Magnetic Blood DNA Extraction Kit (Prepackaged)

DM102

Version 23.1

Product Description

Magnetic Blood DNA Extraction Kit (Prepackaged) is suitble for the isolation and purification of high-quality genomic DNA from blood samples. The kit uses unique embedded superparamagnetic silicon-based magnetic beads. In a high-salt buffer system, nucleic acids instead of proteins and other impurities are adsorbed by hydrogen bonds and electrostatic binding. The magnetic beads that have adsorbed nucleic acids are washed to remove the remaining proteins and salts. When using low-salt buffer, nucleic acids are released from magnetic beads, so as to achieve the purpose of rapid separation and purification of nucleic acids. The kit is compatible with an automatic nucleic acid extraction instrument (Vazyme #VNP-32P) that leverages magnetic bead-based adsorption. Specially designed magnetic rods are used to adsorb, transfer, and release magnetic beads, allowing for automatic nucleic acid extraction and purification via the transfer of magnetic beads/nucleic acids. The DNA isolated with this kit are suitable for various downstream applications, including PCR, real-time PCR, library preparation, and biochip analysis, etc.

Components

Components	DM102-01 (2 × 16 T)	DM102-02 (6 × 16 T)
DNA Reagents (Prepackaged for DM102)	2 × 16 T	6 × 16 T
Proteinase K	2 × 750 µl	5 × 1 ml

Storage

Store at 15 ~ 25°C and transport at room temperature.
If ambient temperatures often exceed 25°C, we suggest storing Proteinase K at 2 ~ 8°C.

Applicable Instruments

Automatic nucleic acid extraction instrument (Vazyme #VNP-32P).

Applications

Blood samples: 50 - 200 µl fresh or frozen anticoagulated (EDTA/sodium citrate/heparin sodium) whole blood with non-nucleated erythrocyte.

Notes

For research use only. Not for use in diagnostic procedures.

1. Sample processing must be carried out in an ultra-clean bench or a biological safety cabinet.
2. The automatic nucleic acid extraction system should be disinfected by UV for 30 min before and after use. Thoroughly wipe down and disinfect all work surfaces with 75% ethanol after the experiment.
3. After removing the sealing film of the aluminum foil, it should be used immediately to prevent the volatilization of the reagent from affecting the quality of the extracted product.
4. Store samples at room temperature for long storage and aviod repeated freezing and thawing of the samples, otherwise it will lead to a poor yield and purity of extracted products
5. Preservation: Samples can be extracted immediately, stored at 2 ~ 8°C for 24 h or at -80°C for long-term sotrage.
6. Purity detection: ddH_2O used for calibration may cause low $OD_{260/230}$ value. The pH value and the presence of ions in the product will affect the absorbance value, but it does not indicate low purity.

Experiment Process

1. Preparation of prepackaged reagent

Take out the prepackaged reagents from the kit, invert and mix several times to resuspend the magnetic beads. Gently shake the plate to make the reagents and magnetic beads sink to the bottom of the well. Please confirm the direction of the plate and be carefully tear off the aluminum foil sealing film.

▲ Avoid vibration when tearing off the the sealing foil to prevent liquid from spilling.

2. Operation of the automatic instrument

2.1 Add 200 μl of blood sample and 40 μl Proteinase K to Columns 1 and 7 of the 96-well plate reagent.

2.2 Place the 96 deep well plate into the nucleic acid extraction instrument (the notch is towards the top left corner). Load the magnetic bar sleeves, and ensure it fully envelops the magnetic bars.

2.3 Set the program as follows (or select the corresponding preset) for automated extraction:

Step	Plate Position	Name	Mixing Time (min)	Adsorption Time (sec)	Waiting Time (min)	Volume (μl)	Mixing Speed	Temperature (°C)	Mixing Position	Mixing Amplitude	Adsorption Position	Adsorption Speed
1	2	Moving magnetic beads	0.5	30	0	700	10	-	10%	80%	0%	5
2	1	Lysis	10	60	0	790	10	80	10%	100%	0%	5
3	2	Wash 1	3	60	0	700	10	-	10%	100%	0%	10
4	3	Wash 2	3	30	0	700	4	-	10%	100%	0%	10
5	4	Wash 3	3	30	0	700	4	-	10%	100%	0%	10
6	5	Wash 4	2	30	1	700	4	-	10%	100%	0%	10
7	6	Elution	13	180	0	100	10	65	10%	100%	0%	10
8	2	Discarding magnetic beads	0.1	0	0	700	8	-	10%	80%	0%	5
Other settings (in the Option menu): Heating settings (heating and action start at the same time) Adsorption settings (three-stage adsorption)												

2.4 At the end of the automated procedure, transfer the eluent in Columns 6 and Columns 12 to clean nuclease-free centrifuge tubes for direct use in downstream experiments or storage at -20°C.