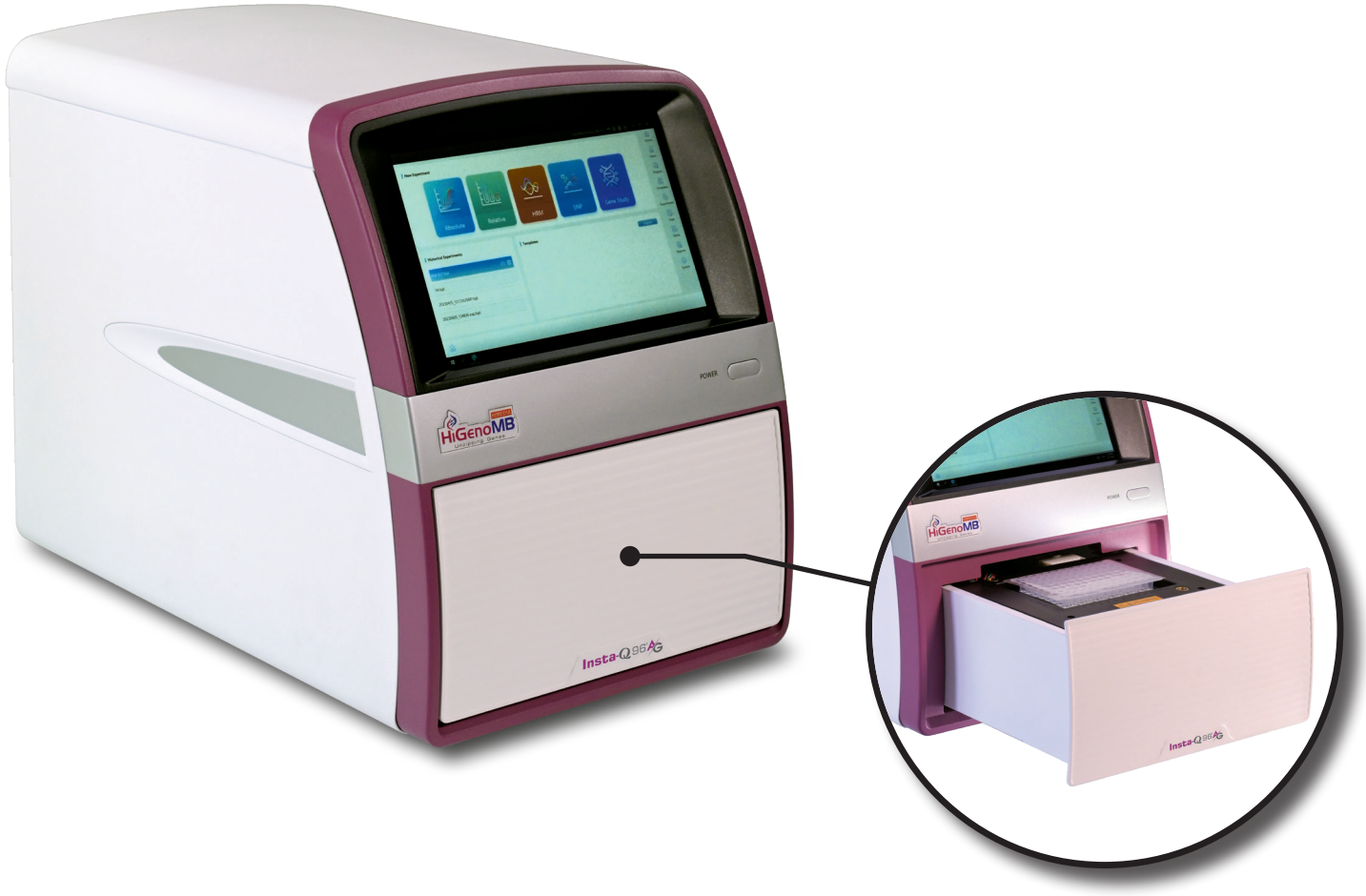
Touchscreen Real Time PCR

Insta-Q96 AG



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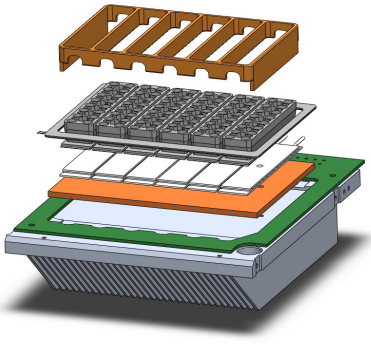
Introduction

The **Insta-Q96® AG** series is an advanced Real-Time PCR system engineered for **high precision, accuracy, and efficiency** in molecular diagnostics and research applications. It integrates **cutting-edge thermoelectric refrigeration technology**, a **high-intensity LED-based excitation source**, and a **highly sensitive CMOS detection system** to ensure reliable performance. With a **modular design**, the system provides **configuration flexibility**, making it adaptable for both **scientific research and clinical applications**. Its combination of innovative features enables **superior thermal cycling control, fluorescence detection, and robust data acquisition**, ensuring consistent and reproducible results across diverse qPCR workflows.

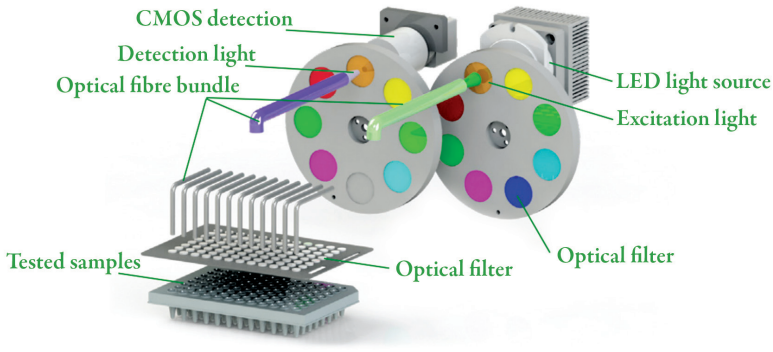
Working Principle of the Machine

A. **Thermal Cycling:** Utilizes Peltier technology for rapid and precise temperature transitions.
   i. Uses **Peltier thermoelectric technology** for rapid and precise temperature transitions.
   ii. Ensures efficient **denaturation, annealing, and extension** steps for PCR amplification.
   iii. Provides **fast heating (6°C/s) and cooling (5.5°C/s)** rates to minimize runtime.



B. **Fluorescence Detection:** LED excitation with advanced fiber optic transmission.
   i. Utilizes **high-intensity LED light sources** for **stable and uniform excitation**.
   ii. **Fiber optic transmission** enhances signal clarity, reducing cross-talk between wells.
   iii. Supports **multi-channel fluorescence detection**, enabling multiplex qPCR applications.

C. **CMOS-Based Signal Capture:** Ensures accurate fluorescence emission detection with high sensitivity.
   i. **CMOS (Complementary Metal-Oxide-Semiconductor) sensors** detect emitted fluorescence with high precision.
   ii. Provides **real-time monitoring** of PCR amplification curves for quantitative analysis.
   iii. Ensures **low background noise and high signal-to-noise ratio**, improving sensitivity and accuracy.



Key Features

A. **10-inch inbuilt touchscreen** with 100GB memory for seamless operation
   i. Provides an intuitive and user-friendly interface for easy navigation and setup.
   ii. Large storage capacity allows users to store a significant number of experiments runs without external storage.
   iii. Enhances workflow efficiency by reducing dependency on external computers.

B. **6-zone independent thermal cycling module** for uniform temperature control
   i. Ensures uniform temperature control across different wells, improving reproducibility.
   ii. Allows gradient PCR, enabling users to optimize annealing temperatures within a single run.
   iii. Reduces experimental variability, leading to more accurate and consistent results.

C. **Automatic pop-up sample bin** and adjustable hot cover
   i. Automatic pop-up sample bin simplifies loading and unloading, minimizing contamination risks.
   ii. Adjustable hot cover prevents condensation in the reaction tubes, ensuring efficient amplification.

D. **Open-system compatibility** for various PCR applications
   i. Compatible with a wide range of qPCR assays and reagents, offering flexibility for different applications.
   ii. Allows users to run custom protocols, making it ideal for research and diagnostic labs.

E. **Advanced optical system** with fibre optic transmission for high sensitivity
   i. Uses LED-based excitation and 96 fiber optics cable to scan individual well for precise and sensitive fluorescence detection without any moving part.
   ii. Improves signal uniformity and detection sensitivity, allowing low-copy detection.
   iii. Enables multi-channel detection for multiplexing applications.
   iv. Optics capable of collecting simultaneous data across all optical filters for all wells, ensuring complete data acquisition regardless of plate setup.

F. **21 CFR Part 11 compliance**
   i. It ensures electronic records and signatures are trustworthy, reliable, and equivalent to paper records for FDA-regulated industries.
   ii. It mandates controls for data integrity, audit trails, user access, and security to maintain the authenticity of electronic records.

System Overview

A. **Sample Capacity: 96 wells Anodized Aluminum Block (0.2ml tubes, strips, and plates)**
   i. Accommodates **various PCR tubes / strips / plate formats**, providing flexibility in experimental setup.
   ii. Suitable for **high-throughput applications** in research and clinical diagnostics.

B. **Multiplexing Capability: Up to 5/6 detection channels**
   i. Allows simultaneous detection of **multiple targets** in a single reaction.
   ii. Supports **multi-channel fluorescence detection**, reducing sample usage and increasing efficiency.

C. **Reaction Volume Range: 5-100 µL**
   i. Enables **flexible reaction setups**, from small-volume experiments to high-yield amplification.
   ii. Optimized for **low-template and high-sensitivity assays**.

D. **Dynamic Range: 1 to 10^{10} copies**
   i. Provides **high sensitivity**, detecting as low as a single copy.
   ii. Ensures accurate quantification across a broad range of nucleic acid concentrations.

E. **Communication Interface: USB, Ethernet**
   i. Supports **wired and wireless connectivity**, ensuring seamless data transfer.
   ii. Enables integration with **LIMS (Laboratory Information Management Systems)** for efficient workflow automation.

F. **Data Export Formats: PDF, text, JPEG, Excel, MIQE, RDML, CSV**
   i. Provides **multiple export options** for flexible data analysis and reporting.
   ii. Compatible with **various bioinformatics and statistical tools** for downstream processing.

Temperature Control & Performance

A. Operating Temperature Range: 4°C - 100°C

i. Covers a wide range of PCR conditions, allowing flexibility for various protocols.
ii. Suitable for applications like hot-start PCR, enzyme activation, and denaturation studies.

B. Heating Rate: 6°C/s, Cooling Rate: 5.5°C/s

i. Ensures rapid thermal cycling, reducing overall experiment time.
ii. ii. Enhances efficiency for high-throughput qPCR workflows.

C. Temperature Accuracy: ± 0.1°C, Uniformity: ± 0.3°C

i. Maintains precise and consistent temperature control across all wells.
ii. Ensures high reproducibility in qPCR experiments.

D. Gradient Temperature Range: 1-30°C with ±6°C max differential (6 zones)

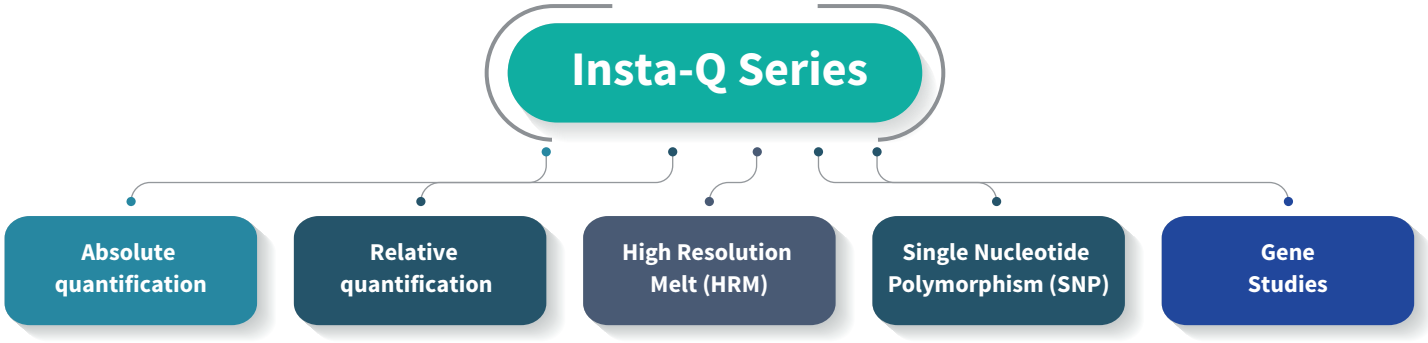
i. Enables gradient PCR, allowing optimization of annealing temperatures in a single run.
ii. Helps in assay development and primer efficiency testing.

Channel Wavelength & Dye Compatibility

System has 5/6 de-coupled excitation and emission filter sets to enable collection of up to 21 unique combinations of wavelengths through CMOS detector during a single run for multiplexing 5/6 colors.

Channels	Excitation	Emission	Dyes	Insta Q96® AG	Insta Q96 AG® 6.0
F1	470nm±15nm	520nm±10nm	FAM, SYBR Green, SYTO 9, EvaGreen, LCGreen	✓	✓
F2	520nm±10nm	550nm±10nm	HEX, VIC, JOE, TET	✓	✓
F3	570nm±10nm	615nm±20nm	ROX, TexasRed, JUN, Cal Fluor Red 610	✓	✓
F4	630nm±10nm	665nm±10nm	Cy5, Quasar 670, Mustang Purple, ALEXA 647	✓	✓
F5	665nm±10nm	725nm±20nm	Cy5.5, Quasar 705, Alexa Fluor 680	✓	✓
F6	550nm±10nm	585nm±10nm	TAMRA, CY3, ABY	X	✓

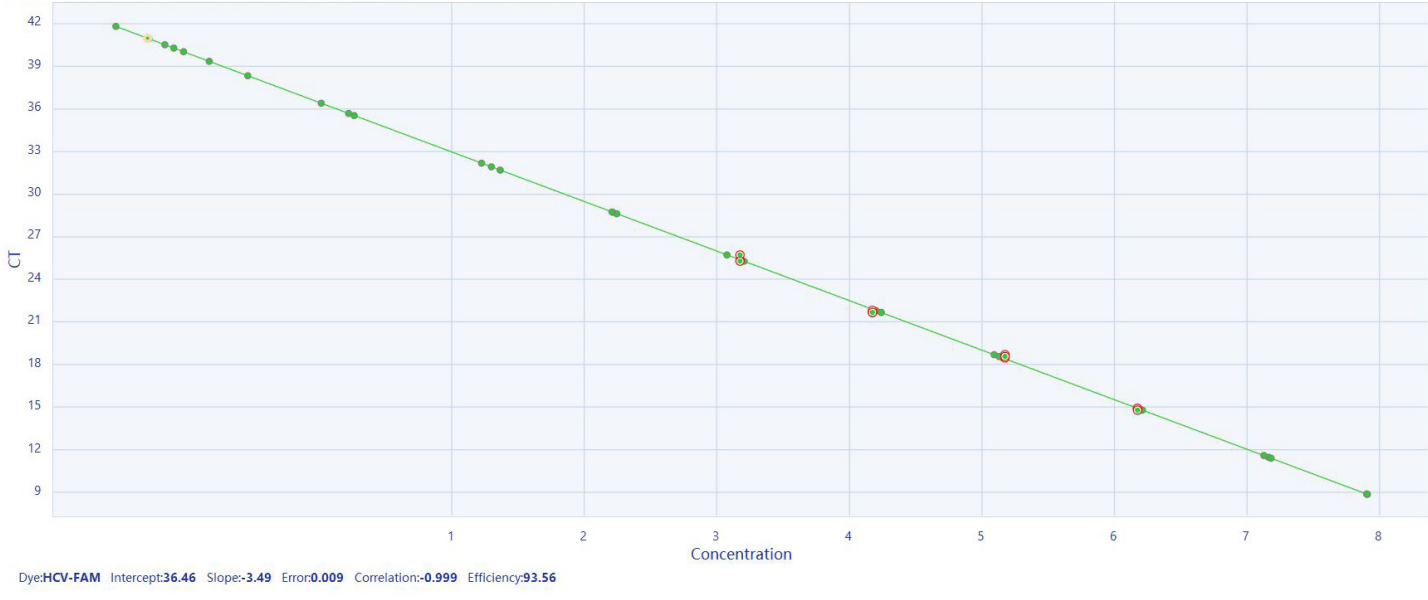
Analysis procedures supported by Insta-Q Series software



Absolute Quantification

- Absolute quantification is achieved by comparing the Ct values of the test samples to a standard curve.
- The result of the analysis is quantity of nucleic acid (copy number, unit mass) per given amount of sample (per cell, per ng of total RNA).
- Absolute quantitation uses serially diluted standards of known concentrations to generate a standard curve.
- Standard curve produces a linear relationship between Ct and initial amounts of total DNA or cDNA from RNA of the Gene of interest (GOI), allowing the determination of the concentration of unknowns based on their Ct values.
- The linearity is denoted by the R squared (r^2) value (r is Pearson Correlation Coefficient) and should be very close to 1 (> 0.985).
- The efficiency of both the standard curve and sample reactions should be between 90 and 110%.
- The instrument can also be used to quantify ready to load NGS libraries using standard SYBR based assays allowing for accurate library quantification and precise loading into Illumina sequencing machines.

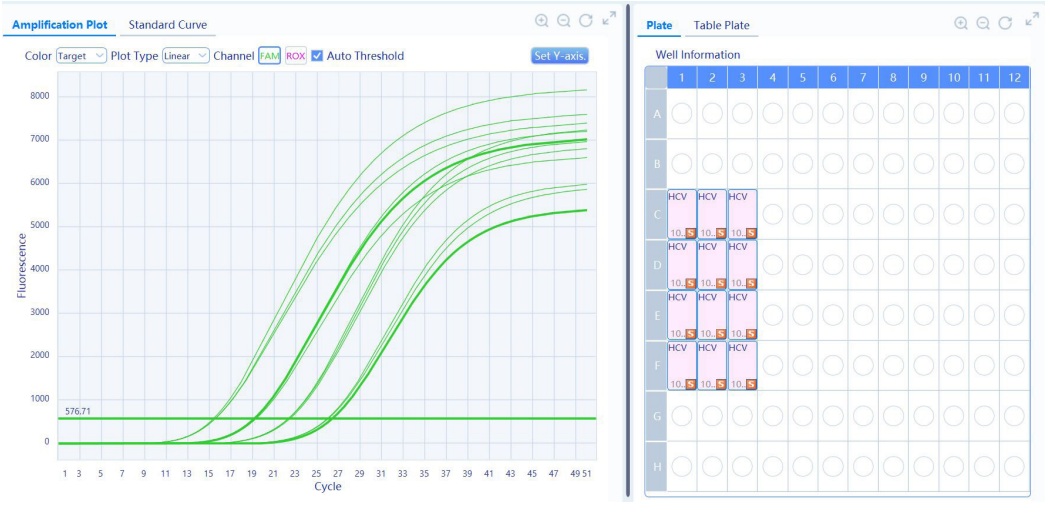
Standard Quantification Assay



Plotting a Standard Curve

- In absolute quantification, the quantity (e.g., copy number or unit mass) of the unknown sample is interpolated from a range of standards of known quantity.
- To construct a standard curve, a template with known concentration is required.
- Dilution of this template is then performed and these dilutions serve as the standards. The unknown test samples are assayed with the standards in the same experimental run.
- The standard curve constructed from the diluted standard template can then be used to determine the target quantity in the unknown sample by interpolation, similarly to using molecular size standards to determine the molecular size of an unknown DNA band on an agarose gel.
- Standard curve can be imported from previous run experiments. It can be imported only in standard curve assays. Hence standards need not be run every time.

Software Analysis Interface



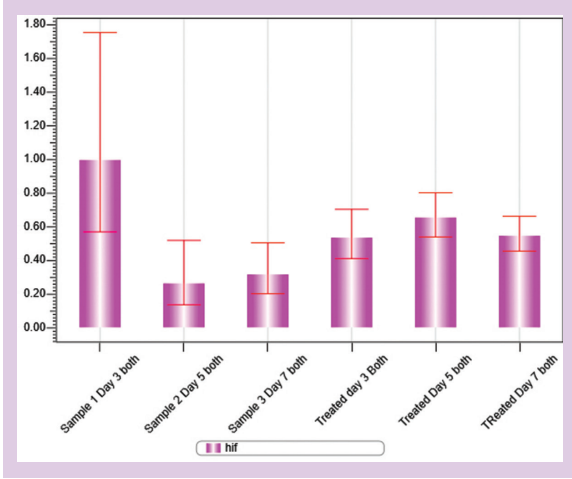
Relative Quantification

- Let's get the nomenclature settled.
  - The gene of interest whose expression is getting determined is the target gene.
  - The housekeeping gene whose expression is unregulated is called the reference gene.
  - The sample (or group of samples) being used as a control is the calibrator sample.
  - Finally, the sample (or group) that is being treated or tested for differences is the test sample.
  - The ratio of the target gene expression in the test sample over the calibrator sample is interchangeably called the expression fold change or relative gene expression.
- Amplification efficiency of the reaction is an important consideration when performing relative quantitation.
- Past methods of calculating gene expression have assumed the amplification efficiency of the reaction is ideal, or 1.
- Actual amplification efficiency values for a particular reaction can be established via a standard curve measurement during assay design, and multiple standard curves should be run to verify that this efficiency measurement is reproducible.
- Although absolute quantification can be useful in determining absolute quantities of target, the majority of scientific questions regarding gene expression can be accurately and reproducibly answered by measuring the relative concentration of the GOI in unknown samples.
- Differences in Ct value between an unknown sample and reference sample are expressed as fold- changes (i.e., up- or down- regulated) relative to the reference sample and thereby the results are expressed as a target/reference ratio.

Features

- Automated calculation of ΔCt and ΔΔCt values by software.
- Exact and final RQ values provided by software at the end of the assay.
- Easy and hassle free transfer of data to Excel or Word format on a Single Click.
- Option to import Standard curves run from other experiments in RQ assays as well.
- Normalization to multiple endogenous controls.

Relative Quantification



High-Resolution Melting (HRM)

High-Resolution Melting (HRM) analysis using the **Insta-Q96® AG series Real-Time PCR systems** is a cutting-edge post-PCR technique for identifying nucleic acid sequence variations through detailed melting curve analysis. Leveraging the system's **precise temperature ramp control, high-sensitivity dsDNA-binding dyes, and advanced real-time PCR capabilities**, HRM ensures accurate data capture. Its specialized analysis software enables the detection of subtle differences in DNA melting profiles, making it an invaluable tool for **genotyping, mutation scanning, and epigenetic research**.

Figure 9: High-Resolution Melting (HRM) plot for Insta Q96® AG series

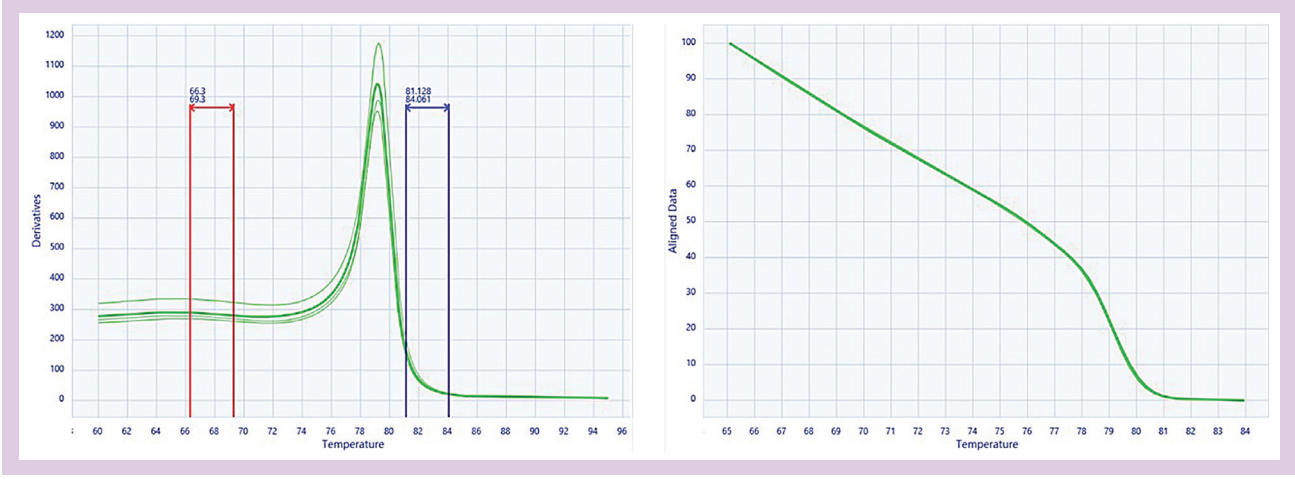


Figure 9 represents an **HRM (High-Resolution Melt) curve**, a technique used to analyze DNA melting behavior after PCR amplification. The x-axis is **temperature (°C)**, and the y-axis is **fluorescence intensity (aligned data)**.

- The **red and blue boxes** represent the **pre-melt and post-melt regions**, respectively, which are used for data normalization.
- The **gradual decrease in fluorescence** as temperature increases suggests **DNA denaturation**.
- The **steep drop** around **78–80°C** indicates the melting temperature **(T_m)** of the amplicon, where DNA strands separate.
- A **single, smooth transition** suggests a **homogeneous DNA population** with a single product (no significant mutations or polymorphisms).

HRM has renewed interest in the utility of DNA melting for a wide range of uses, including:

- Mutation discovery (gene scanning)
- Species identification
- Screening for loss of heterozygosity
- Somatic acquired mutation ratios
- DNA fingerprinting
- HLA compatibility typing
- SNP genotyping
- Association (case/control) studies
- Characterization of haplotype blocks
- Allelic prevalence in a population
- DNA methylation analysis
- Identification of candidate predisposition genes
- DNA mapping

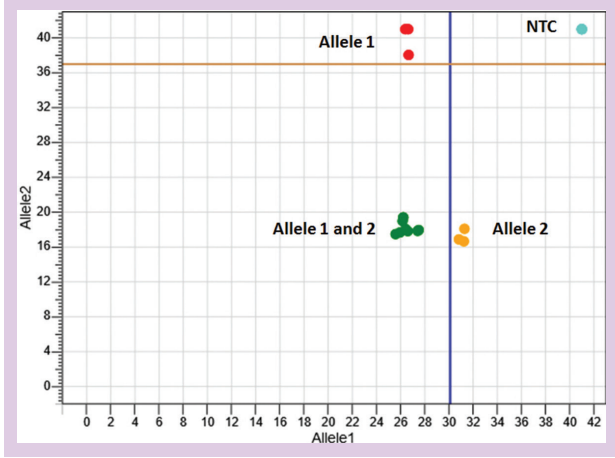
Single Nucleotide Polymorphism (SNP)

- A Single Nucleotide Polymorphism or SNP is a DNA sequence variation occurring when a single nucleotide in the genome differs between members of a species or two allele of a gene.
- Probe based SNP Genotyping Assays provide a highly flexible technology for detection of polymorphisms within any genome.
- Probe Assays have a simple workflow and provide a quick way to generate genotyping data.

Features

- Auto Call and Manual call options
- Easy and colour coded Scatter plot based on SNP assay analysis

SNP



Gene Studies

- Multiple plates combined into one expenment with the Gene Study Feature.
- Software has a reference Gene Selector Tool displaying gene stability for selection of ideal reference genes.
- Up to 5,000 Cq values from different data files will be compared for gene expression analysis.

Performance Metrics and Data Applications

Block uniformity on InstaQ AG series

Insta-Q96® AG series Real-Time PCR systems offer **block uniformity**, ensuring consistent and reproducible thermal cycling across all wells in a PCR plate. Good block uniformity ensures that all samples experience the same temperature conditions, preventing variations in amplification efficiency and Ct values.

Figure 1: Block uniformity plot

Figure 1a

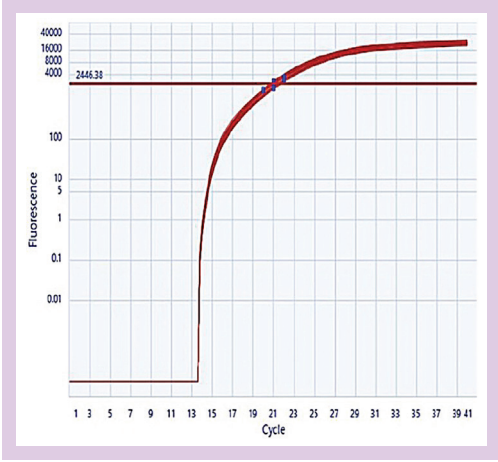
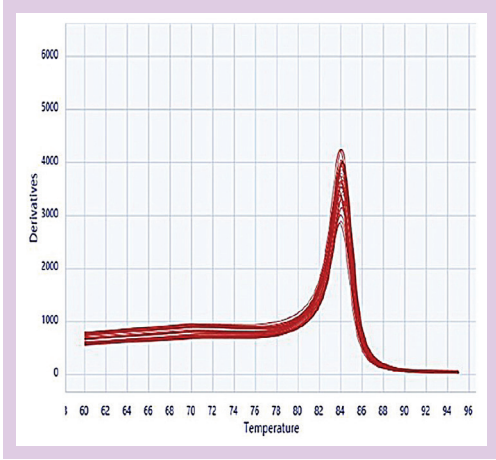


Figure 1b



In **Figure 1a**, the consistent sigmoidal curves across all samples indicate uniform amplification, suggesting that **all wells receive the same temperature treatment**. Minimal variation in Ct values shows that the thermal block is maintaining **consistent heating and cooling across different wells**.

Similarly, in **Figure 1b**, the sharp, single melting peak at around 82–84°C across all samples indicates **precise and uniform temperature ramping in the block**. Low variability in T_m (melting temperature) values confirms that all wells experience **equal heating during the melting phase**.

Thermal gradient

The **Insta-Q96® AG series Real-Time PCR systems** are equipped with a gradient feature designed to facilitate assay optimization. This feature allows for a gradient temperature range of 1–30°C across six independently controlled zones, with a maximum temperature differential of ±6°C between zones. This capability enables users to determine the optimal annealing temperatures for their assays efficiently. The impact of varying annealing temperatures on target amplification is demonstrated, showing that as the annealing temperature increases, the Ct values rise, and fluorescence levels for the target decrease.

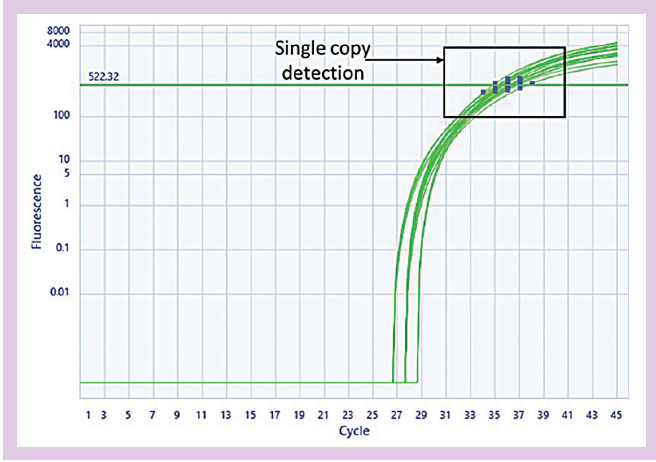
Figure 2: Thermal Gradient for Insta Q96® AG series

Single copy detection

The **Insta-Q96® AG series Real-Time PCR systems** are designed to offer **high sensitivity** and **precision, enabling single-copy detection** in quantitative PCR assays. This capability is crucial for detecting ultra-low DNA or RNA concentrations, such as rare mutations, trace pathogen detection, or single-gene quantification.

Figure 3 shows amplification curves (green) with a logarithmic fluorescence scale. The curves exhibit an exponential increase, indicating successful amplification. The cycle at which amplification begins (Ct value) varies, with later cycles indicating lower starting quantities. **Single-copy detection** would typically result in amplification occurring at a higher Ct (approx. 30–40), as seen in some curves.

Figure 3: Single copy detection plot for Insta Q96® AG series

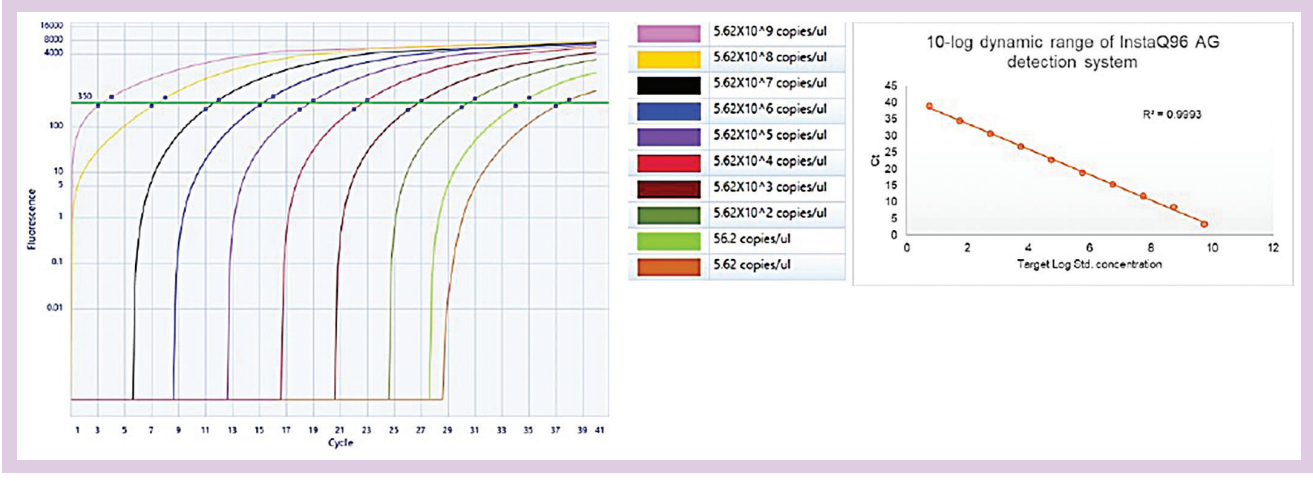


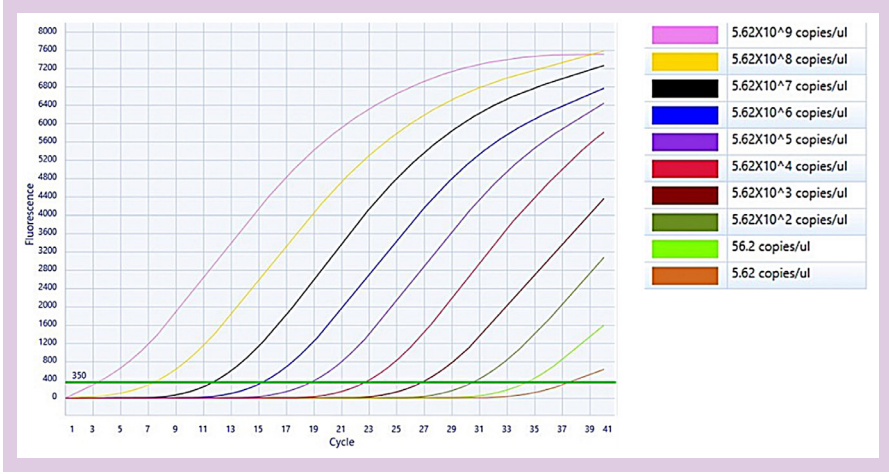
Sensitivity – 10 Log-fold dilutions

The **Insta-Q96® AG series Real-Time PCR systems** exhibit **high sensitivity, excellent dynamic range, and precise quantification ability**. Its ability to **accurately amplify and detect low DNA concentrations** makes it an **ideal tool for different molecular diagnostic applications**.

Figure 4 shows Amplification of Human herpesvirus 5 in 10-fold dilutions with concentration of template ranging from 5.62 X 109 copies/µL to 5.62 copies/µL in 20 µL reaction volume using **Hi-PCR® Cytomegalovirus (CMV) Probe PCR Kit (MBPCR279)**. The Ct values of the 10 log-fold dilutions range from 3.37 to 39.02 show broad dynamic range of the Insta Q96 AG system and excellent linearity and resolution.

Figure 4: Sensitivity plot exhibiting 10 Log-fold dilutions for Insta Q96® AG series





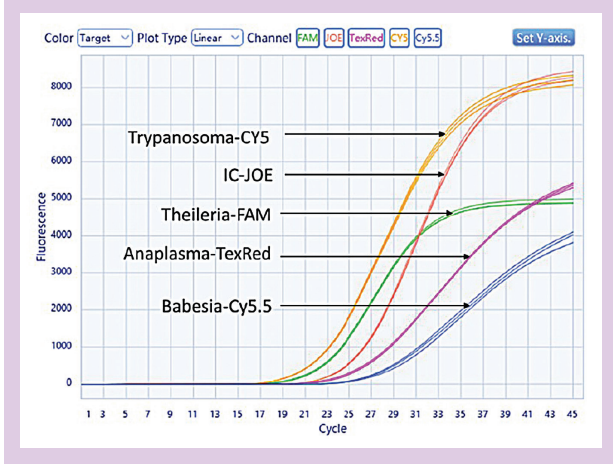
Multiplexing

Insta-Q96® AG series Real-Time PCR systems support multiplexing, allowing the simultaneous detection of multiple targets using different fluorescent dyes in a single reaction. This feature is essential for assays like the **Hi-PCR® Protozoan Parasite Multiplex Probe PCR Kit (MBPCR252)**, which uses multiple fluorophores for detecting various protozoan parasites (**Figure 5**).

Target Pathogens & Fluorescent Channels:

- **Theileria** – Detected in the **FAM** channel.
- **Anaplasma** – Detected in the **Texas Red** channel.
- **Trypanosoma** – Detected in the **Cy5** channel.
- **Babesia** – Detected in the **Cy5.5** channel.
- **Internal Control (IC)** – Detected in the **JOE** channel to monitor PCR efficiency and rule out false negatives.

Figure 5: Multiplexing plot for Insta Q96® AG series

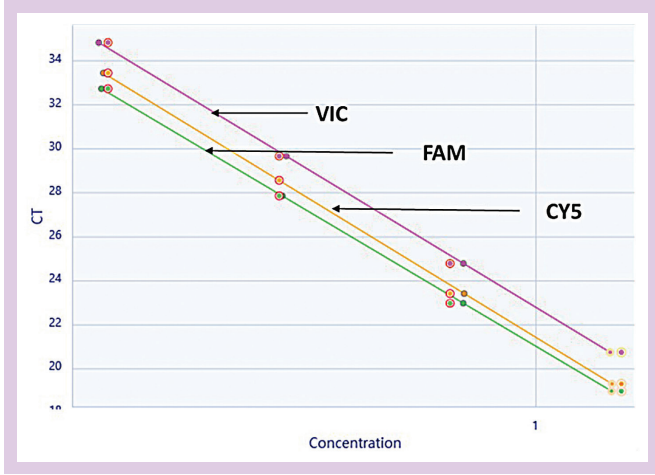


Linearity in multiplexing

The **Insta-Q96® AG series Real-Time PCR systems** are designed to ensure **linearity in multiplexing**, meaning the relationship between Ct values and concentration remains consistently proportional across multiple targets-dyes (**Figure 6, Figure 7**). This reflects the uniform amplification of different targets within a qPCR experiment. The standard curve demonstrates a highly efficient and reliable multiplex reaction, characterized by strong linearity, minimal error, and optimal amplification for its respective dyes (targets).

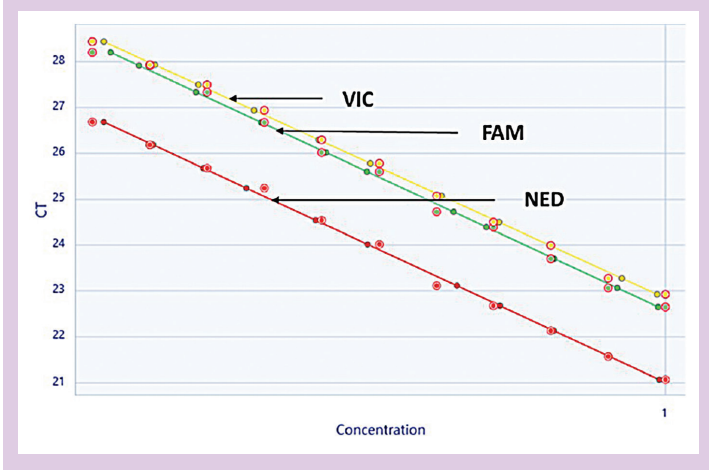
Dye	Slope	Error	Correlation	Efficiency (%)
FAM	-3.3	0.009	-0.999	100.81
VIC	-3.37	0.01	-0.999	97.87
CY5	-3.4	0.009	-0.999	96.67

Figure 6: Linearity plot of Multiplex qPCR using FAM, VIC, and CY5 fluorophores



Dye	Slope	Error	Correlation	Efficiency (%)
FAM	-3.29	0.004	-0.999	101.19
VIC	-3.24	0.003	-0.999	103.69
CY5	-3.28	0.004	-0.999	101.57

Figure 7: Linearity plot of multiplex qPCR Using FAM, VIC and NED fluorophores



Melt Curve Analysis (MCA)

The Insta-Q96® AG series Real-Time PCR systems support **Melt Curve Analysis (MCA)**, a crucial post-PCR technique used for assessing amplification specificity, SNP genotyping, and mutation detection. Melt curve analysis is commonly performed after SYBR Green or other intercalating dye-based qPCR assays to verify product purity and detect variations in DNA sequences.

Figure 8: Melt Curve Analysis plot for Insta Q96® AG series

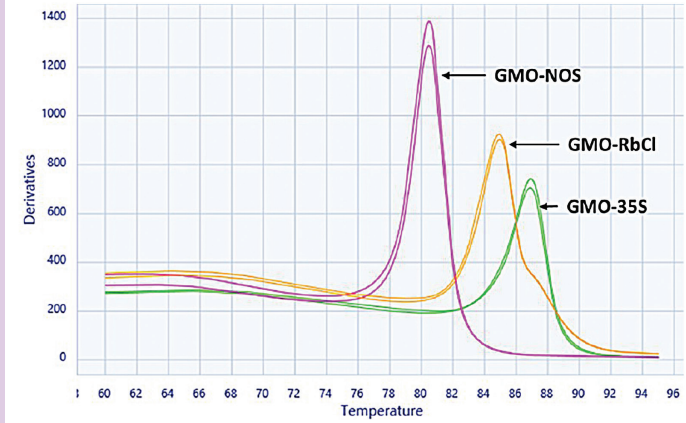


Figure 8 shows Three different genes amplified in the **Hi-PCR® GMO (Genetically Modified Organism) SyBr PCR Kit (MBPCR063)** show clear differences in the Tm peak and fluorescence levels corresponding to the GC content and size of the PCR products.

Three Distinct Peaks Indicate Three Target GMO Sequences:

- GMO-NOS (Magenta Peak, ~79-80°C)
- GMO-RbCl (Orange Peak, ~84-85°C)
- GMO-35S (Green Peak, ~87-88°C)

Genotyping

The **Insta-Q96® AG series Real-Time PCR systems** are well-suited for **Genotyping or Single Nucleotide Polymorphism (SNP) detection assays**, which are used to detect single base variations in DNA sequences. These assays have diverse applications in genetics, diagnostics, drug response prediction, and infectious disease research (including HIV studies).

Figure 10: Single Nucleotide Polymorphism (SNP) scatter plot for Insta Q96® AG series

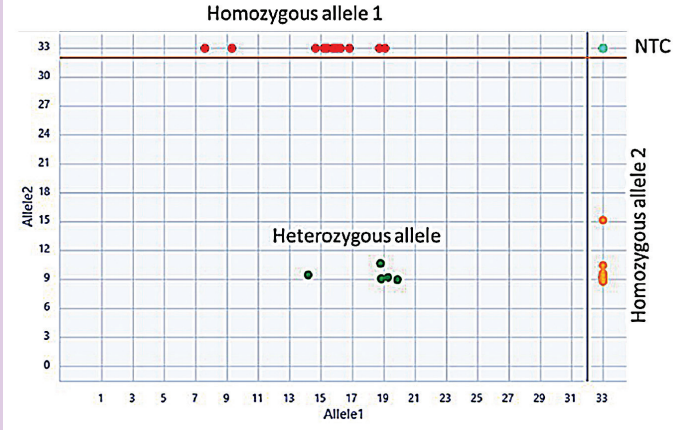


Figure 10 shows a fluorescence-based genotyping scatter plot with Homozygous Allele 1 (Red Cluster at the top-left), Heterozygous Allele (Green Cluster in the middle), Homozygous Allele 2 (Orange Cluster at the right-bottom side) and NTC (No Template Control - Blue Dot)

Minute Fold Discrimination

The **Insta-Q96® AG series Real-Time PCR systems** are designed to detect subtle differences in nucleic acid quantities. They can distinguish between samples with as little as a **1.5-fold to 2-fold discrimination in single-plex and multiplex qPCR assays**. This high resolution ensures precise quantification, making the system suitable for applications requiring accurate detection of small variations in gene expression or nucleic acid amounts.

Figure 11: 1.5-fold to 2-fold discrimination plot in a single assay

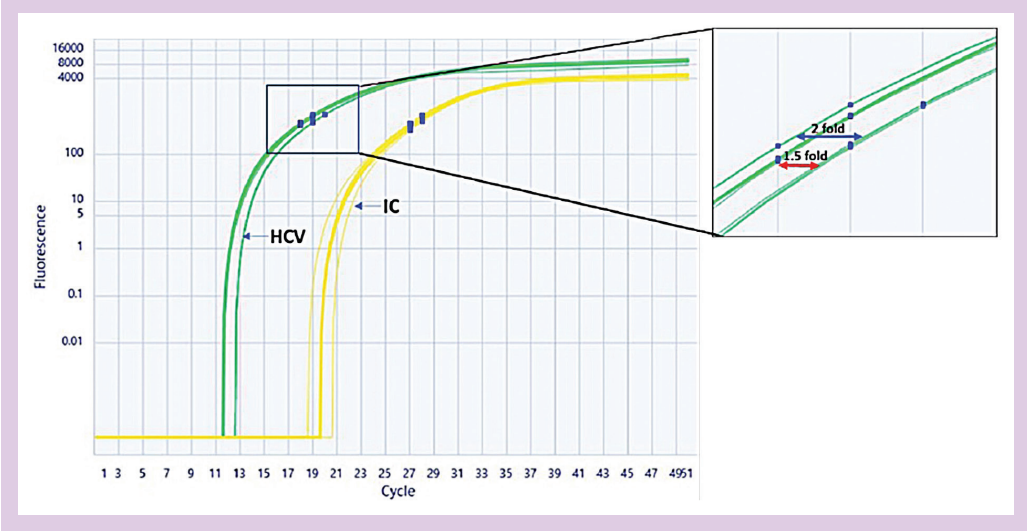


Figure 11 illustrates 1.5-fold to 2-fold discrimination with different copy numbers of Hepatitis C Virus (HCV) in single-plex assays with similar Ct values of internal control gene using the **Hi-PCR® Hepatitis C Virus (HCV) Detection and Quantitation Probe PCR Kit (MBPCR182)**.

Figure 12 illustrates 1.5-fold discrimination with different concentrations of human genomic DNA from 10 ng/µL to 0.173 ng/µL in multiplex assays quantified using **Hi-PCR® Human DNA Quantification Kit (MBPCR266).**

Figure 12: 1.5-fold discrimination plot in multiplex assay

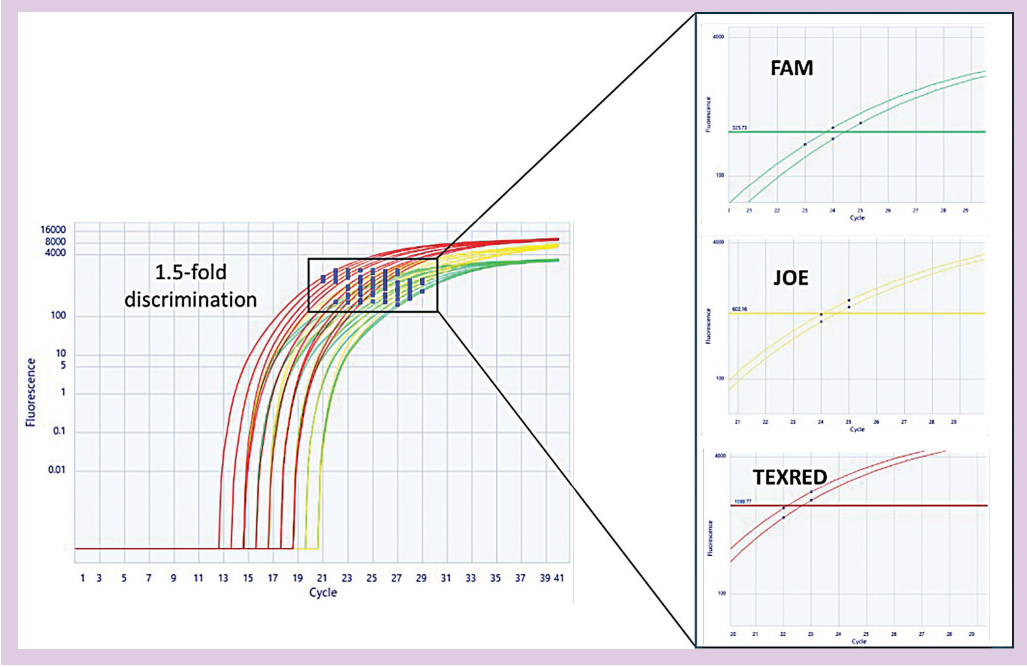
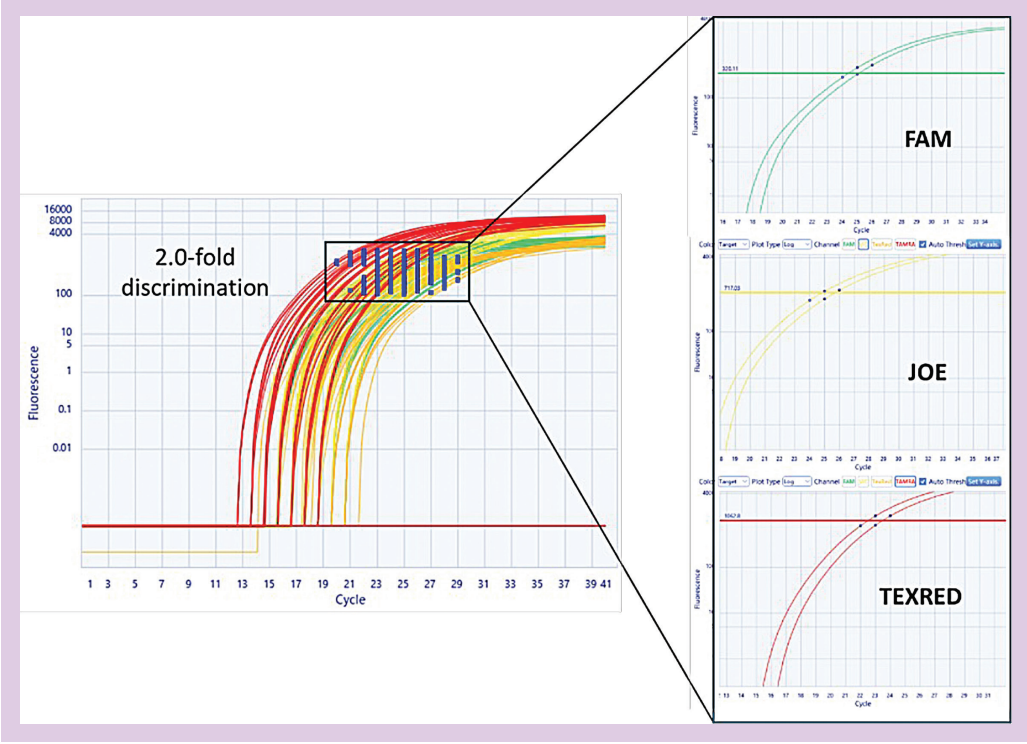


Figure 13 illustrates 2-fold discrimination with different concentrations of human genomic DNA from 10 ng/µL to 0.15625 ng/µL in multiplex assays quantified using **Hi-PCR® Human DNA Quantification Kit (MBPCR266).**

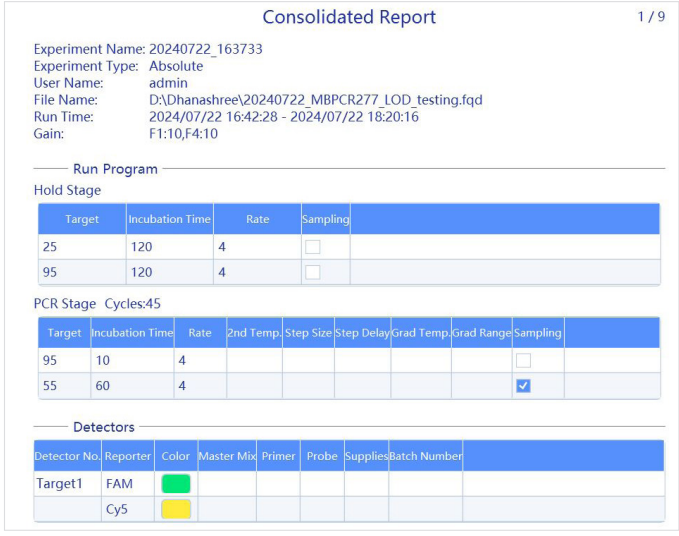
Figure 13: 2.0-fold discrimination plot in multiplex assay



Report Generation

- Generate automatic assay reports at the end of PCR run.
- Customize assay reports as per requirement using built in report editor
- All in one consolidated report for
  - Accurate & concised experimental details
  - Basic experiment information
  - Experiment process
  - Plate diagram
  - Amplification curve
  - Result table with Ct values

Consolidated Report / QC Report



Consolidated Report 1 / 9

Experiment Name: 20240722_163733
Experiment Type: Absolute
User Name: admin
File Name: D:\Dhanashree\20240722_MBPCR277_LOD_testing.fqd
Run Time: 2024/07/22 16:42:28 - 2024/07/22 18:20:16
Gain: F1:10,F4:10

Run Program

Hold Stage

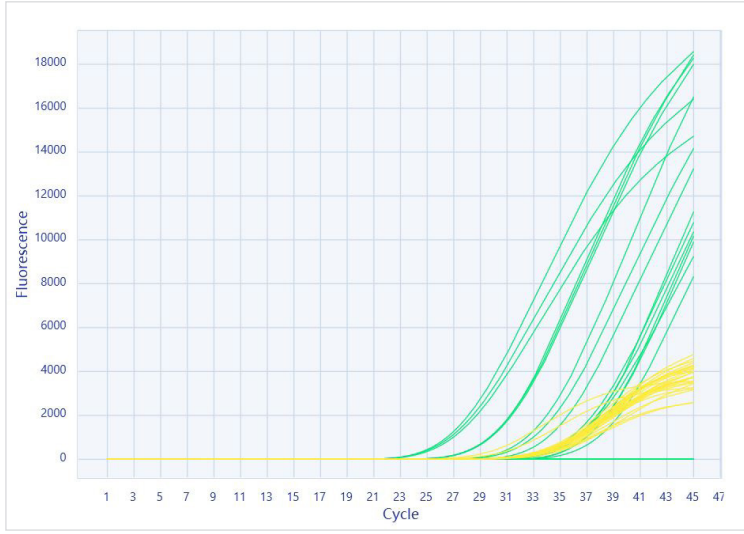
Target	Incubation Time	Rate	Sampling
25	120	4	☐
95	120	4	☐

PCR Stage Cycles:45

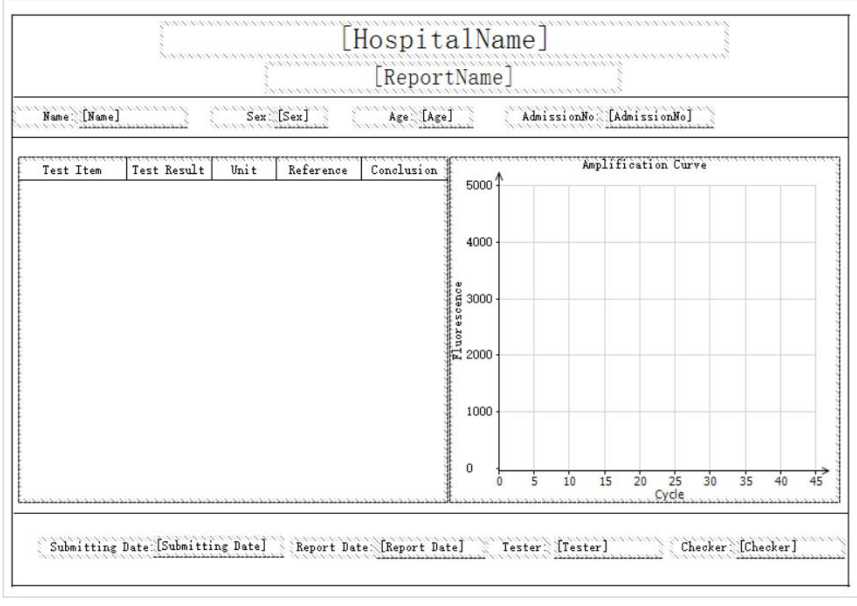
Target	Incubation Time	Rate	2nd Temp.	Step Size	Step Delay	Grad Temp.	Grad Range	Sampling
95	10	4						☐
55	60	4						☑

Detectors

Detector No.	Reporter	Color	Master Mix	Primer	Probe	Supplies	Batch Number
Target1	FAM						
	Cy5						



Report Template



Enzymes and Reagents for PCR

Sl. No	Product Code	Product name
1	MBT181	Hi-Quanti One Step Probe Based RT-PCR Kit
2	MBT128	Hi-Quanti One Step SYBr Based RTPCR Kit (Real time PCR Based)
3	MBT199	Hi-Quanti 5X One-Step RT-PCR Mastermix

DNA Polymerases

Sl. No	Product Code	Product name
1	MBT088A	REDyTaq DNA Polymerase (5 units/µl)
2	MBT069	Hi-Long Amp DNA Polymerase (5 units/µl)
3	MBT149	Hi-Proof DNA Polymerase (2.5 units/µl)
4	MBT068	Hi-Proof DNA Polymerase (5 units/µl)
5	MBT070	Hi-Temp DNA Polymerase (2.5 units/µl)
6	MBT060D	Taq Polymerase (1 unit/µl)
7	MBT060E	Taq Polymerase (1 unit/µl)
8	MBT060B	Taq Polymerase (3 units/µl)
9	MBT060C	Taq Polymerase (3 units/µl)
10	MBT060	Taq Polymerase (5 units/µl)
11	MBT060A	Taq Polymerase (5 units/µl)

DNTPs

Sl. No	Product Code	Product name
1	MBT078	A ready to use mix of dATP, dCTP, dGTP and dTTP solutions, 10mM
2	MBT059	A ready to use mix of dATP, dCTP, dGTP and dTTP solutions, 100mM
3	MBT054	dATP solution, 100 mM, 0.25 ml
4	MBT055	dCTP solution, 100 mM, 0.25 ml
5	MBT056	dGTP solution, 100 mM, 0.25 ml
6	MBT057	dTTP solution, 100 mM, 0.25 ml
7	MBT187	dNTP Mix, 40mM (A ready to use mix of dATP, dCTP, dGTP and dTTP solutions)
8	MBT079	dNTP solutions set, contains 10 mM each of dATP, dCTP, dGTP, dTTP
9	MBT058	dNTP solutions set, contains 100 mM each of dATP, dCTP, dGTP, dTTP

Barrier Tips

Sl. No	Product Code	Product name
1	LA749	Barrier Tips, 10ul
2	LA750	Barrier Tips Max capacity 20 µl
3	LA859	Barrier Tips Max capacity 1000 µ

PCR Mastermixes

Sl. No	Product Code	Product name
1	MBT061	2X PCR TaqMixture
2	MBT089A	Hi-PCR® REDy Master Mix
3	MBT184	Hi-Quanti 2X HRM Master Mix
4	MBT180	Hi-Quanti 2X Realtime PCR Master Mix
5	MBT200	Hi-Quanti 4X Realtime PCR Mastermix
6	MBT108	Hi-SYBr Master Mix (with Hi-Temp DNA Polymerase)
7	MBT202	Hi-SYBr Master Mix (with Hi-Temp DNA Polymerase and High ROX)
8	MBT074	Hi-SYBr Master Mix (with Taq Polymerase)
9	MBT160	Hi-SYBr Master Mix (with Taq Polymerase and High ROX)
10	MBT186	Hi-SYBr Master Mix (with Taq Polymerase and Low ROX)
11	MBT119	Hi-Temp PCR Master Mix
12	MBT208	Hi-Temp Multiplex Chrom PCR MasterMix

PCR Tubes

Sl. No	Product Code	Product name
1	CG281	PCR Tubes, Flat lid
2	CG281E	PCR Tubes, Flat lid (sterile)
3	CG282	PCR Tubes, Flat lid
4	CG282E	PCR Tube, Flat Lid
5	PW1255	PCR Tubes, Thin walled
6	PR17	8-Strip tubes with optically clear flat caps for Real-time PCR
7	PR22	8 strip PCR tubes with optically clear flat caps for Real-time PCR
8	PR23	8 strip PCR tubes with optically clear attached flat caps for Real-time PCR

PCR Blocks, Plates & Sealings

Sl. No	Product Code	Product name
1	PR2	PCR Blocks
2	PR3	PCR Blocks
3	PR5	PCR Blocks
4	PR19	PCR Blocks
5	PR18	Optical Sealing Film 96 well PCR plate
6	PR20	Aluminium Sealing Film
7	PR21	Polypropylene Sealing Film
8	PR28	Hi-PCR® Applicator for Sealing Film
9	PR29	384 well Full-skirt White plate
10	PR30	384 well Full-skirt White plate with clear wells

Premium Grade Barrier Tips

Sl. No	Product Code	Product name
1	LA749A	Barrier Tips,10µ
2	LA750A	Barrier Tips,20µl
3	LA751A	Barrier Tips,200µl
4	LA859A	Barrier Tips,1000µl
5	LA859B	Barrier Tips,1000µl
6	LA859C	Barrier Tips,1000µl
7	LA1104A	Barrier Tips,100µl
8	LA1104B	Barrier Tips,100µl
9	MBLA041	Barrier Tips, 900µl, Blue
10	LA859XL	Barrier Tips, 1000µl, Extra Long
11	LA749XL	Barrier Tips XL, Max. capacity 10µl
12	LA750XL	Barrier Tips XL, Max Capacity 20µ

Related Products

Sl. No	Product Code	Product name
1	LA1073	Insta Q96® Plus
2	LA1074	Insta Q96® 6.0
3	LA1023	Insta Q48® M4
4	LA1024	Insta Q48® M2

Related Software

Sl. No	Product Code	Product name
1	MBES01	HiGenoMB® Forensic ID DNA Quantification Software
2	MBES02	HiGenoMB® Primer and Probe Design Software

Related Services

Sl. No	Product name
1	IQ OQ PQ Services
2	Annual Maintenance Charges
3	Re-installation Charges

Technical Specifications

Product Name	Insta-Q96® AG	Insta-Q96® AG 6.0
Product Code	MBLA027	MBLA028
Sample capacity	96 well (0.2ml tubes, strips & plate), 12x8 (0.2 mL) Strips	
No. of Multiplexing / Dectction channal	5 channels	6 channels
No of Peltier	06 units	
Excitation/Detection Source	Filtered 5 & 6 channel LED/Top based CMOS detection filtered	
Reaction Volume	5-100 µL	
Dynamic Range	1~10^{10} Copies	
Excitation / Emission Wavelength	300-800nm / 500-800nm	
Dyes	F1: FAM, SYBR Green I F2: VIC, HEX, TET, JOE F3: ROX, TEXAS -RED F4: Cy5, Quasar -670 F5: Cy5.5, Quasar -705	F1: FAM, SYBR Green I F2: VIC, HEX, TET, JOE F3: ROX, TEXAS -RED F4: Cy5, Quasar -670 F5: Cy5.5, Quasar -705 F6: TAMRA
Operating temp range	4°C-100°C	
Heating & Cooling Ramp rate	6°C/s & 5.5°C/s	
Heating & cooling method	Peltier	
Avg Ramp rate	4°C/s	
Hot Lid temperature	105°C±5°C	
Temperature accuracy	± 0.1°C	
Temperature uniformity	± 0.3°C	
Temp. Control Mode	Standard / Fast	
Gradient Temp. Range	1-30 °C (Zone to Zone , 6 Zones , ± 6°C Max)	
Program Management	Create, Modify, Skip, Pause Programs & Auto Restart Facility	
Mode of operation	Continuous operation	
Scan Period	≤3 seconds for one channel, 12 Sec for all	
Feature Function	• Absolute Quantification • Automatic Data Analysis • Melt Curve • Genotyping • Thermal Protein Shift (FRET) • Customized Parameters	• Relative Quantification • Multi-Channel Crosstalk Correction • HRM • SNP Analysis • Gene Study • No passive reference dye required
Communication Interface	USB, WiFi, Ethernet	
Operation System	Windows11	
Integrated memory	100 GB	
Data Export Format	Pdf, text, jpeg, excel, RDML, CSV	
Secure System Function	Secure user log in, Audit trails and electronic records , LIMS enabled, Electronic Signatures	
Input power	100-240V~ 50Hz 1000VA	
Overall dimensions & Weight	490mm × 290mm × 391mm; 28 kg	
Certification	CE, IVDR, UL CSA	

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