Human microbiome metagenomics sequencing package

The human body harbors diverse microbial communities across various anatomical sites, including the gastrointestinal tract and skin. These communities, collectively known as the human microbiome, play crucial roles in maintaining health and are implicated in various diseases such as cancer and gastrointestinal disorders. Through the study of the human microbiome, we gain deeper insights into the intricate relationship between microbes and human health.

MGI's Microbiome Metagenomics Sequencing Solution integrates MGI's advanced reagents kit, automation system, and DNBSEQ sequencing technology, providing a comprehensive solution from sample collection to sequencing. This cutting-edge platform enables large-scale parallel sequencing of the human intestinal microbiome, facilitating comprehensive analysis and understanding of microbial contributions to human health.

Features

- **Excellent performance validated by large number of real samples**

  Validated over 13,0000 stool samples in MMHP on DNBSEQ sequencer, showed excellent Intra-platform reproducibility (relative abundance Spearman's : gene>0.91, species>0.97), and has High consistency with other brand platforms(Gene richness Spearman's >0.99)*.

- **One-stop, fast and automated workflow**

  Integrated with MGISTP-7000, MGISP-NE384, MGISP-960, and MGISP-Smart8, enabling automated sample transfer, extraction, normalization, pooling and library preparation, resulting in labor savings.

- **Fully validated medium and high throughput metagenomics solutions based on DNBSEQ-G400,DNBSEQ-T7 and DNBSEQ-T20×2 platforms**

  Different throughput of automatic DNA/RNA extraction and genetic sequencing platforms make the microbiome application more flexible and efficient.

- **Cost effective**

  Implementing a 2-fold library prep miniaturization on the MGISP-960 automation platform reduces library preparation costs.

Sample pretreatment ~40 min	Extraction ~3 h	Lib prep ~11.5h	Sequencing ~22-80h	BIT
• MGISTP-7000 • MGIEasyStool Sample Collection kit	• MGISP-960/MGISP-NE384 • MGIEasy Stool DNA (Meta) Extraction Kit V2.0 • MGI Grinding beads	• MGISP-960/MGISP-Smart8 • MGIEasy Fast FS DNA Library Prep Set V2.0 (2-fold miniaturization for library prep)	• DNBSEQ-T7/G400/T20×2 • DNBSEQ-G400RS High-throughput Sequencing Set (FCL PE150) • High-throughput Sequencing Set (FCL PE150) • DNBSEQ-T20×2RS High-throughput Sequencing Set	• Ztron./PFI

Figure1 Workflow

Table1 Specification

Intended use	Microbiome research
Sample type	Stool
Max throughput	DNBSEQ-T7：220K samples/year；232 samples/FC
	DNBSEQ-T20×2：450K samples/year；1056 samples/FC
	DNBSEQ-G400：15K samples/year；64 samples/FC
Recommended data volume	6 Gb per sample
Compatible sequencer	DNBSEQ-G400/T7/T20×2
Reads length	PE150

Empowered the MMHP**

The "Million Microbiome of Humans Project" (MMHP) is currently the largest international microbiome research initiative in the world. The project aims to map the human microbiome across different ethnicities, ages, genders, and health statuses based on MGI Microbiome Metagenomics Sequencing technology, and to establish the large-scale population baseline for microbiome research. thereby promote translational medical research in the field of the human microbiome.
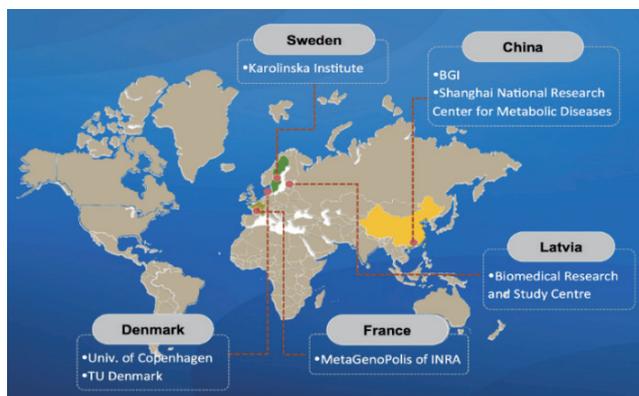

Figure2 MMHP member orgnizations

Figure3 Founding members of the project

Ordering information

Type	Name	Specification	PN
Instrument	DNBSEQ-T7RS Genetic Sequencer	–	900-000242-00
	DNBSEQ-T20RS Genetic Sequencer	–	900-000543-00
	DNBSEQ-G400RS Genetic Sequencer	–	900-000170-00
	Sample Transfer Processing System, MGISTP-7000RS	–	900-000336-00
	Automated Nucleic Acid Extractor MGISP-NE384RS	–	900-000358-00
	MGISP-960RS High-throughput Automated Sample Preparation System	config 9	900-000154-00
	MGISP-960RS High-throughput Automated Sample Preparation System	config 7	900-000147-00
	Automated Sample Preparation SystemMGISP-Smart 8RS	config 1	900-000495-00
	Automated Sample Preparation SystemMGISP-Smart 8RS	config 4	900-000503-00
Reagent	MGIEasy Stool Collection kit	15 Ml	940-001644-00
	MGISTP-7000 15mL Stool sampling tube configuration modification package	–	520-001211-00
	MGIEasy Stool DNA (Meta) Extraction Kit V2.0	384 preps	940-001246-00
	MGIEasy Tissue Grinding Beads (Prepacked)	864 preps	940-001914-00
	RNase A	1 mL	940-001646-00
	MGIEasy Fast FS DNA Library Prep Set V2.0	96 RXN	940-001194-00
	MGIEasy Fast FS DNA Library Prep Set V2.0	192 RXN	940-001196-00
	MGIEasy Fast FS Library Prep Set C V2.0	96 RXN	940-001831-00
	MGIEasy Fast FS Library Prep Set V2.0 (960 RXN Customization)	960 RXN	940-002058-00
	MGIEasy Fast FS Library Prep Set V2.0 (1152 RXN Customization)	1152 RXN	940-002340-00
	MGIEasy Dual Barcode Circularization Kit V1.0	16 RXN	1000020570
	DNBSEQ-G400RS High-throughput Sequencing Set	FCL PE150	1000016952
	DNBSEQ-T7RS High-throughput Sequencing Set（FCL PE150）V3.0	FCL PE150	940-000268-00
	DNBSEQ-T20×2RS High-throughput Sequencing Set	FCL PE150	940-000351-00

*The data published at Almeida, M. et al. 2022.Nature Scientific Data.
** https://db.cngb.org/mmhp/project

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