

*The
Gentle Joy
of...*



Insta Q96

*... Instant
Quantification*



MolBio[™]
HIMEDIA

Unzipping Genes

Introduction

With a vision to redefine PCR based solution, HiMedia Laboratories Pvt. Ltd. launched the Insta Q Real Time PCR Platform with its unique range of features making it an exclusive Real Time Detection System in the market. Our **User-Friendly State of the Art** machines can measure amplification as it occurs, cycle by cycle, thus resulting in precise quantification.

The **Insta Q96 and Insta Q48 Real-Time PCR System** is a fully integrated quantitative PCR amplification, detection and data analysis system. The latest design combines a thermal cycler, an advanced optical system with individual LED excitation source and data analysis software. The **Gradient Feature** aids in easy assay optimization.

These robust machines are genuinely **Open System** – which means that, the user can use the reagents and kits of his/her choice. The machines come with **Factory Calibrated Filters** and re-calibration is required only if any major machine upgradations are done. An unique feature of the Insta Q series is the qPCR optics available in more flexible format. To get accurate results, the **Robotic Arm Scans Individual Well** which **Eliminates** the use of passive reference dye - **ROX dye**.

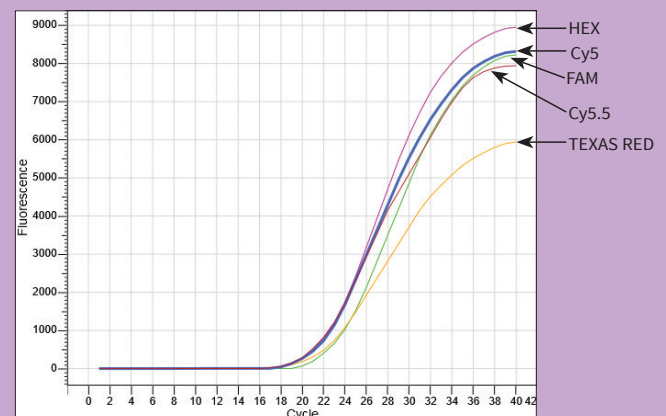
The software is also equipped to export the raw data in multiple formats such as **Excel, Images** thus allowing results to be viewed in common programs.

We are confident that the user will be impressed with the sensitivity and specificity of the Insta Q series of instruments that will help them generate **Faster, Hassle-free and Reliable results** and achieve the desired research goals.

Features

- ◆ 5 Color multiplexing possible in a single tube
- ◆ Open System [Compatible with Kits and Reagents of other companies]
- ◆ Normalization with ROX dye not required
- ◆ No calibration required: Customizable dye library
- ◆ Innovative 3D Hot Lid Technology
- ◆ User interface : Software made easy facilitating simple assay set up and data interpretation for one & all
- ◆ Auto Gain intensity function for fluorescence adjustments
- ◆ 12 different gradient temperatures (1°C to 36°C gradient range)
- ◆ Wireless experience

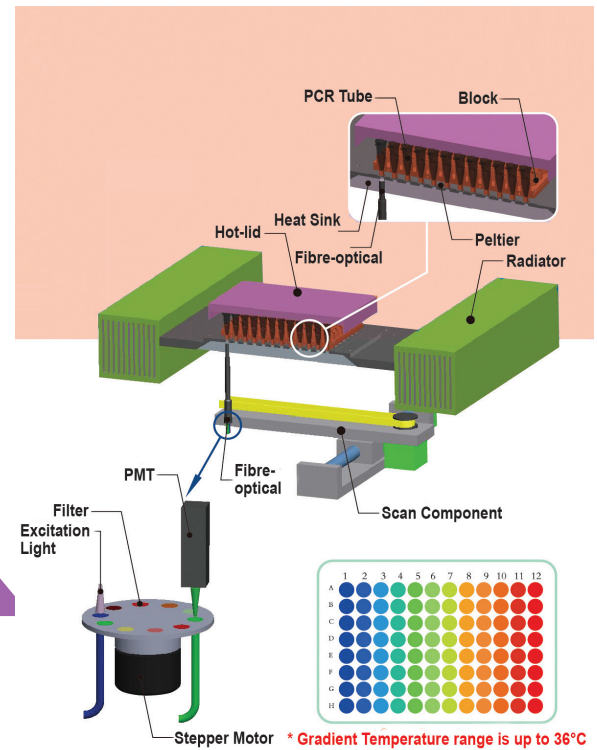
Multiplex PCR in real time Machine



- Innovative 3D Hotlid Design
- 96 Wells High Throughput
- Motor with Automatic Brake Function
- Bottom based detection

Working Principle of the Machine

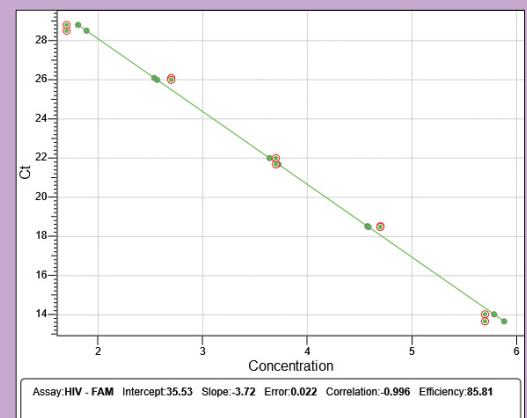
- Ferrotec peltier technology used for thermal cycling during PCR assay.
- LED based excitation source with advanced fiber optic transmission technology for very sensitive and reliable photoelectric detection system. Photo multiplier Tube (PMT) detects fluorescent emission.
- Stepper motor with robotic arm containing optical fibre used for individual well scanning.



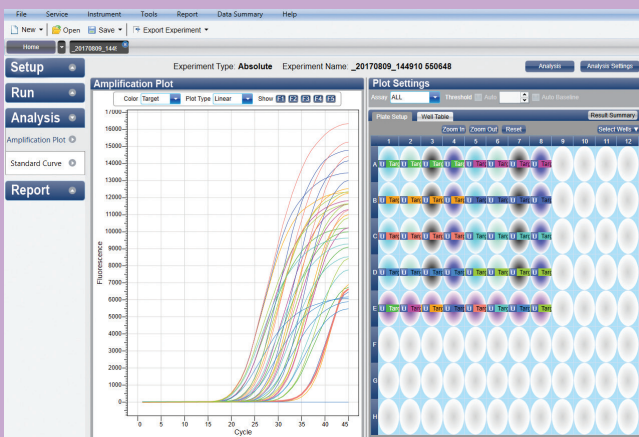
Absolute Quantification

- ◆ Determines actual copy number of the Gene Of Interest (GOI).
- ◆ 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 RNA or cDNA of the 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^2 or 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%.

Standard Quantification Assay



Software Analysis Interface



Plotting a Standard Curve

- ◆ Three different algorithms ensure the accuracy of Ct value analysis.
- ◆ The user can use standard reference set up in experiment to generate standard curve and analyze the results or
- ◆ Import external standard curves to analyze and save experiment resources.
- ◆ Concentration of unknown samples can be correlated with the standard plot from system

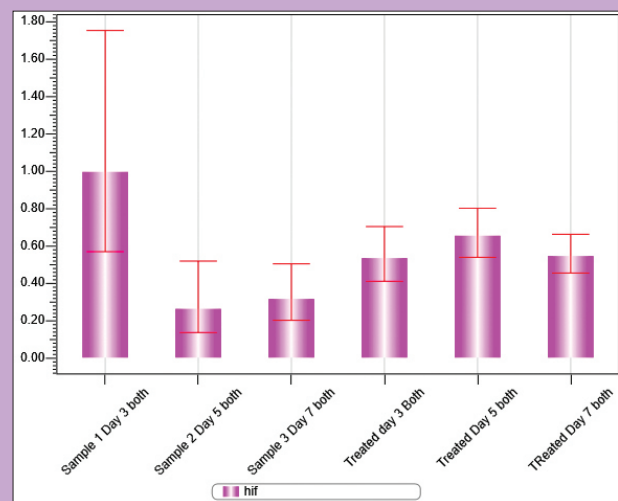
Relative Quantification

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.

Features

- ♦ Automated calculation of ΔCt and $\Delta\Delta Ct$ 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 Click
 - ♦ Option to import Standard curves run from other experiments in RQ assays as well
 - ♦ Normalization to multiple endogenous control
- ♦ During relative quantitation, changes in sample gene expression are measured based on either an external standard or a reference sample.
 - ♦ The reference sample is a baseline for the expression of a given GOI.
 - ♦ This can be a zero time point in a time- course experiment or an untreated sample that will serve as a benchmark to which the other samples can be compared.
 - ♦ Differences in Ct value between an unknown sample and reference sample are expressed as a fold- changes (i.e., up- or down- regulated) relative to the reference sample and thereby the results are expressed as a target/reference ratio.
- ♦ 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.

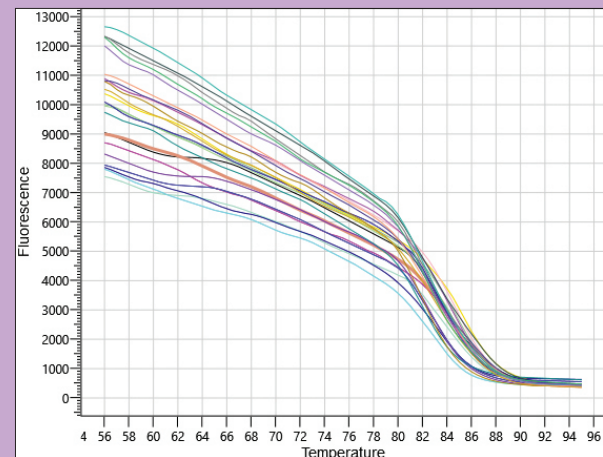
Relative Quantification



High-Resolution Melt Analysis

- ♦ The principle of HRM is the same as a Low-Resolution Melt, except that the temperature difference between each fluorescence reading is reduced. During a Low-Resolution Melt curve analysis, the temperature increases are typically in 0.5 °C steps, but for HRM this is reduced to 0.008 - 0.2 °C increments. This allows a much more detailed analysis of the melting behaviour.
- ♦ HRM sensitivity and reliability has been improved with the use of a variety of new dsDNA intercalating dyes viz., - LC Green, SYTO9, Eva Green, CHROMOFY and BEBO.

HRM data



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

- ♦ Mutation discovery (gene scanning)
 - ♦ Screening for loss of heterozygosity
 - ♦ DNA fingerprinting
 - ♦ SNP genotyping
 - ♦ Characterization of haplotype blocks
 - ♦ DNA methylation analysis
 - ♦ DNA mapping
 - ♦ Species identification
 - ♦ Somatic acquired mutation ratios
 - ♦ HLA compatibility typing
 - ♦ Association (case/control) studies
 - ♦ Allelic prevalence in a population
 - ♦ Identification of candidate predisposition genes
- Cost effective vs. other genotyping technologies such as sequencing and TaqMan SNP typing.
 - Fast and powerful thus able to accurately genotype huge numbers of samples in rapid time.
 - Fast and high-throughput analysis of post-PCR of genetic mutations or variance in nucleic acid sequences.
 - It is simple. With a good quality, HRM assay powerful genotyping can be performed by non-geneticists in any laboratory with access to an HRM capable real-time PCR machine.

Features

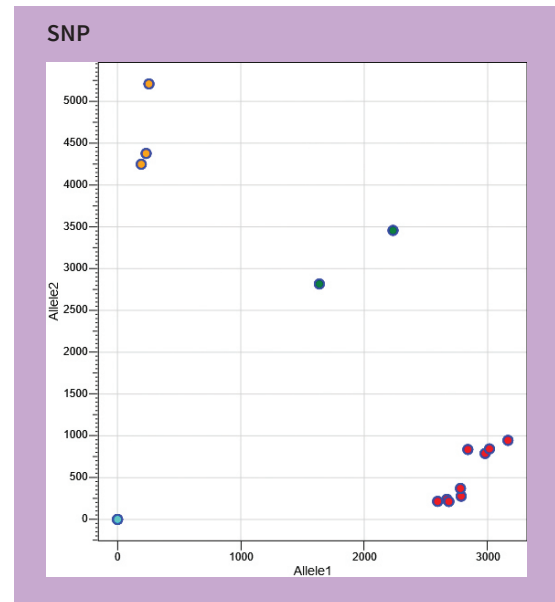
- ♦ HRM assays can be run using the same software. Saves the trouble of learning a new software
- ♦ No external calibration required for running HRM assays

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.
- ◆ 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.

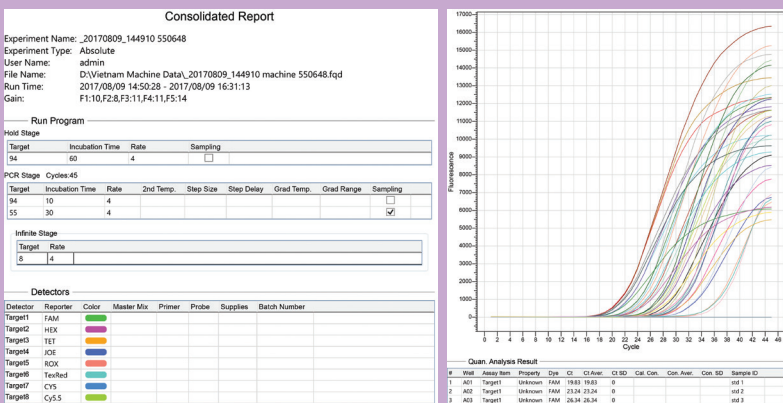
Features

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

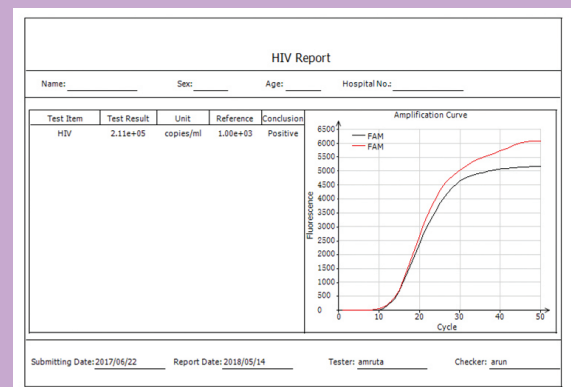


Report Generation

Consolidated Report / QC Report



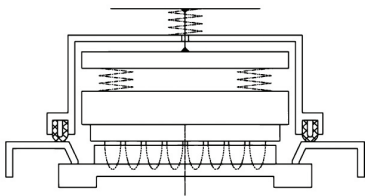
Report Template



- ◆ Automatic assay report generation at the end of PCR run.
- ◆ Inbuilt report editor software for customizing assay reports as per requirement
- ◆ All in one report for accurate & concise experimental details including
 - Basic experiment information
 - Experiment process
 - Plate diagram and
 - Amplification curve

Product Hardware

Hot Lid Technology

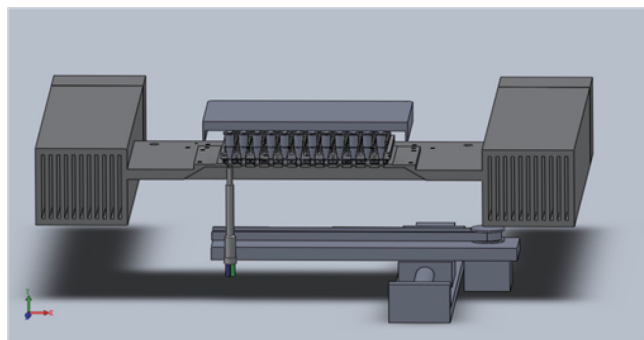


- Innovative 3D Hot Lid is a new technology.
- It consists of a Pressure Box which exerts uniform pressure on the plate module through 6 compression springs.
- It gives perfect sealing and avoids sample evaporation or overloading due to lid imbalance.
- The aluminium plate fits snugly on the PCR plate with a certain amount of pressure. This airtight seal prevents the cold air and hot air connection on the module. Thus, the module bears dynamic temperature uniformity.

Unique PMT scanning system

The detection probe at the bottom of the unique scanning device effectively prevents interference between two adjacent wells while reading a plate

- a) The probe has a long-life LED light source which does not require maintenance.
- b) Advanced fibre optical system and photomultiplier technology (PMT) is extremely sensitive and reliable.
- c) Precise optical path system combined with sensitive PMT system detects fluorescence activity accurately.



- The new model of Thermo Electric (TE) base plate (72 series) has a longer life span.
- The new adhesive technology used with the advanced semi-conductor substrate:
 - Improves the performance of the TE base plate under highly humid conditions
 - Greatly improves the life span of the TE base plate

Base Plate Parts

96%aluminum oxide
aluminium nitride

Hot & Cold Base Plate Metallization

Copper,nickel,Gold

Metallization,Pre-tin

The melting point and the solder joint

In/Sn 118°C Bi/Sn 138°C

Other welding material designated

Moisture Proof Protection

RTV silica gel sealed
ethoxyline resin sealed
(to 80°C)

Conductor Wire

Normative:Teflon 133m
Optional:Bare wire or PVC
insulated wire
Length:Customer specified

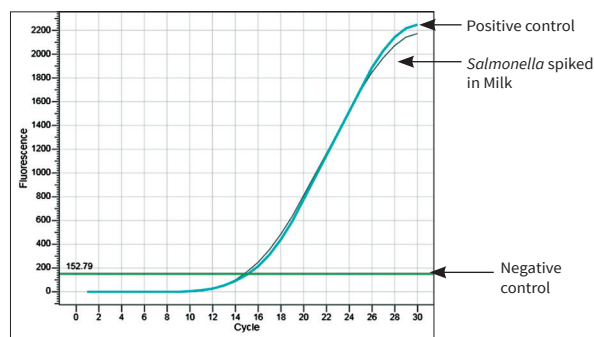
Kits for Food Diagnostics (With Positive Control)

Probe Based Food PCR Kits

MBPCR099 Salmonella Detection Kit
(Real-time PCR Kit Probe Based)

Sample	C _t value
Positive control	14.89
<i>Salmonella</i> spiked in milk	15.32
Negative control	N/A

Real Time Probe Based PCR
for *Salmonella* Detection in Spiked Milk
(Code : MBPCR099)

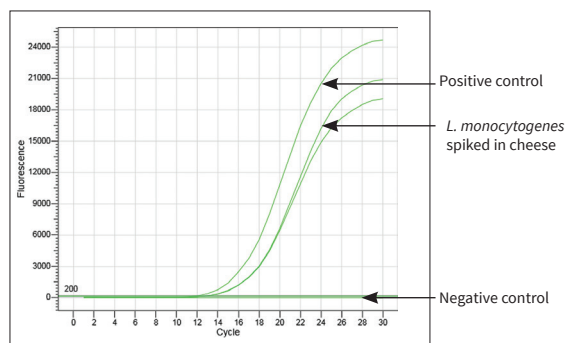


SYBr Based Food PCR Kits

MBPCR025A *Listeria monocytogenes* Food Detection
Kit (Real-time SYBr Based PCR Kit)

Sample	C _t value
Positive control	9.96
<i>L. monocytogenes</i> spiked in milk	10.85, 10.81
Negative control	N/A

Real Time SYBr Based PCR Data
for *L. monocytogenes* Detection in Spiked Cheese
(Code : MBPCR025A)

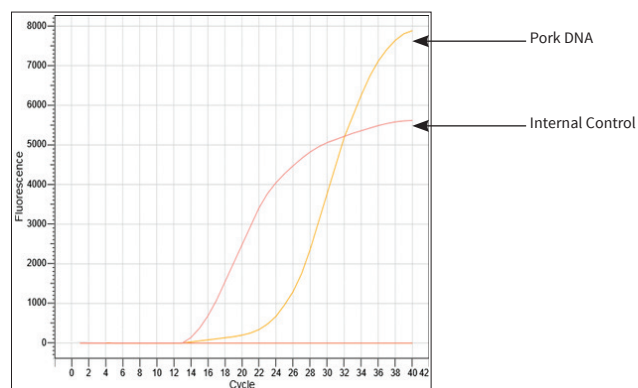


Meat Adulteration / Identification Kits

MBPCR136 Pork Detection Kit
(Real-Time Probe based PCR Kit)

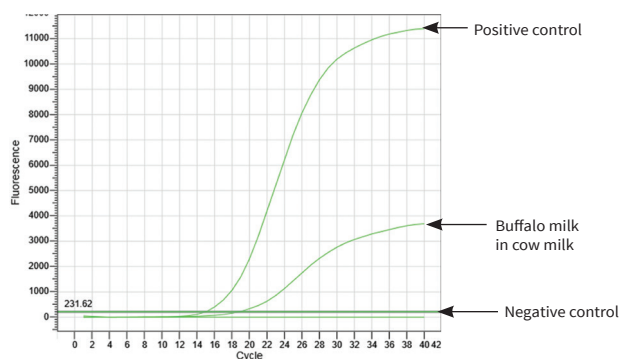
Sample	C _t value
Pork DNA	25.81
Internal Control	17.92

Pork Detection
(Sensitivity : 0.01%)



MBPCR138 Buffalo Detection Kit
(Real-Time Probe based PCR)

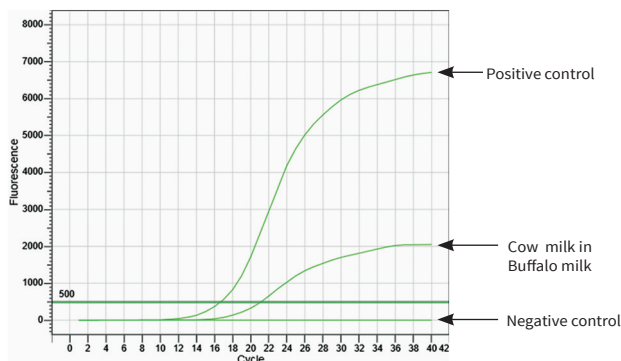
Data for Buffalo Detection Kit
(MBPCR138) (Sensitivity : 0.5%)



Sample	C _t value
Buffalo milk in cow milk	19.02
Positive control	15.15
Negative control	N/A

MBPCR139 Cow Detection Kit
(Real-Time Probe based PCR)

Data for Cow Detection Kit
(MBPCR139)



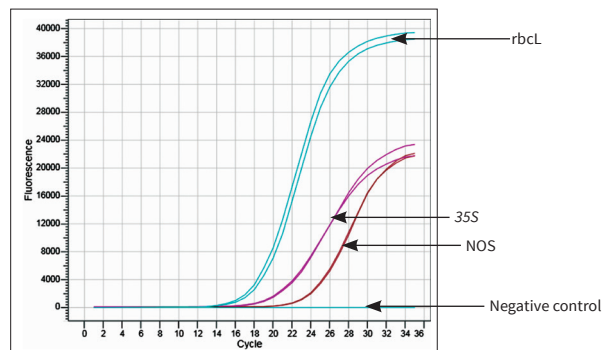
Sample	C _t value
Cow milk in Buffalo milk	21.2
Positive control	16.73
Negative control	N/A

Kits for GMO Detection

MBPCR063 GMO (Genetically Modified Organism)
Detection Kit (Real-time PCR Based)

Gene	C _t value
35S	15.43, 15.98
NOS	20.19, 19.89
rbcl	13.9, 13.4
Negative Control	N/A

Data representing GMO detection
in cotton plant

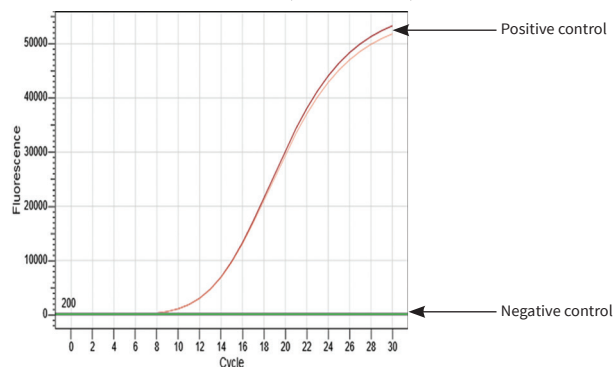


Kits for Veterinary Diagnostics (With Positive Control)

MBPCR129 Animal Hemorrhagic septicemia (HS)
Detection Kit (Real-Time SYBr Based PCR Kit)

Sample	C _t value
Negative control	N/A
Positive control	09.45

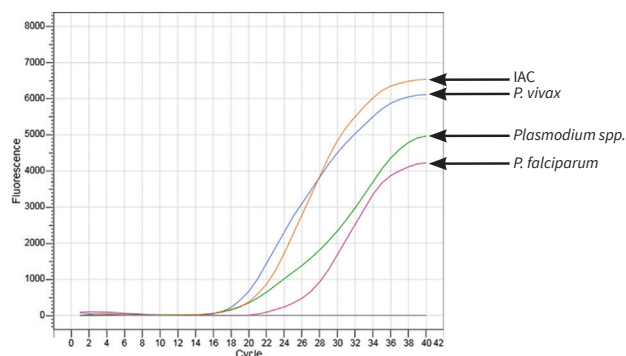
Data for HS Detection (MBPCR129)



Kits for Clinical Diagnostics (With Positive Control)

MBPCR135 Plasmodium species Detection Kit (Multiplex) (Real-Time Probe Based PCR)

Target	C _t value
<i>P. falciparum</i>	24
<i>P. vivax</i>	17
<i>Plasmodium spp.</i>	18
IAC	18



Related Real Time Kits for Research Applications

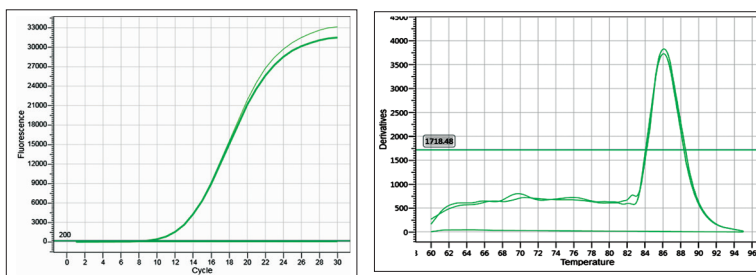
Universal PCR Kits

MBPCR087	16S rRNA PCR Kit (Real-time PCR)
MBPCR088	18S rRNA PCR Kit (Real-time PCR)
MBPCR097	Fungal ITS PCR Kit (Real-time PCR)
MBPCR159	Bacterial Sepsis Pathogen Detection Kit (Multiplex) (Real-time PCR)

RT - PCR Kits

MBT128	Hi-Quanti One Step RT-PCR Kit (Real time PCR Based)
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Chikungunya Detection using Hi-Quanti One Step RT-PCR Kit (MBT128)



Sample	C _t value	Melt curve
Positive control	8.95	86
Positive control	8.97	86
Negative control	N/A	N/A



Insta Q48 m

SYBr Mastermix

MBT074	Hi-SYBr Master Mix (with Taq Polymerase)
MBT108	Hi-SYBr Master Mix (with Hi-Temp DNA Polymerase)

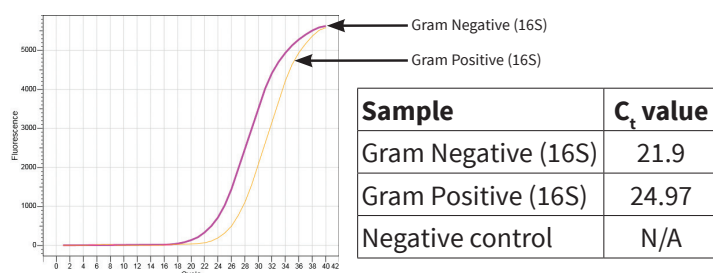
Kits for Real Time PCR (Provided with Positive Control)

Kits for Clinical Diagnostics

Probe Based Kits

MBPCR099	Salmonella Detection Kit
MBPCR101	Generic Dengue Detection Kit
MBPCR105	HPV Detection Genotyping Kit (Multiplex)
MBPCR108	Mycobacterium Tuberculosis Detection Kit
MBPCR111	Malaria Detection Kit
MBPCR112	Chikungunya Detection Kit
MBPCR135	Plasmodium species Detection Kit (Multiplex)
MBPCR140	Legionella species Detection Kit
MBPCR159	Bacterial Sepsis Pathogen Detection Kit (Multiplex)

Bacterial Sepsis Detection Kit (Multiplex)
(Probe Based Kit) MBPCR159



SYBr Based Kits

MBPCR015	Mycoplasma Detection Kit
MBPCR017	Mycobacterium tuberculosis Detection Kit
MBPCR073	Multi-Drug Resistant Mycobacterium tuberculosis Detection Kit (Uniplex)
MBPCR023	E. coli O157:H7 Detection Kit
MBPCR026	Campylobacter jejuni Detection Kit
MBPCR027	Vibrio cholerae Detection Kit
MBPCR029	Cronobacter sakazakii Detection Kit
MBPCR057	Klebsiella pneumoniae Detection Kit
MBPCR058	Pseudomonas aeruginosa Detection Kit
MBPCR059	Generic E.coli Detection Kit
MBPCR060	Candida albicans Detection Kit
MBPCR061	Bacillus subtilis Detection Kit
MBPCR062	Shigella spp. Detection Kit
MBPCR064	Staphylococcus aureus Detection Kit
MBPCR065	Acinetobacter baumannii Detection Kit
MBPCR083	Chikungunya Detection Kit
MBPCR092	Malaria Detection Kit (Real-Time)
MBPCR103	Generic Dengue Detection Kit

Kits for Food & Beverages Diagnostics

Probe Based Kits

MBPCR099	Salmonella Detection Kit
MBPCR136	Pork Detection Kit
MBPCR138	Buffalo Detection Kit
MBPCR139	Cow Detection Kit

SYBr Based Kits

MBPCR024A	Salmonella Food Detection Kit
MBPCR025A	Listeria monocytogenes Food Detection Kit
MBPCR028	Legionella pneumophila Detection Kit
MBPCR029	Cronobacter sakazakii Detection Kit
MBPCR093	White Spot Syndrome Virus (WSSV) Detection Kit
MBPCR059A	Generic E. coli Food Detection Kit
MBPCR098	Pork Detection Kit
MBPCR063	GMO (Genetically Modified Organism) Detection Kit

Kits for Veterinary Diagnostics

SYBr Based Kits

MBPCR129	Animal Hemorrhagic septicemia (HS) Detection Kit
MBPCR121	Animal Brucella Detection Kit
MBPCR122	Animal Mycoplasma gallisepticum Detection Kit
MBPCR123	Animal Theileria Detection Kit
MBPCR124	Animal Peste des petits ruminants (PPR) Detection Kit
MBPCR125	Animal Babesia bigemina Detection Kit
MBPCR126	Animal Newcastle Disease Virus (NDV) Detection Kit
MBPCR127	Animal Pox Detection Kit
MBPCR128	Animal Infectious Bovine Rhinotracheitis (IBR) Detection Kit

Technical Parameters of the Product

Product Name	Insta Q96™ Real-time PCR Detection System		Insta Q48™ Real-time PCR Detection System	
Product Code	LA1012		LA1023	LA1024
Sample Capacity	96-Well PCR plate, 12x8 Strip, 96x0.2ml (Bottom Transparent)		48-well PCR, 8 Strip tubes, 48x0.2ml tube (Bottom Transparent)	
Dynamic Range	1~10 ¹⁰ Copies			
Excitation Wavelength	300-800nm		450-700nm	450-550nm
Emission Wavelength	500-800nm		500-700nm	500-600nm
Detected Flourescence	F1: FAM, SYBR Green I F2: VIC, HEX, TET, JOE, CY3, NED, TAMRA F3: ROX, TEXAS-RED F4: CY5 F5:CY5.5		F1: FAM, SYBR Green I F2: VIC, HEX, TET, JOE F3: ROX, TEXAS-RED F4: CY5	F1: FAM, SYBR Green I F2: VIC, HEX, TET, JOE
Passive reference dye	Rox or other dye not required			
Block Temp. Range	4~105°C (Minimum Increment 0.1°C) Soak Low Temperature, Conservation Function			
Heating / Cooling Rate	4.0°C/s (max)			
Temp. Control Accuracy	≤ ± 0.1°C			
Temp. Fluctuation	≤ ± 0.1°C			
Temp. Uniformity	≤ ± 0.3°C		≤ ± 0.3°C(Tested at 55°C)	
Temp. Control Mode	Block / Tube Simulation Mode (Automatic Control Based On Sample Volume)			
Sample Volume Range	5~100µl			
Gradient Temp. Range	1~36°C		3 Temperature controlled blocks in the range of (Maximum) ±6°C	
Hot-Lid Temp. Range	30~110°C (Adjustable Default 105°C), Automatic Hot-Lid			
Flourescence Detection Repeatability	Within 5%			
Scan Mode	Entire Plate or Designated Line		Entire Plate	
Program	Max 20 Segments for each Program, Max 99 Cycles			
Operation Mode	Continuous			
Scan Period	5.5 seconds		2 seconds	3.5 seconds
Feature Function	• Absolute Quantification • Automatic Data Analysis • Melt Curve • Genotyping • Gradient • Correction • Customized Parameters		• Relative Quantification • Multi-Channel Crosstalk Correction • HRM • SNP Analysis • Background • Automatic Gain • No passive reference dye required	
Operating System	Microsoft: Windows 7/ Windows 8.1/ Windows 10, Software: Excel 2000/2002/2003/2007/2012			
PC Configuration	Memory: 2GB RAM, Hard Disk: 500GB, CPU: Intel i3 & latest, Virtual Memory: ≥ 1000MB			
Power Supply	100 - 240V ~ 50/60Hz 600W			
Dimensions (LxWxH)	410mm x 386mm x 352mm		384 x 353 x 348	
Socket	USB Adapter, Bluetooth Adapter			
Certifications	Ferrotec Peltier, CE, EMC, RoHS2, IVD			

HiMedia Laboratories Pvt. Ltd.

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