

ePure Blood DNA Extraction kit 200

Instructions for Use (Handbook)



E2001



Version: 1.1



48

For *in vitro* diagnostic use



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Read and follow these Instructions for Use prior to using this product. The latest revision of this document can be found at www.ecolidx.com

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Intended Use

ePure Blood DNA Extraction Kit 200 provides a complete set of reagents and consumables for the automated purification of genomic DNA (total nucleic acids) from mammalian whole blood, buffy coat and leukocyte concentration with ePure system.

The product is intended to be used by professional users, such as technicians and physicians who are trained in molecular biology techniques.

Introduction

Product Name	ePure Blood DNA Extraction Kit 200
Catalogue Number	E2001
Product Overview	<p>The ePure Blood DNA Extraction Kit 200 is designed to extract of genomic DNA from mammalian whole blood, buffy coat and leukocyte concentration.</p> <p>The unique magnetic beads technology enables purification of high-quality nucleic acids. Purified nucleic acids are ready for direct use in downstream applications such as sequencing, genotyping, qPCR, ddPCR and NGS assays.</p>
Display Protocol Name on The Instrument	2001 BLOOD DNA 2001 BLOOD DNA RAPID
Processing Time	50-57 minutes 31 minutes (Rapid protocol)

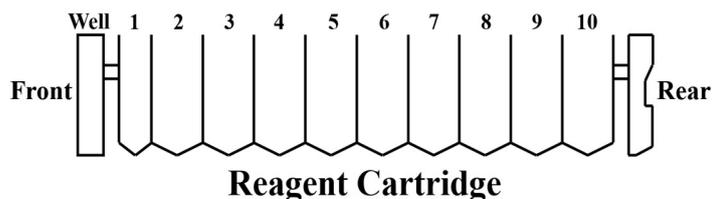
Kit Contents and Storage

Shipping and Storage	The Kit is shipped at room temperature. Upon receipt, store the Kit at room temperature. All Kit components are stable when stored properly until the expiration date shown on the kit box.	
Kit Content	The components supplied in the Kit are listed below. Sufficient reagents are supplied to perform 48 purifications.	
	Contents	Amount
	1 Reagent Cartridge	48 pcs (6x8)
	2 Reaction Chamber	48 pcs (6x8)
	3 Tip Holder	48 pcs (6x8)
	4 Piercing Pin	50 pcs
	5 Filter tip	50 pcs
	6 Sample Tube (2 mL)	50 pcs
	7 Elution Tube (1.5 mL)	50 pcs
	Barcode sticker (on request)	50 pcs

Reagent
Cartridge
Contents

Each Reagent Cartridge has 10 positions with 10 sealed well.
Positions 1-10 contain wells filled reagents for this protocol

Reagent	Well No.
Proteinase K Solution	1
Lysis Buffer 2	2
Binding Buffer 1	3
Magnetic Bead Solution	4
Washing Buffer 1	5
Washing Buffer A	6
Washing Buffer B	7
Elution Buffer 1	8
Elution Buffer 2	9
Empty	10



Materials Required Not Provided

The following general laboratory equipment and consumables are required to perform the Kit. All laboratory equipment should be installed, calibrated, operated, and maintained according to the manufacturer's recommendations. The following tables display required and special equipment along with the list of consumables.

Item
EPure instrument
1.5 or 2.0 mL micro-centrifuge tubes
Pipettes and filter tips
Phosphate-buffered saline (PBS, may be required for diluting samples)
Optional: DNase-free RNase A (to minimize RNA content)

Warnings and Precautions

For *in vitro* diagnostic use only. Read all the instructions carefully before using the kit. Use of this product should be limited to trained personnel in the techniques of DNA purification. Strict compliance with the user manual is required for optimal results. Attention should be paid to expiration dates printed on the box and labels of all components. Do not use a kit after its expiration date.

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (MSDSs, download at www.ecolidx.com).

- Do not use the kit if any consumables are deformed or the cartridge is damaged, or if the conditions of transport and storage according to the instructions for use have not been kept.
- Failure to observe the operating conditions may affect the functions of the kit and the results obtained may not be valid.
- Do not eat, drink, smoke, use cosmetics or handle contact lenses in a laboratory.
- Dispose of all samples and unused reagents in accordance with local regulations.
- Samples should be considered potentially infectious and handled in a biological box in accordance with appropriate biosecurity procedures.
- Clean and disinfect any spilled samples or reagents with a disinfectant, such as 0.5% sodium hypochlorite or other suitable disinfectant.
- Avoid contact of samples and reagents with skin, eyes and mucous membranes. In case of contact with these solutions, immediately rinse the affected area with water and, if necessary, disinfect or seek medical attention.

- Danger of explosion and ignition if transport, operation and storage conditions are observed.
- The isolation kit is for single use only on ePure automated extractor for a total sample count of 48. Use the kit only for its intended purpose.
- Any serious adverse event that has occurred in connection with the use of the kit must be reported to the EcoliDx manufacturer and reported in writing to the competent authority of the Member State in which the Instrument is used.
- In the event of a malfunction of the kit or deterioration of its function, which may endanger its functionality, the kit must be discontinued and the manufacturer must be contacted immediately.



CAUTION: DO NOT add bleach or acidic solutions directly to the sample preparation waste.

Quality control

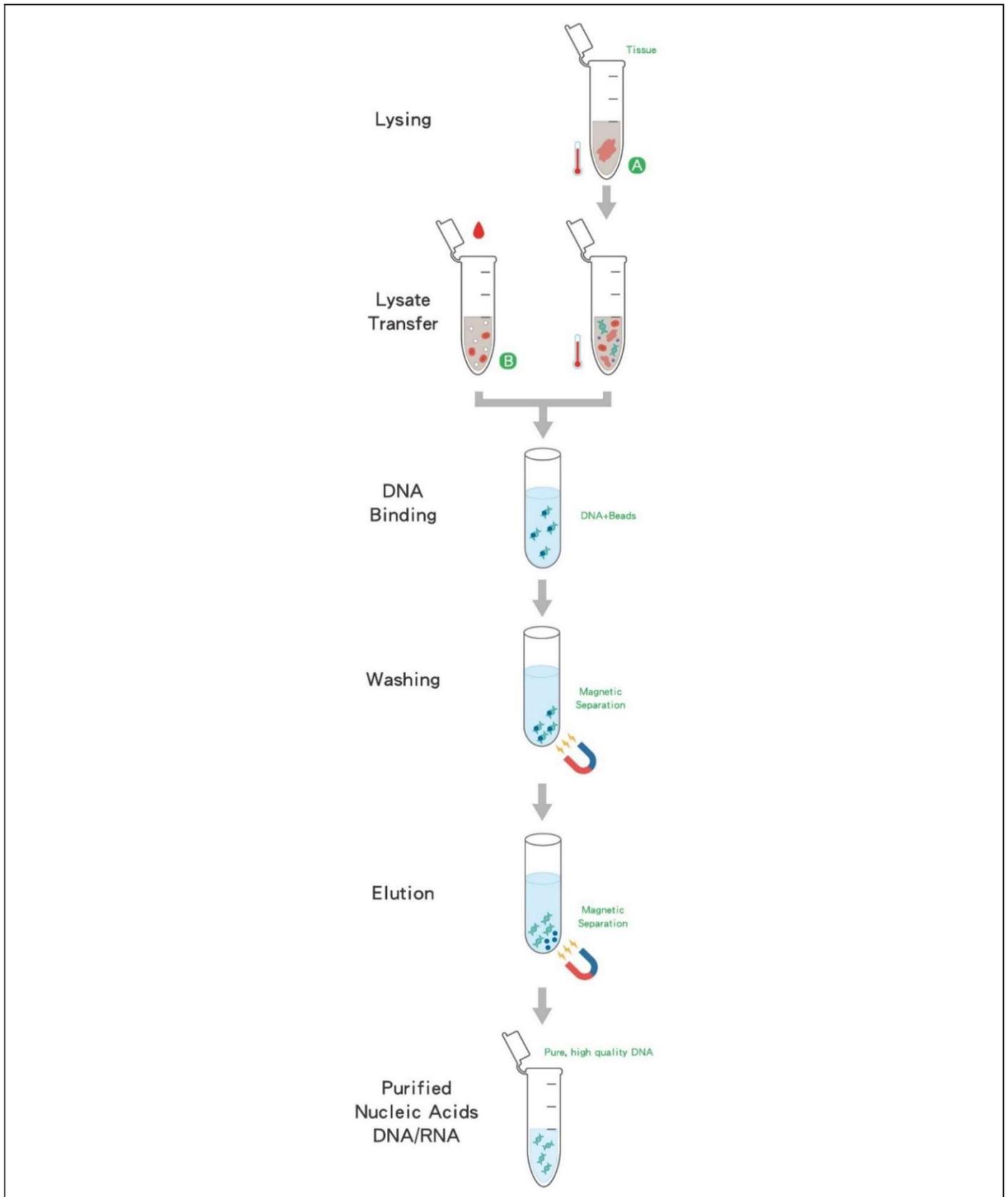
In accordance with the ISO certified EcoliDx quality management system, each kit is tested according to predetermined specifications to ensure consistent product quality.

The following technical standards were also used and complied with for conformity assessment:

ČSN EN ISO 13485 Medical devices - Quality management system - Requirements for regulatory purposes

ČSN EN ISO 14971 Medical devices - Application of risk management to medical devices

Purification Principle



- A** Transfer sample to extraction directly.
- B** Perform certain pretreatment process before extraction.

Before Starting

Preparation of sample materials

The purification procedure is optimized for the use of 100-400 μl whole blood, buffy coat and Leukocyte Concentration.

Mammalian Whole Blood	<ol style="list-style-type: none">a. Gently invert the blood collection tube.b. Dispense 10-400 μl blood sample into each sample tube.c. If the sample volume is lower, please complete with an appropriate volume of PBS.
	<ol style="list-style-type: none">a. If the white blood cell number in the sample is more than 2×10^4 cells / μl, please dilute the sample with PBS into appropriate concentration.
Buffy Coat	<ol style="list-style-type: none">a. Dilute the buffy coat sample with 20 times the volume of 1X PBS and mix gently.b. Adjust the sample volume to ensure that nucleated cells do not exceed the concentration of 2×10^4 cells per μL.c. Dispense 10-400 μl buffy coat sample into each sample tube.
Leukocyte Concentration	<ol style="list-style-type: none">a. If sample contain less than 1×10^3 leukocytes / μl, please concentrate the blood cells by centrifuge at $1,660 \times g$ for 15 minutes at 4°C and use this concentrated leukocytes for extraction procedure.a. Dispense 10-400 μl leukocyte concentrate (no more than 5×10^6 cells) into each sample tube.

Note:

This kit is used to work with fresh or frozen blood samples collected in tubes which contain common anti-coagulants like EDTA, heparin* and citrate. (*EDTA is recommended to use as anticoagulation agent, while heparin has inhibitory effects on nucleic acid amplification reaction)

Use fresh whole blood sample (within 1 week, stored at $4-8^\circ\text{C}$) for extraction is recommended. Total nucleic acid yield and quality will decrease with time or after multiple thawing. For longer storage time, whole blood should be frozen at -20°C or lower and avoid freeze-thaw repetitions.

For use of the concentrated buffy coat (purified and free of blood cells), the ePure Cultured Cell DNA Extraction Kit (E2005) is recommended.

This protocol was established for isolating DNA from whole blood of healthy individual; affected individual or drug-treated individual (e.g., Patients affected by leukemia or infection disease may show abnormal blood quality that may influence the nucleic acid extraction procedure). If the whole blood sample is granulocyte-rich (white blood cell no. more than 2×10^4 cells / μl), dilute blood

sample with PBS or extract the DNA by the ePure Blood DNA Extraction Kit 1200 (E2002) is recommended.

The final eluate contains total nucleic acid (DNA and RNA). RNA is not the major product in this kit (about 10%) and would degrade soon. If the RNA-free product is needed, please add RNase to treat the eluate. (For RNase treatment, follow the manufacturer instructions of the kit used in your lab.)

The suggested starting material and elution volume ranged for each nucleic acid extraction.

Sample type	Starting material per sample	Elution Volume
Mammalian Whole Blood	10-400 μ l whole blood NOTE: When the WBC number is more than 2×10^4 cells / μ l, a sample dilution with PBS into appropriate concentration is recommended.	100-300 μ l
Buffy Coat*	10-400 μ l diluted buffy coat* *Must dilute the buffy coat to 20 times or more with 1X PBS.	
Leukocyte Concentration**	10-400 μ l leukocyte concentrate **The concentration contains no more than 5×10^6 cells. Samples with low leukocyte count (less than 1×10^3 cells / μ l), concentrate the blood cells by centrifuge at $1,660 \times g$ for 15 minutes at 4°C and take the leukocyte concentrate for DNA extraction is recommended.	

Procedure of ePure System Procedure

Workflow of ePure operation

Place the cartridge and plastic consumables on the ePure instrument

Select the protocol and setup the condition

Follow onscreen message for worktable setup

Start the protocol

Collect elution product *

UV decontamination

* Output the bench record (option)

Note: Perform all steps at room temperature (20-25°C) unless otherwise notified.

2 protocols are available:

2001 BLOOD – standard protocol for extraction

2001 BLOOD RAPID – shortened extraction protocol

Purification Protocol

1	Turn on the Instrument	a. Turn ON the power switch - and wait for the screen to turn ON. b. Login and show the Home Page.
2	Load new Consumable(s) and Cartridge(s)	a. Open the door and remove the sample rack from the instrument. b. Open the Tip-Holder Lid. c. Load 1 Reagent Cartridge, and all plastic disposables (2 Reaction Chamber, 3 Tip Holder, 4 Piercing Pins, 5 Filtered Tips and other components if present in the kit intended to use). d. Close the Tip-Holder Lid. e. Paste the Barcode sticker on the Elution Tubes (optional). f. Place 6 Sample Tubes and 7 Elution Tubes into the Sample Rack.
3	Transfer samples into instrument	a. Transfer appropriate volume of sample into sample tubes on sample rack. b. Put back the sample rack into the instrument and Close the door.

- 4** Program Set up
- Select the appropriate protocol program on the instrument. Press **NEXT**.
 - Select an appropriate Sample Volume / Elution Volume and press **NEXT**.
 - Press the number button to select the right Sample Numbers.
 - Scan / Edit each primary Sample ID directly. After finished, Press **NEXT**.
 - Scan / Edit each Elution Tube ID directly. After finished, Press **NEXT**.
 - Scan Reagent Cartridge Barcode. Press **NEXT**.
***If the cartridge expired, the next step cannot be performed.**
 - Follow the instructions on screen to double-check the operating steps being completed before running the program. Press **NEXT**.
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- 5** Start Extraction
- Check "**PROGRAM CONFIRMATION**" on screen.
 - Press "**START**" to start the experiment. Instrument will run the protocol program automatically until whole process is completed.
 - At the end of the run (approximately **50-56 minutes, Rapid 31 minutes**), instrument alarms briefly and the screen indicates "**PROGRAM FINISH**".
 - If you do not re-run the experiment, press the function button " **HOME**" to exit the experiment mode.
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- 6** Collect the Elution tubes
- Open the instrument door.
 - Collect the elution tubes containing the purified nucleic acids.
 - The purified nucleic acids are ready for immediate use. Store the purified nucleic acids at 4°C (short-term, less than 10 days) or aliquot and store at -70°C (long-term) before performing downstream analysis.
 - Discard the used cartridges, all plastic consumables into biohazard waste. ***Do not reuse the cartridges.**
 - If you do not continue to use the instrument, return the sample rack back into the instrument, close the instrument door, and press the " **POWER**" function button to enter sleep mode. If the instrument will not be used for a long time, turn off the power switch.
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Storage of isolated DNA

Purified genomic DNA can be stored short-term at 2-8 ° C.

Long-term at -15 ° C to -30 ° C or -65 ° C to -90 ° C.

Troubleshooting

This table is helpful for solving common problems. If you need other technical support, please contact ecolidx@ecolidx.com or contact your distributor.

Problem	Possible Cause	Comments and suggestions
Poor DNA quality or yield	Deterioration or contamination of reagents.	Please ensure that the kit reagents are still in the effective using period before use. Discard any kit reagent that shows discoloration or evidence of microbial contamination.
	Kit stored under non-optimal conditions	Store kit at 15-25°C at all time after arrival. If either reagent or buffer precipitate upon shipping in cold weather or during long-term storage, dissolve precipitates by gently warming and stirring solution. Please do not freeze the Reagent Cartridges.
	Insufficient sample input	DNA yield depends on the sample type and the number of nucleated cells in the sample. Please proportionally adjust the total input amount of sample to increase the DNA yield.
	Too much of elution buffer was used	The elution volume can be reduced proportionally.
	The eluate of final product(s) is not enough.	Please collect issue information and provide it to your Support Representative / Technical Support as soon as possible.
Clogging issue	Too much sample material was used.	Decrease the input amount of sample material or dilute your sample.
No results in downstream analysis	No signal / The PCR was inhibited.	Using appropriate controls for analysis. Check the positive control, negative control, water (NTC) and internal control to clarify the possible causes.
Instrument malfunction / abnormal sound	Abnormal consumables: 1. Deformed filter tip 2. Deformed reaction	Please replace the batch with normal consumables.

	chamber 3. Deformed Tip holder	
	Abnormal action of instrument: 1. Inaccurate correction value 2. Spare parts or components damaged	Please collect issue information (videos and pictures) and provide it to your Support Representative / Technical Support as soon as possible to calibrate or replace any other damaged or worn parts.

Related Products

Product Name	Cat. no.
ePure Blood DNA Extraction kit	E2001
ePure Blood DNA Extraction kit 1200	E2002
ePure Viral Nucleic Acid Extraction Kit	E2003
ePure Tissue DNA Extraction Kit	E2004
ePure Bacterial DNA Extraction Kit	E2006
ePure HPV DNA Extraction Kit	E2007
ePure TB DNA Extraction Kit	E2008
ePure FFPE DNA Extraction Kit	E2009
ePure Forensic DNA Extraction Kit	E2010
ePure Viral Pathogen DNA Extraction Kit B	E2012
ePure Plant DNA Extraction Kit	E2014
ePure Total RNA Extraction Kit	E2015
ePure CFC DNA Extraction Kit	E2017
ePure cfDNA Extraction Kit Plus	E2024
ePure cfDNA Extraction Kit LV	E2025

Limited Product Warranty

Ecoli Dx is committed to provide 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 any question or concerns, contact our Technical Support Representatives.

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

No warranty is granted for products beyond their listed expiration date. No warranty is applicable unless all product components are stored and used in accordance with instructions.

Revision History

Version	Date	Description
1.0	14 Feb. 2022	New document release
1.1	26 Jun. 2022	Added data according to IVDR legislation

