



Raykol

Life-science Products



About

RayKol Group

Raykol Group is a professional manufacturer focusing on lab automatic system and platform established in 2007. Its Headquarter is located in Xiamen City, Fujian Province, China. It consists of six sub-companies, three research lab-base and one research institute with total over 500 employees and 50 external special experts.

RayKol automatic lab systems are applied on sample preparation processes in the fields of food safety, environmental science, agriculture, pharmaceuticals and life science. Leading by professional scientists and experienced engineers, RayKol has developed a variety of innovative instruments and provided solutions for meeting various requirements for lab users and dedicated to providing reliable cost-effective products to every client to contribute to human health together.

About

RayKol Life Science Ltd.

Raykol (Life Science) Ltd. is a sub-company of Raykol Group focus on automatic life-science sample preparation system. We provide intelligent platforms to assist clients achieve better lab environment, serving for fields including Biological/drug analysis, molecular diagnosis, clinical testing, proteomics, metabolomics, etc. Our R&D team experienced more than 10 years in lab industry with capability of developing core technology and flexibility to reach customized requirements.

We are always doing the best to assist our clients to create value and reach better life.

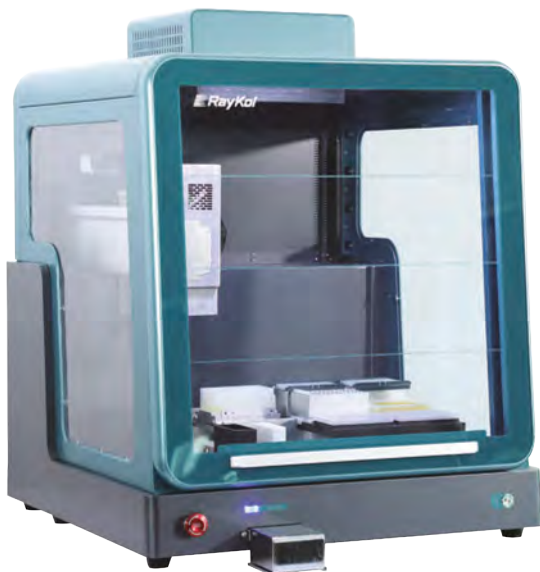
Products

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Vitae 100

- Nucleic Acid Purification/ Extraction System

Vitae 100 automatic nucleic acid extraction system is based on nucleic acid magnetic bead isolation method. It is capable to extract the nucleic acid efficiently and achieve PCR set-up application. This system is helpful for lab staffs to release from the day in and day out repeated liquid handling work and step in more time on research by eliminating concerns associated with manual volumetric variations. Vitae 100 is applied on research as molecular diagnosis, clinical laboratory, disease prevention and control, inspection and quarantine and molecular biology providing labs with automatic, user friendly, reliable solutions.



Certified ISO 13485

HARDWARE

- Layout: Configured 10 positions that adapted for diverse consumables including centrifuge tubes (0.2mL-50mL), 96 deep well plate, 384 well plate, or any customized one.
- Modules: Optional functions including heating, cooling, shaking, storage, or any customize integrated functions.
- Compatible with 3rd party reagents and labware.

SOFTWARE

- User friendly software layout,
- Protocol set-up via dragging basic function logo.

Flexible

Efficient

FEATURES

Multi-functions

- Available both for nucleic acid extraction and PCR set-up.

Automatic Achievement

- Fully automatically extract nucleic acid based on magnetic bead-based method ;
- 3 in 1 module (magnetic binding, heating, shaking) to save the lab space and the experiment time.

High Throughput

- Extraction: 35 min finish 24 sample. 96 samples/ run.
- PCR Set-up: 10 min to finish 96 samples' PCR set-up

Stable experiment result

- Robotic liquid handling reduce the error caused by manual handling.

Cross Contamination Prevention

- HEPA filter with UV lamp, prevent contamination.





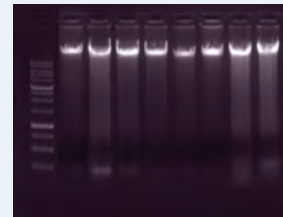
High Quality Purification

The Vitae 100 extract and purify gDNA from blood samples, and the quality of the extracted products was evaluated by UV spectrophotometer and agarose electrophoresis. The results show that the extracted genomic DNA is a high-quality nucleic acid.

Blood Sample (100 μ L) DNA extraction purity, concentration and result

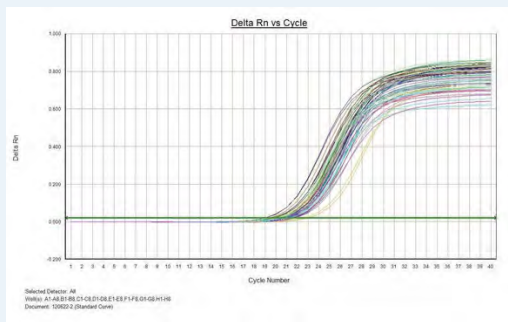
Sample	1	2	3	4	5	6	7	8
A260	0.615	0.6	0.69	0.625	0.588	0.63	0.678	0.648
A280	0.331	0.319	0.383	0.345	0.306	0.342	0.379	0.354
A260/280	1.86	1.88	1.8	1.81	1.92	1.84	1.79	1.83
Con (μ g/mL)	30.8	30	34.5	31.3	29.4	31.5	33.9	32.4
Result (μ g)	3.08	3	3.45	3.13	2.94	3.15	3.39	3.24

Electrophoretic analysis (5 μ L sample)



High Repeatability

Sample experiment result on 4 times extraction processes, 24 samples/time. The result below shows the great repeatability.



X for thermocycles, Y for fluorescence intensity

High Accuracy

Configuring with high accuracy air pump to perform precise liquid handling level. Result below shows the stability.

Pipetting Accuracy(CV)
20-200 μ L \leq 1%
5-20 μ L \leq 2%
1-5 μ L \leq 5%

SPECIFICATION

Dimension (L×W×H)mm	Weight	Input Voltage
780×790×980	120KG	AC 200-240V/50Hz

Applied Sample-types

- Whole blood
- Tissues and cells
- Virus
- Bacteria and other microorganisms
- Forensic samples
- FFPE samples
- Plasmic DNA
- PCR Set-up



Vitae 100

-Fully Automatic PCR Set-up system

Vitae 100 PCR Set-up system is suitable for sample preparations of various PCR reactions and NGS library built-up. It is helpful for accelerating laboratory productivity by transforming sample or reagent from various consumables into target plate/tubs. Suitable consumables include sample-tubes of various dimension (0.2mL, 1.5mL, 2mL, 5mL, etc.), reagent reservoirs, PCR strip tube, PCR 96 well plate and PCR 384 well plate, etc. The built-in accurate pipetting can reduce the errors caused by manual operation and ensure repeatability and stability of the experiment.

PCR Set-up System
Ultra Fast & Accurate



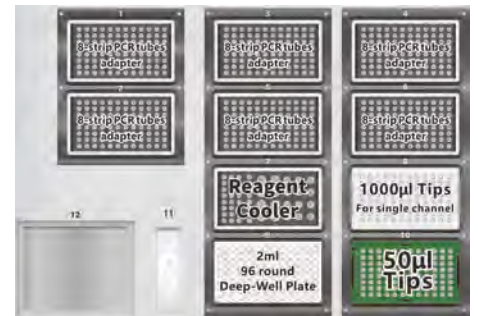
LIQUID HANDLING SYSTEM DATA

PIPETTE TIPS	4/8 Channel Syringe Pipettor with air pump, single channel available.
ROBOT-ARM	Modularized robot arm, location accuracy $\pm 0.05\text{mm}$.
PUMP	1-250 μL ; 5-1000 μL
PIPETTE	200-1000 μL , CV $\leq 0.5\%$; 20-200 μL , CV $\leq 1\%$; 5-20 μL , CV $\leq 2\%$; 1-5 μL , CV $\leq 5\%$
FLEXIBILITY	Adjustable liquid distribution method and speed.



01 Flexible Modules

- 10 positions, adapted for diverse centrifuge tube (0.2mL-50mL), 24/96/384 well plate.
- Modularized configuration, optional heating, cooling, shaking functions. Customized requirement available.
- Diverse adaptors , compatible with 3rd party reagents and diverse labware.



02 User Friendly

- User-friendly designed software,
- Graphical step-icon, edit protocol by dragging icons.
- Individual step data set-up.



03 Low Cost

- Compatible with 3rd party reagent and labware , reduce consumables cost.
- User friendly software design, reduce training cost.
- Designed modular hardware , reduce preventive maintenance cost.

Specification

Dimension(L×W×H)mm	Weight
780×790×980	120KG

04 Application Fields

Pathogenic microorganism detection/virus detection/Gene expression analysis/genotyping



Vitae 180

-FullyAutomatic Liquid Handling Workstation System

Vitae 180 fully automatic liquid handling workstation system is applied on various biological labs, it is available to be upgraded as customized models both on software, hardware.



Comprehensive Functions

- 1+8 channels /customized pipette head
- 6-15 optional customized positions
- Diversify adapters of various consumables
- UV lamp and HEPA air filter, prevent cross contamination
- Compatible with 3rd party reagent.

Convenient Operation

- Independent pipette head, no need to change the head for different volume.
- Graphic interface design software

Consumable

- Open platform for 3rd party consumables.
- High liquid handling accuracy, reduce consumable waste.



Customization

- Software upgrade via on-line connection.
- Hardware customization under complicated requirement

Graphic Interface Design Software



Applied Fields

General Liquid Handling

- Plate Replication
- Plate Reformatting
- Serial/ Parallel Dilutions
- Vial Filling

Genomic

- PCR Set-up/cleanup
- Sequencing Set up
- Nucleic Acid Purification (NAP)
- Next Generation Library Preparation (NGLP)/NGS

Cellomics

- Cell inoculation and medium replacement
- Cell detection experiments

Proteomics

- Peptide Synthesis
- Protein Crystallography Preparation
- Protein Purification

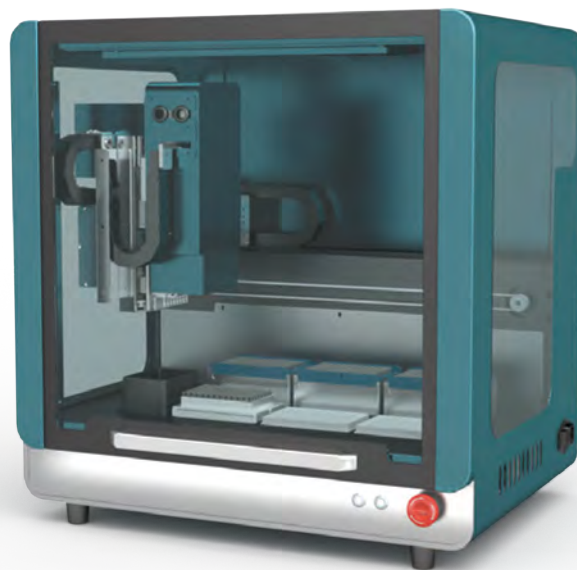
Immunological Application

- Enzyme-linked Immunoassays (ELISA)

Vitae 60

-Automatic Liquid Handling Workstation

Vitae 60 is a designed small workstation for saving lab space . It is available for the temporary laboratory, mobile inspection vehicle and any limited laboratory space. This workstation is applied under various situation to perform functions such as general liquid handling , PCR set-up, cell-based assay etc.



Simplify Software Interface

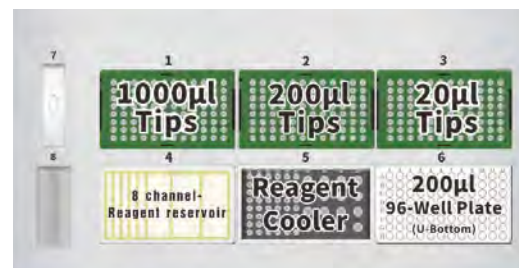
- User friendly software interface, dragging graphic icons to set up protocols.
- Independent data setting of each step, flexible adjustment.
- Optional liquid handling modle: One to One / One to Multiple, plate replication, cherry pick,etc.
- Speeds of dispensing and absorbtion adjustable.

Flexible Configurations

- 6 positions layout, supportive for diverse centrifuge tube (0.2mL-50mL), 96/384 well SBS standard plate or any customized consumables.
- Modularized cofiguration, optional heating, cooling, shaking functions. Customized requirement available.
- Diverse adaptors,compatible with 3rd party reagents and diverse labware.

Low Cost

- Compatible for 3rd party labware , reduce cost.
- User friendly software design, reduce training cost.
- Designed modular hardware , reduce preventive maintenace cost.



Vitae M96S Liquid Handling System

M96S is a efficient, cost effective 96 channels liquid handling system, which can perform functions including plate copying, reagent adding, sample transferring , serial dilutions, etc. It makes the experiment safe, the data reliable. This system is efficient, accurate, and cost-effective. It reduces errors caused from manual experiment, and ensures the accuracy and reliability.

Four Standard Size Positions

Reduce the steps of changing tips and reservoirs.

Three Optional Volume Range

20-1000uL/2.5-200uL/0.5-30 uL; satisfy different requirement of liquid handling.

Multiple Handling Modes

One to one / One to multiples distribution; Available for aspiring and dispensing mixing; Sample loading in air.



Open Platform

Compatible 3rd party labwares.

Space Saving

Designed small dimension, available into the bio-safety cabinet or clean bench .

Graphic Software Interface

User friendly screen panel.

Optional Pump Work Range

M96S-1000 pump (Maximum 1000μL, work range 20-1000μL)			
Volume	Accuracy	Repeatability	
1000μL (1000μL Tips)	±10μL	≤0.5%	
100μL (1000μL Tips)	±2μL	≤2.0%	
100μL (200μL Tips)	±1μL	≤0.8%	
20μL (50μL Tips)	±1μL	≤4.0%	
M96S-200 pump (Maximum 200μL, work range 2.5-200μL)			
Volume	Accuracy	Repeatability	
200μL (200μL Tips)	±1μL	≤0.5%	
20μL (50μL Tips)	±0.5μL	≤2.0%	
5μL (50μL Tips)	±0.5μL	≤3.0%	
M96S-30 pump (Maximum 30μL, work range 0.5-30μL)			
Volume	Accuracy	Repeatability	
10μL (20μL Tips)	±0.2μL	≤1.0%	
2μL (20μL Tips)	±0.1μL	≤4.0%	
0.5μL (20μL Tips)	±0.1μL	≤5.0%	

Application



Medical Industry

Biobank
Immunological Experiment
ELISA



Pharmaceutical Industry

Drugs in vitro metabolic analysis
Toxicity analysis/Drug screening/
Compound librar



Biological Industry

Antibody test
Molecular biology experiment
Cell experiment



CDC

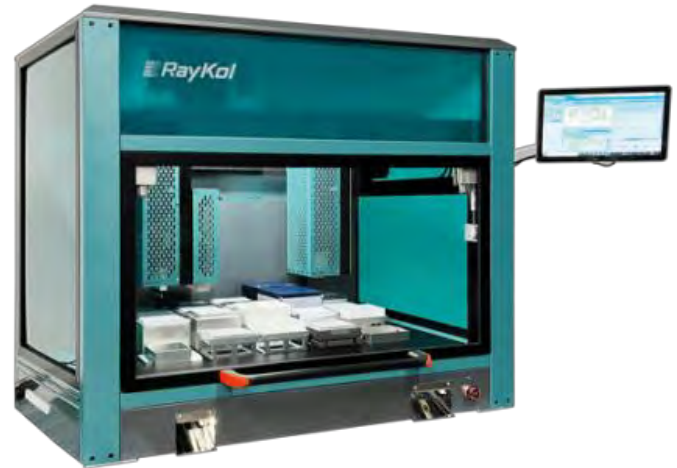
Centre of Disease Control
Food and Drug Administration

Vitae NGS

-Next Generation Sequencing Sample Preparation Workstation

At present, with the widespread application of high-throughput sequencing in genetic disease screening, tumor early screening, tumor detection, pathogenic microorganism detection, NIPT and other clinical diagnosis, the automation of library construction can effectively ensure the uniformity of library quality, avoid the repeated construction of library, and save labor and economic costs.

Vitae NGS workstation is capable for 1-96 sample/run on Library construction and targeted capture.



CONFIGURATIONS

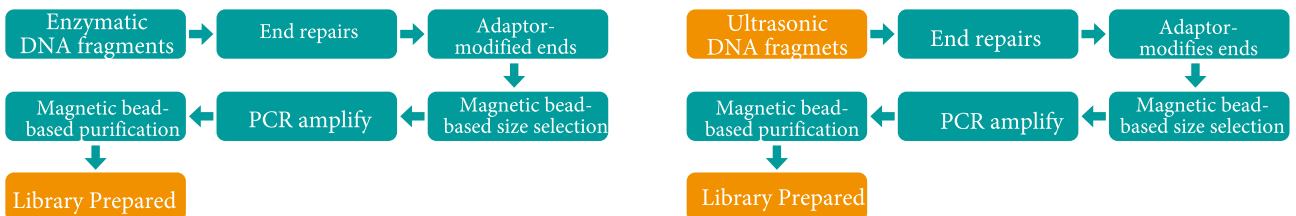
- **8 channels pipette head**- combined single channel function, achieving master mix preparation and distribution.
- **96 channels pipette head**- available to perform 1 to 96 samples/run, achieve functions of mixing, waste aspiring, etc.
- **Gripper**- configurating gripper achieving transferring SBS standard plates.
- **Built-in PCR thermocycler module** - built in sealing and thermosealed functioned , to make the experiment fully automation.
- **28 standard positions**- 18 of them can be use for reagent and consumables, making the throughput much more higher than expectation.
- **Protocol set-up and file saving available**, convenient for users to standardized NGS experimets.
- **Built-in library required modules**, including heating, cooling, magnetic beaning, shaking, PCR thermocycling, etc.
- **Optional positive/negative pressure HEPA air filter**.

NGS Applications

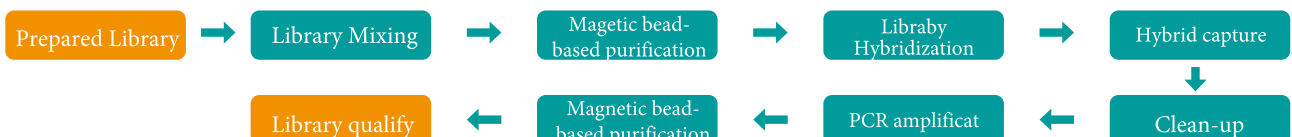
Automatically perform NGS library preparation.



Application 1- Library preparation



Application 2- Target Capture



Vitae SPOTTER is a flexible high-throughput microarray dispensing system. This model is capable to provide efficient and accurate samples/reagent spotting on different target material to produce microarray chips. It has been applied on different life-science fields including genomics, proteomics, drug screening, bacterial identification and cancer research, clinical diagnostics, and food safety detection. Vitae SPOTTER can also provide an efficient sample preparation method for TOF-MS analysis of biological samples.

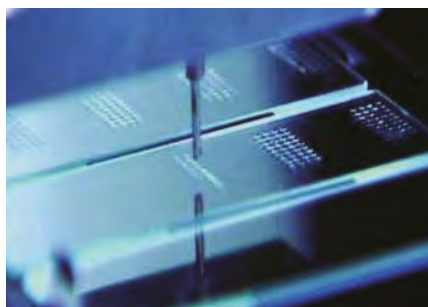


FEATURE

- Based on automatic liquid handling workstation.
- High accuracy pointing location. Better repeatability.
- Loading speed adjustable;
- 1-40 channel steel-channels optional,
- Minimum distance between channels is 2.75mm.
- Optional work range level- Nano Level/Micro Level;
- Optional arraying mode-contact/ non-contact;
- Repeatable arraying on platforms of slides, films, microwell-plate, etc.

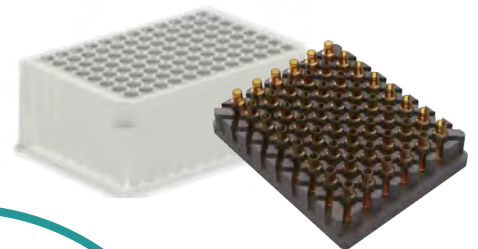
APPLICATION

DNA/RNA Arrays
Peptide/Protein Arrays
Cell /cell lysates Arrays
Biochip Arraying
Cancer research&Precision Medicine
TOF-MS sample preparation



RayKol Auto EVA Mini is a designed space saving system applied on sample drying and concentration by controlling temperature and nitrogen flow rate. It is capable for third-party consumables. Designed 96-channels pipette-head ensures the flow rate uniformity of each pipette. This model adapted to regular 1-2mL centrifuge tubes, GC sample tubes, 96-well-plate. Customized requirement of the sample tube adapter is available as well.

Small Unit - Great Helper on Sample Drying & Concentration



Consumables:

- 2ml tube (48 tubes)
- 5ml tube (24 tubes)
- 96 well-plate (1 piece)

Efficient & Intelligent

- Software automatically control flow rate, ensuring each pipette are with unified flow rate.
- Eight electromagnetic valves control flow rate, one valve controls one line of the 96 channel-pipettes head.
- Capable to control one line via controlling one electromagnetic valve. Nitrogen saving.
- Pipettes can go down steadily during nitrogen flowing, speed up the drying process. Time saving.
- Temperature controllable from room temperature to 100 °C, temperature difference among each well is ± 1 °C.

Vitae Mini-Lids

Auto capping equipment



Great Helper

-Capping diverse sample-tubes or centrifuge tube.



Convenient

- Pre-set general capping methods
- Control panel with functions including method choosing, data setting, cap counting, reset, etc.

Intelligent

- Infrared sensor;
- Automatically sense tubes for cap losing.

Efficient

- Perform the operation with one hand free.
- Capping speed adjustable.
- 4 second/sample in average.
- 12mins complete 96 tubes capping.

Competible

- Adjustable size of capping head
- Adapted for diverse caps of sample tubes, centrifuge tubes.

Portable

- Small dimension ,convenient for any movement ;
- Saving lab space.

Safe

- Prevent contamination
- Small enough to put into the bio-safety cabinet.



SAP 20 -Dried Blood-Spot Sample Puncher

RayKol SAP 20 is an automated dried blood-spot punching system designed to meet users' requirements on dried blood-samples. It provides users with accurate, safe, efficient, and convenient punching operation. The instrument integrates control system, graphic QC module, barcode information collector and spot puncher. Observing window ensures reliability of sample loading and punching processes. It's automatic functions reduce the errors caused by manual punching and the reduce labor intensity of operators, improving laboratory productivity.



3mm



6mm

Punching Head



TRACEABLE

- Complete operation recording, ease to trace.
- Collect sample information by bar code reading or manual inputting.
- Sample information can be transformed into EXCEL. / PDF. files, data is accessible to LIMS lab system.

AUTOMATIC

- Automatically locate 96-well plate
- Laser positioning indication of dried blood spot card, clear view on punching position
- Identify sample position alignment through image acquisition component.

FLEXIBLE

- Various modes to activate punching:
 - bar code activation;
 - manual activation;
 - foot pedal activation;
 - automatic count down.
- Users can select any spots to punch and load samples.



Blood Sample
on Filter Paper



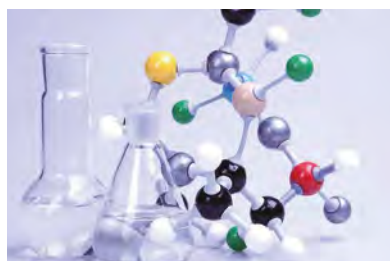
SAP 20



96 well plate

APPLICATION

Screening for genetic diseases in newborns
 HIV/HCV screening
 Clinical LC-MS/MS detection
 Biobank
 Forensic
 DNA identification



TG 20 Tissue Grinder

For biological experiments, the homogenization of samples affects the total amount and quality of nucleic acid extraction in the downstream directly. TG20 is available to provide functions including homogenization, cell-wall breaking and samples mixing, so as to obtain high-quality prepared samples . It can reach to handle 576 samples per run. The types of samples that can be processed include plant roots, stems, leaves, flowers, fruits, seeds, animal tissues, cultured cells, etc.

Cell-wall Breaker



High Through-put

Available to handle up to 576 samples per run.

Convenient Observation

Observation window and built-in LED lamp are designed to make the progress observable.

User Friendly

Sequence can be reserved and recycled. Up to 4 steps in a sequence, achievable to operate different methods

Efficient

Shaking speed adjustable, up to 1800 rpm.

Capable & Customizable

Capable for various sample tubes or consumables.

Nice Performance

Comes with the Vitae 100 to perform fully automatic nucleic acid purification and PCR set-up.

Available Samples:

Plant Tissue	Roots, stems, leaves, flowers, fruits, seeds, etc
Animal Tissue	Brain, heart, lungs, stomach, liver, thymus, kidney, intestine, lymph nodes, muscles, bones, etc
Microbe	Gramm positive bacteria ,saccharomycetes , etc.
Food & Drug	Various food , medicine samples.

Performance:



Before

After

Before

After

Before

After

Before

After

Knowledge Optimized Laboratory



ООО «Техноинфо»
121248, Москва, Кутузовский проспект,
д. 9, корп. 2а, оф. 77
Телефон: +7 499 270-66-26

www.technoinfo.ru
info@technoinfo.ru