Turbocharge Your Sequencing

High-speed, high flexibility and ultra-high throughput

Genetic Sequencer DNBSEQ-T7*

High-speed
22 to 24 HOURS for PE150 sequencing

High-flexibility
4 FLOWCELLS, PE150 and PE100
at the same time

Ultra-high Throughput
up to 7 T/DAY,
High quality data 24/7

Leading Life Science Innovation

◎ ABOUT
MGI Tech Co., Ltd.

MGI Tech Co., Ltd. (referred to as MGI) is committed to building core tools and technology to lead life science through intelligent innovation. With a focus on R&D, production and sales of DNA sequencing instruments, reagents, and related products, MGI provides real-time, panoramic, and life course equipment and systems for precision medicine, precision agriculture, precision healthcare and other relevant industries. MGI is a leading producer of clinical high-throughput gene sequencers, and its multi-omics platforms include genetic sequencing, medical imaging, and laboratory automation.

As of December 31, 2022, MGI has more than 2,800 employees, and 36% of whom are R&D personnel. Founded in 2016, MGI operates in more than 90 countries and regions, serving more than 2,000 customers. It has established scientific research and production bases, global training and service network in many countries and regions around the world. MGI is one of two companies in the world that can independently develop and mass-produce low-, medium- and high-throughput clinical gene sequencers from GB to TB. Providing real-time, comprehensive, life course solutions, its vision is to lead life science innovation.

ABOUT **DNBSEQ-T7***

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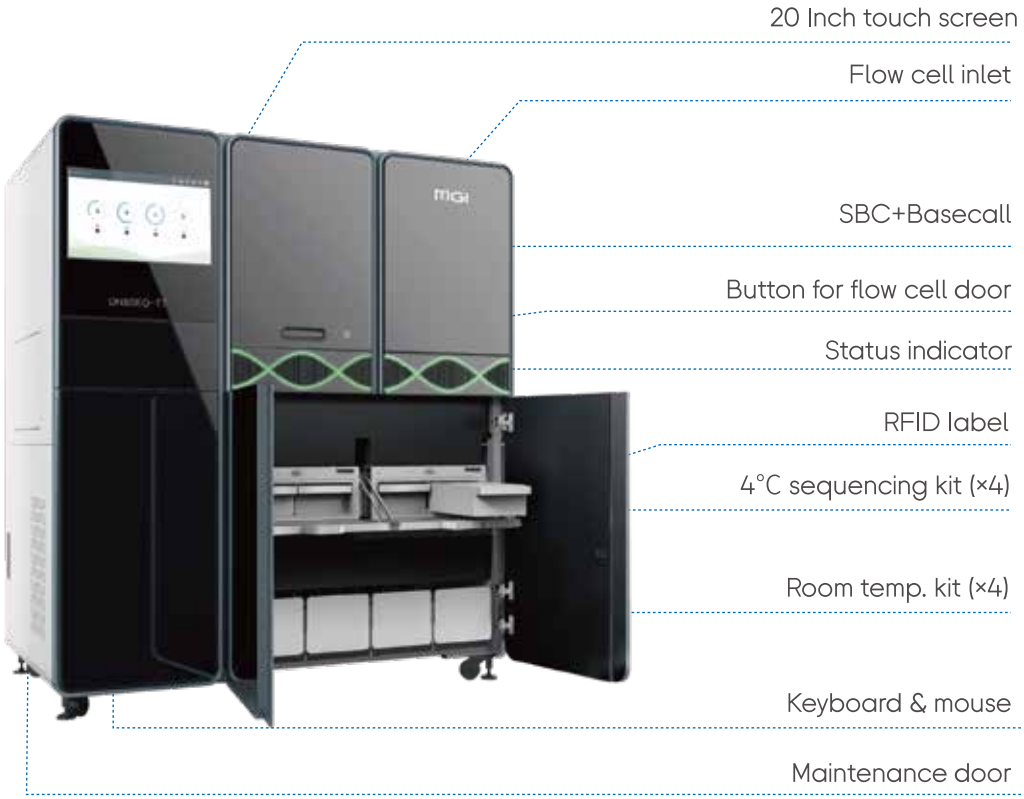
INTRODUCTION

DNBSEQ-T7*

DNBSEQ-T7* can generate 1-7T of high quality data per day, for a wide range of applications including whole genome sequencing, deep exome sequencing, epigenome sequencing, transcriptome sequencing, and targeted panel projects.

Powered by 4-color and DNBSEQ™ Technology, DNBSEQ-T7* makes sequencing more efficient and productive with advances in biochemical, fluidics, and optical systems.



MGIDL-T7

MGIDL-T7 is an essential auxiliary product for DNBSEQ-T7*. The device is used to prepare sequencing Flow Cells by loading the prepared DNB (DNA Nanoball) and/or reagent to a Flow Cell. It loads one or two Flow Cells in less than 2 hours.

Dimensions	430 mm x 780 mm x 750 mm
Net Weight	81 kg

DNBSEQ-T7* Specifications

4 Flow Cells/run, **1** lane/Flow Cell, **≥5800 M** max reads/Flow Cell*.

Read lengths	PE100	PE150
Data Output	1.16-4.64 T	1.75-7 T
Q30**	> 85%	> 85%
Run Time***	16-18 H	**22-24 H** ▲

▲ 24H sequencing time is based on using DNBSEQ-T7 High-throughput Sequencing Reagent Kit V3.0 and FPGA server.

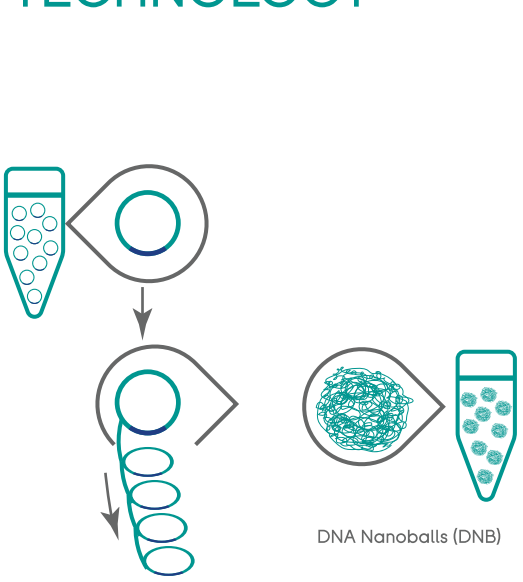
* Effective reads and Q30 are based on the standard library. These values may vary depending on various applications

** The percentage of base above Q30 is the average of an internal standard library over the entire run. The actual performance is affected by factors such as sample type, Library quality, and insert fragment length.

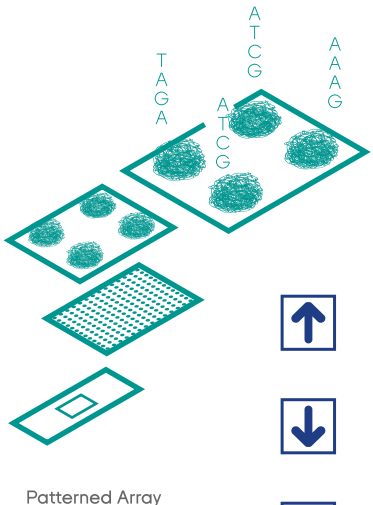
*** Run time includes Flow Cell loading, sequencing, and outputting Cal. File. Cal. is a binary file format generated by MGI sequencer basecall software.

MGI'S PROPRIETARY

DNBSEQ™ TECHNOLOGY



DNA Nanoballs (DNB)



Patterned Array

- INCREASED ACCURACY
- DECREASED DUPLICATES
- REDUCED INDEX HOPPING

WGS Total Package

STEP 1

Sample pretreatment & preparation

STEP 2

High-throughput sequencing

STEP 3

Bioinformatics analysis

MGISP series

MGI series include MGISP-100 and MGISP-960, the throughput is 16 samples/run and 96 samples/run respectively, which can perform nucleic acids extraction and library preparation.

MGIDL-T7

MGIDL-T7 is an essential auxiliary product for DNBSEQ-T7*, it loads DNB and/or reagents onto the flow cell to complete the preparation of sequencing.

DNBSEQ-T7*

Sequencing operation contains two main steps. Including manual operation and automatic operation.

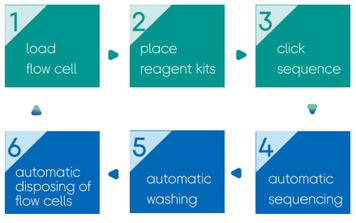
Manual operation: (*user login and choose sequencing mode) automatic sequencing – automatic washing – automatic disposing of flow cells

Automatic operation: load flow cell – place reagent kits – click sequence

Manual operation

*user login and choose sequencing model

Automatic operation



MGI·ZTRON

MGI·ZTRON, a Data Analysis Appliance: provides edge computing and storage packages. MGI·ZTRON executes bioinformatics analysis, data governance and data delivery. Data generated by DNBSEQ-T7* can be automatically uploaded to MGI·ZTRON and generate reports.

MGI provides a total package for whole genome sequencing. DNBSEQ-T7* is compatible with a variety of products covering the whole processes from sample pretreatment, library preparation, DNB loading, sequencing and data processing (ZTRON Pro), making WGS easy and accessible.

ZLIMS

Zebra LIMS (Laboratory Information Management System) enables real-time sample tracking throughout the workflow, offering an total package from sample to sequencing report.

DATA PERFORMANCE

Whole Genome Sequencing (WGS) Data Performance

Reagent	DNBSEQ-T7RS* High-throughput Sequencing Set (FCL PE100)
Sample	Human Cell Line
Prep Set	MGIEasy PCR-Free DNA Library Prep Set
Data analysis	MegaBOLT

Sample	NA12878
Mapping rate (%)	99.73
Duplicate rate (%)	0.55
Mismatch rate (%)	0.52
Average sequencing depth (X)	30.80
Coverage (%)	99.23
Coverage at least 4X (%)	99.03
Coverage at least 10X (%)	98.61
SNP_ Precision	0.9992
SNP_ Sensitivity	0.9910
Indel _ Precision	0.9894
Indel _ Sensitivity	0.9776

Reagent	DNBSEQ-T7RS* High-throughput Sequencing Set (FCL PE150)
Sample	Human Cell Line
Prep Set	MGIEasy FS PCR-Free DNA Library Prep Set
Data analysis	BWA+GATK

Sample	NA12878
Mapping rate (%)	100
Duplicate rate (%)	1.61
Mismatch rate (%)	0.78
Average sequencing depth (X)	30.57
Coverage (%)	99.16
Coverage at least 4X (%)	99.00
Coverage at least 10X (%)	98.59
SNP_ Precision	0.9993
SNP_ Sensitivity	0.9970
Indel _ Precision	0.9895
Indel _ Sensitivity	0.9827

Sample Throughput Guidance for Key Applications

Flow Cell per run	1	2	3	4
WGS samples/run	9~14	18~28	27~42	36~56
WES samples/run	62~92	124~184	186~276	248~368
Transcriptomes samples/run	~232	~464	~696	~928

* Human Genomes assumes > 100 Gb of data per sample to achieve 30× genome coverage;
Exome assumes ~15 Gb/100×;
Transcriptomes assumes ≥ 6 Gb/sample;
Throughput may vary based on library preparation kit used;
Sample numbers are calculated considering pooling variation and applications. For reference only.

APPENDIX

DNBSEQ-T7* Configurations

	Model	Intended Market
Model*	DNBSEQ-T7	IVD
	DNBSEQ-T7RS*	RUO
Dimensions	1656 mm (L) × 903 mm (W) × 1815 mm (H)	
Net Weight	765 Kg	
Power	Type	200~240 V, 50/60 Hz, 30 A
	Rated Power	3000 VA
Operating Environment Requirements**	Temperature	19~25 °C,<2 °C change per hour
	Relative Humidity	30%RH ~ 80%RH, non-condensing
	Atmospheric Pressure	80 kPa~106 kPa
	Waterproof Rating	IPX0
	Altitude	Below 2000 meters
Floor bearing capacity***	≥650 Kg/m^2	
Control Computer Configurations****	CPU	Intel CORE I7-7700 4Core x2 3.6GHz
	Internal Storage	16 GB RAM
	HDD	1 TB
	SSD	128 GB
	Operating System	Windows 10
Bandwidth for Network Connection	300 MB/s	For local storage network uploads
	1000 MB/s	For Fastq computing uploads

* For research use only. Not for use in diagnostic procedures.

** For indoor use only, the Flow Cell can be stored and transported at 0~30 °C. No liquid medium is needed.

*** Please install DNBSEQ-T7 above the bearing beam.

**** Supporting the computer configurations and system updates.

Technical Support Available Globally

Local technical support and Customer Experience Centers (CECs) have been established in multiple countries and regions worldwide to ensure timely and effective technical support and training.

Local warehouses and spare part centers have been established in multiple countries and regions worldwide to ensure the continuous availability of machine parts for maintenance.

Online technical support is available globally with a fully functional call center (Toll-Free Hotline 4000-688-114) accessible during workdays from 9:00 AM-12:00 PM and 13:00 PM-18:00 PM (Beijing time, GMT+8).

Providing installation services and system verification services as needed to ensure smooth implementation and operation. The value-added services are available for personalized services such as secondary relocation.

Responsible for any failure caused by non-human factors and non-force majeure factors within the warranty.

Providing instrument preventive maintenance services within the warranty period, along with a host of available extended warranty support plans to ensure optimal performance and reliability.

Ordering Information

Product Information	Cat. No.
MGIDL-T7RS[+]	900-000134-00
DNBSEQ-T7RS[+]	900-000242-00
MGIDL-T7	900-000133-00
DNBSEQ-T7	900-000241-00
DNBSEQ-T7RS High-throughput Sequencing Set (FCL PE100)[+]	900-000206-00
DNBSEQ-T7RS High-throughput Sequencing Set (FCL PE100)[+]	900-000152-00
DNBSEQ-T7RS High-throughput Sequencing Set (APP-A FCL PE100)[+]	970-000004-00
DNBSEQ-T7RS High-throughput Sequencing Set (APP-A FCL PE150)[+]	900-000446-00
Universal Sequencing Reaction Kit (SM FCL PE100)	940-000291-00
Universal Sequencing Reaction Kit (SM FCL PE150)	940-000285-00

[+]For research use only. Not for use in diagnostic procedures

For more ordering information, please contact your local sales representative.

◎ MGI Genetic Sequencers

DNBSEQ-E25*
Reads per flow cell: 25 M
Number of flow cells: 1
Data output: 2.5-7.5 Gb

DNBSEQ-G99*
Reads per flow cell: 80 M
Number of flow cells: 2
Data output: 8-96 Gb

DNBSEQ-G50*
Reads per flow cell: 100-500 M
Number of flow cells: 1
Data output: 10-150 Gb

DNBSEQ-G400*
Reads per flow cell: 300-1800 M
Number of flow cells: 2
Data output: 55-1440 Gb

DNBSEQ-T7*
Reads per flow cell: 5800 M
Number of flow cells: 4
Data output: 1-7 Tb

DNBSEQ-T20×2*
Reads: 35-40 B
Number of slides: 6
Data output: 42-72 Tb

*Unless otherwise informed, this StandardMPS sequencing reagent is not available in Germany, UK, Sweden, and Switzerland.

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