



Advancing Microbiome Research

From challenging samples to insight with confidence

Microbiome research encompasses sample types as diverse as the human gut, Antarctic soil, ocean water and acidic hot spring biofilms. These samples are challenging because they are difficult to lyse, with some microbes containing a tough extracellular matrix. Incomplete lysis of a microbial community results in an inaccurate representation of the microbial content of the sample. Additionally, PCR inhibitors present in these samples, especially humic acids, polysaccharides, polyphenolics, lipids and heavy metals, result in inaccurate quantification of nucleic acids and may inhibit downstream applications such as qPCR and next-generation sequencing.

Sample to Insight

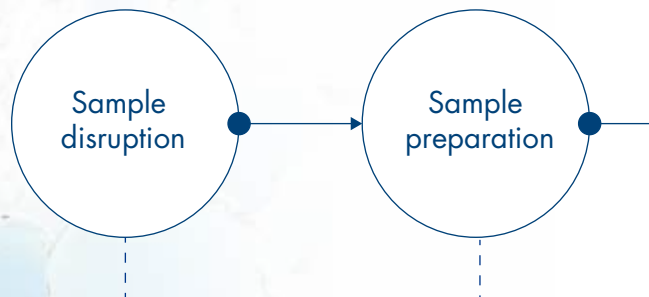
Innovative solutions and novel products

QIAGEN's microbiome sample prep kits solve these challenges with two unique innovations. Optimized bead beating enables lysis of even the toughest samples, and patented Inhibitor Removal Technology® (IRT) removes inhibitors during the purification process. The combination of these two innovations results in high yields of pure nucleic acids that are ready to use in any downstream application.

QIAGEN now offers kits for soil, stool, water, air, biofilm, swabs, plants and other challenging sample types. Protocols for many microbiome sample prep kits are now automatable on the QIAcube for increased productivity and time savings. Choose from many options for analysis of your microbiome samples, including QIAGEN's new QIAseq NGS kits, which make library preparation easy while keeping bias in check. The Microbial Genomics Pro Suite powered by QIAGEN Bioinformatics offers user-friendly guidance paired with best-in-class algorithms for metagenome assembly and comparative microbiome profiling.

The microbiome workflow provides:

- Convenient sample collection and stabilization solutions
- Powerful sample disruption options for low- to high-throughput
- High-quality, pure nucleic acids from challenging sample types
- Increased productivity and time savings with QIAcube automation
- Fast, easy-to-use NGS library prep
- Comprehensive data analysis solutions for all NGS platforms



TissueLyser® II
PowerLyzer® 24 Homogenizer
Vortex Adapters
PowerBead® Tubes
Pathogen Lysis Tubes

QIAamp®
● PowerFecal Pro DNA Kit
● DNA Microbiome Kit
● 96 PowerFecal HT Kit
DNeasy®
● PowerSoil® Pro Kits
● PowerSoil HTP Kit
● PowerMax® Soil Kit
● PowerWater® Kits
● PowerWater Sterivex Kit
● PowerBiofilm® Kit
RNeasy®
● PowerSoil Total RNA Kit
● PowerWater Kit
● PowerBiofilm Kit
● PowerMicrobiome® Kits
AllPrep®
● PowerViral DNA/RNA Kit
● PowerFecal DNA/RNA Kit
MagAttract®
● PowerSoil DNA Kits
● PowerMicrobiome DNA/RNA Kit
● PowerWater DNA/RNA Kit
QIAcube®

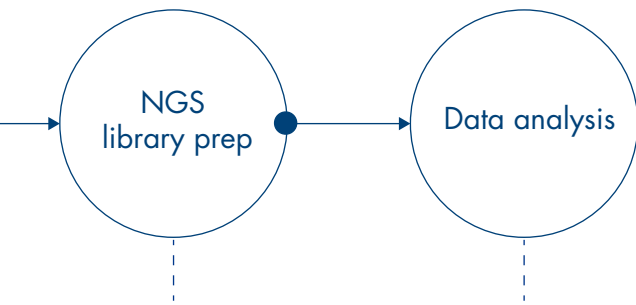
Soil

New PowerSoil Pro Kits use IRT and bead beating technology to isolate microbial DNA and RNA from all soil types and environmental samples including difficult samples containing a high humic acid content such as compost, sediment and manure.

Water

PowerWater Kits are for the isolation of high-quality genomic DNA or RNA from a variety of filtered air and water samples, including turbid waters and Sterivex™ units. Kits include patented IRT for removal of salts, metals, humic substances and other organic materials.

Optimized kits for sample preparation



QIAseq® 16S/ITS Panels
 QIAseq FX DNA Library Kits
 QIAseq Ultralow Input Library Kits
 QIAseq FX Single Cell DNA Library Kit

Microbial Genomics
 Pro Suite

Push-button sample purification on the QIAcube

Many of QIAGEN’s microbiome sample prep kits can now be automated on the QIAcube (Figure 1).

These QIAcube compatible kits allow you to perform the crucial Inhibitor Removal Technology and bind-wash-elute steps with no change in purification chemistry. You can process up to 12 samples per run – and both RNA and DNA preps can be carried out on the same instrument without any risk of cross-contamination. Available kits include the popular DNeasy PowerSoil Pro, QIAamp PowerFecal Pro DNA, DNeasy UltraClean Microbial, DNeasy PowerWater, DNeasy PowerClean® Pro, RNeasy PowerMicrobiome Kits and more.



Figure 1. The QIAcube instrument for hands-free automation of sample prep kits.

Isolation from challenging samples

Biofilm

PowerBiofilm Kits pair a unique bead beating and cell lysis technology with patented IRT for increased yields of inhibitor free DNA or RNA from all types of biofilms, including microbial mats.

Fecal and Microbiome

The new PowerFecal Pro, PowerMicrobiome and PowerViral product lines are for isolation of high-quality, pure nucleic acids from stool, biosolids and gut material. Kits include IRT for removal of lipids, heme, lysed red blood cells and other inhibitory substances.

High-quality metagenomics library preparation

Microbial and metagenomics whole genome sequencing can be done easily with QIAGEN's QIAseq NGS library prep products that are ideal for any metagenomics approach. These high-quality library prep products are compatible with Illumina® sequencers. QIAGEN products can meet your needs for everything from PCR amplicon sequencing to whole genome metagenomic analysis.

Our new QIAseq 16S/ITS panels are a comprehensive solution for robust profiling of bacterial and fungal communities on Illumina platforms that allow interrogating any combination of 16S variable regions and ITS regions. These panels use phased primers to increase the quality of reads and bases and eliminate the need for PhiX spike-in. Low-bioburden reagents decrease background contamination and enable the analysis of low DNA input.

Bioinformatics: A bridge between data and discovery

Without tools for data analysis and interpretation optimized to meet the challenges microbiologists are facing today, novel insights often remain elusive. QIAGEN Microbial Genomics Pro Suite expands upon the CLC Genomics Workbench, the industry standard platform for bioinformatics computing. Plugins and modules add a layer of specialized tools and workflows to CLC Genomics Workbench, creating a comprehensive solution for microbial genomics and metagenomics data analysis.

Experts in the field of microbial genomics are creating plugins for QIAGEN Microbial Genomics Pro Suite to bring additional tools and services to the user community. Take your research to the next level beginning with high-quality nucleic acid isolation kits and ending with our new Power Informatics solutions to analyze all of your microbiome data.

Ordering Information

Product	Contents	Cat. no.
Sample disruption		
Tissuelyser II	For medium- to high-throughput sample disruption for molecular analysis	85300
PowerLyzer 24 Homogenizer (110/220 V)	For the most efficient and complete lysis and homogenization of any biological sample	13155
Vortex Adapters	For vortexing 1.7, 2, 5, 15 and 50 ml tubes using the Vortex-Genie® 2 Vortex	113000-V1-15 13000-V1-24 13000-V1-5 13000-V1-50
PowerBead Tubes	Ready to use bead tubes for rapid and reliable biological sample lysis from a wide variety of starting materials	13113-50 13114-50 13116-50 13117-50 13118-50 13123-50
Pathogen Lysis Tubes	For mechanical disruption of bacteria and fungi, including yeast	19091 19092



Ordering Information

Product	Contents	Cat. no.
Sample preparation		
QIAamp PowerFecal Pro DNA Kit (50)	For the isolation of DNA from stool, gut material and biosolids	51804
DNeasy PowerSoil Pro Kit (50)/(250)	For the isolation of microbial genomic DNA from all soil types	47014 47016
DNeasy PowerSoil HTP 96 Kit (384)	For the isolation of DNA from up to 384 soil samples in less than one day	12955-4
DNeasy PowerMax Soil Kit (10)	For the isolation of microbial DNA from large quantities of soil with low microbial load	12988-10
DNeasy PowerWater Kit (50)/(100)	For the isolation of genomic DNA from filtered water samples, including turbid water	14900-50-NF 14900-100-NF
DNeasy PowerWater Sterivex Kit (50)	For the isolation of genomic DNA from all filtered water sample types collected with Sterivex filter units	14600-50-NF
DNeasy PowerBiofilm Kit (50)	For the isolation of high-quality, pure DNA from biofilm samples	24000-50
RNeasy PowerSoil Total RNA Kit	For the isolation of high-quality total RNA from all soil types	12866-25
RNeasy PowerWater Kit (50)	For the isolation of total RNA from filtered water samples, including turbid water	14700-50-NF
RNeasy PowerBiofilm Kit (50)	For the isolation of high-quality total RNA from biofilm samples	25000-50
RNeasy PowerMicrobiome Kit (50)	For the isolation of total RNA from stool and gut material	26000-50
Allprep PowerViral DNA/RNA Kit (50)	For isolating viral or bacterial total nucleic acids from waste water and stool samples	28000-50
MagAttract PowerSoil DNA KF/EP Kits	For the automated, hands-free isolation of DNA from soil	27000-4-KF 27100-4-EP
MagAttract PowerMicrobiome DNA/RNA KF/EP (384)	For the automated, hands-free isolation of nucleic acids from stool and gut material	27600-4-KF 27500-4-EP
MagAttract PowerWater DNA/RNA Kit (384)	For the automated isolation of nucleic acids from filtered air and water samples	27800-4-EP
QIAamp 96 PowerFecal QIAcube HT Kit	For the automated isolation of DNA from stool using the QIAcube HT	51531
AllPrep PowerFecal DNA/RNA Kit	For simultaneous isolation of DNA and RNA from stool and gut material	80244
QIAamp DNA Microbiome Kit	For isolation of bacterial DNA from swabs and body fluids including host depletion.	51704



Ordering Information

Product	Contents	Cat. no.
Automation		
QIAcube System (110 V)/(230 V)	For fully automated sample prep using QIAGEN spin-column kits	9001882 9001885
NGS		
QIAseq 16S/ITS Region Panel (24)/(96)	For sequencing either specific variable regions of the 16S bacterial gene or the fungal ITS gene	333802 333805
QIAseq 16S/ITS Screening Panel (24)/(96)	For sequencing all variable regions of the 16S bacterial gene and the fungal ITS gene	333812 333815
QIAseq 16S/ITS 24-Index I (96)/(384)/(1536)	For a total of 96/384/1536 samples, for indexing up to 24/96/384 samples for 16S/ITS sequencing on Illumina platforms	333822 333825 333827
QIAseq 16S/ITS Smart Control (10)	For use with QIAamp 16S/ITS Panels, synthetic template for positive control	333832
QIAseq FX DNA Library Kit (24)/(96)	For fast, all-enzymatic NGS library prep for high complexity DNA sequencing applications	180473 180475
QIAseq Ultralow Input Library Kit (12)/(96)	For fast and efficient preparation of DNA libraries for use in NGS applications	180492 180495
QIAseq FX Single Cell DNA Library Kit	Generate high-diversity whole genome libraries from single cells in under 4 hours, including enzymatic DNA fragmentation	180715 180713
Data analysis		
Microbial Genomics Pro Suite	For analyzing, comparing, and visualizing NGS data	Inquire

Visit www.qiagen.com or contact QIAGEN today and learn more about our innovative microbiome workflow!

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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