Reagent Kit Selection Guide

Reagent Kit Selection Guide (From Target Nucleic Acids)

Target	Type	Origin	Scale	Reagent Kits
DNA	Total DNA	Human, animal blood (fresh, old, dried, frozen whole blood with common anticoagulants, Buffy Coat	100-400 µl whole blood	AnaPrep Blood DNA Extraction Kit 200
			400-1000 µl whole blood	AnaPrep Blood DNA Extraction Kit 1200 *especially for the granulocytes-rich blood samples (white blood cell no. more than $2x10^4$ cells/µl)
DNA	Virus	Whole Blood	100-400 µl whole blood	AnaPrep Blood DNA Extraction Kit 200
DNA/RNA	Virus	Cell culture supernant, human serum, plasma, urine, cerebrospinal fluid, and other cell-free body fluids	See Reagent Handbook	AnaPrep Viral Nucleic Acid Extraction Kit
DNA	Virus/ Bacteria	Genital tract specimen (collected by cervical brush or genital swab), cervicovagina lavage, urine specimens	See Reagent Handbook	AnaPrep HPV DNA Extraction kit for swab samples
DNA	Total DNA	• Human and animal tissue (fresh and frozen tissues), Rodent tails • Insects (fresh and frozen tissue) • Dried blood • Dried Swab Material (buccal, nasal, pharyngeal, vaginal, eye swab or saliva)	See Reagent Handbook	AnaPrep Tissue DNA Extraction Kit
DNA	Total DNA	FFPE (formalin fixed paraffin embedded) tissue sections	See Reagent Handbook	AnaPrep FFPE DNA Extraction Kit
DNA	Total DNA	Cell culture, plasma, serum, bone marrow, buffy coat (fresh or frozen serum/plasma, cells in adherent/suspension culture, lavage)	See Reagent Handbook	AnaPrep Cultured Cell DNA Extraction Kit
DNA	Bacteria	Bacteria species (from different kinds of starting materials), bacteria pellets, liquid transport media, swabs and urine, colony	See Reagent Handbook	AnaPrep Bacterial DNA Extraction Kit *Special item: AnaPrep TB DNA Extraction Kit
DNA	Total DNA	Forensic material (whole blood, clotted blood, bones, teeth, ancient bones, hair roots, forensic surface and contact swabs, saliva, chewing gum, cigarette butts, stamps, envelops, tissue, etc.)	See Reagent Handbook	AnaPrep Forensic DNA Extraction Kit

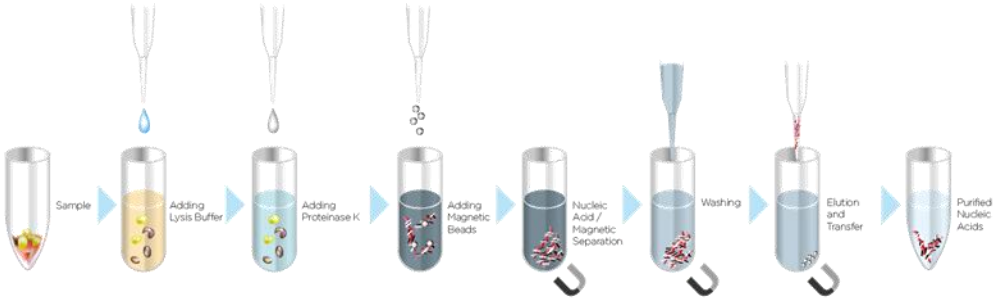
Introduction

The BioChain Nucleic Acid Preparation Technology

Introduction

BioChain Institute Inc. specializes in developing advanced, efficient and reliable technologies in nucleic acid preparation, to enable successful delivery of extraction results from varied sample types.

The AnaPrep technology is a state of the art platform that uses magnetic beads to extract nucleic acids from samples. The platform commits to a truly walk-away automation for nucleic acid purification from samples to results. The purification processes contain steps of lysis, binding, washing and elution (see figure below).



magnetic bead extraction process

Product information

Intended use

AnaPrep Kits are intended to be used on the AnaPrep 12 and 24 instruments for the preparation of nucleic acids from biological specimens. The AnaPrep instrument and AnaPrep kit are not intended for use as part of a specific in vitro diagnostic test.

The nucleic acids purified using the AnaPrep instruments and reagent kits are suitable for a variety of polymerase chain reaction (PCR) tests. The AnaPrep instrument and reagent kits are intended for research use only.

Warranty

BioChain is committed to providing our customers with high-quality products and services. Our goal is to ensure that every customer is 100% satisfied with our products and services. If you have questions or concerns about our product or services, contact our Technical Support Representatives.

BioChain guarantees the performance of all products according to specifications stated on our product literature. The purchaser/user must determine the suitability of the product for its particular use. We reserve the right to change, alter, or modify any product to enhance its performance and design.

This warranty limits BioChain Institute's liability only to the cost of the product. No warranty is granted for products beyond their listed expiration date. No warranty is applicable unless all product components are stored in accordance with instructions.

Satisfaction Guarantee	For any product that fails to perform satisfactorily due to any reason other than misuse, BioChain will replace it free of charge. Simply call BioChain or your distributor to get a replacement.
Technical Support	For technical assistance and more information, please visit our website at www.biochain.com or call the BioChain Technical Service Department or your local distributor.
Safety Information	When working with chemicals or samples, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDS). You can find, download, view, and print them from our website www.biochain.com.
Manufacturer Information	**Manufacturer:** BioChain Institute Inc. **Address:** 39600 Eureka Dr. Newark, CA 94560, USA **Tel:** 1-510-783-8588 **Fax:** 1-510-783-5386 **Mail:** info@biochain.com **Country of Origin:** **USA**

AnaPrep Forensic DNA Extraction Kit

Cat. No. Z1322010 Process Time: 40-50 minutes

Intended Use

The AnaPrep Forensic DNA extraction kit is used to extract and isolate genomic DNA from forensic samples.

Application

The extracted DNA is compatible for quantitation using the Quantifiler® Human, Quantifiler® Y Human Male, Quantifiler® Duo DNA Quantification Kits and Investigator® Quantiplex kit, and for use in STR amplification using the AmpFlSTR® PCR Amplification kits.

Number Of Tests

48 extractions

Kit Components

Kit Contents	Z1322010-48
Reagent Cartridge	48 pcs
Reaction Chamber	48 pcs
Tip Holder	48 pcs
Filtered Tip	50 pcs
Piercing Pin	50 pcs
Sample Tube (2 ml)	50 pcs
Elution Tube (1.5 ml)	50 pcs
Proteinase K (1 ml, 10mg/ml)	1 pc
Buffer BL2 (25 ml)	1 pc
Filter Column	50 pcs
Collection Tube	50 pcs
Protocol Barcodes	1 pc

Reagent Cartridge Content

well-1	Empty	
well-2	Lysis Buffer 1	800 µl
well-3	Binding Buffer 1	800 µl
well-4	Magnetic Bead Solution	800 µl
well-5	Washing Buffer 1	1000 µl
well-6	Washing Buffer 2	1000 µl
well-7	Washing Buffer 3	1000 µl
well-8	Elution Buffer 1	1000 µl
well-9	Elution Buffer 2	1000 µl
well-10	Empty	

Storage	◆ The AnaPrep Forensic DNA Extraction Kit should be stored at room temperature (15-25°C). Do not freeze the reagent cartridges. The Kits are stable for 12 months under the proper storage conditions. ◆ Store the purified DNA at 4°C (short- term) or aliquot and store at -70°C (long-term).

Starting Material

- Whole blood, clotted/dried blood, Forensic Surface and Contact Swabs, hair roots, saliva, sperm stain, chewing gum, cigarette butts, stamps, envelopes, and tissues, etc.

Sample preparation

Sample type	Procedure
Whole blood (fresh or frozen)	To extract DNA from whole blood samples, please select and refer to the AnaPrep Blood DNA Extraction Kit 200 (Z1322001).
Clotted/ dried blood	1. Take 20 µl of the blood sample and apply it to the filter paper or bandage. 2. Air-dry the blood sample. 3. Cut out the blood-containing area, and transfer the pieces to a sample tube. 4. Add 400 µl BL2 and 20 µl Proteinase K to the sample tube, then vortex for at least 10 sec. 5. Incubate at 56°C for 15min, mix by vortexing several times during incubation or place the sample in a thermomixer. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for 1 min. 8. Transfer 400 µl of the eluate to the sample tube for extraction.
Forensic Surface and Contact Swabs	1. Allow the swab or brush to air-dry for at least 2 hours after collection. 2. Carefully cut or break off the end part of the swab or brush into a 1.5 ml microcentrifuge tube, using an appropriate tool (e.g., scissors).

	3. Add 200 or 400 µl of Buffer BL2 to the sample. 4. Add 20 µl Proteinase K and vortex for at least 10 sec. *If processing brush samples, centrifuge the tube briefly (at 10,000 x g for 30 sec) to force the brush to the bottom of the tube. 5. Incubate at 56°C for 15 min. Mix by vortexing several times during incubation or place the sample in a thermomixer. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for at least 1 min. 8. Transfer 200 or 400µl of the eluate to the sample tube for extraction.
Hair root	Use two or three pieces 0.5–1 cm from the root ends of plucked hair samples. 【method1】 1. Place the hair sample in a 1.5 ml microcentrifuge tube. 2. Add 200 µl Buffer BL2 to the sample. 3. Add 20 µl Proteinase K and 10 µl 1M DTT solution*, and mix thoroughly by vortexing for at least 10 sec. 4. Incubate at 56°C for at least 6 hours, and vortex several times during incubation or place the sample in a thermomixer. 5. Optional: Add an extra 10 µl Proteinase K and 10 µl DTT, and then incubate at 56°C until the hair samples are completely dissolved. 6. Spin the tube to remove drops from inside the lid. 7. Transfer the entire sample to a filter column sitting in a collection tube. 8. Spin at 6000 g/ 7500 rpm for 1 min. 9. Transfer 200 µl of the eluate to the sample tube for extraction. *Prepare 1M DTT solution before processing the

	protocol (1M is about 15% DTT(m/v)). 【method2】 1. Place the hair sample in a 1.5 ml microcentrifuge tube. 2. Add 200 µl Buffer BL2 to the sample. 3. Add 20 µl Proteinase K and then mix thoroughly by vortexing for at least 10 sec. 4. Incubate at 56°C overnight, vortex-mixing several times during incubation or place the sample in a thermomixer. 5. Spin the tube to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for 1 min. 8. Transfer 200 µl of the eluate to the sample tube for extraction.
Human tissues	When using up to 40 mg of tissue: 1. Place the tissue sample into a 1.5 ml microcentrifuge tube. 2. Add 200 or 400 µl buffer BL2 and 20 µl Proteinase K to the sample, and mix thoroughly by vortexing for 10 sec. 3. Incubate at 56°C for at least 2 hours,* mix by vortexing several times during incubation or place the sample in a thermomixer. *Incubation for longer time (e.g. overnight) does not interfere with nucleic acid extraction. 4. Spin the tube to remove drops from inside the lid. 5. Transfer the entire sample to a filter column sitting in a collection tube. 6. Spin at 6000 g/ 7500 rpm for 1 min. 7. Transfer 200 or 400 µl of the eluate to sample tube for extraction.
Saliva	1. Place up to 50 µl saliva in a 1.5ml microcentrifuge tube.

	2. Add 200 µl Buffer BL2 to the sample. 3. Add 20 µl Proteinase K, and mix thoroughly by vortexing for 10 s. 4. Incubate at 56°C for 15min, and mix by vortexing several times during incubation or place the sample in a thermomixer. 5. Spin the tube to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for at least 1 min. 8. Transfer 200 µl of the eluate to the sample tube for extraction.
Sperm stains	1. Place 5-10 µl or 1cm^2 of the forensic sample in a 1.5 ml centrifuge tube. 2. Add 200 or 400 µl Buffer BL2 to the sample. 3. Add 20 µl Proteinase K, and mix thoroughly by vortexing for 10 sec. 4. Incubate at 56°C for 15 min, mix by vortexing several times during incubation or place the sample in a thermomixer. 5. Spin the tube briefly to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for at least 1 min. 8. Transfer 200 µl of the eluate to the sample tube for extraction.
Chewing gum	Use up to 40 mg of chewing gum cut into small pieces: 1. Place the chewing-gum sample in a 1.5 ml microcentrifuge tube. 2. Add 200 µl Buffer BL2 to the sample. 3. Add 20 µl Proteinase K and mix thoroughly by vortexing for 10 sec. 4. Incubate at 56°C for 15 min, mix by vortexing several times during incubation or place the

	sample in a thermomixer. 5. Spin the tube briefly to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube. 7. Spin at 6000 g/ 7500 rpm for at least 1 min. 8. Transfer 200 µl eluate to a sample tube for extraction.
Cigarette butts	Use approximately 1 cm^2 paper from the end of the cigarette or filter: 1. Place the cigarette-butt sample in a 1.5 ml microcentrifuge tube. 2. Add 200 or 400 µl Buffer BL2 to the sample. (Check if the sample has absorbed the buffer BL2. If necessary add more Buffer BL2 to the sample.) 3. Add 20 µl Proteinase K, and mix thoroughly by vortexing for 10 sec. 4. Incubate at 56°C for 15 min, mix by vortexing several times during incubation or place the sample in a thermomixer. 5. Spin the tube briefly to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube 7. Spin at 6000 g/ 7500 rpm for 1 min. 8. Transfer 200 µl of the eluate to the sample tube for extraction.
Stamps, envelopes	Use 0.5–2.5 cm^2 of a postage stamp or envelope: 1. Place all of the pieces of the sample in a 1.5 ml microcentrifuge tube. 2. Add 200 or 400 µl Buffer BL2 to the sample. (Check if the sample has absorbed the buffer BL2. If necessary add more Buffer BL2 to the sample.) 3. Add 20 µl Proteinase K and mix thoroughly by vortexing for 10 sec.

	4. Incubate at 56°C for 15 min, and mix by vortexing several times during incubation or place the sample in a thermomixer. 5. Spin the tube briefly to remove drops from inside the lid. 6. Transfer the entire sample to a filter column sitting in a collection tube 7. Spin at 6000 g/ 7500 rpm for at least 1 min. 8. Transfer 200µl of the eluate to sample tube for extraction.

Quality Control

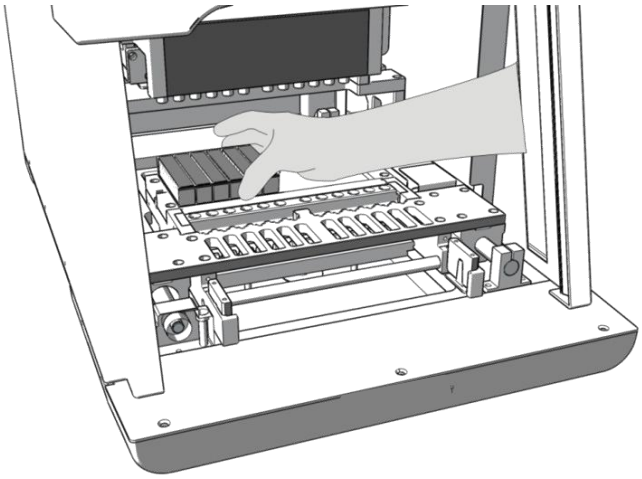
In accordance with BioChain's ISO-certified Quality Management System, each lot of AnaPrep Forensic DNA Extraction Kits is tested to ensure consistent product quality.

Protocol of extraction

1. Turn the power switch on and wait for the LCD screen to light up and display “AnaPrep 12 System Stand-By”.
2. Press the “Start” button
   (The system will process self-testing, and then go to steady mode).
   Note:
   The system will block main functions before the completion of the self-testing process.

3. Open the sliding door and remove the sample rack from the instrument.

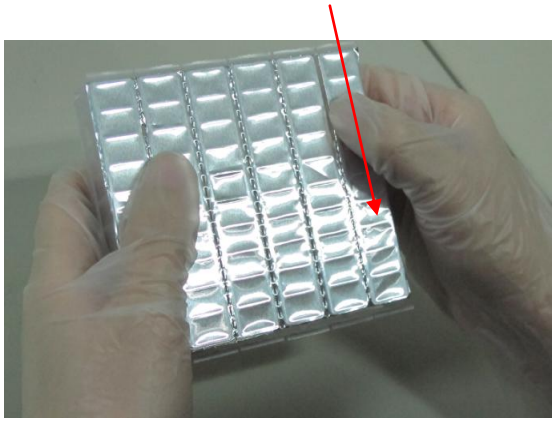
4. Load Reagent Cartridges, and all plastic disposables (Reaction Chamber, Tip Holder, Piercing Pin, and Filtered Tip)

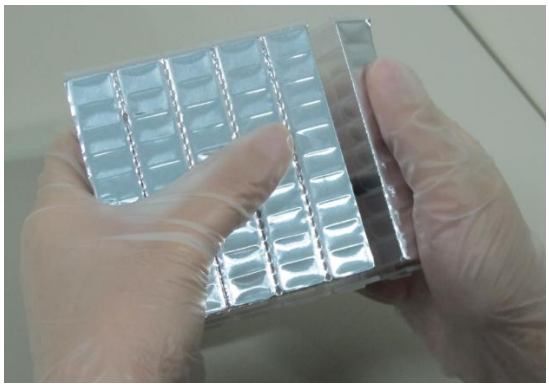


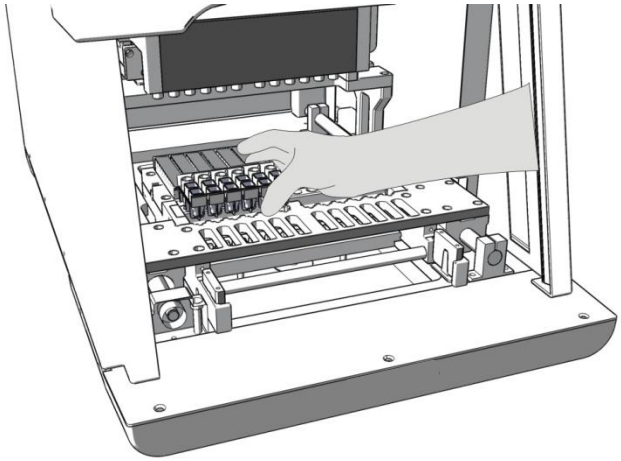
Insert Reagent Cartridges

■ How to pull apart the reagent cartridges

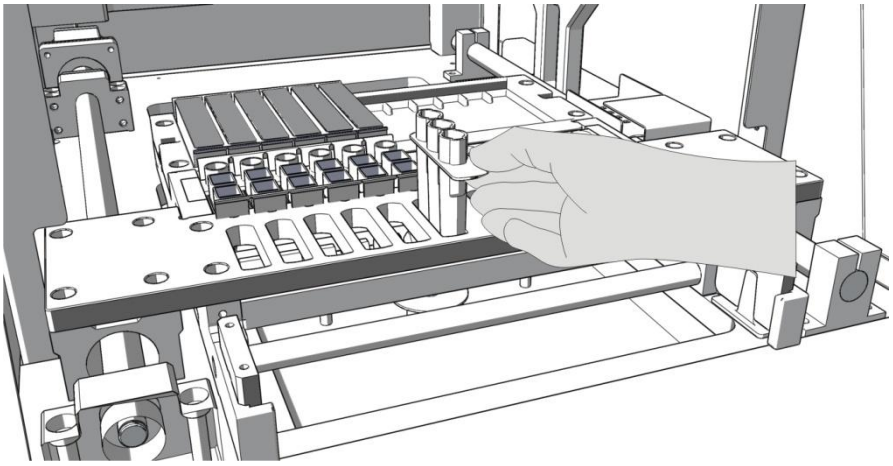
- Cut foil with a finger nail along the dotted line and then snap it apart with a little bit of force.



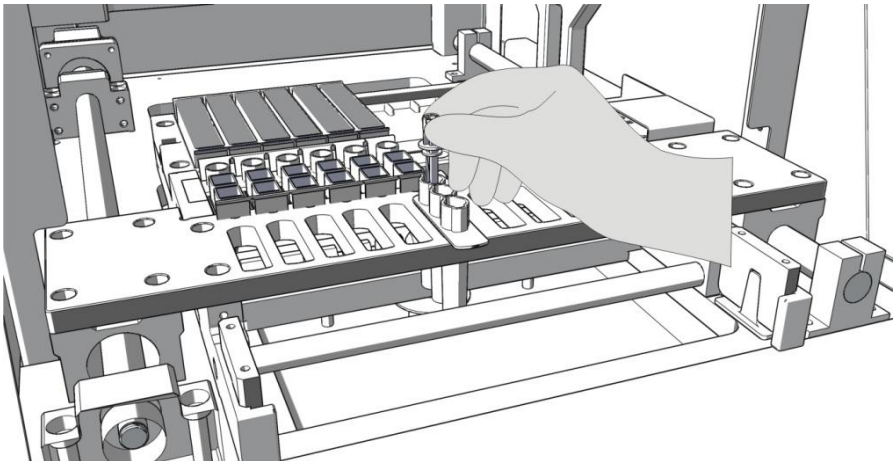




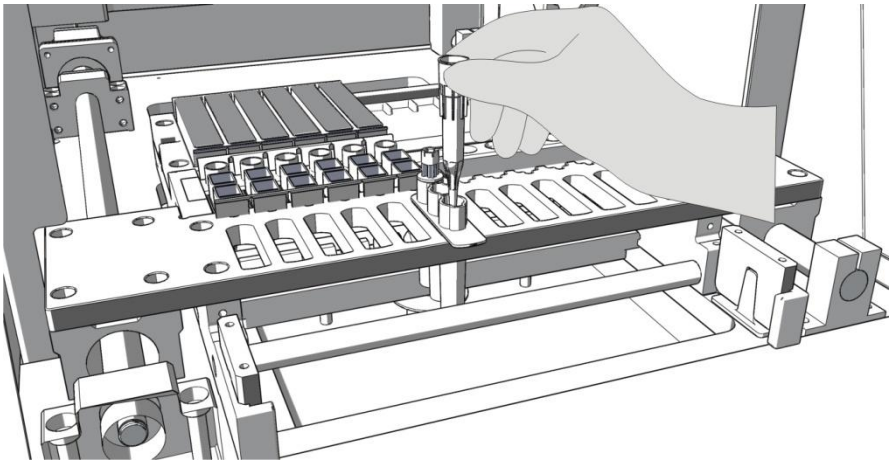
Insert Reaction Chambers



Insert Tip Holder



Insert Piercing Pins



Insert Filtered Tips

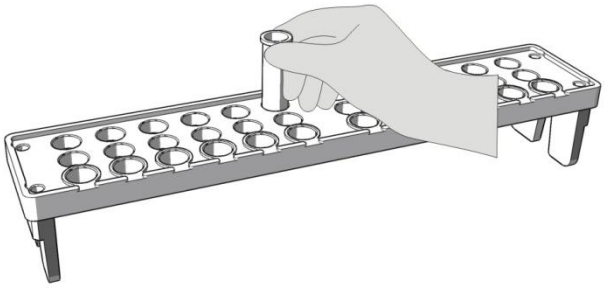
Note:

Load one Reagent Cartridge and one set of plastic disposables per sample.

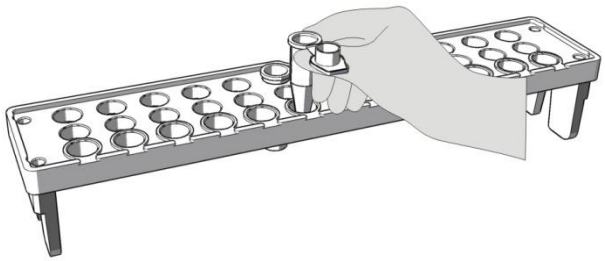
Important:

- Set Reagent Cartridges in the order of the number from left to right.
- Make sure that Cartridges are inserted in to the Cartridge Tray tightly.
- You can load 1-12 cartridges on the tray depending on the number of samples that you wish to process.

5. Load Sample Tube and Elute Tube to Sample Rack on the bench

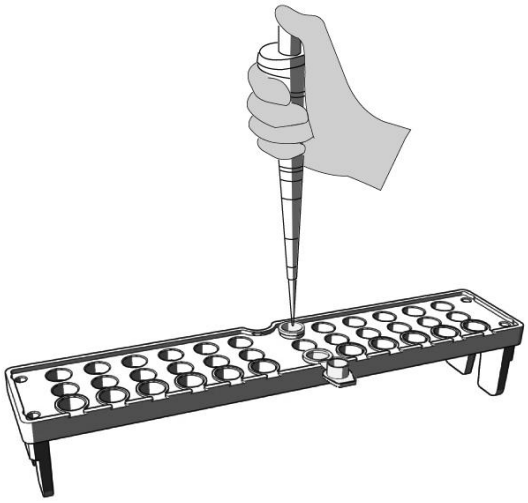


Insert Sample Tube into the Sample Rack



Insert Elute Tube into the Sample Rack

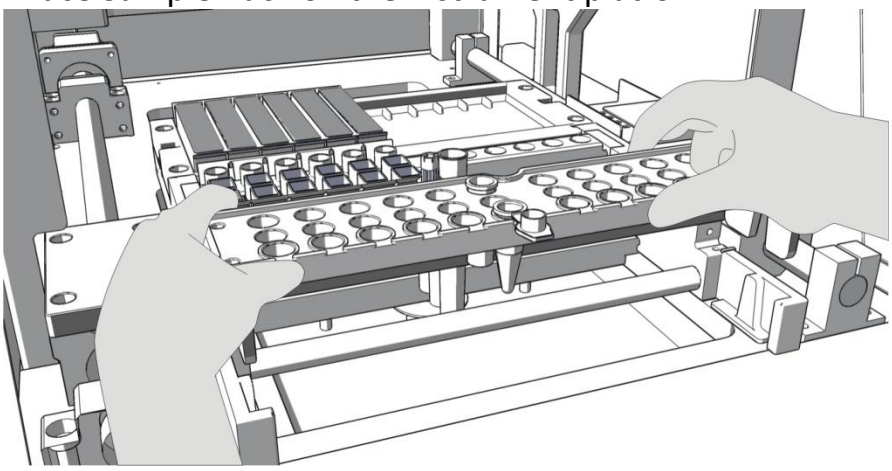
6. Load the sample(s) to Sample Tube.



Note:

- Pretreatments are essential for some sample types before loading to Sample Tube. Please refer to the handbook of reagent kits for details.
- Make sure the caps of Elute Tube are open as the figure shown above.

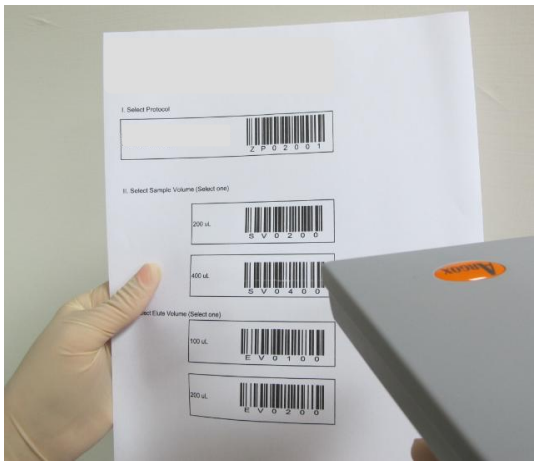
7. Place Sample Rack on the instrument platform



Note:

- Use two hands to handle the Sample Tray.
- Make sure the Sample Tray is placed correctly in the instrument.

8. Close the door.
9. Scan the protocol barcodes to select purification protocol, sample volume and elute volume.



Note:

- There is one protocol barcode paper enclosed in each reagent kit box.
- The protocol's name, sample volume and elution volume will be shown on LCD screen after the protocol barcodes are scanned.

10. Follow the instructions displayed on the LCD screen to double check the operation steps to be completed prior to running the program.
11. Press "Enter" to confirm. The instrument will start running the protocol program automatically and will terminate once all processes are completed.

    Note:

    - It takes 30 to 45 minutes to complete the extraction process and may vary according to reagent types.

12. At the end of the run, the instrument beeps briefly while the LCD screen displays "Protocol Completed".
13. Open the instrument door.
14. Remove the elute tubes containing the purified nucleic acids.

    Note: Store the purified nucleic acids at 4°C for short-term storage or store at -70°C for long-term storage.

15. Discard the used cartridges and all plastic consumables into the biohazard waste. Do not reuse the cartridges
16. If you're not using the instrument, place the Sample Rack back

into the AnaPrep, close the instrument door and press the “Start” button for 2 seconds to enter into “sleep mode”.
If the instrument will not be used for a longer period of time turn the power switch off.

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