

Pangaea Real-Time PCR System

Fast and Accurate for Research



Pangaea Real-Time PCR System



Pangaea Real-Time PCR system achieves ultra-fast running time and higher detection sensitivity with its unique temperature control and optical waveguide detection design. The system has high homogeneity and accuracy, in line with international software design and operation specifications, and follows the MIQE guidelines. It is easy to operate, with data visualization, supporting multiple languages including Chinese and English, and diverse data analysis modes, providing researchers an unprecedented operating experience.



Optical Waveguide Detection

- Improve the transmission efficiency of the optical signal
- Enhance the system sensitivity to detect weak signals



Patented Airflow Duct Design

- Excellent thermal efficiency
- Up to 8.5°C/sec heating rate, shortening sample TAT



High-Quality Temperature Control Components

- Utilize the Marlow Semiconductor Cooling TEC technology
- Service life exceeding 500,000 cycles
- Ensures reliable performance across various operating conditions



96-well Intelligent Module

- Adaptive heated lid pressure adjustment mechanism
- Avoid mechanical damage to the heated lid
- Extend the service life of the equipment



Software Complies with MIQE Guidelines

Various software data calculation methods, including QC, temperature quality control, temperature gradient, and experimental condition optimization; standard curve and analysis of primer amplification efficiency, etc.



Diverse Data Analysis Modes

Absolute quantification, gene expression (technical replicates, biological replicates, multi-reference gene analysis, relative standard curve analysis), SNP (KASP), melting curve analysis, and end-point analysis, etc.

Genomics Research Workflow

This includes basic experimental reagents, instruments, and software, which simplifying your experimental process and helping you obtain highly accurate and stable data.



Sample Preparation

- RNA Extraction Kit
- DNA Extraction Kit
- DNA Direct Extraction Reagent
- Nucleic Acid Preservation Reagent



Mix Preparation

Self-Prepared System

- Rapid qPCR SYBR PreMix(UNG), 2x
- Rapid qPCR PreMix(UNG), 2x



Commercial Kits

Various detection kits provided

- Soybean GMO Detection Kit
- Corn GMO Detection Kit
- Pathogenic Microorganism Nucleic Acid Detection Kit
- 30 Respiratory Pathogens Nucleic Acid Detection Kit



Detection

- Pangaea Real-Time PCR System

Data Analysis

- cqMAN Real-Time PCR Data Processing and Analysis Software
- cqMAN - Web Cloud Platform

Accurate Temperature Control System

Pangaea uses high-quality MARLOW semiconductor Cooling TEC components to ensure its reliability and stability under different application scenarios.

Durability

- Withstand long-term operation and multiple temperature cycles
- Cyclic life exceeding 500,000 times

Stability

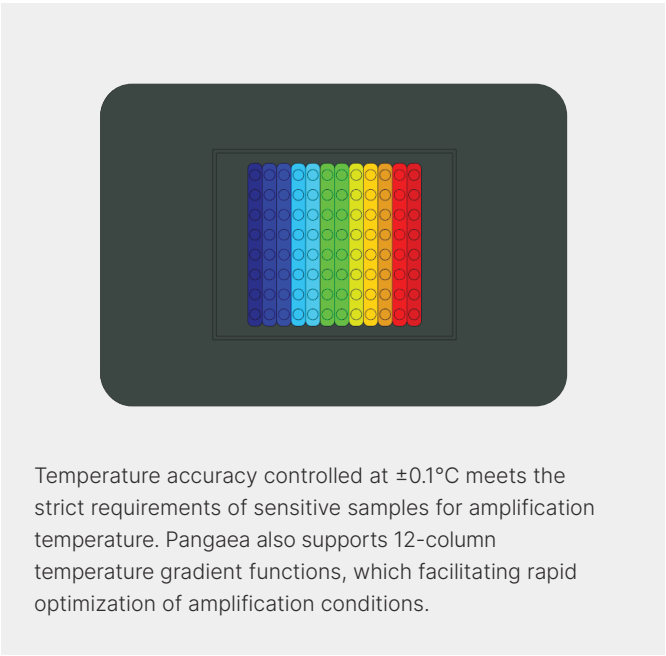
- Not affected by environmental temperature and humidity consistent performance under different working conditions

Temperature Uniformity

- The temperature uniformity is $\pm 0.15^{\circ}\text{C}$
- Avoid the effect from thermal difference

Temperature Accuracy

- The temperature accuracy is $\pm 0.1^{\circ}\text{C}$
- Ensure the reliability of the data



Patented Airflow Duct Design

Advanced computer simulation technology is employed for modeling and validation to maximize heat conduction and enhance the rate of temperature increase and decrease, with a maximum heating rate of 8.5°C/s .

Simulation Verification

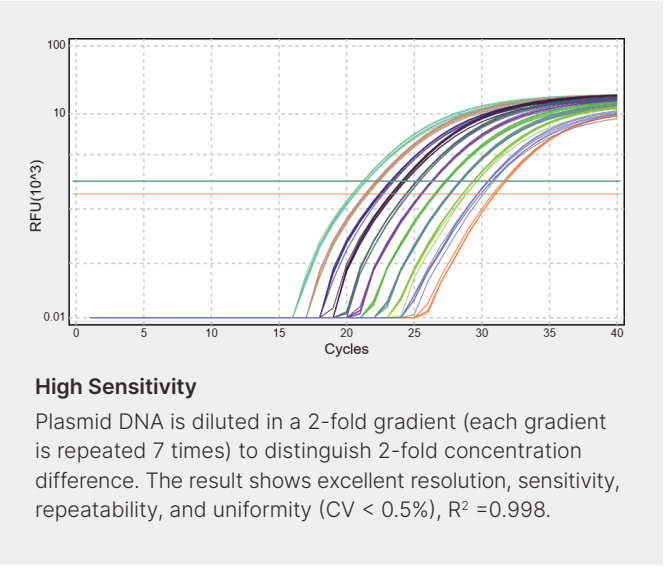
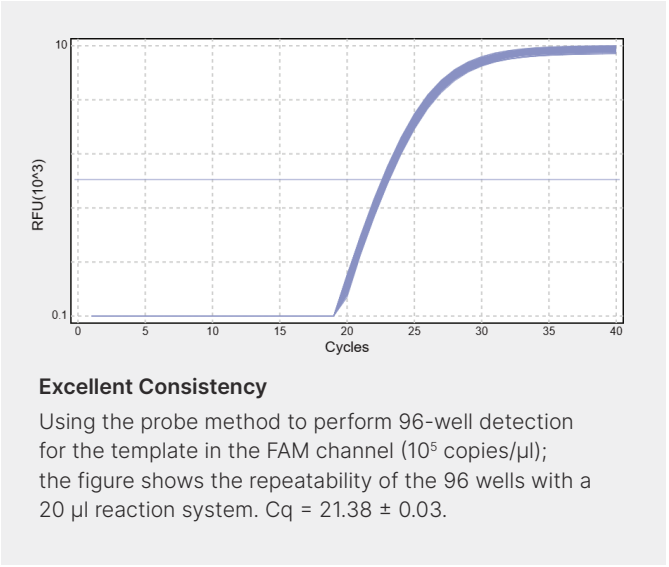
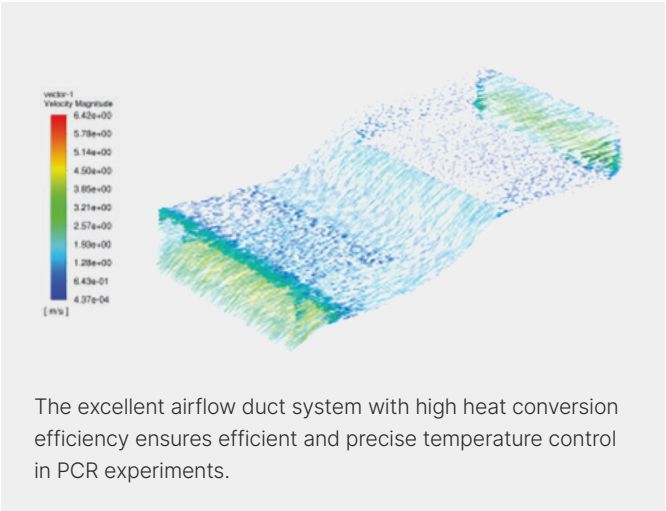
- Advanced computer simulation technology for modeling and verification
- Evaluated the heat conduction efficiency of different designs
- Identify the optimal air flow paths

Airflow Duct

- Optimized structure
- Maximize heat conduction

Accelerated Heating and Cooling Speed

- Reduce the time delay of heat conduction
- Accelerate the speed of heating and cooling



Reliable Optical System

The optical waveguide detection system combines with the CMOS image sensor technology, achieving high sensitivity, real-time performance, and integration of optical detection.

Top Detection

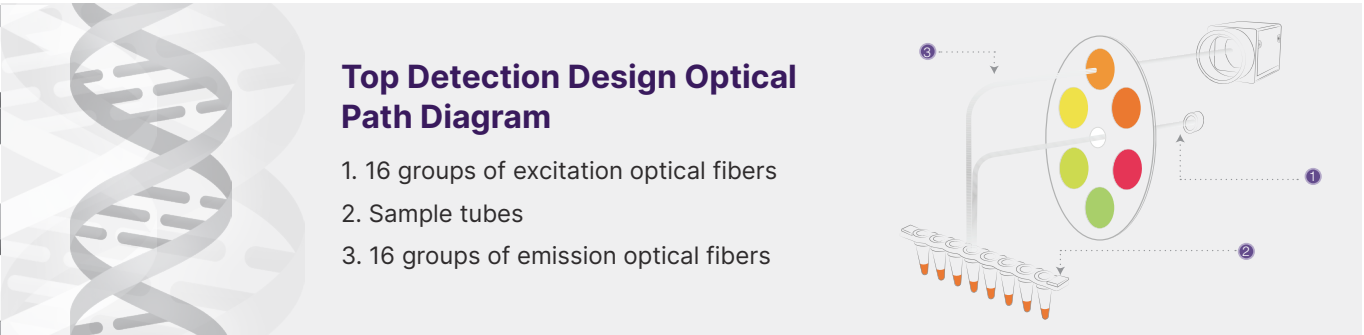
- Utilize 16 groups of equidistant optical fibers
- Avoid edge effects and path length differences
- Eliminate the need for calibration
- Suitable for small-volume reactions (5 μl)
- Offer greater compatibility with consumables (e.g., white sample tubes)

Optical Waveguide Fiber

- Effectively reduce the loss of light signals
- Fast photoelectric conversion efficiency, low power consumption, high integration, and strong real-time performance
- Suitable for PCR experiments that require high spatiotemporal resolution and fast response

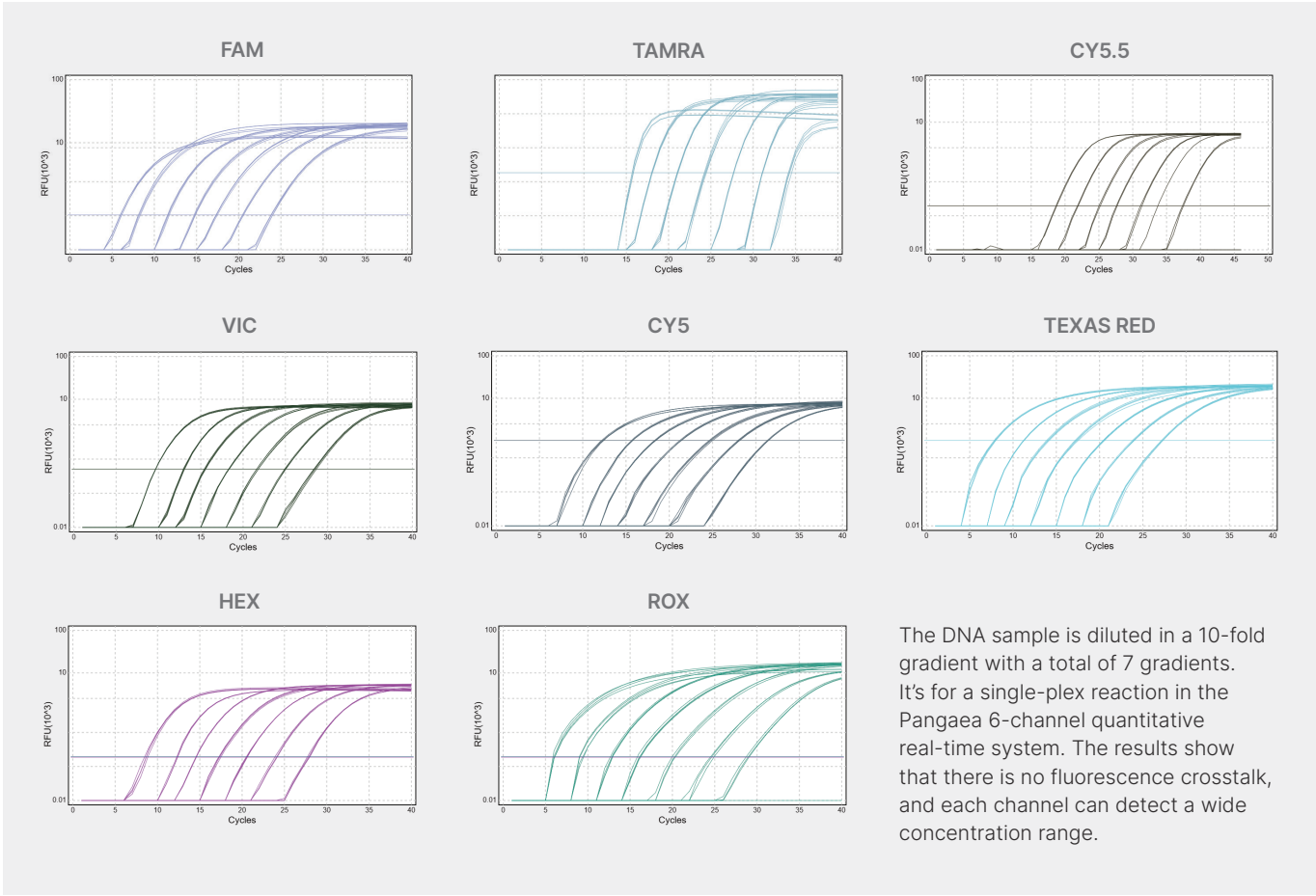
High Sensitivity

- High transmission efficiency of the optical signal and the signal-to-noise ratio
- Enhanced sensitivity to detect weak signals

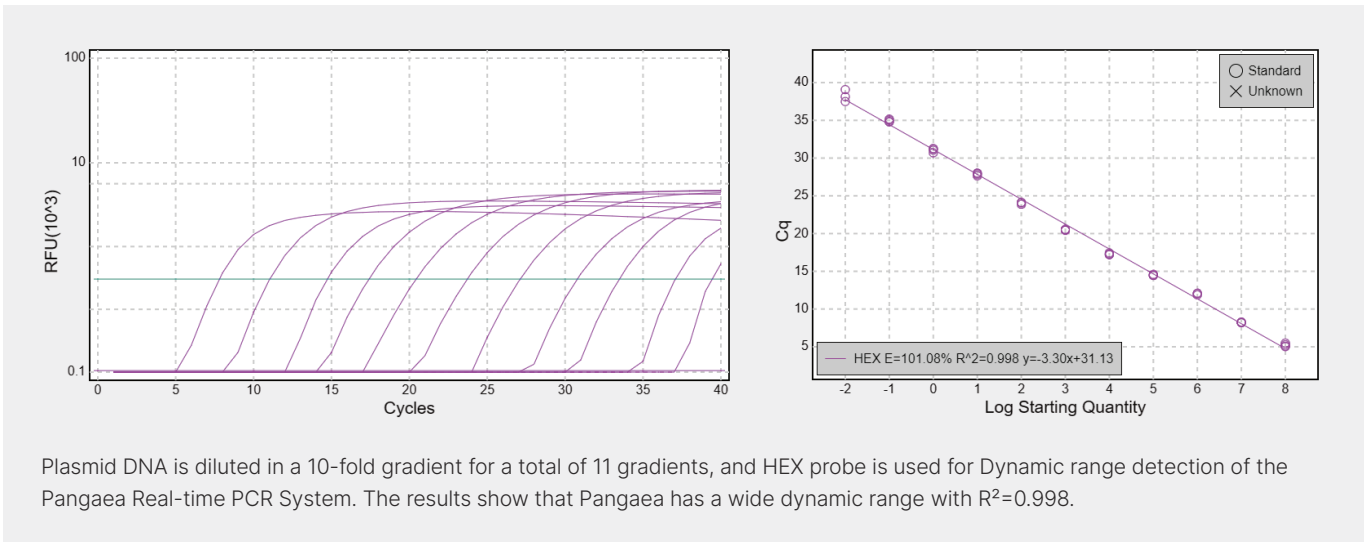


Excellent 6-Plex Detection Capability

The Pangaea Real-Time PCR system can achieve 6-plex detection capability in a single tube. The proven excellent filter combination design maximizes the detection of the fluorescence signal of a specific dye in a specific channel, with no fluorescence crosstalk.



Dynamic Range of 11 Orders of Magnitude



Real Time PCR System Compliant with MIQE Guidelines

The Pangaea CqMAN software complies with the MIQE guidelines and meets the various application requirements of real-time PCR. Its functions include absolute quantification, relative standard curve method, gene expression analysis (technical replicates, biological replicates, multi-reference gene analysis), melting curve analysis, allele genotyping/SNP analysis, end-point analysis, amplification efficiency calculation, etc.

The CqMAN software can generate experimental reports that meet the MIQE standard and is a powerful tool for gene expression analysis, pathogen detection, SNP genotyping, negative/positive determination in various research studies.

The audit trail of the CqMAN software complies with the requirements of the **US FDA 21 CFR Part 11** regulations to ensure data security. It includes password-protected login, file encryption, electronic signature, and audit tracking.



Well Plate Setup and Run

- Support real-time analysis during running
- Support well plate setup after running
- Support automatic sample numbering
- Support templates saving
- Support automatic standard curve setup



Data Collection and Calculation

- Normalized Expression Analysis ($2^{-\Delta\Delta Cq}$)
- Multi-Reference Gene Analysis
- Relative Standard Curve Analysis
- Genotyping
- Melting Curve
- End-Point Analysis
- Negative/Positive Quality Control Analysis



Intelligent Cloud Platform

- Not limited by operating system
- Compatible with Windows and Linux.
- Data analysis can be performed through the CqMAN desktop software or the cloud platform
- Allow flexible work time and place

Gene Expression - Technical Replicates and Biological Replicates Data Analysis



Gene Expression

Well Plate Setup for Technical Replicates



Gene Expression

Well Plate Setup for Biological Replicates



Gene Expression

Technical Replicates Data Analysis



Gene Expression

Biological Replicates Data Analysis



Relative Standard Curve

Each gene needs a standard curve for accurate amplification efficiency calculation



Multi-Reference Gene Analysis

- Use geometric mean of multiple reference genes as the correction factor
- Relatively more stable and reliable results



Automatic Genotyping

- A wide range of applications in agriculture, such as germplasm resource identification, kinship identification, molecular marker-assisted breeding, and purebred identification
- Widely used in medicine, including genetic disease detection, pharma cog enomics, and disease susceptibility detection

Specifications

Sample Throughput	96	Excitation Light Source	High-Energy LED
Reaction Volume	1-150 μl	Detector	High-Dynamic CMOS Camera
Temperature Module	Peltier Semiconductor	Detection Channel	3-6
Maximum Heating Rate	8.5°C/S	Sensitivity	Single copy template
Temperature Range	4-100°C	Resolution	1.5 times
Temperature Accuracy	±0.1°C	Dynamic Range	10 Logs
Temperature Uniformity	±0.15°C	Fluorescence Dye	FAM/SYBR Green/EvaGreen; VIC/HEX/JOE; TAMRA/CY3; ROX/Texas Red; CY5/LIZ; CY5.5/Quasar705
Temperature Gradient	12 columns		
Temperature Gradient Range	1-30°C		
Experiment Type	Support multiple types of experiments, such as absolute quantification, relative standard curve method, gene expression (technical replicates, biological replicates, multi-reference gene analysis), melting curve, allele genotyping/SNP analysis, end-point analysis, and amplification efficiency, etc.		

*The technology of Pangaea Real-Time PCR system is protected by authorized patents such as Chinese patent 202110044459.1, ZL, 202130868749.9, ZL, and 202021457825.3, etc.

Dyes/Probes Supported

The Pangaea Real-Time PCR system includes 4 models, which named Pangaea 3, Pangaea 4, Pangaea 5, and Pangaea 6. The supported dye or probe types of each model are as follows:

Fluorescence Detection Channel	Dyes/Probes	Pangaea 3	Pangaea 4	Pangaea 5	Pangaea 6
Channel 1	FAM/SYBR Green	✓	✓	✓	✓
Channel 2	VIC/HEX/JOE	✓	✓	✓	✓
Channel 3	TAMRA/Cy3			✓	✓
Channel 4	ROX/TEXAS RED	✓	✓	✓	✓
Channel 5	Cy5/LIZ		✓	✓	✓
Channel 6	Cy5.5/Quasar705				✓

Support Customization

Ordering Information

Cat. Number	Description
qPCR Instruments and Reagents	
621103	Pangaea 3, Real-Time PCR System
621104	Pangaea 4, Real-Time PCR System
621105	Pangaea 5, Real-Time PCR System
621106	Pangaea 6, Real-Time PCR System
110062001	Sample DNA Direct Extraction Reagent, 1 ml
150003100	Rapid qPCR Test Kit (Probe Method), 100 rxns
150004100	qPCR Test Kit (SYBR Method), 100 rxns
150005100	qPCR Test Kit (Probe Method), 100 rxns
15000801k	Rapid qPCR SYBR PreMix (UNG), 2x, 1000 µL
15000101k	Rapid qPCR PreMix (UNG), 2x, 1000 µL
Genetically Modified Components Detection Kit	
175001050	Soybean DBN9004 Transgenic Detection Kit (Fluorescence PCR Method), 50 rxns
175002050	Soybean Zhonghuang 6106 Transgenic Detection Kit (Fluorescence PCR Method), 50 rxns
175006050	Soybean GTS40-3-2 Transgenic Strain Detection Kit (Fluorescence PCR Method), 50 rxns
175003050	Corn MON810 Transgenic Detection Kit (Fluorescence PCR Method), 50 rxns
175004050	Corn Ruifeng 125 Transgenic Detection Kit (Fluorescence PCR Method), 50 rxns
175005050	Corn DBN9936 Transgenic Detection Kit (Fluorescence PCR Method), 50 rxns
Pathogenic Microorganism Detection Kit and Assay	
161005100	Detection of HIV-1 DNA Assay (qPCR Method), 25x, 100 rxns
161006100	Detection of Packaging Signal Ψ Region of Human Immunodeficiency Virus Type I (HIV-1) Assay (qPCR Method), 25x, 100 rxns
161007100	Detection of Env Region of Human Immunodeficiency Virus Type I (HIV-1) Assay (qPCR Method), 25x, 100 rxns
161008100	Detection of Human RPP30 Internal Reference Gene (FAM Marker) Assay (qPCR Method), 25x, 100 rxns
163001100	Detection of Influenza A Virus Nucleic Acid Assay (qPCR Method), 25x, 100 rxns
163002100	Detection of Influenza B Virus Nucleic Acid Assay (qPCR Method), 25x, 100 rxns
173001050	African Swine Fever Virus Detection Kit (Fluorescence PCR method), 50 rxns
173002050	COVID-19 Multiplex qPCR Detection Kit, 50 rxns
173004050	Norovirus Multiplex qPCR Detection Kit, 50 rxns
173005050	Influenza A Virus Detection Kit (Fluorescence PCR Method), 50 rxns
173006050	Influenza B Virus Detection Kit (Fluorescence PCR Method), 50 rxns
173007050	Monkeypox Virus Detection Kit (Fluorescence PCR Method), 50 rxns
173008050	Klebsiella Pneumoniae Detection Kit (Fluorescence PCR Method), 50 rxns
173009050	Acinetobacter Baumannii Detection Kit (Fluorescence PCR Method), 50 rxns
173010050	Pseudomonas Aeruginosa Detection Kit (Fluorescence PCR Method), 50 rxns

Cat. Number	Description
Pathogenic Microorganism Detection Kit and Assay	
173011050	Streptococcus Pneumoniae Detection Kit (Fluorescence PCR Method), 50 rxns
173012050	Haemophilus Influenzae Detection Kit (Fluorescence PCR Method), 50 rxns
173013050	Plasmodium Nucleic Acid Detection Kit (Fluorescence PCR Method), 50 rxns
173014050	Chickenpox Nucleic Acid Detection Kit (Fluorescence PCR Method), 50 rxns
173015010	30 Respiratory Pathogens Nucleic Acid Detection Kit (Multiplex qPCR Method) - Lyophilized Type, 50 rxns
Tumor Detection Kits and Assays	
161001100	Detection of Copy Number of Human HER2 Gene Assay (qPCR Method), 25x, 100 rxns
161002100	Detection of Human EIF2C1 Internal Reference Gene Assay (qPCR Method), 25x, 100 rxns
161003100	Detection of Copy Number of Human c-MET Gene Assay (qPCR Method), 25x, 100 rxns
161004100	Detection of Human RPP30 Internal Reference Gene Assay (Cy5 Marker), 25x, 100 rxns
171001050	Human ROS1 Fusion Gene Detection Kit (Fluorescence PCR Method), 50 rxns
171002050	Human ALK Fusion Gene Detection Kit (Fluorescence PCR Method), 50 rxns
171003050	Human NTRK Fusion Gene Detection Kit (Fluorescence PCR Method), 50 rxns
171004050	Human BCR-ABL1 Fusion Gene (4 sites) Detection Kit (Fluorescence PCR Method), 50 rxns
171005050	Human BCR-ABL% IS Detection Kit (Fluorescence PCR Method), 50 rxns
qPCR Consumables	
210011120	0.1 ml 8-tube Strips, White (with Caps), High Light Transmittance, 20 strip/box
210012120	0.1 ml 8-tube Strips, Clear (with Caps), High Light Transmittance, 20 strip/box
210013120	0.1 ml 8-tube Strips, White (with Caps), 20 strip/box
210014120	0.1 ml 8-tube Strips, Clear (with Caps), 20 strip/box
210004010	0.1 ml 96-well, White, Unskirted (with Plates Seals), 10 plate/box
210005010	0.1 ml 96-well, Clear, Unskirted (with Plates Seals), 10 plate/box
210006010	0.1 ml 96-well, Clear, Semi-skirted (with Plates Seals), 10 plate/box
210007010	0.1 ml 96-well, White, Unskirted, 10 plate/box
210008010	0.1 ml 96-well, White, Semi-skirted, 10 plate/box
210009010	0.1 ml 96-well, Clear, Unskirted, 10 plate/box
210010010	0.1 ml 96-well, Clear, Semi-skirted, 10 plate/box



Visit aperbio.com/pangea-rapid-fluorescent-quantitative-pcr-system-details-page to learn more about the **Pangaea Real-Time PCR System**.

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For further information, please contact the Aperbio office nearest you or visit our website at aperbio.com



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