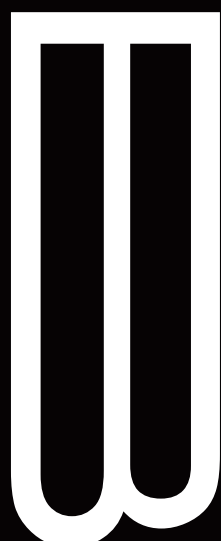


NUCLEIC ACID ELECTROPHORESIS & PCR SOLUTIONS

General Laboratory Operating Guidelines



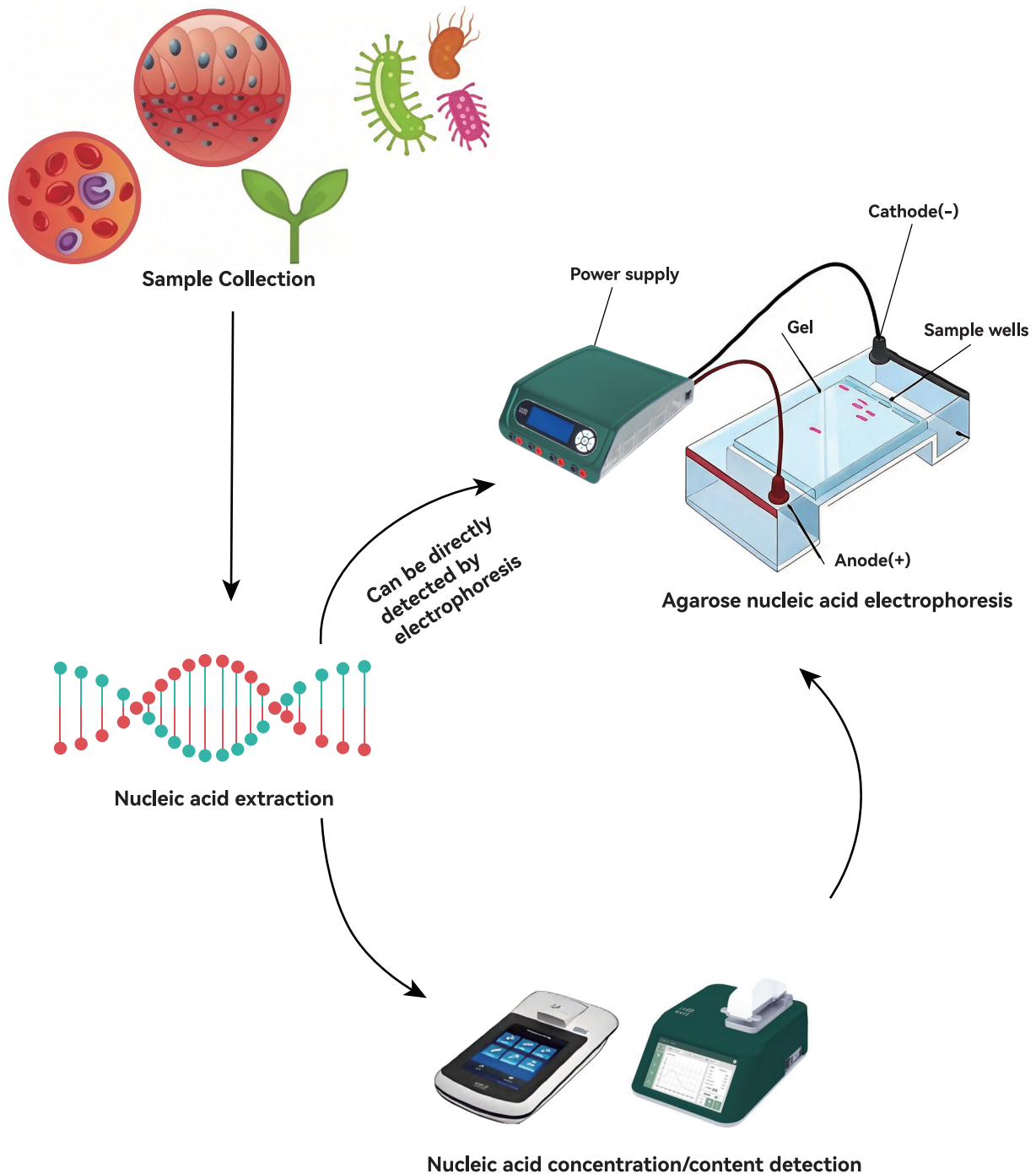
Shanghai
 Bioscience


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I. DEFINITION OF NUCLEIC ACID ELECTROPHORESIS & PCR SOLUTIONS

Nucleic acid electrophoresis and PCR (Polymerase Chain Reaction) amplification form the core experimental workflows of modern molecular biology research. Nucleic acid electrophoresis is used to separate, identify, and purify DNA/RNA fragments; PCR technology enables exponential amplification of specific nucleic acid sequences *in vitro*. Together, they provide the foundation for downstream applications such as genetic testing, cloning, sequencing, and expression analysis.

Baisai offers a comprehensive product portfolio spanning the entire workflow—from nucleic acid sample preparation and PCR amplification to electrophoresis analysis and result visualization. This includes high-performance enzymes and reagents, premium consumables, and reliable instrumentation, ensuring accurate, reproducible, and efficient experimental outcomes.



II. NUCLEIC ACID EXTRACTION AND PURIFICATION

Nucleic acid extraction is the first step in molecular experiments, aiming to obtain high-purity, intact DNA or RNA from complex biological samples. High-quality nucleic acids are crucial for the success of downstream experiments.

REAGENTS (*Indicates a selection of products; consult sales representatives for details)



UE PLASMID MINI PREP KIT (COLUMN METHOD)

Product Features

- Efficient: Completes plasmid DNA extraction within 15 minutes, saving time.
- High Quality: Produces highly pure plasmid DNA.
- High Yield: Extracts up to 30 µg plasmid DNA from 1–4 mL bacterial culture (UE-MN-P); Process 1–10 mL bacterial culture to yield up to 45 µg plasmid DNA (UE-MN-P-S).
- Safety: No organic solvents such as chloroform or phenol required.



PCR MASS CLEAN-UP KIT (UE-MX-PCR-50)

Product Features

- Efficient: Completes DNA recovery within 10 minutes, saving time.
- High Quality: Purified DNA free of primers, enzymes, and single nucleotides.
- High Yield: Extracts up to 20 µg of DNA (greater than 75 bp) with a recovery rate of 70–90%.



DNA GEL RECOVERY KIT PLUS (UE-GX-PLUS-50)

Product Features

- Efficient: Gel recovery completed in 15 minutes
- High Performance: 8 µg loading capacity, suitable for recovering 70 bp–10 kb fragments with up to 85% recovery rate
- High Safety: Odorless and user-friendly
- High Quality: Purified DNA exhibits high purity and excellent integrity.



GENOMIC DNA SMALL-SCALE PREP KIT (UE-MN-MS-GDNA-50)



TOTAL RNA SMALL QUANTITY PREP KIT (UE-MN-MS-RNA-250)



BODY FLUID VIRUS DNA/RNA SMALL VOLUME PREP KIT (UE-MN-BF-VNA-250)

INSTRUMENTATION

Accurate assessment of concentration, purity, and integrity after nucleic acid extraction is critical for downstream experimental success. A micro-volume spectrophotometer is the core instrument for achieving this goal.

The NP-3000 Micro-Volume Spectrophotometer enables rapid quantitative analysis of nucleic acids, proteins, and bacterial growth concentrations using just 0.5–2 µL of sample across the full spectral range. As a trusted laboratory partner for years, the NP-3000 supports diverse experimental research.

ULTRA-MICRO SPECTROPHOTOMETER (NP-3000)

Product Features

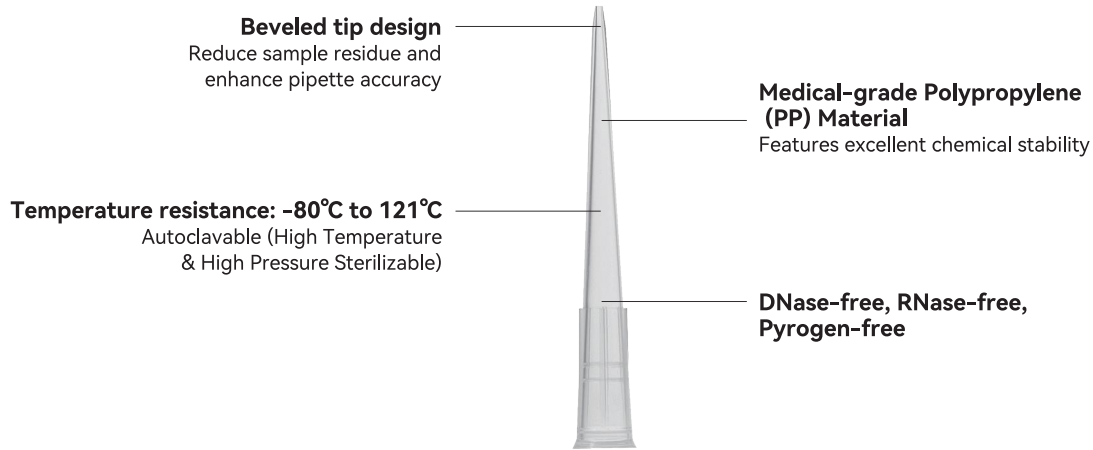
- User-Friendly Design: Features a built-in 7-inch touchscreen, eliminating the need for computer connectivity. A single device handles sample testing and data storage.
- Rapid Analysis: Add samples directly to the detection platform without dilution; results appear in 2–6 seconds.
Micro-Volume Detection: Requires only 0.5–2 µL of sample per test, with recoverable samples after measurement.
- Wide Range: Sample concentration range is 50 times that of conventional spectrophotometers, with nucleic acid detection ranging from 2 to 15,000 ng/µL (dsDNA).
- Multi-functional design: Standard cuvette slots enable concentration detection of bacterial and microbial cultures; optional printer available.



HIGH-SPEED MICROCENTRIFUGE (LBY-MC-0015N)

CONSUMABLES

UNIVERSAL PIPETTE TIPS



Compatible with most research-grade pipettes | Available in 10µL, 20µL, 200µL, 300µL, 1000µL, 5000µL



10ML TRANSPARENT TIPS, BOXED, STERILE (BLD-BS1003010)



200ML YELLOW TIPS, BOXED, STERILE (BLD-BS1003200)

III. PCR AMPLIFICATION

PCR is a molecular biology technique used to amplify specific DNA fragments. Its key components include: template DNA, specific primers, thermostable DNA polymerase (e.g., Taq polymerase), dNTPs, and an optimized buffer system. Through cycles of high-temperature denaturation, low-temperature annealing, and optimal-temperature extension, target sequences achieve exponential growth. qPCR incorporates a fluorescence detection system to enable real-time quantitative analysis.

INSTRUMENTS



STANDARD GRADIENT PCR INSTRUMENT (LBY-GP-9606T)

Product Features

- Superior Performance: Imported temperature circulator, long-life Peltier module, over 1 million cycles, fastest temperature ramp rate of 6°C/s, 42°C wide gradient range.
- Advanced Technology: Anodized heat conduction modules maintain rapid thermal transfer while delivering exceptional corrosion resistance.
- Versatile Design: Adaptive pressure bar-style thermal lid ensures one-step closure for tubes of varying heights and PCR plates with full skirting.
- Comfortable and Stylish: 10.1-inch touchscreen with graphical menu navigation interface. Built-in Wi-Fi module enables simultaneous control of multiple PCR instruments.



ECONOMY GRADIENT PCR SYSTEM (LBY-GP-9604E)



16-WELL FLUORESCENT QUANTITATIVE PCR (LBY-QP-1602)

CONSUMABLES

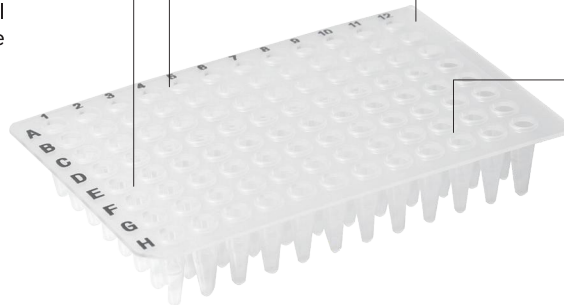
PCR PLATES

Polypropylene (PP) material
Excellent chemical stability

Easy to mark
The hole edge printing digital
alphanumeric code

DNase-free, RNase-free, and pyrogen-free

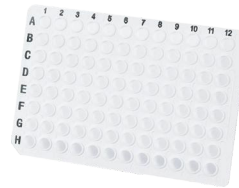
Thin and uniform tube walls
For fast heat transfer and even sample heating



A variety of cutting angle positions are available, with wide applicability to meet the needs of different instruments



**0.2ML TRANSPARENT
96-WELL PCR PLATE, FLAT
TOP, SKIRTLESS
(BLD-BS3003096-1)**



**0.2ML WHITE 96-WELL
PCR PLATE, SKIRTLESS
(BLD-BS3004096-1)**

PRESSURE-SENSITIVE SEALING FILMS

Evaporation rate $\leq 3\%$

No curling or bending

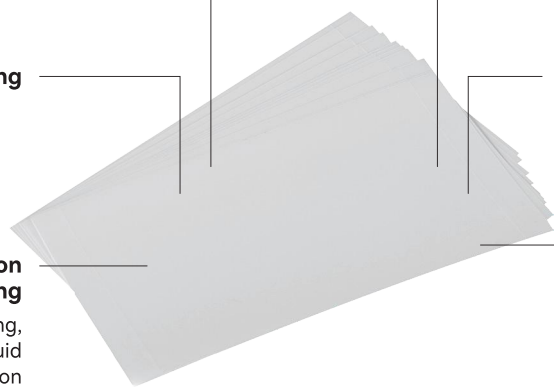
**Strong adhesive adsorption
and excellent sealing**

Effectively prevent bulging,
leakage of liquid
Evaporation, cross-contamination

**DNase-free, RNase-free, pyrogen-free,
and non-sterile**

Transmittance $\geq 90\%$ and above
Suitable for domestic and foreign brands
of fluorescence quantitative
amplification instruments

**Non-autofluorescent surface;
Anti-static design resists glove adhesion
and dust accumulation;
Low initial tack adhesion, transitioning
to high adhesion under applied pressure**



Compatible with sealing PP, PE, PS, and PC microplates



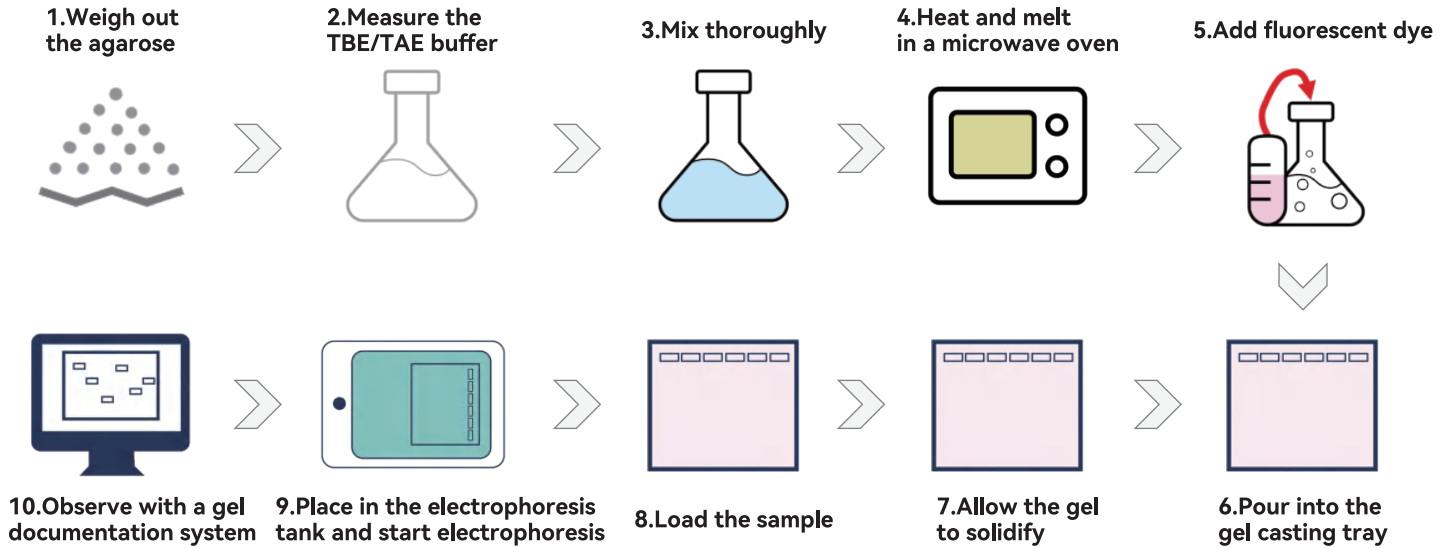
**QPCR SEALING FILM,
HIGH LIGHT TRANSMISSION,
PRESSURE-SENSITIVE
(BLD-BM3017000)**



**PCR SEALING FILM,
HIGH ADHESION,
HIGH LIGHT TRANSMISSION
(BLD-BS3030000)**

IV. NUCLEIC ACID ELECTROPHORESIS AND ANALYSIS

Nucleic acid electrophoresis is the standard method for separating, identifying, and quantifying nucleic acid fragments. Depending on fragment size, experimental objectives, and sensitivity requirements, agarose gel electrophoresis, polyacrylamide gel electrophoresis (PAGE), or capillary electrophoresis may be selected.



REAGENTS (*Indicates a selection of products; consult sales representatives for details)



QBTEST® 1× DSDNA HS ASSAY KIT (READY-TO-USE PREMIX) (Q2061L)

Product Features

- High Specificity: Specifically binds dsDNA while tolerating common contaminants;
- High sensitivity and broad linear range: Detection range 10 pg/μL to 100 ng/μL; mass detection range 0.2 to 100 ng with excellent linearity ($R^2 > 0.99$).



AGAROSE

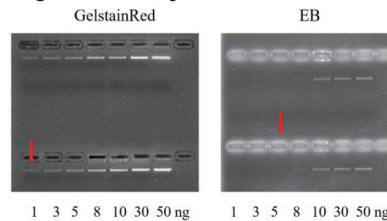


GELSTAINRED™ NUCLEIC^{ACID} STAIN

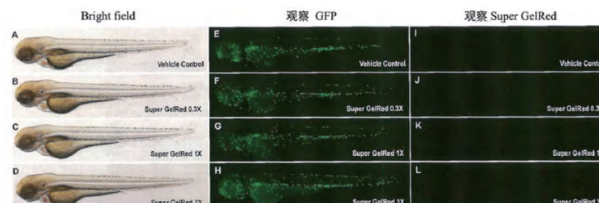
Product Features

- "Three Highs" Characteristics
- High Sensitivity: Detects DNA as low as 1 ng under UV excitation
- High Safety: Mini-Ames test and zebrafish embryo test
- High Stability: Excellent photostability and thermal stability

High Sensitivity Demonstration Image

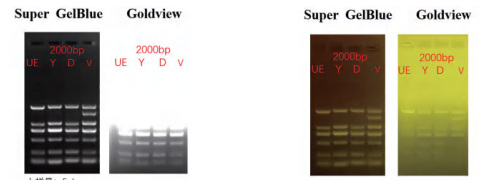


Safety Report





High Signal-to-Noise Ratio Demonstration



Blue Light Gel Cutter 3x

Blue Light Gel Cutter

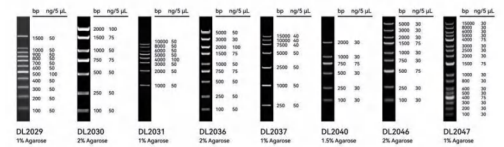
SUPER GELBLUE™ NUCLEIC ACID DYE, 10,000× IN WATER (S2019L)

Product Features

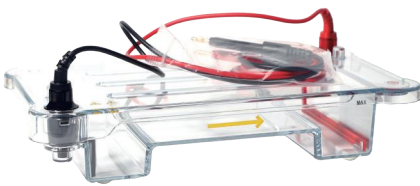
"Triple High" Characteristics

- High Sensitivity: Detects DNA as low as 3 ng. Blue light excitation with high signal-to-noise ratio
- High Safety: Passed mini-Ames test and aquatic zebrafish embryo test
- High Stability: Excellent thermal stability

DNA Marker



INSTRUMENTS



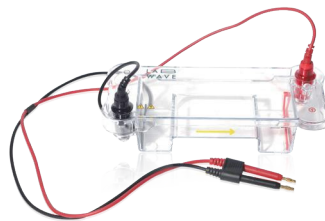
MEDIUM-SIZED HORIZONTAL ELECTROPHORESIS TANK

Product Features

- Ultra-high throughput: Comb with 27 teeth per mm × 4 rows, capable of running 108 samples (including markers) simultaneously
- Durable Construction: High-temperature resistant gel tray maintains shape at 100°C, eliminating need to cool agarose to lukewarm before casting
- Convenient sample loading: 8- and 12-channel pipette loading supported for 14-, 19-, and 27-tooth combs
- Innovative Design: Eliminates rubber seals with embedded movable electrodes, ensuring leak-free operation



**ELECTROPHORESIS
POWER SUPPLY, 300V
(LBY-EP-300 BASIC)**



**MINI HORIZONTAL
ELECTROPHORESIS TANK
(LBY-HET-0700)**



**MEDIUM-SIZED HORIZONTAL
ELECTROPHORESIS TANK**

ABOUT US

Founded in 2005, Shanghai BioScience Co., Ltd. is a platform-based service provider focused on the life sciences services sector, operating 29 offices/branches and managing over 300,000 product categories. With the mission of "Serving Science," the company has built a multi-dimensional product matrix to meet the needs of various research and production scenarios. It has established strategic partnerships with globally renowned enterprises such as Corning, Takara Bio, Danaher, and Thermo Fisher Scientific, while also maintaining close collaborations with over 20 top-tier life science brands in the industry, helping researchers achieve greater progress in the exploration of life sciences. Bioscience has become the exclusive national general distributor for Takara Bio in China.

BioScience Prime® is the collective name for the company's proprietary brands, covering four major categories: laboratory instruments, consumables, reagents, and technical services. Upholding Bioscience's consistent philosophy of innovation and dedication, BioScience Prime® leverages its self-built supply chain and technical service center to provide global life science researchers with high-quality, one-stop laboratory solutions.



BIOLEADER

Specialists in
Laboratory Plastic
Consumables
Exclusive Supplier
to Industry Leaders
for 6+ Years

Uelandy®

Pioneers of
Fluorescent Dyes
in China's Biotech
Industry

LAB WAVE

Next-Generation
Instruments for Cell,
Molecular, Physical
Chemistry & General
Applications

BIOSUNE

Advanced sequencing
platform

BIOPOHE

Customized Primer
Synthesis RNA
Synthesis