Bioanalysis

MACHEREY-NAGEL

NucleoMag® DNA Microbiome



Isolation of DNA from soil, stool and biofilms

DOMINIQUE DUTSCHER SAS

Automation friendly solution for microbiome samples

- High DNA yields – superior downstream performance
- Patent pending inhibitor removal technology
- Sample disruption with MN Bead Tubes or Plates

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NucleoMag® DNA Microbiome

Microbial communities inside and outside of our bodies define and modulate human health. Moreover, the microbiome of the soil and biofilm around us plays a substantial role for ecosystem health.

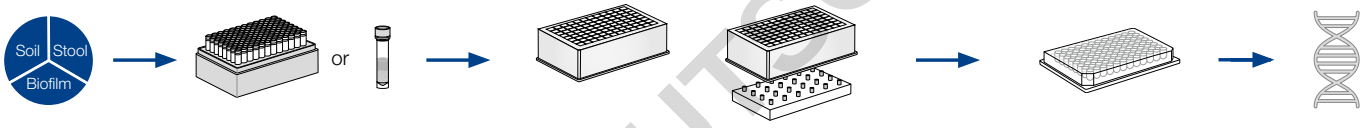
The NucleoMag® DNA Microbiome kit enables high throughput, automation friendly isolation of microbial DNA from samples typically used for microbiome analysis, including soil, stool and biofilm.

The most common challenges in microbiome sample preparations are sample lysis and presence of PCR inhibitors. The use of MN Bead Tubes or MN 96 Bead Plates ensures a uniform and efficient sample disruption and optimal DNA yields. MACHEREY-NAGEL's proprietary inhibitor removal technology removes PCR inhibitors even from challenging soil and fecal samples.

Product at a glance

	NucleoMag® DNA Microbiome
Technology	Magnetic beads
Processing	Manual or automated
Sample material	soil, stool, biofilms (swabs)
Sample amount	50–200 mg
Elution volume	50–100 µL
Preparation time	30 min on KingFisher™ Flex (excl. sample lysis)

Purification workflow



Sample — Lysis — Bind, wash — Elute — DNA

Options for sample disruption

MN Bead Tubes Type A

- 2 mL screw cap tubes
- Prefilled with 0.6 – 0.8 mm ceramic beads
- Compatible with common bead beating devices



MN Bead Plate Type A

- Rack of prefilled tube strips (8 x 12)
- Prefilled with 0.6 – 0.8 mm ceramic beads
- Compatible with common plate disruption device



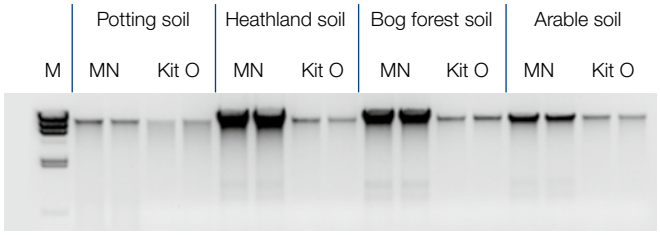
Single bead tubes or bead plates – Freedom of choice for processing microbiome samples

For optimal DNA yields, a complete disruption of sample material is necessary and can be performed with e.g., MN Bead Tubes Type A or MN 96 Bead Plates Type A. These accessories contain ceramic beads, resulting in efficient disruption of microbial cells in soil, stool and other materials used for microbiome analysis.

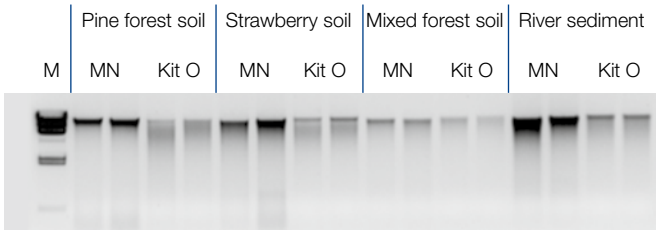
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Application data



Kit	MN	O	MN	O	MN	O	MN	O
$A_{260/280}$	1.65	1.40	1.53	1.37	1.85	1.71	1.68	1.74
$A_{260/230}$	1.18	1.00	1.32	0.90	1.76	1.11	1.30	1.08
DNA yield (µg)	0.96	0.55	4.15	0.50	4.75	0.40	1.35	0.40
qPCR C_T (1:10 dil)	18.08	18.23	15.22	18.76	15.91	18.78	17.54	19.22



Kit	MN	O	MN	O	MN	O	MN	O
$A_{260/280}$	1.73	1.73	1.81	1.68	1.65	1.55	1.71	1.66
$A_{260/230}$	1.38	1.24	1.53	1.16	1.10	0.95	1.45	1.19
DNA yield (µg)	1.20	0.70	1.45	0.55	0.50	0.30	1.30	0.50
qPCR C_T (1:10 dil)	17.68	17.81	16.76	17.74	18.53	19.63	16.59	17.97

Efficient isolation of DNA from soil microorganisms

Soil samples were subjected to a mechanical lysis procedure with MN Bead Tubes Type A. DNA was purified from the homogenates using the NucleoMag® DNA Microbiome kit (MN) and a competitor kit (O) according to the manufacturers instructions. DNA yield and purity were measured photometrically. DNA eluates were dilutet 1:10 and used in a qPCR for the bacterial 16s rRNA gene. The NucleoMag® DNA Microbiome kit preocedure resulted in higher yields, better purities and a better qPCR performance for all soil samples tested.

Kit	MN	Q	MN	Q	MN	Q	MN	Q
$A_{260/280}$	1.59	1.73	1.53	1.61	1.55	1.47	1.78	1.49
$A_{260/230}$	1.25	0.85	1.05	0.86	1.05	0.62	1.20	0.73
DNA yield (µg)	1.17	1.00	1.00	1.83	0.8	–	3.77	2.77
qPCR C_T	11.97	11.98	11.87	11.94	12.55	19.96	12.51	12.41

Efficient isolation of DNA from fecal samples

Fecal samples from different animals (rabbit, sheep, chicke, rat) were subjected to a mechanical lysis procedure with MN Bead Tubes Type A. DNA was purified from the homogenates using the NucleoMag® DNA Microbiome kit (MN) and a competitor kit (Q) according to the manufacturers instructions. DNA yield and purity were measured photometrically. DNA eluates were used in a qPCR for the bacterial 16s rRNA gene. DNA eluates obtained with NucleoMag® DNA Microbiome show a superior purity for all fecal sample types. The yield is comparable (sheep) or better (rabbit, chicken, rat) than with the competitor kit. The qpCR performance is comparable (rabbit, sheep, rat) or better (chicken) than with the competitor kit.





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Ordering information

Product	Specifications	Pack of	REF
NucleoMag® DNA Microbiome	Magnetic bead based kit for the purification of microbial DNA from bacteria or yeast; contains NucleoMag® B-Beads, buffers	1 x 96 preps	744330.1
		4 x 96 preps	744330.4
MN Bead Tubes Type A	2 mL screw cap micro tubes prefilled with 0.6–0.8 mm ceramic beads; recommended for soil, stool and biofilm samples.	50	740786.50
MN 96 Bead Plate Type A	Rack of prefilled tube strips (12 strips with 8 tubes each) containing 0.6–0.8 mm ceramic beads; suitable in conjunction with mixer mill; recommended for soil, stool and biofilm samples.	4 x 96 preps	740850.4
		24 x 96 preps	740850.24

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