Choose Your GenoLab M Plan

Product Name	Item No.	Specification
● Equipment		
GenoLab M	30-0000-0000-00	Quantity
● Kit		
Sequencing Reaction Reagent Kit (Reversible Termination Sequencing)	30-0006-0075-00	FCM，SE75
	30-0006-0150-00	FCM，SE150
	30-0006-1075-00	FCM，PE75
	30-0006-1150-00	FCM，PE150
	30-0007-0075-00	FCH，SE75
	30-0007-0150-00	FCH，SE150
	30-0007-1075-00	FCH，PE75
	30-0007-1150-00	FCH，PE150

GenoLab M Specification

Equipment Configuration

GenoLab M DNA Sequencer
Analysis Server
Software Installer
Control Parameter File
Barcode Scanner HH480 (with stand)
Waste Liquid Tank

Analysis Server
(can be upgraded according to the application requirement)

Operating System: Windows10 Pro
CPU: Xeon SR 4216
Memory: 16 GB DDR4 * 6
Hard Disk 1: 512 GB SSD
Hard Disk 2: 10 TB HD * 4

GenoLab M DNA Sequencer

Optical System
Reagent Storage System
Fluid System
Electromechanical Control System
Motor System
Sequencing System Software
Temperature Control System

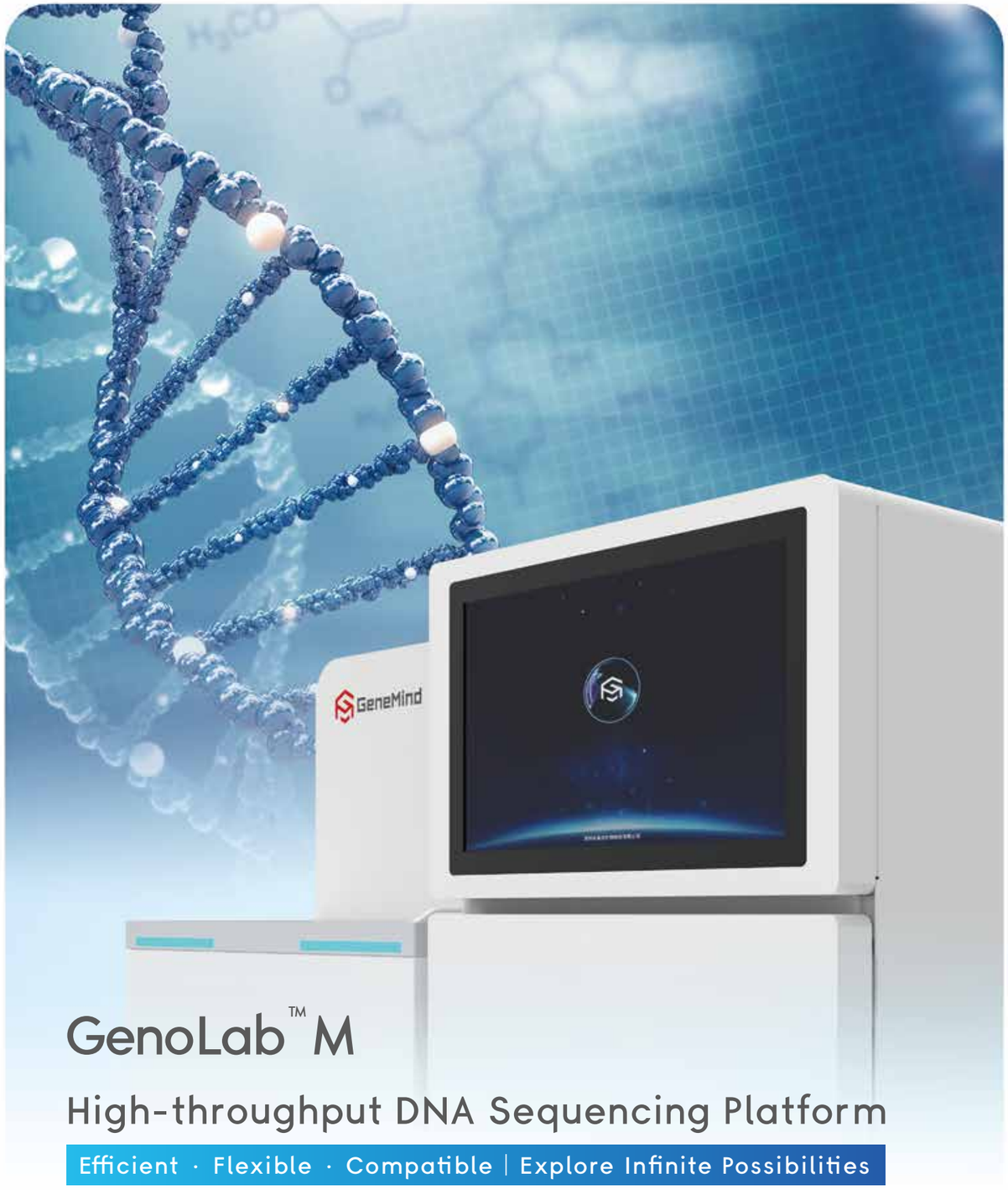
Product Specification

Size: ⩽1200 mm(L) * 685 mm(W)*595 mm(H)
Weight: ⩽280kg

Operating Environment Requirements

Temperature: 19°C-25°C
Relative Humidity: 20%-85%(Non-condensing)
Altitude: Below 3000m (*For Indoor Use Only)

GeneMind Shenzhen GeneMind Biosciences Co., Ltd.
Technical Support Hotline: 400-822-3660
Website: www.genemind.com Email: info@genemind.com
Address: 5/F-6/F Tower 2, Luohu Investment Holding Building, 116 1st Qingshui River Road, Luohu District, Shenzhen



GenoLab™ M

High-throughput DNA Sequencing Platform

Efficient · Flexible · Compatible | Explore Infinite Possibilities

GeneMind

For Research Use Only 30-2021e-01

GeneMind Biosciences

Explore Life's Mysteries for Better Healthcare

Specializing in Research and Development of DNA Sequencing Platform

Established in 2012, Shenzhen GeneMind Biosciences Co., Ltd. is headquartered in Luohu, Shenzhen, with over 8000 square meters of workplaces including R&D lab and GMP production line.

Specializing in the independent R&D and manufacturing of molecular diagnosis technology platform centered on DNA sequencing system, GeneMind Biosciences is devoted to constructing a precision medicine ecosystem to serve human life and health through collaboration with genetic testing service providers and medical institutions.

At present, GeneMind Biosciences has launched the single-molecule sequencing platform GenoCare 1600 and the high-throughput sequencing platform GenoLab M through independent research and innovation, and offers the "equipment—reagent—flowcell—software" total platform solution. With over 200 patents (including patent applications), GeneMind Biosciences is among the world's few technology enterprises with complete sequencing technologies and proprietary brands of instrument. Furthermore, our GenoCare 1600 single-molecule gene sequencer have passed the clinical trial for medial device.

Through years of assiduous efforts, GeneMind Biosciences has mastered various core techniques and processes of DNA sequencing platform, and develop edre-search and production capability of key materials including enzyme, nucleic acid, and chip in China.

GeneMind Production Line

Sequencer Production Line

Designed with the annual production capacity of 1000 sequencers

Reagent Kit Production Line

Designed as a GMP workshop to produce kits for 2.4 million tests annually

Chip Laboratory

In-house production of sequencing chips

Organic Synthesis Lab

In-house synthesis of nucleic acid and dyes

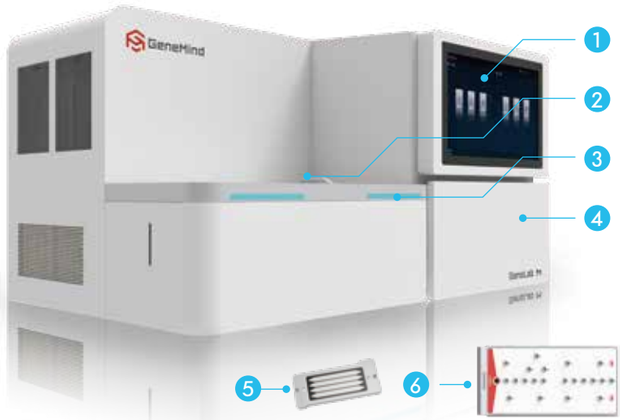
Enzyme Engineering Lab

Manufacturing of key enzyme material

GenoLab M

Efficient, Flexible and Compatible High-throughput Sequencing Platform

The high-throughput DNA sequencing system GenoLab M adopts the surface resticted fluorescent sequencing technique (SURF-seq) based on surface amplification to identify the optical signals of bases. Its sequencing-by-synthesis approach delivers speed, flexibility, high accuracy, and low-cost. Notably, with the unique "rolling mode" of GenoLab M, the second flowcell can be loaded and start working while the first flowcell is still running, and the two chips can produce data of different readlengths or sequencing types as required by the client, so as to shorten the waiting time, widen the scope of application, and bring unprecedented user experience.



Sequencer
1 Touch Screen Monitor
2 Dual Flowcell compartment
3 Status Indicator
4 Refrigerated Reagent Container
Supporting supplies
5 Flowcell
6 Reagent Kit

Flexible
Multiple throughput types available

Efficient
Dual-Flow rolling model

Compatible
applicable to mainstream sequencing platform

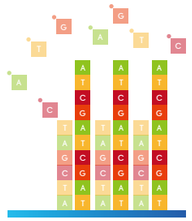
Versatile
Supports sequencing and data analysis in a wide range of areas

GenoLab M Performance Parameters of GenoLab M High-throughput Sequencing Platform

Sequencing Performance	
No. of Flowcell Per Run	2 (Independent Single-Flowcell and Dual-Flowcell Operation Supported)
Reads/Run	500M (Medium-throughput Dual-chip FCM); 1000M (High-throughput Dual-chip FCH)
Read Lengths	SE50,SE75,SE100,SE150,PE75,PE100,PE150
Maximum Data Output/Run	25~150Gb (FCM); 50~300Gb (FCH)
Run Time	12~48h
Data Quality	Q30＞80%
Accuracy Rate	⩾99%

GenoLab M Proprietary Technology

SURF-seq™ Surface Restricted Fluorescence Sequencing



High Accuracy

Unique reversible terminators and variant enzyme reaction system for excellent synthetic reaction efficiency and fidelity, combined with high-sensitivity fluorescence signal detection system to achieve the highest accuracy rate of single sequencing.

High Integration

Elaborately designed flowcell architecture integrates amplification of DNA templates and sequencing by synthesis on the surface of sequencing chip, and accomplishes integrative sequencing flow with samples ready for detection immediately after preparation.

High Compatibility

Innovative surface chemical modification combined with highly compatible primer adapter, it can directly sequence mainstream NGS librarys.There is no need to develop another library prep kit.

Key Technologies of DNA Sequencing Platform

Hardware High-sensitivity Optical System for Sequencing

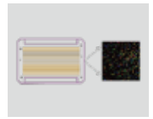
- High sensitivity allows detection of DNA single molecules
- Own invention of stabilized four-color optics

Chemistry Reversible Terminator Base and Polymerase

- Unique nucleotide structure enables SBS chemistry
- Ability to mutate and optimize polymerase

Flowcell High-density Sequencing Chip

- Surface chemistry that enables high-density and low background noise
- Tunable surface capture primers to satisfy different applications



Bioinformatics High-speed Algorithm Based on Machine Learning

- Raw image->machine learning->Basecall algorithm
- Bioinformatics software developed according to different applications

GenoLab M Product Features

High Accuracy Rate

- High-fidelity sequencing-by-synthesis chemical reaction system + unique surface signal amplification technique
- Sequencing accuracy exceeding 99%

Lower Cost

- GeneMind improves the accuracy of emerging applications of increasing complexity with its economic and efficient high-throughput sequencing system

Flexible and User-friendly

- Simple and convenient sequencing workflow, compatible to commonly used NGS library adapter, with data generated in the mainstream format
- Customized integration of various bioinformatic analysis tools to make high-throughput sequencing technique easy to use for all users

GenoLab M Supports Various Applications of Detection

Reproductive and Genetic Detection

- Non-invasive prenatal testing (NIPT)
- Copy number variation sequencing (CNV-seq)
- Preimplantation genetic testing for aneuploidy (PGT-A)

Sample type: maternal peripheral blood
Sequencing mode: SE50+barcode

Metrics	Chip1	Chip2	Run
Output Reads/M	280.7	281.7	562.4
Split Ratio	98.98%	98.94%	98.96%
Mapped Reads/M	267.7	266.9	534.6
Map Ratio	96.34%	95.75%	96.05%
Q30	86.34%	85.87%	86.11%

Infection Detection

- Pathogenic microorganism metagenome detection
- Pathogen detection for fever of unknown origin
- Drug resistance gene detection

Sample type: BALF
Sequencing mode: SE75+barcode

Sample_ID	Total Filtered Reads	Clean Reads	Human Reads	Human_rate	ref Reads	%Q30
BAxx503	31,629,052	31,618,420	31,554,988	99.77%	5771	
BAxx504	38,408,553	38,395,533	38,320,909	99.77%	429	
BAxx484	34,881,804	34,859,195	34,796,419	99.76%	268	
BLxx501	28,769,189	28,767,432	28,712,030	99.80%	185	86.70%
BLxx507	27,229,224	27,227,798	27,165,946	99.77%	136	
BAxx495	32,824,302	32,804,457	32,750,067	99.77%	267	
BAxx496	32,960,200	32,936,891	32,875,268	99.74%	374	

Genetic Disease Detection

- Single gene inheritance disease detection
- Detection of drug sensitive gene in children
- Thalassemia gene detection
- Deafness gene detection
- ...

Sample type: peripheral blood
Sequencing mode: PE150+barcode

Metrics	Run
Output Reads/M	266.174
Split Ratio	95.55%
Mapped Reads/M	257.893
Map Ratio	96.89%
Q30	85.18%

Tumor-related Detection

- Hereditary tumor gene detection
- Companion diagnostics
- Tumor early screening

Sample type: tissue
Sequencing mode: PE150+barcode

Metrics	Run
Output Reads/M	285.617
Split Ratio	94.32%
Mapped Reads/M	267.402
Map Ratio	93.62%
Q30	85.4%

GenoLab M Workflow

Sample Preparation

Compatible to Common NGS Library

Ligase Protocol Library Construction

1. Input DNA (target amplification of DNA segment supported)
2. DNA fragmentation /end repair/add A
3. Adapter ligation
4. Purification and PCR amplification

#Library amplification is an optional module; amplify library or use PCR-free library according to the research objective

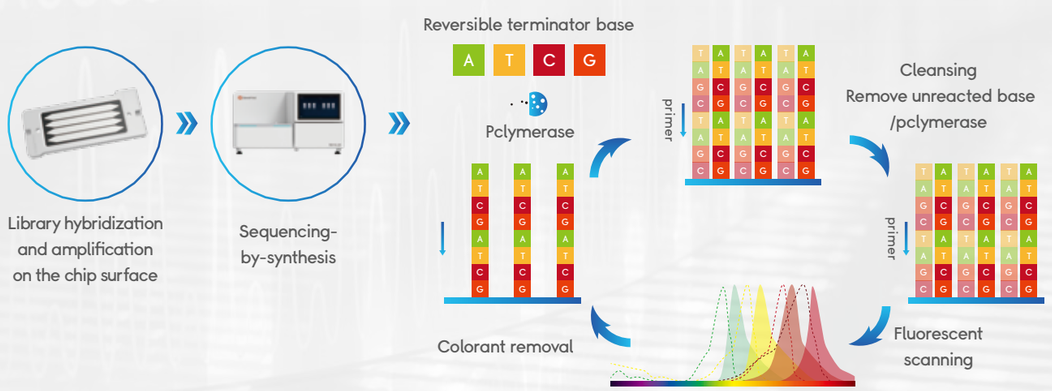
Transposase Protocol Library Construction

Fast micro-sample treatment protocol as low as 50pg

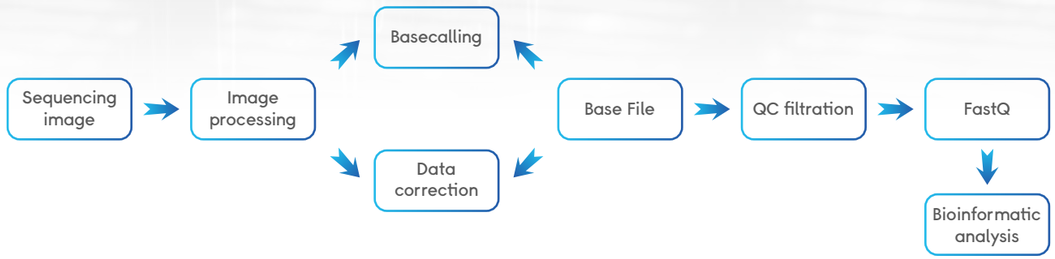
cfDNA (PCR Method) Library Quality Control

With 3ng cfDNA as the start
Use NGS adapter
After PCR amplification
Main peak of Labchip quality-control library at 300bp

Sequencing-by-Synthesis



Data Processing



Sequencing Reagent Kit for GenoLab M

The GenoLab M high-throughput DNA sequencing platform of GeneMind Biosciences is matched with a reagent kit, to maximize performances, and provide more efficient and accurate sequencing results.

GenoLab M Sequencing Reaction Reagent Kit

Basic Information

Specification	SE75,SE150,PE75,PE150
Included components	Reaction reagent A, Reaction reagent B, Sequencing chip
Applicable equipment	GenoLab M
Sample requirement	Concentration⩾4 nM and volume⩾5 uL

GenoLab M Service and Support

Our excellent sales team offers systematic and comprehensive service and support, to help you carry out scientific research efficiently and quickly with GenoLab M High-throughput DNA sequencing platform.

Pre-sales Guidance

Headquartered in Shenzhen, GeneMind Biosciences has established four sales networks in the east, south, west and north of China (Shanghai, Guangzhou, Chengdu, and Beijing) to realize nationwide coverage. At any of the above networks, you can get to know details on the features and performance of GenoLab M and find the well-matched scientific application.

Installation, Training and Debugging

Your sequencing system will be installed as soon as possible, with debugging conducted before and after delivery. To facilitate your scientific research, a professional technical consultant will be dispatched to provide training on the detailed operation of the sequencing system.

Technical and After Sales Services

Each GenoLab M comes with a one-year warranty. 7X24h telephone counseling (400-822-3660), video conference and onsite assistance are also provided. System upgrade service will be provided in time by our technical Engineer team.

To know more about GeneMind Biosciences and GenoLab M High-throughput DNA sequencing platform, please visit www.genemind.com. For further information, please leave a message at the bottom of the homepage or call us at 400-822-3660.