

Nov 04, 2024

Automated DNA Extraction from Sediment Samples and Filter Membranes Using Magnetic Beads

DOI

<https://dx.doi.org/10.17504/protocols.io.5jyl8dr8rg2w/v1>

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Protocol Citation: Qianyue Ji, Fangfang Jiang, Xiaohan Wang, Shanshan Liu, Mo Han 2024. Automated DNA Extraction from Sediment Samples and Filter Membranes Using Magnetic Beads. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.5jyl8dr8rg2w/v1>

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Protocol status: Working

We use this protocol and it's working

Created: October 27, 2024

Last Modified: November 04, 2024

Protocol Integer ID: 110976

Keywords: automated dna extraction from sediment sample, using mgieasy stool microbiome dna extraction kit, mgieasy stool microbiome dna extraction kit, automated dna extraction, protocol for the automated extraction, automated extraction, magnetic beads this method, sediment sample, extraction, using magnetic bead, magnetic bead, dna, sediment, filter membrane, mgi tech

Abstract

This method presents an optimized protocol for the automated extraction of sediment samples and filter membranes using magnetic beads. DNA was extracted and purified using MGIEasy Stool Microbiome DNA Extraction Kit (940-000122-00, MGI Tech) on a compatible automation system (MGISP-NE384, MGI Tech) .

Materials

Materials

MGIEasy Stool Microbiome DNA Extraction Kit (940-000122-00, MGI Tech)

Supplies:

- Pipette tips (assorted volumes)
- Tubes
- 96-well deep-well plates

Equipment:

- MGISP-NE384, MGI Tech
- Micropipettes, various volumes

Preparing Samples

- 1 Use  1 g of each sediment sample or one half of each filter membrane.
- 1.1 Sediment samples were centrifuged in 96-well deep-well plates (3960, Corning) at  12.000 rpm for  00:05:00 before the extraction, and the supernatant was discarded before extraction.
- 1.2 Filter membranes were cut to small pieces and subjected to extraction directly.

5m

Preparing Reagents

- 2 Preparing Reagents
- 2.1 For one reaction, every  20 μL Magnetic Beads-T are mixed with  300 μL PFB-M, and mix them thoroughly.
- 2.2 Take out 5 U-bottom deep-well plates (MGI, 1000004644), and mark them as 【PFBM + Magnetic beads-T】 , 【PW1-M】 , 【PW2】 , and 【PB】 respectively. Add reagents according to Table.

Item	Volume/Well
PFBM + Magnetic beads-T	320 μL (PFB-M + Magnetic beads-T mixed liquor) + 240 μL sample
PW1-M	400 μL
PW2	800 μL
PB	120 μL

Input volume of PFB-M, PW1-M, PW2, Magnetic Beads-T, and PB



DNA Extraction

3 Run the Script

3.1 Select script provided by the supplier for DNA extraction.

3.2 Follow the on-screen instructions to place the consumables, samples, and reagents. Confirm the placement and close the door.

3.3 Click **【Run】** to start extraction workflow.

3.4 The extracted DNA can be stored at  -20 °C .