Cat.: BP-QN11-100

Nucleic Acid Extraction Kit Ⅱ (Magnetic Beads Method)

V01

Product Name

Nucleic Acid Extraction Kit Ⅱ (Magnetic Beads Method)

Package Specifications

100 Reactions

Expected Use

It is used for the extraction, enrichment, and purification of nucleic acids in samples, with the processed product employed for PCR detection.

Product Description

This kit uses guanidine salt solution to release nucleic acid from the sample, and then uses isopropanol to enhance the magnetic bead's ability to adsorb nucleic acid. At the same time, a washing buffer containing ethanol is used to better remove residual proteins and salts. Finally, elution buffer is used under high temperature conditions to elute the specific magnetic bead-bound nucleic acid.

Components

The kit contains the following components:

Components	Specification (100 Reactions)
protease K	1.0 mL × 1 tube
Lysis Buffer	27.6 mL × 1 bottle (add 32.4 mL isopropanol before first use)
Wash Buffer	20 mL × 1 bottle (add 80 mL anhydrous ethanol before first use)
Elution Buffer	10 mL × 1 bottle
magnetic beads A	1.0 mL × 1 tube
instructions	1 copy

Note: Components in different batch numbers of reagent kits are not interchangeable, and the test quantity indicated on each component represents the minimum dispensing volume.

Storage Conditions and Shelf Life

1. The kit shall be stored at 10-30°C with a shelf life of 24 months.
2. The kit should not be frozen and must be protected from strong light exposure.
3. The product batch number and expiration date are indicated on the outer packaging.

Applicable Devices

The kit is compatible with the Biori automated nucleic acid extraction system and other automated nucleic acid extraction devices that have been validated to meet reagent extraction requirements.

Sample Preparation

1. Sample dilution: If the sample to be tested is an upstream intermediate sample in the purification process of biological products, it may contain a high amount of DNA. In order to ensure the accuracy of detection and keep the detected value within the linear range of standard curve, high DNA content samples can be appropriately diluted with 1×PBS (pH7.4, without Ca and Mg) before sample purification; or after sample purification is completed, purified samples can be further diluted with dilution solution for residual DNA testing. Generally, high DNA content samples can be diluted 100-fold or 1000-fold. If a sample is diluted, dilution solution should serve as negative control.
2. If the sample is in powdered state, it can be dissolved with dilution solution before proceeding to next step; or first dissolved into highly concentrated solution using appropriate reagents and then diluted by dilution solution before proceeding to next step. Generally speaking, powdered samples can be diluted to 10mg/mL or 100mg/mL.
3. For samples with complex background matrices, spike and recovery experiments can be conducted as needed to determine the appropriate sample dilution factor.
4. pH requirement: In general, intermediate samples during biological product purification have neutral pH values; if a sample has pH<5 or pH>9, it will affect the effect of sample purification process. Therefore, test the pH values before processing, and adjust them to neutrality (pH 6.0-8.0) with 2M hydrochloric acid or sodium hydroxide before conducting purification operation.
5. Sample parallel processing: To ensure accuracy of results, it's recommended that each individual sample undergoes three separate rounds of DNA extraction and detection processes in parallel

Protocol

Before use, ensure that the reagents in each bottle/tube are at the bottom as much as possible.

A.Manual operation process:

1. Adding samples:Sequentially add 100-400μL of the sample or processed sample solution, internal control (if applicable, refer to the amplification kit instructions),10μL of proteinase K, 600μL of lysis buffer, and 10μL of magnetic beads A (mix the beads well before adsorption) into a 1.5mL nucleic acid-free centrifuge tube. Incubate at 37°C for 2 minutes, then centrifuge briefly at low speed for 2 seconds to bring the sample from the tube wall or lid to the bottom.
2. Place the above mixture on a magnetic stand for 2 minutes. Discard the supernatant and remove the tube from the magnetic stand.
3. Add 1 mL of washing solution, shake thoroughly to mix, perform low-speed centrifugation for 2 seconds, followed by magnetic precipitation for 2 minutes. Discard the supernatant, demagnetize, and air-dry for 2 minutes.
4. Add 100 μL elution buffer, mix thoroughly by vigorous shaking, then perform low-speed centrifugation for 2 minutes followed by dissociation at 80°C in a dry incubator for 5 minutes.
5. After magnetic adsorption for 1 minute, collect the extracted or purified product for subsequent experiments.

※The magnetic adsorption time is related to the magnetic intensity of the magnetic plate. If residual magnetic beads are observed, the magnetic adsorption time should be appropriately extended, and the supernatant must be completely discarded.

※The recommended low-speed centrifugation speed should not exceed 3000 rpm/min, aiming to centrifuge the sample from the tube wall or lid to the bottom of the tube. High-speed centrifugation is strictly prohibited during the experiment.

B. Automated extraction methods (using the Biori automated nucleic acid extraction system as an example)

1. Prepare a 96-well deep well plate and magnetic rod sleeve compatible with the nucleic acid extraction equipment;
2. Dispense reagents: Dispense reagent into corresponding wells by following steps 3 to 7;

Note: The position of heating module may vary depending on different devices；the location where reagents are dispensed should be adjusted according to actual situation.

3. In the A2-H2 and A8-H8 columns of the 96-well deep well plate, the following samples were added per well: 600 μL of lysis buffer, 10 μL of B solution, 10 μL of magnetic beads A, and all digested samples;
4. Add washing buffer at a volume of 1000 μL per well in the A4-H4 and A10-H10 columns of the 96-well deep well plate;
5. In column A6-H6, A12-H12, add elution buffer 100 μL/wel;
6. Place the loaded 96-deep-well plate into an automatic nucleic acid extraction device;
7. Remove the magnetic rod sleeve and insert it into the appropriate position of the automated nucleic acid extraction device;
8. Set up the extraction program and run as follows:

Step	Item	Well	Volume	Mixing Speed	Mixing Time	Settling time	Magnetic Adsorp. Times	Drying Time	Lysis Temp.	Elution Temp.
1	Lysis	2	1000μL	Fast	180s	0s	10	0s	40℃	0℃
2	Wash	4	1000μL	Fast	60s	0s	10	120s	0℃	70℃
3	Elution	6	100μL	Fast	180s	0s	3	0s	0℃	70℃
4	Magnetic Beads Remove	4	1000μL	Medium	10s	0s	0	0s	0℃	0℃

*The magnetic adsorption time is related to the magnetic strength of the magnetic bar. If there is serious residual magnetic beads, the adsorption time shoμLd be appropriately increased.

After the automated extraction program finishes, transfer the extracted product from columns 6 and 12 to a clean centrifuge tube without nucleases. Store the extracted product at -20°C. If used immediately for detection, it can be stored at 2-8°C.

Limitations of the testing method

Sample volume: The maximum extraction sample volume shall not exceed 400 μL.

Product Performance Indicators

High efficiency and speed:The extraction process using this product on the carrier machine requires only approximately

18 minutes.

Notes

1. Carefully read the instructions before operation and strictly follow them during experimentation.
2. Avoid conducting experiments in harsh environments (such as those containing high concentrations of corrosive gases or dust like disinfectant solution, sodium hypochlorite, acids/bases or formaldehyde), laboratory disinfection should be performed after experimentation.
3. Products extracted include nucleic acid such as DNA and RNA; all vessels and pipettes used must be dedicated equipment with no DNase/RNase contamination in disposable consumables such as centrifuge tubes or pipette tips; different samples cannot use the same micro-pipette tip to avoid cross-contamination.
4. This kit contains chemical reagents and preservatives that have certain chemical hazards which can not contact skin or mucous membranes directly. If any reagent contacts skin or mucous membranes, it needs to be rinsed with plenty of water immediately along with sterilization procedures on affected areas; all samples used along with waste kits are considered potentially infectious materials requiring proper disposal according to local government regulations for biohazardous waste management within a biosafety cabinet or laminar flow hood.
5. All components of the kit shall be used within the validity period indicated on the outer packaging. Remaining reagents must be promptly sealed to prevent volatilization and stored at the specified ambient temperature.
6. If crystallization is observed in the reagents before use, warm them appropriately until the crystals are completely dissolved before use.
7. If an individual sample does not turn pink after adding 10 μL of neutralizing solution, continue adding neutralizing solution until the color turns pink.
8. For any inquiries regarding the use of the kit, please contact our company's sales or technical support department.

Disclaimer

This product is for research use only, and the liability of our company for this product is limited to the value of the product itself.

Corporate Information

Email: marketing@biori.com
Web: www.biori.com