manual contains practical guidelines and cautions to be taken regarding the instrument.
Please read this manual carefully and thoroughly before using the instrument.

Website

Please visit us online at http://www.bioneer.com to obtain more information about *ExiPrep*™16 Plus. You can download up-to-date product information and new protocols.

General information

- *ExiPrep*™16 Plus is a trademark of Bioneer Corporation.
- The information contained in this manual is under copyright protection. It is unlawful to reproduce part or all of the contents of this manual without the expressed written consent of Bioneer Corporation.
- Bioneer Corporation reserves the right to alter, modify and otherwise make changes to the instrument and manuals without prior notice.
- You must be used carefully UV Lamp. Detail can be found in Safety warning and Precautions.

Instrument marking description

Hazards or dangerous actions that may result in burn.
Hot surface area. Do NOT Touch.

To avoid the waste buffer overflow, pull the base plate in/out carefully.

II. Safety Warnings and Precautions

The warnings and precautions stated below are for the correct and safe operation of the instrument. Please heed all information for your safety. Bioneer Corporation does not assume responsibility for non-compliance with the safety warnings and precautions stated below.


Warning: Hazards or dangerous actions that may result in severe injury.


Caution: Hazards or dangerous actions that may result in minor injury or damage.


Warnings: Hazards or dangerous actions that may result in burn.


Warnings: Hazards or dangerous actions that may result in electronic shock.

1. User and experimental precautions

1) Make sure that the power supply (100-240VAC, ~50/60Hz) is correctly connected to the power adapter and that the power adapter is correctly connected to the instrument. Incorrect connection of the power adapter and power supply can result in instrument damage or failure to turn on.
2) This instrument is intended for nucleic acid extraction. Please use as such.
3) The instrument may stop if the LCD panel is touched while connected to a PC via LAN cable. If operating the instrument via PC software, please allow for the instrument to finish its programmed movement before operating the LCD panel.
4) Please install the instrument on a flat surface.
5) Do not operate the instrument with wet hands as this may result in shock or instrument malfunction. Please touch the power adapter cord with dry hands.
6) If the instrument is stopped either from operator error including improper accessory insertion or manually halting the instrument during normal operation, you must re-initialize the instrument before pulling out the Base Plate. Pulling out the Base Plate without prior initialization can lead to instrument damage from movement interferences including a raised Heating Block or other accessories stopped in motion. If Buffer Cartridges are inserted into the Base Plate, please re-initialize the instrument or pull out the Buffer Cartridges to make sure the Heating Block is not in the way of normal Base Plate movement.

2. Precautions regarding the operation environment

1) If the power plug is loose, do not use the instrument. Plug overheating may result in shock or fire.
2) Do not operate multiple instruments out of a single wall outlet. The load may cause overheating and may lead to fire.
3) When plugging or unplugging the power adapter cord from a wall outlet, make sure your hands are completely dry. Wet or moist hands may cause electric shock.
4) Avoid placing objects in the front and rear of the instrument.
5) Avoid installing the instrument in a dusty environment. Excessive dust may cause malfunction or damage to the instrument.
6) Avoid installation near heat sources. This can cause fire.
7) Avoid installation near sources of water or damp locations. This can cause electrical shock, fire or instrument malfunction.

8) Do not install near sources of flammable or corrosive gas. If there is a gas leak, do not touch the power plug but open a window to circulate fresh air. Sparks from the power plug can cause fire and explosions.
9) Do not disassemble or modify the instrument in any way. This can result in fire, electrical shock or malfunction, and also voids your warranty.

3. Precautions and warnings regarding instrument installation

1) This is a precision instrument. Do not install in a location exposed to direct sunlight.
2) Install the instrument on a flat, solid surface that is flat and does not move.
3) When installing the instrument, make sure at least 15 cm separate the instrument from the nearest wall.
4) Take caution not to damage the cooling fan mesh (located on the front-bottom) while installing.

4. Precautions and warnings regarding instrument operation

1) Dust off the power plug and insert the plug so that the connection is firm and does not wiggle. Incomplete electrical contacts may cause fire.
2) Operate the instrument in an ambient temperature range of 15℃~30℃. Excessive exposure to heat may affect the instrument and yield inexact results.
3) Operate the instrument within the recommended humidity range (20~80%, no condensation). Humid conditions may cause corrosion or malfunction.
4) Do not place any objects next to or behind the instrument. The instrument may malfunction.
5) This instrument contains precision machined parts. Do not drop or severely agitate the instrument. This can break the instrument and compromise the safety of the product.
6) When not using the instrument for a long period of time, turn the instrument off and unplug from the wall outlet. Overheating and fire may occur.
7) The instrument automatically turns off the UV lamp and its operation when the instrument's door is open. However, just in case it does NOT turns off when the door is open, please make sure the UV light does not directly expose to your eyes and skin.

5. Precautions and warnings regarding product usage and maintenance

1) This product must only be used for nucleic acid extraction and automatic aliquot. Do not use the instrument for any use other than explicitly stated in the User Manual.
2) Do not modify or delete instrument-related information installed within the instrument.
3) Operate the LCD touch-screen using a non-sharp object. Nails and other sharp objects may damage the product.
4) The instrument UV lamp will only operate if the door is completely shut. Make sure the door sensor is free of foreign materials or obstructions.
5) Do not use powerful detergents or solvents to clean the outside of the instrument as this may cause discoloration. If such chemicals are spilled on the instrument, immediately clean with a soft cloth.
6) Do not keep the instrument in an environment with high humidity. Damage from storage in these conditions is classified as water damage and is not covered by warranty. Also, damage arising from this type of exposure may be irreparable.
7) Disassembly and/or modification of the instrument voids the warranty and may be refused service.
8) Do not unplug the power adapter from the instrument while the instrument is in use. This may cause the instrument to break.

9) If a burning smell is detected or the instrument seems to be excessively hot during operation, immediately stop using the instrument and call your service representative.
10) Do not drop or impact the instrument. This is a direct cause of instrument damage and may void the warranty.
11) Always verify that the Heating Block is in normal position before pulling out the Base Plate. If the Base Plate is pulled out while the Heating Block is not in its normal, initialized position, the interference in movement can cause Heating Block and other internal component damage and lead to instrument malfunction. Since installed Buffer Cartridges obscure the view, re-initialize the instrument or take out the Buffer Cartridges and visually inspect the position of the Heating Block before pulling out the Base Plate.
12) The instrument automatically turns off the UV lamp and its operation when the instrument's door is open. However, just in case it does NOT turns off when the door is open, please make sure the UV light does not directly expose to your eyes and skin.
13) When there is liquid in the Waste Tray in the equipment, take extra caution to push-in or pull-out the base plate so the liquid does NOT overflow to the instrument inside. If the liquid overflows inside the instrument, it may damage the instrument or cause the electrocution.

6. UV Lamp

1) UV lamp operation may create Ozone molecules. For the safety issue, the instrument is pre-programmed the UV lamp operation for 15 minutes only. Please do NOT extensively use UV lamp operations.
2) The Ultraviolet (UV) ray can seriously damage your eyes and skin when exposed directly (even through indirectly). When you deal with UV lamp, make sure you are wearing proper protective equipment.

III. Waste Safety Warnings

This instrument is used with a special kit that contains large amounts of chlorine compounds for the purpose of extracting a nucleic acid. Furthermore, the nucleic acids extracted through this instrument have a shelf life about their sequence information. So, the residual nucleic acid can give a bad effect to the performance of the instrument. Minimizing this kind of risk, it is strongly recommended to follow the appropriate procedures for the prevention and progression themselves after referring the below.

1. Notice after using the instrument immediately

Caution

After using the instrument, do pay attention about the base plate because its Waste Tray contains large amounts of waste reagent which could be spilled over if you don't have particular attention to the operation.

1) If you operate the base plate rapidly, the overflow of waste reagent will contaminate inside of the instrument, so that the false positives will appear from the next experiment.
2) The waste is corrosive to stainless steel and other metals because the waste contains large amount of chlorine compounds.
3) Accidental happening an overflow, request A/S to clean it because the disassembly of the base plate is required to remove the inside pollution in it.

2. Cleaning solution for internal and external space of the instrument

1) Use distilled Water (DW), 70% ethanol, nucleic acid digestion solution (5% nitric acid, 1% lox blancher, DNAzap), and a dual lox blancher as a cleaning solutions. But be careful with DNAzap because it corrodes the metal. When you are using a lint free cloth and paper towel to soak in the cleaning solution, keep them wet or moist but not to drop the solution onto the equipment. Also, do not spray the cleaning solution directly onto the equipment.

3. Case of contamination

Note

When a contamination occurs, take appropriate action immediately to prevent accumulative pollution and damage possibly being happened.

1) For cleaning the accessory, refer to the Accessory cleaning equipment.
2) If a waste solution did not go into the base plate, clean it using a paper towel treated with nucleic acid digestion solution. After that, clean it again using a wet a paper towel with DW, dry it using a dry paper towel, and sterilize the inside of instrument with UV lamp immediately.
3) If the waste went into the base plate, you have to request A/S to clean it because the disassembly of the base plate is required.

4. Waste Treatment

All the wastes and the remaining reagents must be disposed in accordance with legal procedures.

IV. System Components and Specifications

1. System Components

ExiPrep™16 Plus

ExiPrep™16 Plus User's Guide

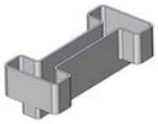
Disposable Tip Rack

Elution Tube Rack

Contamination Shield

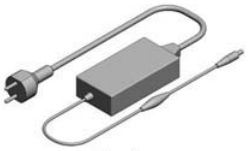
Box of *ExiPrep*™16 Plus Accessories

6 Hole Punch

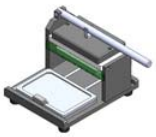


Waste Tray

Setup Tray



Adaptor



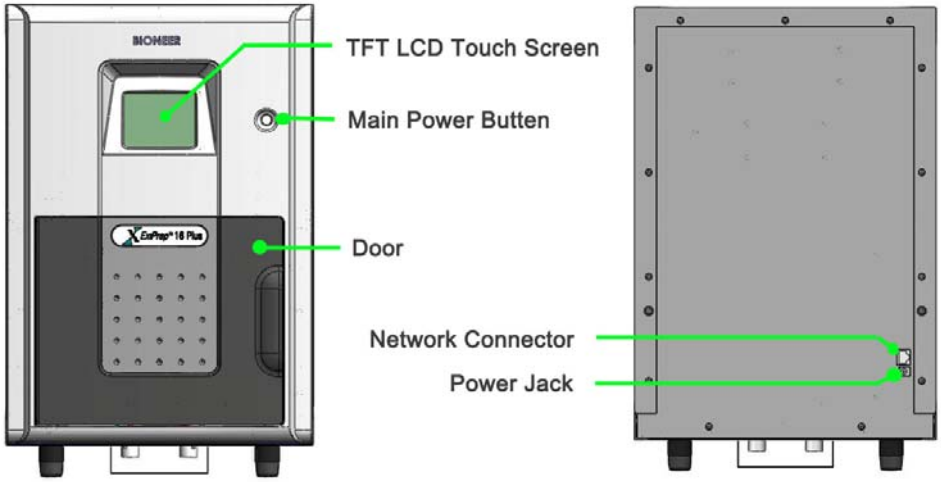
Multi Punch (Option)

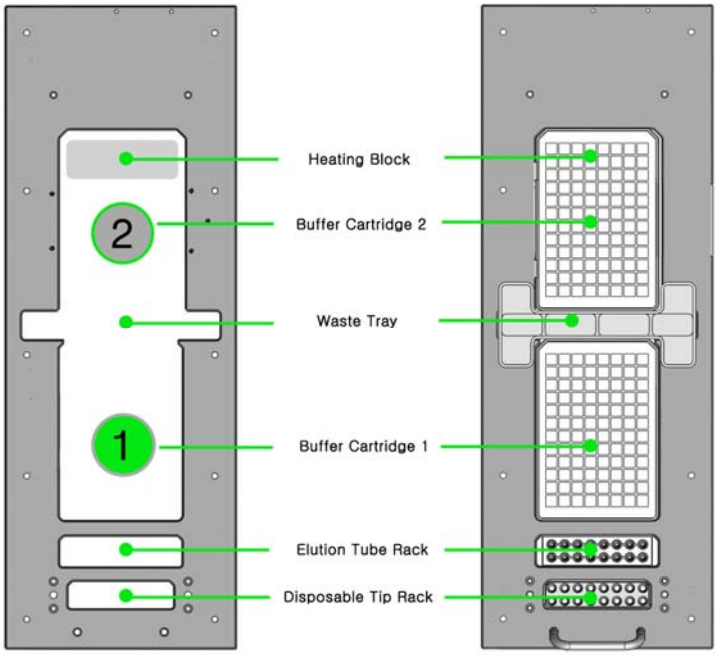
Part Name	Cat. No.	Qty.	Check
ExiPrep™16 Plus	A-5030	1 ea	☐
User's Guide		1 ea	☐
Waste tray		1 ea	☐
Elution tube rack		1 ea	☐
Disposable tip rack		1 ea	☐
Setup tray		1 ea	☐
Contamination Shield		1 ea	☐
Hole puncher (6 hole)		1 ea	☐
Adaptor		1 set	☐
(Option) Multi Puncher		-	

2. Specifications

Dimensions (mm)	320 (W) x 487 (H) x 535 (D)
Weight	22 kg
Operating temperature	15 – 30˚C
Operating humidity	20 – 80%, no condensation
Operating system	Stand-alone
Electrical (Voltage / Frequency)	100 – 240VAC, 50/60Hz
Network support	TCP/IP protocol
User interface	320 x 240 touch screen graphic LCD, 18 bit color

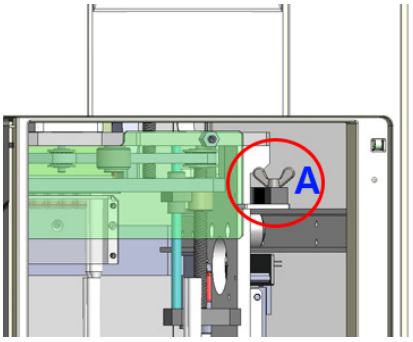
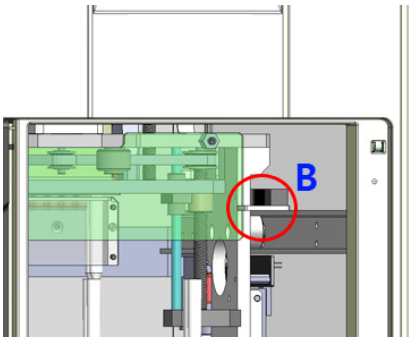
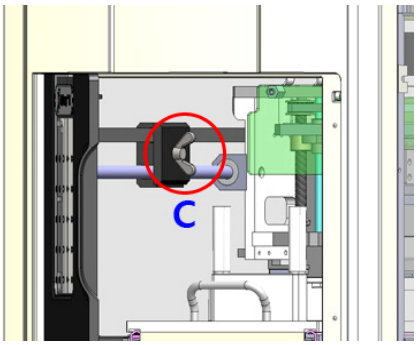
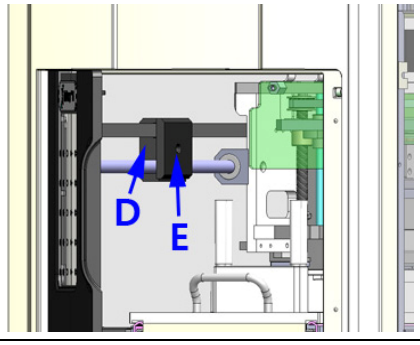
3. System Views



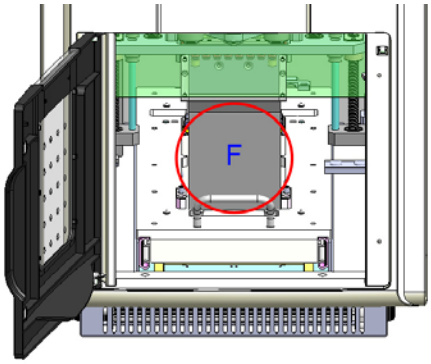


V. Installing the *ExiPrep*™16 Plus

- Clean the area where the *ExiPrep*™16 Plus will be installed.
- Open the instrument door and remove the tie wrap from the belt.
- Make sure that all components are included. Refer to the list of components on page 6.

	1. Open the door and remove the **Screw (A)** from the rail.
	2. Remove the **Holding Plate (B)** from the rail and the Syringe Block.
	3. Remove the **Screw (C)** from the locking block which immobilizes the belt.
	4. Separate the **Holding block (D, E)** from the belt and remove it.

IV. Installing the *ExiPrep*™16 Plus (continued)

	5. Connect the power cable to the rear of the instrument.
	6. Turn on the instrument. A power button will display on the LCD touch screen to indicate normal power on.
	7. Press the power button on the LCD screen to initialize the instrument. A progress bar on the lower portion of the LCD touch-screen will indicate initialization progress.
	8. Open the door and remove the **Sponge block (F)** from the Base Plate after initialization.

※ If the instrument does not start even when power was supplied properly but initialization does not complete in approximately 5 minutes, please contact Customer Service or your local Bioneer distributor immediately.

VI. DNA/RNA Extraction

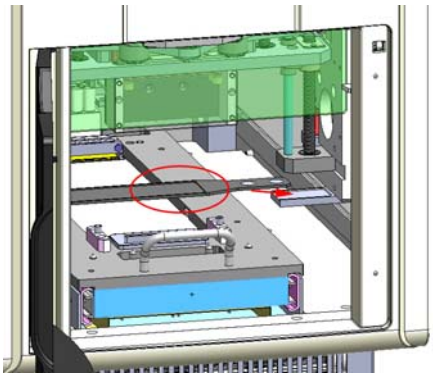
1. Contamination shield installation

1. From the **'Menu'** screen, click **'MISC SET'**.

   ➢ Pull out the Syringe block all the way front (outside) Contamination shield.

   CAUTION:

   In order to use contamination shield, this must be installed on the Base plate accessory.



2. Place the contamination shield on the lower-right side of the Syringe block.

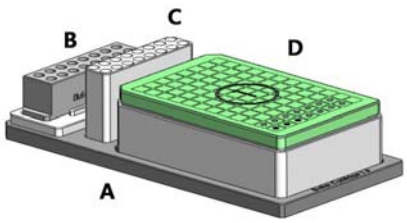
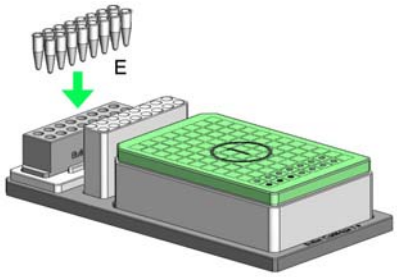
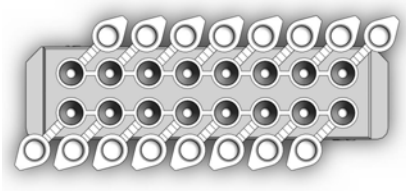
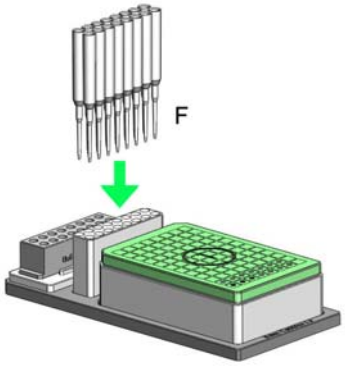
   ➢ Contamination shield has a magnet which means if you place on the upside-down right, it will stick to the holding bar.

3. From the 'Menu' screen, click **'MISC SET'**.

   ➢ The base plate moves back to the initialization position (inside the instrument).

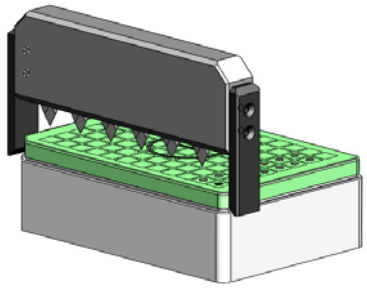
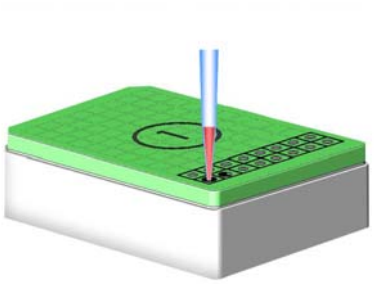
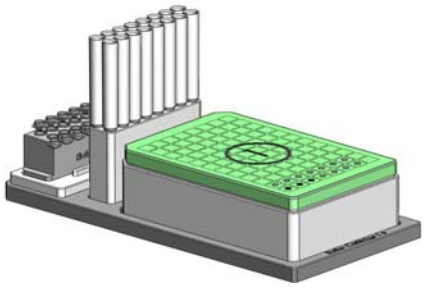
V. DNA/RNA Extraction (continued)

2. Sample Preparation

<table>
<tr>
<td> 
</td>
<td>1. Set the Setup Tray (A) on a flat laboratory surface.
2. Insert the Elution Tube Rack (B), Disposable Tip Rack (C), and Buffer Cartridge ① (D) into the Setup Tray.
➢ The Elution Tube Rack and Disposable Tip Rack are included with the instrument. The Buffer Cartridges, Disposable Tips and Elution Tubes necessary for DNA/RNA extraction are included in the DNA/RNA extraction kits (sold separately).</td>
</tr>
<tr>
<td> 
</td>
<td>3. Make sure you have purchased the correct kit for the sample type and target nucleic acid type you desire. Insert the desired number of Elution tubes (E) into the Elution Tube Rack.</td>
</tr>
<tr>
<td>  </td>
<td>※ Make sure the direction of the Elution Tube caps are laid out as on the left when inserting into the Elution Tube Rack.
➢ Each Elution tube is labeled individually from A1~H1, A2~H2 to A12~H12 for a total of 96.
➢ For convenience, you may arrange your eluted nucleic acids in the provided 96-well tube storage box</td>
</tr>
<tr>
<td> 
</td>
<td>4. Insert the Disposable Tips (F) into the Disposable tip rack in the same quantity and relative position as the Elution tubes.</td>
</tr>
</table>

V. DNA/RNA Extraction (continued)

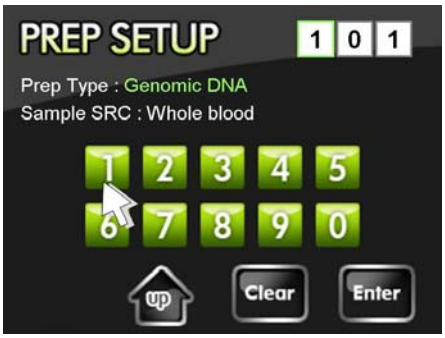
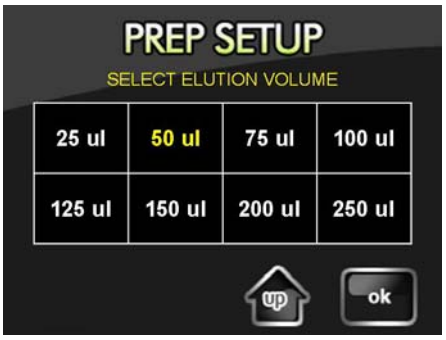
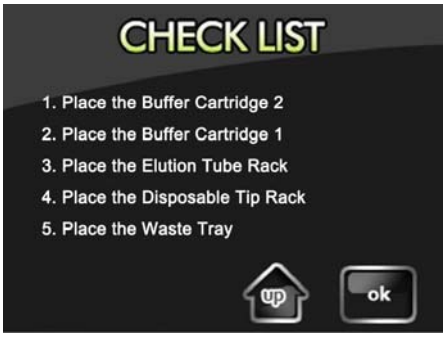
2. Sample Preparation (continued)

	5. Punch holes in the sealing film of Buffer Cartridge ① corresponding to the relative location and number of tubes and tips, using the **6-Hole punch** tool. 6. Punch holes in sealing the film of Buffer Cartridge ② using the **6-Hole punch** tool in the same pattern as Buffer Cartridge ①.
	7. Load samples into the **'Sample Loading Well'** of Buffer Cartridge ①.
	8. Preparation for DNA/RNA extraction is complete.

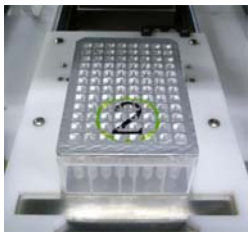
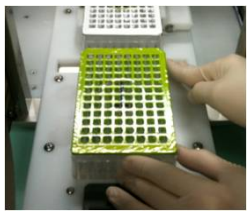
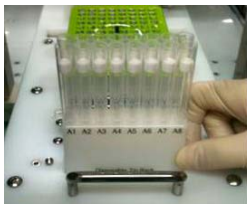
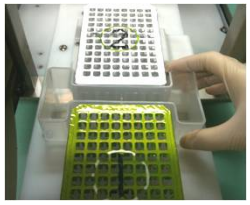
※ Before punching holes through the sealing film, briefly shake Buffer Cartridges ① and ② to collect reagents to the bottom of the wells and dissociate the silica magnetic beads that may have clumped during storage. Clumping of the magnetic beads is natural and will not affect your results.

V. DNA/RNA Extraction (continued)

3. RUN

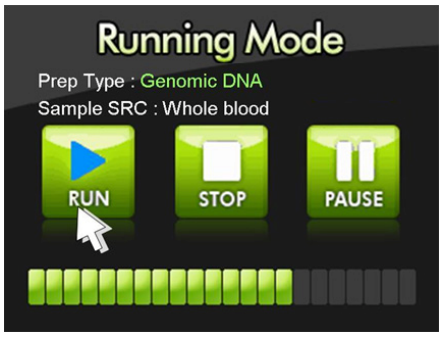
	1. Press the 'START' button to access the PREP SETUP screen.
	2. Refer to the code list within this Manual or purchased Kit Manual to select the three-digit code applicable to your desired nucleic acid and sample source type. 3. Verify the 'Prep Type' and 'Sample SRC' of the three-digit code you have entered. 4. Press the 'Enter' button to access the 'elution volume' selection menu.
	5. Select the 'elution volume' from the LCD touch-screen. 6. After selecting the desired 'elution volume' press 'ok' to complete PREP SETUP.
	7. Open the instrument door and pull out the Base Plate. 8. Place all racks and Buffer Cartridges in their respective locations on the Base Plate according to the CHECK LIST on the LCD touch-screen.

※ Setup process according to the CHECK LIST

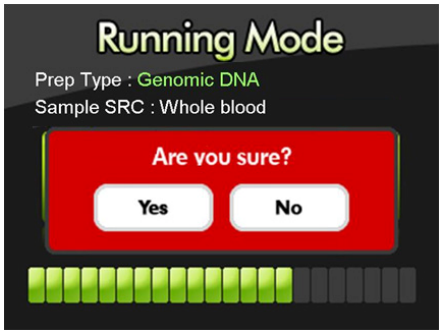
	8a. Insert Buffer Cartridge ② on the Base plate. ➢ Make sure the Buffer Cartridge fits snugly and exactly into its place. Misplacement of the Buffer Cartridge may result in instrument break down and malfunction.
	8b. Insert Buffer Cartridge ① on the Base plate. ➢ Make sure the Buffer Cartridge fits snugly and exactly into its place. Misplacement of the Buffer Cartridge may result in instrument break down and malfunction.
	8c. Place the Elution tube rack on the Base plate. ➢ Make sure the direction and location of the Elution tube rack is correct.
	8d. Place the Disposable tip rack on the Base plate. ➢ Make sure the direction and location of the Disposable tip rack is correct.
	8e. Place the Waste tray into the gap between Buffer Cartridges ① and ②.
	8f. Push the Base Plate in completely and close the door. ➢ Press the 'ok' button to complete.

V. DNA/RNA Extraction (continued)

3. RUN (continued)



9. Verify the name of the target nucleic acid type and sample source type on the Running Mode screen, and press the '**RUN**' button.
   - ➢ Progress of the extraction run can be checked through the progress bar on the lower portion of the LCD touch-screen.



10. You may press the '**STOP**' button during the run to terminate the extraction.
    - ➢ If you press '**STOP**' during an extraction run, a popup prompt asking you whether you are sure ('Are you sure?') will appear. Select **'Yes'** to terminate the run, or **'No'** to cancel the stop and proceed with the extraction run.
    - ➢ You may select **'PAUSE'** to temporarily stop the run and '**RUN**' to resume.

11. After the extraction run is complete, pull out the Base Plate and remove the Elution tubes, Buffer Cartridges and all racks from the Base Plate. After removing all accessories, push the Base Plate back in completely and close the door.
12. You are given three options at this point:
    - ➢ **Still remains same work:** Repeat the current protocol.
    - ➢ **Do other work:** Perform an extraction run using a different protocol for another nucleic acid and sample source type.
    - ➢ **Finish:** Finish and exit.

13. If the automatic UV-sterilization option is enabled, a popup prompt will appear warning you not to open the door as UV-sterilization is in progress. Refer to page 23 for details on enabling automatic UV-sterilization.
14. Press the '**START**' button to initiate sterilization
    - ➢ Select '**SKIP**' if you wish to pass sterilization.
15. The sterilization process takes 15 minutes. Progress can be checked through the progress bar.

※ Upon completion of the extraction run, immediately close the Elution tube caps to prevent spillage and label the tubes to avoid confusion later on.

VII. *ExiPrep*™16 Plus Setup

1. Main Menu

Main Menu

- Once the initialization has completed successfully, the LCD touch-screen will display the MENU as shown below.
- Please contact Bioneer Customer Service or your local sales representative if the initialization progress bar does not change for over 5 minutes during initialization or if the MENU screen does not appear after initialization.

Icon	Details
	▪ DNA/RNA extraction setting menu ➢ Extract nucleic acids with *ExiPrep*™16 Plus.
	▪ UV lamp ON/ OFF selection menu ➢ Sterilize the internal cavity with the built-in UV lamp. Press the 'UV lamp' button to begin sterilization. The sterilization runs for 15 minutes. To cancel, press the 'UV lamp' button again. ➢ *ExiPrep*™16 Plus provides an automatic UV sterilization option to run after every DNA/RNA extraction run. Details are described in page 23.
	▪ System setting menu ➢ Set up or cancel the system. You could check out user registration or cancelation, the setup of user restricted menu, password, and system, and history easily. More detailed information is described in page 19.
	▪ Contamination protection accessory installation ➢ This icon is to determine the status of the syringe block for setting the contamination shield.
	▪ Power OFF button

VI. *ExiPrep*™16 Plus Setup (continued)

1. Main Menu (continued)

1) PREP SETUP

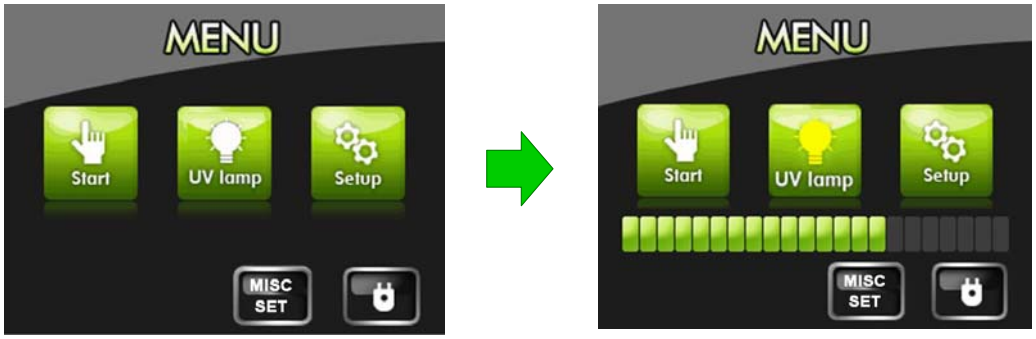
MENU screen　　PREP SETUP screen

- Selecting '**Start**' from the Main Menu will bring up the '**PREP SETUP**' screen where you can enter the three-digit code for the extraction and sample source type.
- Refer to the code list within this Manual to select the three-digit code(page 30) applicable to your desired nucleic acid and sample source type.

VI. *ExiPrep*™16 Plus Setup (continued)

1. Main Menu (continued)

2) UV sterilization (UV lamp)



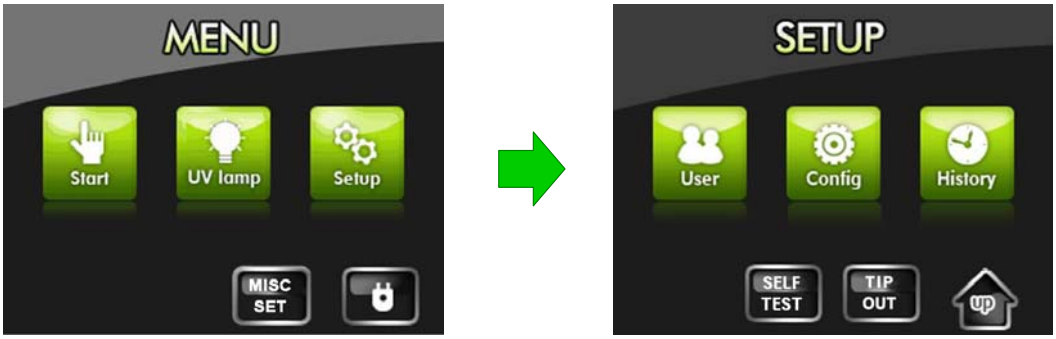
Main Menu screen　　UV Sterilization screen

- Use the built-in UV-lamp to sterilize the internal cavity of the instrument.
- Press the **'UV lamp'** icon to initiate the UV sterilization process. The icon will turn yellow as UV sterilization proceeds.
- The sterilization runs for 15 minutes. The progress can be tracked through the progress bar displayed on the bottom portion of the LCD touch-screen. To cancel the sterilization process, press the **'UV lamp'** button again.
- *ExiPrep*™16 Plus provides an automatic UV sterilization after every DNA/RNA extraction run. Details on this function are described in page 23.

VI. *ExiPrep*™16 Plus Setup (continued)

1. Main Menu (continued)

3) System setup menu (SETUP)



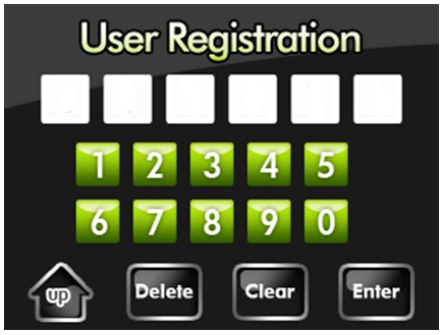
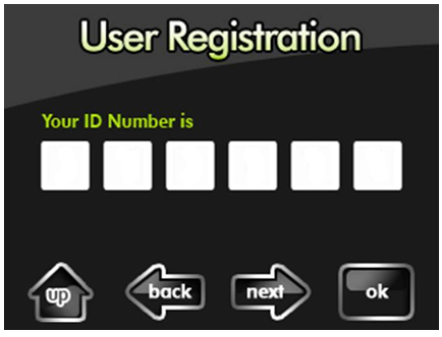
Main Menu Screen　　Setup Screen

Icon	Description
	▪ User registration menu ➢ You may create new accounts through this menu. Details on account creation can be found in page 20.
	▪ System configuration menu ➢ Allows you to restrict non-registered users from accessing features such as UV sterilization and system preferences. Details on system configuration can be found in page 24.
	▪ History ➢ Enabled by selecting the user login option. ➢ Allows you to audit up to 99 most recent runs by displaying information such as user ID, operation record and the instrument status (successful, cancelled) of a particular run. ➢ Details can be found in page 21.
	▪ Self Test ➢ This icon is for testing each motor initialization and heater block Temperature.
	▪ Tip Out ➢ This icon is for removing the Disposable Tips from the instrument Syringe Block. Pressing this icon will release the tips immediately.

VI. *ExiPrep*™16 Plus Setup (continued)

2. Registering a New User

ExiPrep™16 Plus provides a user login option restricting the use of the instrument to registered users only. Enabling the user login option will limit non-user access to the instrument. Do not forget your user ID if you have enabled the user login option.

	1. Press the '**Setup**' button to access the SETUP menu.
	2. Press the '**User**' button to access the User Registration menu.
	3. Enter a 6-digit user ID using the keypad on the LCD touch screen and press '**Enter**' to save the ID. ➢ **Delete**: Delete last number entered. ➢ **Clear**: Delete all numbers entered. ➢ **Enter**: Save the numbers entered.
	4. Verify the user ID and press '**ok**' to complete the registration. ➢ If the login option is enabled, non-registered use will have limited access to the instrument. ➢ Do not forget your user ID.

※ Up to 50 users can be registered. You can manage non-used user IDs using the administrator menu (page 25).

VI. *ExiPrep*™16 Plus Setup (continued)

3. Viewing Run History

If the login option is enabled, the user ID, process type and run status of each run is saved. Up to 99 most recent runs are saved in memory.

<table>
<tr>
<td> 
</td>
<td>1. Press the ‘Setup’ button to access the SETUP menu.</td>
</tr>
<tr>
<td> 
</td>
<td>2. Press the ‘History’ button to view the instrument run history.</td>
</tr>
<tr>
<td> 
</td>
<td>3. The run history contains the following parameters:
➢ No.: Recent runs have a lower number.
➢ User ID: The 6-digit user ID.
➢ Work: An abbreviation of sample source and protocol type selected for that run.
➢ Status: Instrument report on whether nucleic acid extraction was successfully completed(OK), stopped during the run (Abort), or cancelled by the user (Canceled).</td>
</tr>
</table>

VI. *ExiPrep*™16 Plus Setup (continued)

4. Managing the Login Mode

The instrument provides a login mode for restricting non-registered use. Without a user ID, you would have limited access to instrument functions. Do not forget your user ID.

	1. Press the '**Setup**' button to access the SETUP menu.
	2. Press the '**Config**' button to access the System Setup menu.
 	3. Press the '**User**' button to enable login mode. ➢ If the login mode is enabled, a popup prompt (**User Mode ON**) appears and the user icon will turn blue. ➢ Press the '**User**' button again to disable user login mode. A popup prompt (**User Mode OFF**) appears and the user icon will turn white.

※ Entering an invalid user ID three consecutive times with user login mode enabled will shut down the system. Press the '**Power**' icon on the LCD touch-screen to restart.

VI. *ExiPrep*™16 Plus Setup (continued)

5. Managing the Automatic UV-Sterilization Mode

The instrument provides an automatic UV-Sterilization mode to sterilize the instrument after every DNA/ RNA extraction run.

	1. Press the '**Setup**' button to access the SETUP menu.
	2. Press the '**Config**' button to access the System Setup menu.
 	3. Press the '**UV lamp**' button to enable automatic UV sterilization. ➢ If automatic UV-sterilization is enabled, a popup prompt (**UV Mode ON**) appears and the UV lamp icon will turn yellow. ➢ Press the '**UV lamp**' button again to disable the mode. A popup prompt (**UV Mode OFF**) appears and the UV Lamp icon will turn white.

VI. *ExiPrep*™16 Plus SETUP (Continued)

6. Controlling System Configuration

Only the single user with a registered administrator ID is able to configure the system. Do not forget the administrator ID.

1. Press the '**Config**' Button from the System Setup menu to access the System Config. menu.

Screen	Bright	Admin	Factory
Calibrates the screen position	Adjusts the screen brightness	Manages user IDs and the administrator ID	Accessible only by authorized engineers

- **Screen:** Calibrates the screen position
  - Calibrate the screen position relative to touching.
  - Press and hold the **circle** at the upper left corner with a blunt tool for 2 seconds.
  - Press and hold the **circle** at the bottom right corner with a blunt tool for 2 seconds.

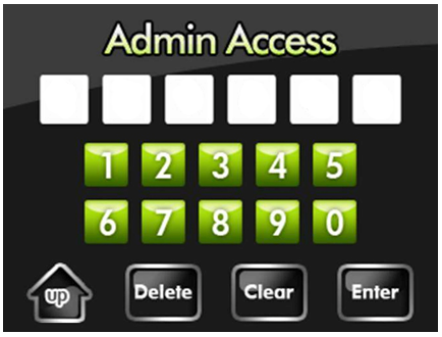
- **Bright:** Screen brightness adjustment
  - Adjust the brightness of the LCD touch-screen using the **'+'** and **'–'** buttons.
  - Press the '**ok**' button to save the adjusted brightness level. The previous menu will be displayed when the new brightness setting is successfully applied.
  - To return to the previous menu without saving the adjustments, press the '**up**' button.

※ Factory (A/S menu): Only authorized service engineers may access this menu to service the instrument.

VI. *ExiPrep*™16 Plus Setup (continued)

7. Administrator Management

1. Press the '**Admin**' button from the System Config. menu to access the Admin Access menu.



2. Enter the 6-digit administrator ID using the keypad on the LCD touch-screen.
3. Press the '**Enter**' button.

4. The Admin Menu screen includes an option to delete user IDs or change the administrator ID.
   - Select '**User list delete (1)**' to delete unused IDs.
   - Select '**Administrator password change (2)**' to change the factory default administrator ID.

- **User list delete menu (User List)**
  - **Registered User:** Displays the number of registered users.
  - Select the user ID you wish to delete and press '**ok**' to confirm deletion.
  - Use the '**back**' or '**next**' buttons to navigate the pages.

VI. *ExiPrep*™16 Plus Setup (continued)

7. Administrator Management (continued)

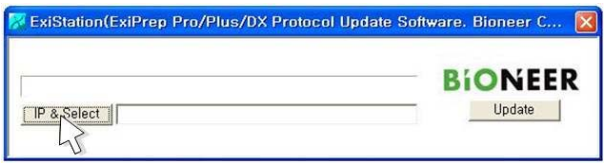
<table>
<tr>
<td> 
</td>
<td>▪ Administrator ID change menu
➢ Enter a new 6-digit administrator ID using the keypad in the middle of LCD touch screen and press ‘Enter’ button to save.</td>
</tr>
<tr>
<td> 
</td>
<td>➢ Press the ‘ok’ button to save new administrator ID after verifying the new administrator ID.
➢ You may now use the new administrator ID to delete user IDs or setup and configure the system.
➢ Do not forget new administrator ID.</td>
</tr>
</table>

VIII. Updating the *ExiPrep*™16 Plus

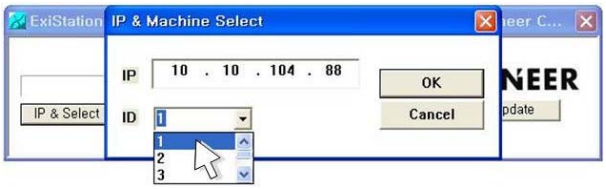
- Improve the functions of the instrument or install the up-to-date protocol for DNA/RNA extraction.
- Please refer to the FAQ in Bioneer homepage or contact Bioneer Service Center if updating does not progress or you have the questions.

NOTE: This program NOT included with the instrument. If you want to the program, you have to request to us.

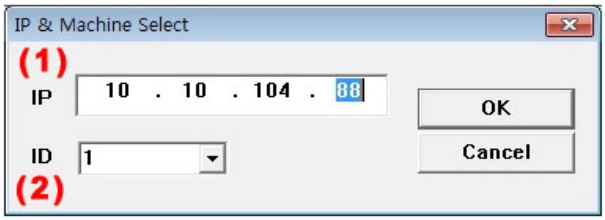
1. Connect *ExiPrep*™16 Plus to your computer using **cross-type LAN cable(sold separately)**.
2. Start the installation of the downloaded program below.
   - ➢ The default IP address for *ExiPrep*™16 Plus is 10. 10. 104. 88.



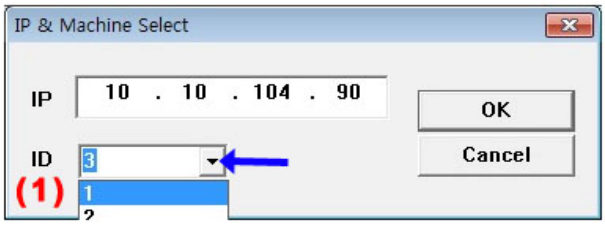
1. Execute the program.
2. Click the 'IP & Select' button on the lower left corner.



3. A new window 'IP & Machine Select' will appear with two boxes: IP and ID.



4. There are two ways of connecting to the instrument network.
   - ➢ Directly enter the IP address into the IP box (1) and select the instrument ID (2). For example, if the IP address is '10.10.104.88', select ID '1' and click 'OK'.

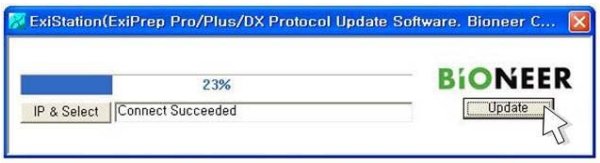


5. Clicking on the small down arrow (blue arrow) will enable you to select several instrument IDs with corresponding IP addresses. Click 'OK' to finish connecting to the instrument.

6. If the connection succeeds, the 'Connect Succeeded' prompt will be displayed.

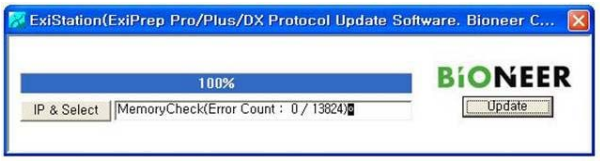
VII. Updating the *ExiPrep*™16 Plus (continued)

7. If the connection fails, the 'connect fail' prompt will be displayed. In this case, reboot the instrument and network hub, and verify that the network cable is connected correctly. Also verify the PC network settings including the IP address.



8. After the connection is completed, click the 'Update' button on the right side. Wait until the progress bar is full.
   - ➢ If the connection stops progressing, restart the update process from step 1.

9. Once the connection process is done, 'Memory Check starts' window will pop up.
10. Click 'OK'.
    - ➢ If the connection stops progressing, restart the update process from step 1.



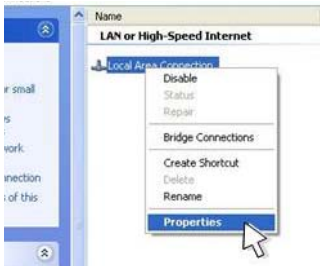
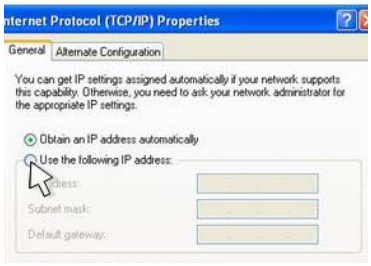
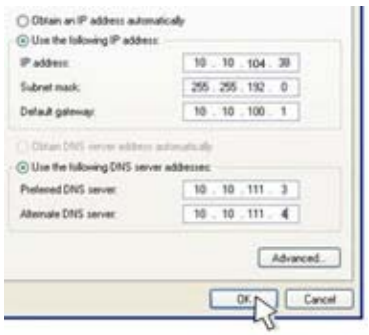
11. Once 'Memory Check' starts, the progress status bar will be displayed.

12. When the Memory Check finishes the progress, 'Write and Read memory check results to matches' window will pop up.
13. Press 'OK' button.

14. If you get the 'Finish' message on the progress bar, all the update process.
15. Disconnect the LAN cable from the computer and the instrument.
16. Reboot the instrument and reconnect the LAN cable.

※ The IP address may change depending on the installation site and PC.

※ If the PC fails to connect to the instrument, try the following steps.

	1. Select **'Local Area Connection'** from the control panel. 2. Right-click the connection and select **'Properties'**.
	3. Select **'Internet Protocol (TCP/IP)'**.
	4. Select **'Use the following IP address'**.
	5. Enter the **IP address, subnet mask, Default gateway and DNS server address** information below: IP address: 10. 10. 104. 38 Subnet mask: 255. 255. 192. 0 Default gateway: 10. 10. 100. 1 Preferred DNS server: 10. 10. 111. 3 (Alternate DNS server: 10. 10. 111. 4) 6. Click the **'OK'** button commit the network changes.

IX. DNA/RNA Extraction Program Number List

No.		Target	Sample source
1	01	Genomic DNA	Whole blood
1	02	Genomic DNA	Animal tissue
1	03	Genomic DNA	FFPE tissue
1	04	Genomic DNA	Plant tissue
1	05	Genomic DNA	Plant seed
1	06	Genomic DNA	Rice
1	07	Genomic DNA	Cultured cell
1	08	Genomic DNA	Gram (+) bacteria
1	09	Genomic DNA	Gram (−) bacteria
1	10	Genomic DNA	Yeast
1	11	Genomic DNA	Fungi
1	12	Genomic DNA	Plasma
1	13	Genomic DNA	Serum
1	14	Genomic DNA	Buffy coat
1	15	Genomic DNA	Sputum
1	16	Genomic DNA	BAL
1	17	Genomic DNA	Saliva
1	18	Genomic DNA	Swab
1	19	Genomic DNA	Urine
1	20	Genomic DNA	Stool
1	21	Genomic DNA	Cell free body fluid
1	22	Genomic DNA	Pleural fluid
1	23	Genomic DNA	CSF
1	24	Genomic DNA	EPS
1	25	Genomic DNA	Respiratory sample
1	26	Genomic DNA	Amniotic fluid
1	27	Genomic DNA	Forensic sample
1	28	Genomic DNA	Bone marrow
1	29	Genomic DNA	Bone
1	30	Genomic DNA	Dried blood spot
1	31	Genomic DNA	Soil
1	32	Genomic DNA	Hair
1	33	Genomic DNA	Cell supernatant

No.		Target	Sample source
2	01	Total RNA	Whole blood
2	02	Total RNA	Animal tissue
2	03	Total RNA	FFPE tissue
2	04	Total RNA	Plant tissue
2	05	Total RNA	Plant seed
2	06	Total RNA	Rice
2	07	Total RNA	Cultured cell
2	08	Total RNA	Gram (+) bacteria
2	09	Total RNA	Gram (−) bacteria
2	10	Total RNA	Yeast
2	11	Total RNA	Fungi
2	12	Total RNA	Plasma
2	13	Total RNA	Serum
2	14	Total RNA	Buffy coat
2	15	Total RNA	Sputum
2	16	Total RNA	BAL
2	17	Total RNA	Saliva
2	18	Total RNA	Swab
2	19	Total RNA	Urine
2	20	Total RNA	Stool
2	21	Total RNA	Cell free body fluid
2	22	Total RNA	Pleural fluid
2	23	Total RNA	CSF
2	24	Total RNA	EPS
2	25	Total RNA	Respiratory sample
2	26	Total RNA	Amniotic fluid
2	27	Total RNA	Forensic sample
2	28	Total RNA	Bone marrow
2	29	Total RNA	Bone
2	30	Total RNA	Dried blood spot
2	31	Total RNA	Soil
2	32	Total RNA	Hair
2	33	Total RNA	Cell supernatant

<continued>

No.		Target	Sample source
3	01	mRNA	Whole blood
3	02	mRNA	Animal tissue
3	03	mRNA	FFPE tissue
3	04	mRNA	Plant tissue
3	05	mRNA	Plant seed
3	06	mRNA	Rice
3	07	mRNA	Cultured cell
3	08	mRNA	Gram (+) bacteria
3	09	mRNA	Gram (−) bacteria
3	10	mRNA	Yeast
3	11	mRNA	Fungi
3	12	mRNA	Plasma
3	13	mRNA	Serum
3	14	mRNA	Buffy coat
3	15	mRNA	Sputum
3	16	mRNA	BAL
3	17	mRNA	Saliva
3	18	mRNA	Swab
3	19	mRNA	Urine
3	20	mRNA	Stool
3	21	mRNA	Cell free body fluid
3	22	mRNA	Pleural fluid
3	23	mRNA	CSF
3	24	mRNA	EPS
3	25	mRNA	Respiratory sample
3	26	mRNA	Amniotic fluid
3	27	mRNA	Forensic sample
3	28	mRNA	Bone marrow
3	29	mRNA	Bone
3	30	mRNA	Dried blood spot
3	31	mRNA	Soil
3	32	mRNA	Hair
3	33	mRNA	Cell supernatant

No.		Target	Sample source
4	01	viral DNA	Whole blood
4	02	viral DNA	Animal tissue
4	03	viral DNA	FFPE tissue
4	04	viral DNA	Plant tissue
4	05	viral DNA	Plant seed
4	06	viral DNA	Rice
4	07	viral DNA	Cultured cell
4	08	viral DNA	Gram (+) bacteria
4	09	viral DNA	Gram (−) bacteria
4	10	viral DNA	Yeast
4	11	viral DNA	Fungi
4	12	viral DNA	Plasma
4	13	viral DNA	Serum
4	14	viral DNA	Buffy coat
4	15	viral DNA	Sputum
4	16	viral DNA	BAL
4	17	viral DNA	Saliva
4	18	viral DNA	Swab
4	19	viral DNA	Urine
4	20	viral DNA	Stool
4	21	viral DNA	Cell free body fluid
4	22	viral DNA	Pleural fluid
4	23	viral DNA	CSF
4	24	viral DNA	EPS
4	25	viral DNA	Respiratory sample
4	26	viral DNA	Amniotic fluid
4	27	viral DNA	Forensic sample
4	28	viral DNA	Bone marrow
4	29	viral DNA	Bone
4	30	viral DNA	Dried blood spot
4	31	viral DNA	Soil
4	32	viral DNA	Hair
4	33	viral DNA	Cell supernatant

<continued>

No.		Target	Sample source
5	01	viral RNA	Whole blood
5	02	viral RNA	Animal tissue
5	03	viral RNA	FFPE tissue
5	04	viral RNA	Plant tissue
5	05	viral RNA	Plant seed
5	06	viral RNA	Rice
5	07	viral RNA	Cultured cell
5	08	viral RNA	Gram (+) bacteria
5	09	viral RNA	Gram (−) bacteria
5	10	viral RNA	Yeast
5	11	viral RNA	Fungi
5	12	viral RNA	Plasma
5	13	viral RNA	Serum
5	14	viral RNA	Buffy coat
5	15	viral RNA	Sputum
5	16	viral RNA	BAL
5	17	viral RNA	Saliva
5	18	viral RNA	Swab
5	19	viral RNA	Urine
5	20	viral RNA	Stool
5	21	viral RNA	Cell free body fluid
5	22	viral RNA	Pleural fluid
5	23	viral RNA	CSF
5	24	viral RNA	EPS
5	25	viral RNA	Respiratory sample
5	26	viral RNA	Amniotic fluid
5	27	viral RNA	Forensic sample
5	28	viral RNA	Bone marrow
5	29	viral RNA	Bone
5	30	viral RNA	Dried blood spot
5	31	viral RNA	Soil
5	32	viral RNA	Hair
5	33	viral RNA	Cell supernatant

No.		Target	Sample source
6	01	viral DNA/RNA	Whole blood
6	02	viral DNA/RNA	Animal tissue
6	03	viral DNA/RNA	FFPE tissue
6	04	viral DNA/RNA	Plant tissue
6	05	viral DNA/RNA	Plant seed
6	06	viral DNA/RNA	Rice
6	07	viral DNA/RNA	Cultured cell
6	08	viral DNA/RNA	Gram (+) bacteria
6	09	viral DNA/RNA	Gram (−) bacteria
6	10	viral DNA/RNA	Yeast
6	11	viral DNA/RNA	Fungi
6	12	viral DNA/RNA	Plasma
6	13	viral DNA/RNA	Serum
6	14	viral DNA/RNA	Buffy coat
6	15	viral DNA/RNA	Sputum
6	16	viral DNA/RNA	BAL
6	17	viral DNA/RNA	Saliva
6	18	viral DNA/RNA	Swab
6	19	viral DNA/RNA	Urine
6	20	viral DNA/RNA	Stool
6	21	viral DNA/RNA	Cell free body fluid
6	22	viral DNA/RNA	Pleural fluid
6	23	viral DNA/RNA	CSF
6	24	viral DNA/RNA	EPS
6	25	viral DNA/RNA	Respiratory sample
6	26	viral DNA/RNA	Amniotic fluid
6	27	viral DNA/RNA	Forensic sample
6	28	viral DNA/RNA	Bone marrow
6	29	viral DNA/RNA	Bone
6	30	viral DNA/RNA	Dried blood spot
6	31	viral DNA/RNA	Soil
6	32	viral DNA/RNA	Hair
6	33	viral DNA/RNA	Cell supernatant

<continue>

No.		Target	Sample source
7	01	Plasmid DNA	*endA*(+) strain
7	02	Plasmid DNA	*endA*(−) strain

No.		Target	Sample source
8	21	Fragment DNA	Gel slice
8	22	Fragment DNA	PCR product
8	23	Fragment DNA	Enzymatic reaction

No.		Target	Sample source
9	01	Protein	His-Tag

X. Troubleshooting

Error	Solution
Instrument does not turn on.	1. Verify that the power connector is inserted into a power socket. 2. Verify that the power adapter line is connected to the instrument. 3. Verify that the power button (front) is pressed. 4. Request service from your dealer.
Power turns on but instrument does not initialize.	1. Press the power button to cut power. 2. Check to see if the previous run was abnormally aborted. 3. In the case of an abnormal run abort, visually inspect inside the instrument for leftover accessories and tips. 4. Remove leftover accessories that may interfere with normal instrument movement. 5. Manually move the syringe block within the instrument to the middle. 6. Press the power button to turn the instrument on and check initialization status. 7. Request service from your dealer.
Power turns on but the LCD screen is black.	1. Since it is most likely an instrument issue, request service from your dealer.
Pressing the 'RUN' button fails to start instrument operation.	1. Make sure the fixture brackets used for shipping are removed. 2. Verify that instrument initialization is correctly completed. 3. Visually inspect inside the instrument for leftover accessories and/or foreign materials that may interfere with normal instrument movement. 4. Verify that all accessories are installed in their appropriate locations within the instrument. 5. Check to see if the other buttons on the LCD screen operate normally when pressed. 6. Request service from your dealer.
The instrument moves, but does not operate normally.	1. Verify that the Base Plate is correctly secured. 2. Visually inspect inside the instrument for leftover accessories and/or foreign materials that may interfere with normal instrument movement. 3. Verify that all accessories are installed in their appropriate locations within the instrument. 4. Request service from your dealer.
The front door does not close.	1. Verify that the Base Plate is correctly secured. 2. Open the door and let go to verify that the door closes by the door spring. 3. Request service from your dealer.

Error	Solution
The Base Plate does not correctly secure.	1. Visually inspect inside the instrument for leftover accessories and/or foreign materials that may interfere with normal Base Plate movement. 2. Verify that all accessories are installed in their appropriate locations within the instrument. 3. Request service from your dealer.
The instrument does not operate even though the front door is closed.	1. Verify that the Base Plate is correctly secured. 2. Verify that the front door magnets (top and bottom: total of 2) are installed correctly. 3. Open the front door and completely pull out the Base Plate. Visually inspect inside the instrument for damage to the sensor (microswitch) located at the end of the Base Plate Slide Rail. 4. Request service from your dealer.
The Base Plate does not slide out completely.	1. Visually inspect inside the instrument for accessories and/or foreign materials that may interfere with normal Base Plate movement. 2. Visually inspect the front of the instrument for accessories and/or foreign materials that may interfere with normal Base Plate movement. 3. Request service from your dealer.
The accessories do not sit as normal.	1. Verify that each accessory is in its correct position. 2. Visually inspect for foreign materials on the accessories, racks etc. 3. Inspect for damage on the accessory and rack fixture pins. 4. Request service from your dealer.
The Syringe Block fails to pick up the tips.	1. Verify that the front door is completely closed. 2. Verify that the Tips and Tip Rack are correctly installed. 3. Visually inspect the Tip insertion process and verify the absence of foreign materials or accessories that may interfere with Tip insertion. 4. Check to see if the 'Stop' or 'Pause' buttons are selected. 5. Check to see if the tips are for instrument use. 6. Inspect the Tips for damage or deformation. 7. Request service from your dealer.
The Syringe Block inserted the tips as expected but does not move.	1. Verify that the front door is completely closed. 2. Visually inspect the Syringe Block to verify the absence of foreign materials or accessories that may interfere with normal movement. 3. Verify that the Buffer Cartridges are installed correctly. 4. Check to see if the 'Stop' or 'Pause' buttons are selected. 5. Request service from your dealer.

Error	Solution
The instrument stops during operation.	1. Verify that the power source is connected. 2. Verify that the power switch is pressed (ON position). 3. Check the LCD screen to verify that the blue progress bar (bottom portion; indicates delays) is moving. 4. Check to see if the 'Stop' or 'Pause' buttons are selected. 5. Request service from your dealer.
The instrument is malfunctioning.	1. Check to see if the correct protocol was selected. 2. Inspect the instrument for foreign materials or accessories impeding normal movement of the Syringe Block (which causes motor malfunction). 3. Repeat the same protocol and verify normal operation. 4. Request service from your dealer.
The instrument operates normally but does not elute.	1. Verify that the Elution Tube Rack and Elution Tubes are installed correctly. 2. Check to see if the Tips are completely inserted. 3. Inspect the Tips for clogging. 4. Verify that the Buffer Cartridges contains sample. 5. Inspect the Syringe Block for leakage. 6. Request service from your dealer.
The Syringe Block is leaking.	1. Stop using the malfunctioning well and request service from your dealer.
Liquid is dripping inside the instrument.	1. Make sure the Rack and Contamination Shield are installed correctly. 2. Inspect the Syringe Block for leakage. 3. Request service from your dealer.
The heater does not work.	1. Make sure the Rack and Contamination Shield are installed correctly. 2. Inspect the Base Plate for signs of leakage. 3. Request service from your dealer.
The instrument smells like its burning.	1. Immediately disconnect the power and stop usage of the instrument. 2. Request service from your dealer.
The UV Lamp does not work.	1. Verify that the front door is completely closed. 2. Request service from your dealer.
Protocol dose not update.	1. Check if the computer and the instrument are connected with LAN cable. 2. Restart the computer and instrument. 3. Update protocol 4. Re-update protocol

XI. Warranty

ExiPrep™16 Plus is warranted by Bioneer against manufacturing defects in materials and workmanship for a limited warranty period of one year from the date you received your product. Bioneer will either (1) repair the product at no charge if a hardware defect arises or (2) exchange the product if the same hardware defect arises more than three times during the limited warranty period. Any other accessories other than the instrument itself are considered as consumables and warranted for three months. Spare parts for the instrument will be available for five years from the release date. If a defect arises after the limited warranty period, shipping and handling charge may apply to any repair or exchange of the product undertaken by Bioneer.

Exclusions and limitations

This warranty does not apply: (a) to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports: (b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes: (c) to a product or part that has been modified in any way without written permission of Bioneer; or (d) to damage cause by any services performed by unauthorized engineer or service provider.

Obtaining Warranty Service

Please review this User's Manual and access the online support referred to in the manual accompanying this product before requesting warranty service.

Bioneer Worldwide

Headquarters

Address 8-11, Munpyeongseo-ro, Daedeok-gu, Daejeon 306-220, Republic of Korea
Tel +82-42-930-8777 (Korea : 1588-9788)
Fax +82-42-930-8600
E-mail sales@bioneer.co.kr
Web http: //www.bioneer.co.kr

Bioneer, Inc.

Address 1000 Atlantic Avenue Alameda, CA 94501 USA
Tel +1-877-264-4300 (Toll Free)
Fax +1-510-865-0350
E-mail order.usa@bioneer.us.com
Web www.bioneer.com

Bioneer Trade(Shanghai) Co., Ltd

Address 403 Room, Building 88, no. 887, Zuchongzhi Road, Zhangjiang High Tech Park, PuDong New District, Shanghai 201203, China
Tel +86-21-5080-0969
Fax +86-21-5080-1620
E-mail salescn@bioneer.com
Web www.bioneercn.com

Bioneer Pangyo R&D Center

Address B-702, Korea Bio Park Bldg., 700, Daewangpangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400, Republic of Korea
Tel + 82 - 31 - 628 - 0500 (Korea : 1588-9788)
Fax + 82 - 31 - 628 - 0555
E-mail ds@bioneer.com
Web http: //www.bioneer.co.kr

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