MagBeads FastDNA™ Kit for Soil

Cat. No.:116561050 (50 preps) & 116561005 (5 preps)

Quick-Start Protocol

Revision 1.0 Mar 2021

Notes before starting

- ☐ Store Magnetic Beads at 2-8 °C upon arrival; do not freeze.
- ☐ Expect precipitation in Lysis Buffer S1; warming the solution to 55 °C will help dissolve the precipitates.
- ☐ Add 35 mL isopropanol to Binding Buffer MS and mark on the bottle.
- ☐ Add 50 mL 100% ethanol to Wash Buffer S and mark on the bottle.
- ☐ Vortex the sample in a Lysing Matrix E tube at maximum speed for 10 mins if a FastPrep® Instrument is unavailable. Secure samples on the vortex through an adapter to ensure homogenization.
- ☐ Centrifugation speed stated in the manual will be a guideline; use the maximum speed available if 14,000 x g is not feasible.

Manual Extraction

Lyse

1 Add 100-500 mg soil sample to a **Lysing Matrix E** tube.
Note: After adding the sample to the tube, ensure there is still 1/3-1/4 empty space remaining in the tube.
2 Add 980 uL **Lysis Buffer S1**, 120 µL **Lysis Buffer S2** and 10 µL **RNase A Solution** to the sample in the Lysing Matrix E tube and vortex 5-10 seconds to mix.
3 Homogenize sample in a FastPrep® Instrument for 20-40 seconds at a speed setting of 6.0 m/s.
Note: The speed and time can be changed according to different soil samples. Vortex 5-10 mins at maximum speed if a FastPrep® Instrument is not available. If homogenizers from other manufacturers are used, consult the Instruction Manual or manufacturer for appropriate homogenization parameters.
4 Centrifuge at 14,000 x g for 5 mins to pellet debris.

Purify

5 Transfer the supernatant (~800 µL) to a clean 1.5 mL microcentrifuge tube. Add 250 µL **Inhibitor Removal MS** and mix by inverting the tube 20 times.
6 Centrifuge at 14,000 x g for 5 mins to pellet precipitate.

Bind

7 Transfer the supernatant (~800 µL) to a new 2.0 mL microcentrifuge tube. Add an equal volume of **Binding Buffer MS** and 5 µL **Magnetic Beads** to the supernatant. Vortex or invert the tube to mix.
Note: Ensure Magnetic Beads are thoroughly mixed before transferring to the supernatant.
8 Place the tube on a shaker for 5 mins to allow binding.
9 Place the tube on a magnetic rack for 3-5 mins, allow Magnetic Beads to settle, then discard supernatant.
Note: If the supernatant is too turbid or Magnetic Beads are attracting slowly, extend attraction time.

Wash

10 Add 800 µL **Wash Buffer S** to the tube and place on the shaker for 3 mins.
11 Place the tube on the magnetic rack for 1 min, allow Magnetic Beads to settle, then discard supernatant.
12 Repeat step 10 to step 11 for a second wash step.
13 Air dry Magnetic Beads for 5-10 mins at 55 ℃ by placing the tube on a heat block.
Note: This is for removal of residual ethanol and ensure Magnetic Beads are completely dry.

Elute

14 Add 100 µL **DES Buffer** to resuspend Magnetic Beads and incubate on a heat block at 55 ℃ for 5 mins.
15 Place the tube on a magnetic rack for 3-5 mins until Magnetic Beads have settled, and transfer the supernatant (eluted DNA) to a clean 1.5 mL microcentrifuge tube. DNA is now ready for PCR and other downstream applications. Store at -20 ℃ for extended periods.
Note: If the supernatant is too turbid or there are still Magnetic Beads remaining, please centrifuge at 14,000 x g for 3-5 mins and transfer the supernatant again.

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Automated Extraction

Lyse

1 Add 100-500 mg soil sample to a **Lysing Matrix** E tube.
Note: After adding the sample to the tube, ensure there is still 1/3-1/4 empty space remaining in the tube.
2 Add 980 µL **Lysis Buffer S1**, 120 µL **Lysis Buffer S2** and 10 µL **RNase A Solution** to the sample in the Lysing Matrix E tube and vortex 5-10 seconds to mix.
3 Homogenize sample in a FastPrep® Instrument for 20-40 seconds at a speed setting of 6.0 m/s.
Note: The speed and time can be changed according to different soil samples. Vortex 5-10 mins at maximum speed if a FastPrep® Instrument is not available. If homogenizers from other manufacturers are used, consult the Instruction Manual or manufacturer for appropriate homogenization parameters.
4 Centrifuge at 14,000 x g for 5 mins to pellet debris.

Purify

5 Transfer the supernatant (~800 µL) to a clean 1.5 mL microcentrifuge tube. Add 250 µL **Inhibitor Removal MS** and mix by inverting the tube 20 times.
6 Centrifuge at 14,000 x g for 5 mins to pellet precipitate.

Auto Bind, Wash & Elute

7 Transfer 400 µL supernatant to well 2 and well 3 of a 96-well plate. Add additional reagents into the respective wells as shown below.

Well	Reagents	Volume (µL)
1	Deionized water	800
	Magnetic Beads	5
2	Sample supernatant	400
	Binding Buffer MS	400
3	Sample supernatant	400
	Binding Buffer MS	400
4	Wash Buffer S	800
5	Wash Buffer S	800
6	DES Buffer	100

8 Run the instrument according to following settings.

Step	Well	Process	Time (s)			Mixing Speed	Temp (°C)
			Mix	Wait	Attract		
1	1	Magnetic Beads Preparation	60	0	120	Medium	RT
2	2	Bind	300	0	120	Medium	RT
3	3	Bind	300	0	120	Medium	RT
4	4	Wash 1	180	0	120	Medium	RT
5	5	Wash 2	180	0	120	Medium	RT
6	5	Dry	0	600	0	-	RT
7	6	Elute	300	0	150	Medium	55

9 Transfer eluted DNA from well 6 into a clean 1.5 mL microcentrifuge tube. DNA is now ready for PCR and other downstream applications. Store 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 transfer the supernatant again.

Order Information

Product	Package	Cat. No.
MagBeads FastDNA™ Kit for Soil	50preps	116561050
FastPrep-24™ 5G Instrument Including 24 x 2 mL samples adapter	1ea	116005500
MP Magnetic Rack 24	1ea	116570413
MP Magnetic Rack 8	1ea	116570426