Instruction Manual
Research Use Only

MagBeads Fast Circulating DNA Kit (Ready-to-Use for MPure-96)

Magnetic bead-based Purification for high-quality circulating DNA (cfDNA) from cell-free body fluids (such as plasma, serum)

Size: 96 preps
Storage: 15-25 °C
Cat. No.: 117034900
Content Version: Feb 2024

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1. Introduction to MagBeads Fast Circulating DNA Kit

MagBeads Fast Circulating DNA Kit is intended for purification of high-quality circulating DNA (cfDNA) from cell-free body fluids (such as plasma, serum) using the MPure-96™ aNAP System. The purified DNA is suitable for direct use in downstream applications such as PCR, real-time PCR, Biochip analysis and NGS.

MagBeads Fast Circulating DNA Kit is based on the purification method of high binding magnetic particles. The sample is lysed and digested. DNA is released into the lysate. After addition of magnetic particles and binding solution, DNA will be adsorbed on the surface of magnetic particles, and impurities such as proteins will be removed without adsorption. The adsorbed particles were washed with washing buffer to remove the proteins and impurities, washed with ethanol to remove salts, and finally the DNA was eluted with Elution Buffer.

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2. Kit Components and User Supplied Materials

2.1 MagBeads Fast Circulating DNA Kit for Blood Component

MagBeads Fast Circulating DNA Kit (#117034900, 96 Preps)	
Components	Package
Sample Plate	3 plates
Wash Plate 1	1 plate
Wash Plate 2	1 plate
Wash Plate 3	1 plate
Elution Plate	1 plate
Carrier RNA	310 µg
Proteinase K	180mg
Protease Dissolve Buffer	10 mL
Elution Buffer	60 mL
96 spin tips	1 ea

2.2 User Supplied Materials

- Disposable powder-free gloves.
- Pipettes (adjustable).
- Sterile pipette tips with aerosol barriers (up to 200 µl).
- Vortex mixer.
- Desktop microcentrifuge with rotor for 2 ml reaction tubes (RCF max. 16,000 x g).
- PCR box or Biological cabinet. • Vacuum aspirator with flask for removing supernatant.
- Tube racks.
- 1.5 ml polypropylene sterile tubes.
- Refrigerator for 2-8°C.
- Deep-freezer for ≤ -16°C.
- Waste bin for used tips.
- Permanent pen for labeling
- Thermostatic bath or dry block for tubes with controlled temperature and capable of incubating at 25-100°C.

3. Storage and Kit Stability

Proteinase K, Carrier RNA and Magbeads Particles F should be stored at 2 - 8°C upon arrival. However, short-term storage (up to 12 weeks) at room temperature (15–25°C) will not affect their performance. The remaining kit components can be stored dry at room temperature (15–25°C) and are stable for at least 18 months under these conditions. The entire kit can be stored at 2–8°C, but in this case, buffers should be redissolved before use. Make sure that all buffers are at room temperature when used.

4. Important Consideration Before Use

- ❑ Add 4.5 mL Protease Dissolve Buffer into Proteinase K bottle, and store at -20 ℃ after dissolve.
- ❑ Add 0.155 mL Elution Buffer into the Carrier RNA, and store at -20℃ after it dissolves.

5. Safety Precautions

The user should always pay attention to the following:

• Use sterile pipette tips with aerosol filters and use new tip for every procedure.

• Store extracted positive material (samples, controls and amplicons) away from all other reagents.

• Thaw all components thoroughly at room temperature before starting an assay.

• When thawed, mix the components and centrifuge briefly.

• Use disposable gloves, laboratory coats, protect eyes while samples and reagents handling. Thoroughly wash hands afterwards.

• Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in laboratory work areas.

• Do not use a kit after its expiry date.

• Dispose of all samples and unused reagents in compliance with local authorities requirements.

• Samples should be considered potentially infectious and handled in a biological cabinet in compliance with appropriate biosafety practices.

• Clean and disinfect all sample or reagent spills using a disinfectant such as 0.5% sodium hypochlorite, or other suitable disinfectant.

• Avoid contact with the skin, eyes and mucose membranes. If skin, eyes and mucose membranes contact immediately flush with water, seek medical attention.

• Material Safety Data Sheets (MSDS) are available on request.

• Use of this product should be limited to personnel trained in the techniques of DNA amplification.

• The laboratory process must be one directional; it should begin in the Extraction Area move to the Amplification and Detection Area. Do not return samples, equipment and reagents to the area in which the previous step was performed.

6. Protocol

MPure-96 Automation Purification Method

1. Transfer 300 µL of sample and 20 µL of Proteinase K (Optional: 100 ng Carrier RNA) to sample plate containing Buffer MLK before place it at position 1 of MPure-96™ aNAP System; Place the other reagent plates in the instrument according to the following table and run the instrument with program named "Cir_DNA_300":

Step	Position	Process	Time (s)			Spin (rpm)	Temp (C)
			Mix	Vapor	Collect		
1	5	Magnetic Beads Preparation	60	0	300	3000	RT
2	1	Bind	600	0	300	3000	RT
3	2	Wash 1	180	0	300	3000	RT
4	3	Wash 2	180	0	300	3000	RT
5	3	Dry	0	600	0	-	RT
6	4	Elute	300	0	300	3000	55

Note: Refer the following table for operating procedure on different sample volume.

Assay Program	Total Sample Volume (µL)	No. of Sample Block	Component / Sample Block		
			Sample (µL)	PK (µL)	Carrier RNA (ng)
Cir_DNA_300	300	1	300	20	100
Cir_DNA_700	700	2	350	20	50
Cir_DNA_1000	1000	3	330	13	30

2.Transfer eluted nucleic acid into a clean 1.5 mL microcentrifuge tube. The eluent is now ready for downstream applications. Store purified nucleic acid at -20˚C for extended periods.

Note: If there are still Magnetic Beads remaining in eluted DNA, please centrifuge at 14,000 x g for 3-5 mins and take the supernatant again.

7. Troubleshooting

This guide may be useful in solving any problems that may arise. For further assistance, please contact our technical support team at **apac-techsupport@mpbio.com**

Problem	Recommendation
False negatives with extraction product	Degradation of the nucleic acid contained in the sample. Use a new sample, store samples appropriately.
	Loss of nucleic acid deposit. Carefully draw off the wash solution and try not to remove the nucleic acid deposit.
	Degradation of the extracted nucleic acid. Plastic free from DNAses and RNAses should be used. Use a new aliquot of kit's component.
False positives with extraction product	Contamination during sample extraction. One test tube at a time should be opened. Avoid spilling the contents of the test tube, always change tips.
	Contamination of the reagents prepared for the step. Use a new aliquot of a component.
	Contamination of the extraction zone by amplicons. Surfaces and instruments using aqueous detergents should be cleaned, wash lab coats, replace test tubes and tips in use.

8. Product Use Limitation & Warranty

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