Magnetic Beads gDNA Kit (Blood)

For research use only

Catalogue Numbers	Quantity
MB048	48 rxns
MB096	96 rxns

Introduction

The Magnetic Beads Genomic DNA Extraction Kit Blood was designed specifically for efficient genomic DNA purification from whole blood and buffy coat. DNA is bound to the surface of the magnetic beads and released using a proprietary buffer system. The Magnetic Beads Genomic DNA Extraction Kit Blood can be easily adapted to automated magnetic bead separation instruments and workstations. The purified DNA can be used in qPCR and a variety of other downstream applications.

Quality Control

The quality of the the Magnetic Beads Genomic DNA Extraction Kit (Blood) is tested on a lot-to-lot basis according to Geneaid's ISO-certified quality management system by isolating genomic DNA from a 300 µl whole blood sample.

Advantages

- High Yield: 10 µg of Genomic DNA
- High Quality DNA: A260/A280 = 1.8-2.0
- Easily adapted to automated magnetic bead separation instruments and workstations
- Sample: 100 to 400 µl of whole blood and buffy coat (5 x 10^6 WBC)
- Operation time: within 35 minutes (manual)
- Storage: dry at room temperature (15-25ºC) for up to 1 year

Caution

During operation, always wear a lab coat, disposable gloves, protective goggles and (anti-fog) procedure mask.

Components and Storage

Item	Volume	Product	Shipping	Storage
MB1 Buffer	2 ml	MB004	room temperature	dry at room temperature (15-25ºC)
	30 ml	MB048		
	60 ml	MB096		
MB2 Buffer[1] (Add Isopropanol)	0.8 ml (1.1 ml)	MB004	room temperature	dry at room temperature (15-25ºC)
	11 ml (14 ml)	MB048		
	22 ml (28 ml)	MB096		
Proteinase K[2] (Add ddH_2O)	1 mg (0.10 ml)	MB004	room temperature	dry at 2-8ºC
	11 mg (1.10 ml)	MB048		
	11 mg x 2 (1.10 ml)	MB096		
MW1 Buffer	8 ml	MB004	room temperature	dry at room temperature (15-25ºC)
	80 ml	MB048		
	160 ml	MB096		
MW2 Buffer[3] (Add Ethanol)	2 ml (8 ml)	MB004	room temperature	dry at room temperature (15-25ºC)
	25 ml (100 ml)	MB048		
	12.5 ml (50 ml) 25 ml (100 ml)	MB096		
MB Magnetic Beads	120 µl	MB004	room temperature	dry at room temperature (15-25ºC)
	1.25 ml	MB048		
	2.5 ml	MB096		
Elution Buffer	1 ml	MB004	room temperature	dry at room temperature (15-25ºC)
	12 ml	MB048		
	30 ml	MB096		

[1]Add Isopropanol (see the bottle label for volume) to MB2 Buffer then mix by shaking for a few seconds. Check the box on the bottle. Be sure and close the bottle tightly after each use to avoid Isopropanol evaporation.

[2]Add ddH_2O pH7.0-8.5 (see the bottle label for volume) to Proteinase K then vortex to ensure Proteinase K is completely dissolved. Check the box on the bottle. Once it is dissolved completely, centrifuge for a few seconds to spin down the mixture. For extended periods, the ddH_2O and Proteinase K mixture should be stored at 4ºC. Use only fresh ddH_2O as ambient CO_2 can quickly cause acidification.

[3]Add absolute ethanol (see the bottle label for volume) to MW2 Buffer then mix by shaking for a few seconds. Check the box on the bottle. Be sure and close the bottle tightly after each use to avoid ethanol evaporation.

Magnetic Beads Genomic DNA Extraction Kit Protocol Procedure

IMPORTANT BEFORE USE:

1. Vortex magnetic beads to ensure they are in suspension prior to initial use.
2. Be sure and allow magnetic beads to disperse completely during the binding, wash, and elution steps.
3. Add Isopropanol (see the bottle label for volume) to MB2 Buffer then mix by shaking for a few seconds. Check the box on the bottle. Be sure and close the bottle tightly after each use to avoid Isopropanol evaporation.
4. Add absolute ethanol (see the bottle label for volume) to MW2 Buffer then mix by shaking for a few seconds. Check the box on the bottle. Be sure and close the bottle tightly after each use to avoid ethanol evaporation.

Additional requirements: absolute ethanol, microcentrifuge tubes, magnetic separator, isopropanol

1. Add **20 µl of Proteinase K (make sure ddH_2O was added)** into a 1.5 ml microcentrifuge tube and transfer **100-400 µl of blood (WBC count less than 2 x 10^4 cells/µl) or 100-400 µl of buffy coat (less than 5 x 10^6 WBC)** to the tube containing Proteinase K. **Add 400 µl of MB1 Buffer** and mix well by vortex. Incubate at 60ºC for 5-10 minutes. During incubation, invert the tube occasionally.
Note: DO NOT add proteinase K directly to MB1 Buffer before use.

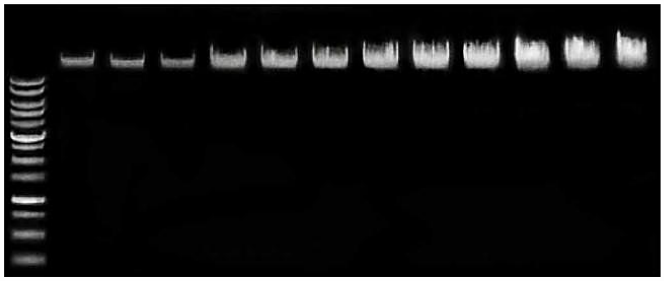
2. Cool the sample lysate at room temperature for 3 minutes. **Add 450 µl of MB2 Buffer (make sure isopropanol was added)** to the sample and mix well by vortex. Vortex the MB Magnetic Beads for 10 seconds prior to use to ensure the MB Magnetic Beads are in suspension. **Add 25 µl of MB Magnetic Beads**. Gently shake or vertex at low speed the tube for 5 minutes to ensure the MB Magnetic Beads disperse completely in the sample mixture. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Remove and discard the supernatant.

3. **Add 800 µl of MW1 Buffer** then shaking vigorously or vortex at medium speed for 3 minutes. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Remove and discard the supernatant. **Add 800 µl of MW1 Buffer** then shaking vigorously or vortex at medium speed for 3 minutes. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Remove and discard the supernatant.

4. **Add 800 µl of MW2 Buffer (make sure ethanol was added)** then shaking vigorously or vortex at medium speed for 2 minutes. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Remove and discard the supernatant. **Add 800 µl of MW2 Buffer (make sure ethanol was added)** then shaking vigorously or vortex at medium speed for 2 minutes. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Remove and discard the supernatant.

5. Open the cap and incubate the tube at 60ºC for 3 minutes to dry the MB Magnetic Beads. **Add 50–200 µl of Elution Buffer**. Mix the sample by pipetting then incubate at room temperature for 3 minutes. During incubation, keep the MB Magnetic Beads in suspension by mixing. Place the tube in a magnetic separator for 30 seconds or until MB Magnetic Beads have pelleted. Carefully transfer the supernatant containing the purified DNA to a clean 1.5 ml Microcentrifuge tube.

Magnetic Beads Genomic DNA Extraction Kit Blood Functional Test Data



Sample	Volume	No. of WBC	Yield	260/280	260/230
Whole Blood	100 µl	5.0 x 10^5	2.5-3.0 µg	>1.8	>1.2
	200 µl	1.0 x 10^6	5.5-6.0 µg	>1.8	>1.6
	300 µl	1.5 x 10^6	7.5-8.0 µg	>1.8	>1.7
	400 µl	2.0 x 10^6	9.5-10.0 µg	>1.8	>1.8

Figure 1. 5 µl of extracted DNA product from a 100 µl eluate was analyzed on a 0.8% agarose gel.

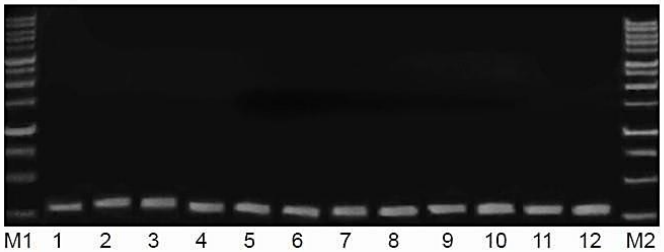


Figure 2. Extracted DNA products were used as a DNA template for amplifying partial human ACTB gene. 3 µl of PCR product was loaded in each well. A 250 bp ACTB gene fragment was successfully amplified from each DNA product.
M1/M2: Geneaid 1 Kb DNA Ladder
Lane 1-3: Extracted DNA from 100 µl blood sample
Lane 4-6: Extracted DNA from 200 µl blood sample
Lane 7-9: Extracted DNA from 300 µl blood sample
Lane 10-12: Extracted DNA from 400 µl blood sample