NIPPON Genetics EUROPE
INNOVATION FOR YOU

FastGene® qPCR

Real-Time PCR System

www.nippongenetics.eu

NEXT LEVEL qPCR SYSTEM

Highest precision instrument

The FastGene® qFYR is a highest precision instrument for performing quantitative polymerase chain reaction (qPCR) experiments. qPCR is a well-established method for the sensitive detection and quantification of nucleic acids. During a measurement, the target DNA or RNA sequence is amplified, while a cycle-dependent increase of a fluorescent signal is detected in real-time.

The device for multiple applications

The FastGene® qFYR was developed to meet highest laboratory standards and deliver reliable performances for various real-time qPCR applications:

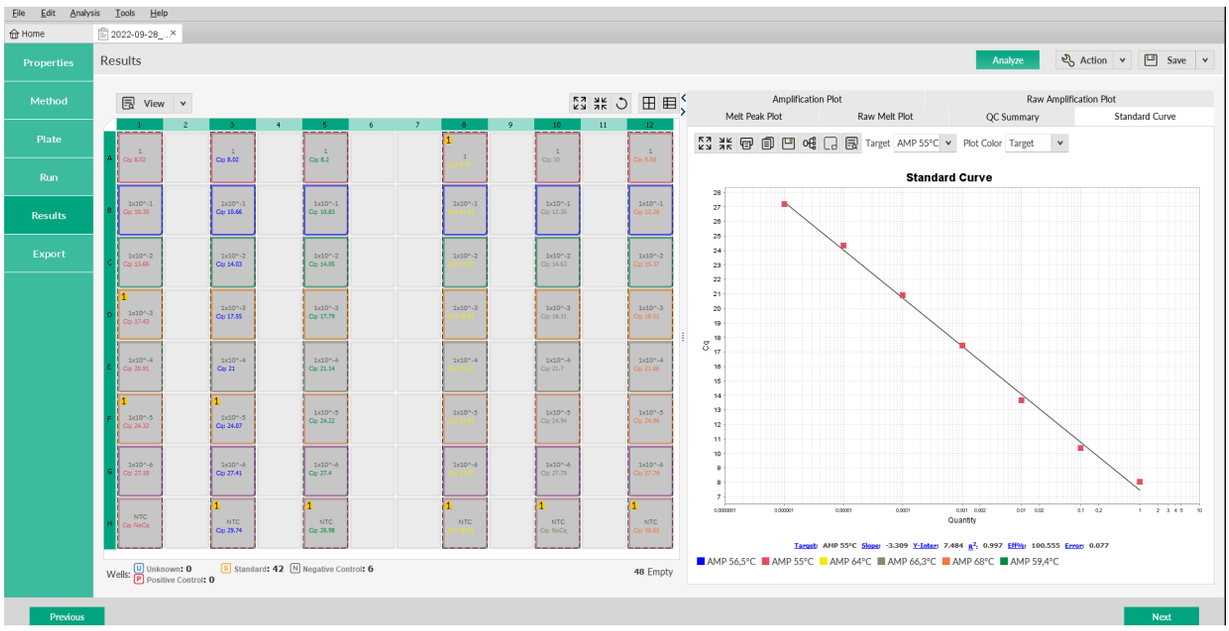
- Gene expression analysis
- Quantification
- Genotyping
- Gene mutation analysis
- Pathogen detection
- GMO detection
- Protein stability
- miRNA analysis
- Melting curve analysis
- High resolution melt (0.025 °C resolution)

POWERFUL USER SOFTWARE

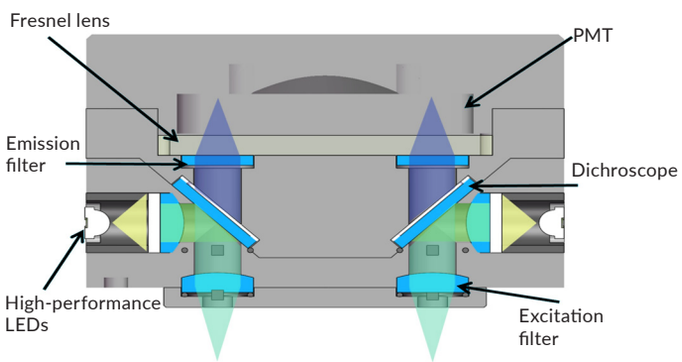
The software has it all

The analysis software impresses with its particularly simple operation. The menu is clearly structured and intuitively arranged. It is tailored to the needs of the user for different experimental setups, and personalized settings can be easily adjusted. Integrated analysis algorithms allow many steps, such as baseline subtraction or Cq value threshold calculation, to be performed automatically. Absolute and relative quantification of nucleic acids can also be automated. The software allows you the saving of predefined analysis settings for auto-exporting run data into a format of choice, including Excel, PDF, *.txt export format.

- Clearly structured and user-friendly
- Intuitive navigation
- Customizable settings
- Automatic analysis
- Modules for multiple applications
- Modern UI design



INNOVATIVE TECHNOLOGY



High sensitivity optical design

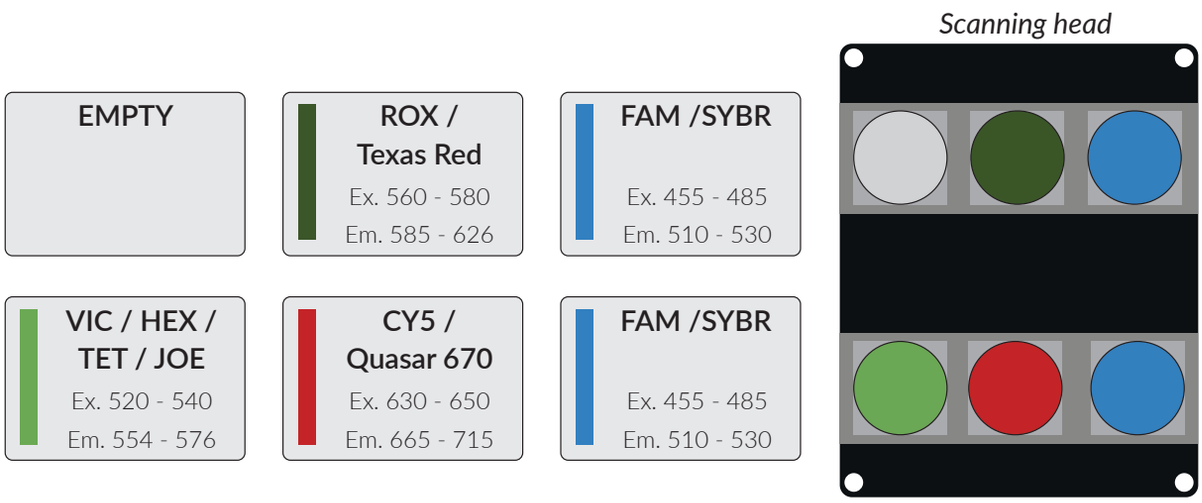
The optical detection system of the FastGene® qFYR combines a high quality PMT (photomultiplier tube) with a Fresnel lens that has a short focal length. The resulting short distance from detector to sample reduces signal loss and cross-talk between samples, and generally improves signal sensitivity.

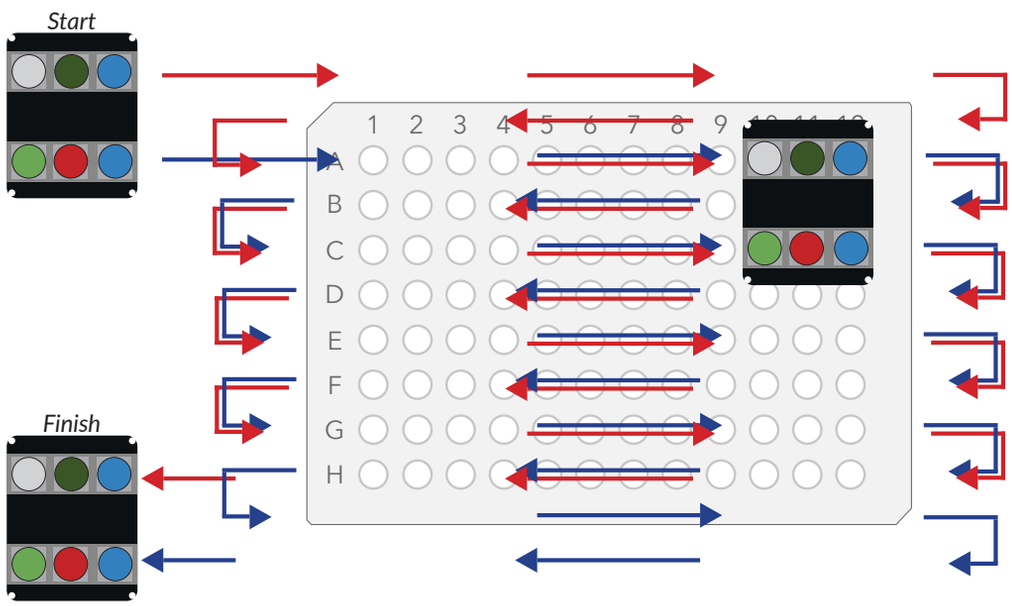
Superior thermal cycler performance

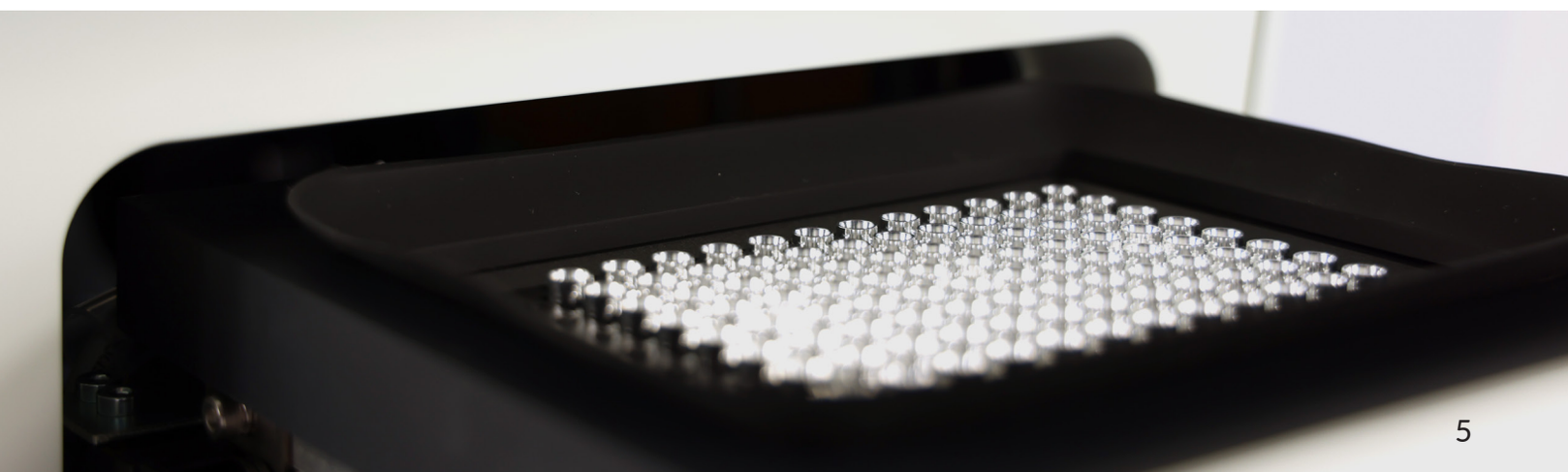
The FastGene® qFYR delivers excellent temperature control, temperature precision (± 0.2 °C) and uniformity over the entire 96-well plate. The unique hollowed out thermal block design reduces its overall weight and ensures rapid heating and cooling rates (up to 6 °C per second) for fast qPCR protocols. The system also uses state-of-the-art Peltier components for highest reaction quality and performance stability, providing reliable and consistent qPCR results.

Four high performance LED channels

Due to the small distance between the scanning head and the plate, the FastGene® qFYR has an outstanding level of sensitivity and virtually no cross talk between the individual wells. Four different color channels are installed in the scanning head to be able to excite all commonly used qPCR dyes in a single plate scan (8 sec). The double FAM/SYBR channel allows to perform melt curve and high resolution melt experiments in fast dual mode, which halves the measuring time in this channel.







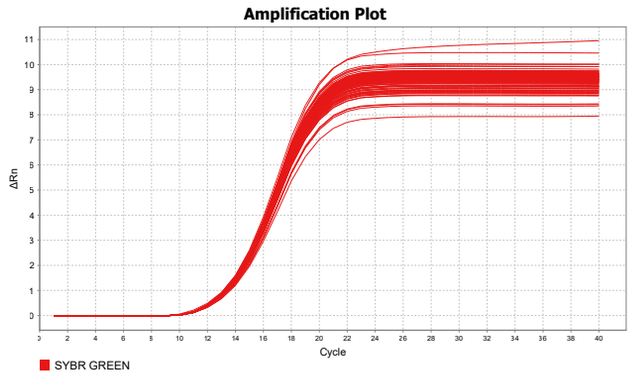
EXCELLENT PERFORMANCE

Generate high quality data

The combination of innovative optics and a high-precision thermal block ensure ideal amplification conditions. This makes the FastGene® qFYR perfect for various quantitative real-time PCR applications.

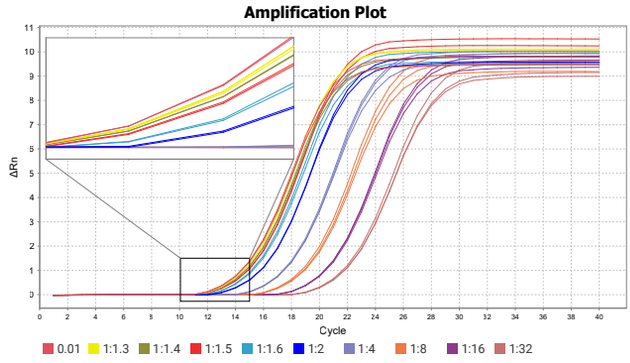
Outstanding homogeneity

The amplification from 1 ng plasmid-DNA is consistent across all wells of a 96-well plate. The mean Cq value at a cycle number of 13.89 +/- 0.055 was determined automatically, illustrating highly homogenous amplification results obtained by the FastGene® qFYR.



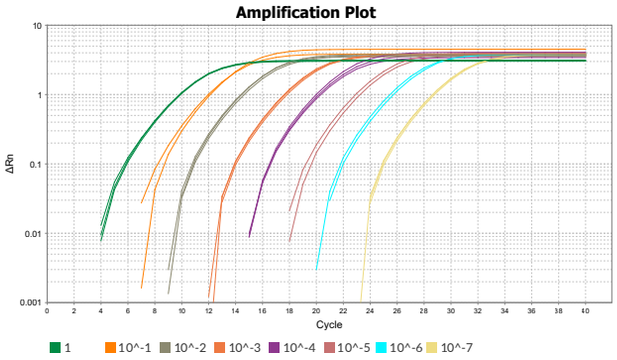
1.3-fold target discrimination

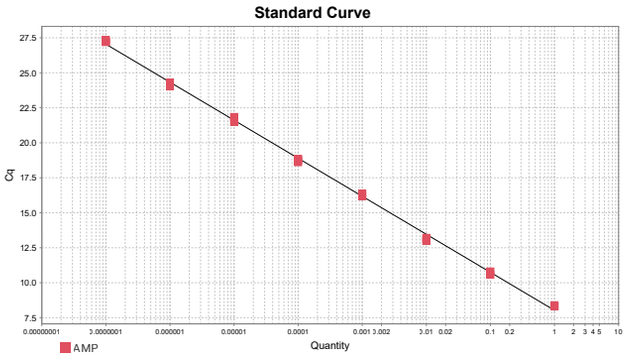
With the FastGene® qFYR, smaller concentration differences can be distinguished with high accuracy, underlining the high sensitivity of the device. In the example, the amplification of plasmid DNA was carried out using AMP-specific primers with a 2-fold dilution series starting at 0.01 ng with additional dilutions of 1:1.3, 1:1.4, 1:1.5 and 1:1.6. Concentration differences can be detected up to 1:1.3-fold dilution.



Accurate quantification

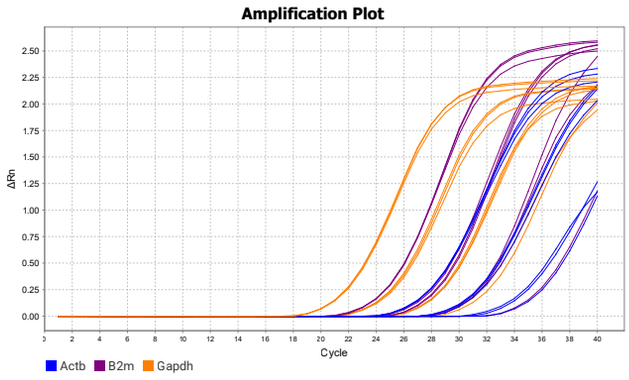
The broad dynamic range of the FastGene® qFYR ensures a reliable and accurate quantification. The amplification plot shows the log of change in normalized reporter fluorescence against the cycle number. Amplification was performed with AMP specific primers and a 10-fold template dilution series ranging from 1 ng to $1x10^{-7}$ ng plasmid DNA. The generated standard curve shows 100 % efficiency.

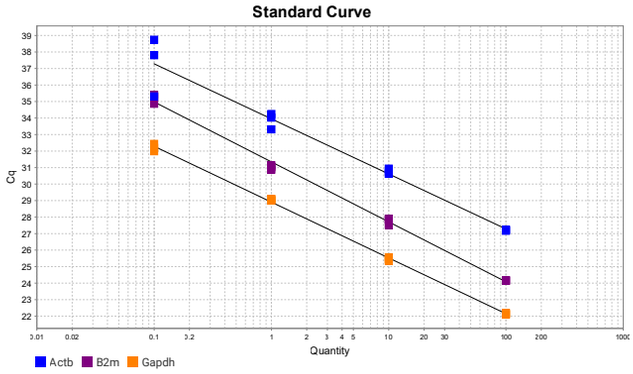


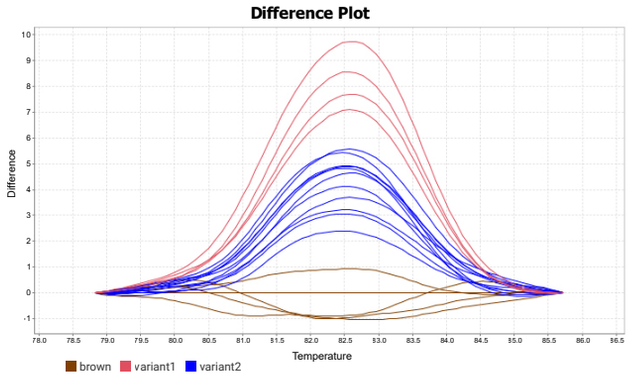


Powerful multiplexing

The FastGene® qFYR can discriminate up to four different targets in a single reaction well. The example shows the multiplex amplification of three gene targets (*Actb*, *Gapdh and B2m*) that was carried out from 100 ng to 0.1 ng RNA in a OneStep qPCR with the FastGene® Probe OneStep Mix (LS47).





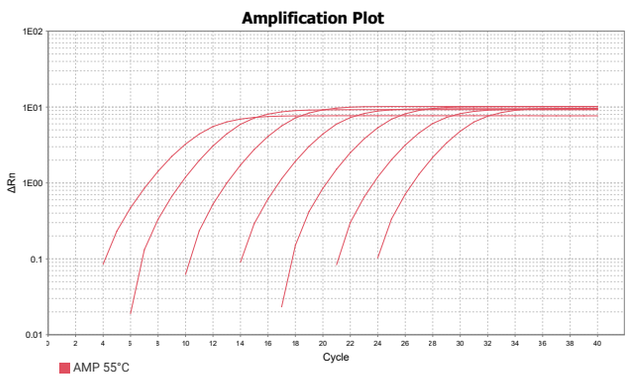


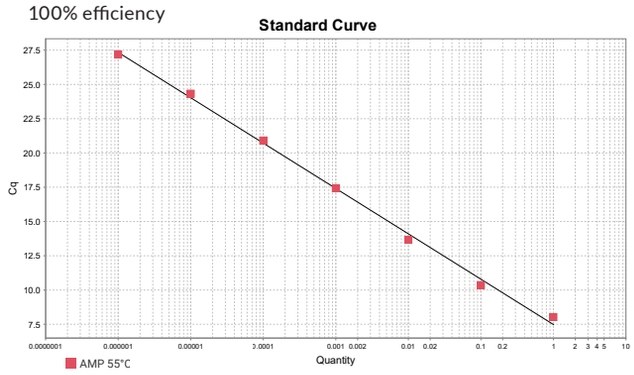
High resolution melt curve analysis

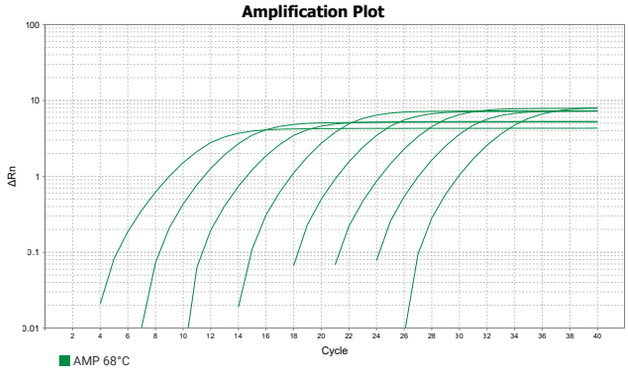
This function is already included in the FastGene® qFYR analysis software and does not need to be purchased additionally. In this example, the difference plot of the high-resolution melting curve allows the discrimination between SNPs extracted from blood samples for brown eyes and two variants of blue eyes.

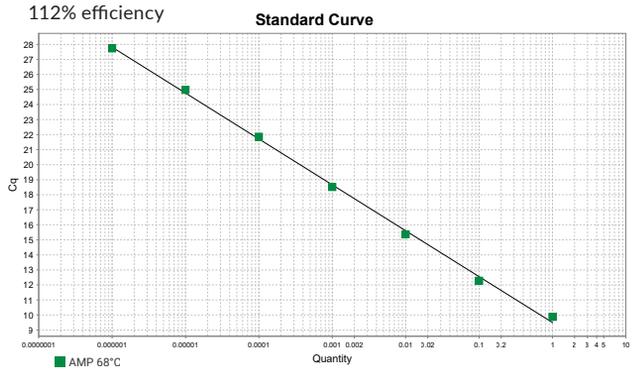
Gradient qPCR for optimal annealing

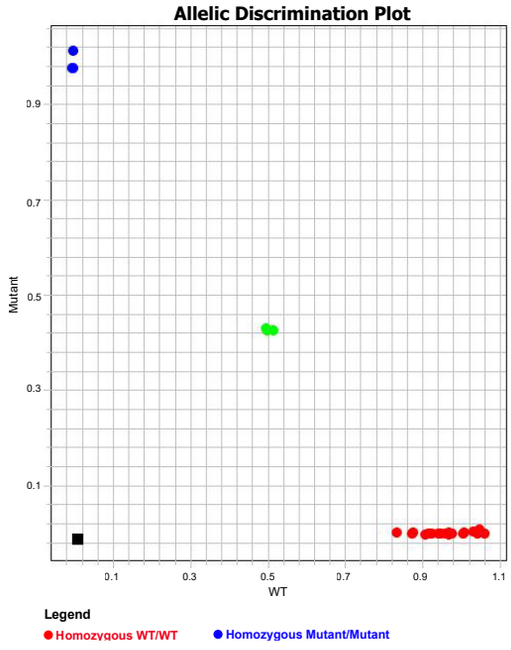
The thermal gradient function of the FastGene® qFYR can be used to determine the optimal annealing temperature of a specific target. Plasmid amplification with IC green dye was carried out in a 10-fold dilution series from 1 ng to 1x10^{-6} ng. This example of a thermal gradient experiment with 55 °C and 68 °C shows 55 °C to be the optimal annealing temperature with a 100% efficiency.





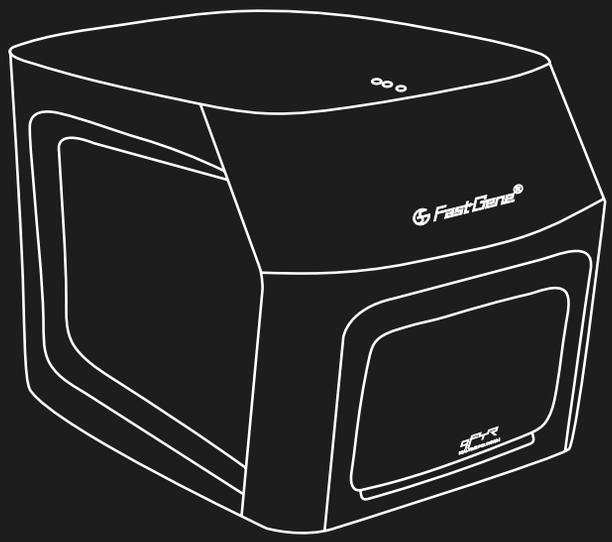






Genotyping analysis

The FastGene® qFYR software can automatically determine various genotypes in the samples. It generates a cluster plot report that intuitively represents different allelic populations. This example shows a SNP genotyping assay for a F5 gene mutation generated from five different blood gDNA samples.



SPECIFICATIONS

TECHNICAL SPECIFICATIONS			
Thermal cycler		**Optical detection**	
Block capacity	96	Excitation source	4 long-life, high-performance LEDs
Sample volume	1-50 µl	Detector	Highly sensitive PMT (photo multiplier tube) with Fresnel lens
Heating/cooling method	Peltier	Scanning principle	Time-resolved scanning technology
Maximum ramp rate	6 °C/s (thermal block) 4 °C/s (sample)	Detector position	Top of the block
Temperature setting range	4-100 °C	Excitation/detection range	455-650 nm / 510-715 nm
Heated lid	Electronic automatic lid	Fluorescence channel	4 channels
Temperature accuracy	± 0.2 °C	Detection sensitivity	1 copy of the target sequence
Temperature uniformity	± 0.2 °C	System sensitivity	1.33-fold target difference detection
Gradient zone	12 columns	Dynamic range	10 orders of magnitude
Gradient range	1-36 °C	Dye compatibility	FAM/SYBR Green, VIC/JOE/HEX/ TET, ROX/Texas Red, Cy5

WE HAVE EVERYTHING FOR YOUR WORKFLOW

NIPPON Genetics EUROPE qPCR portfolio

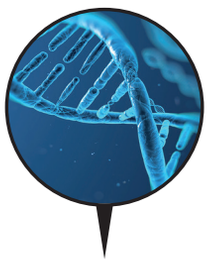
We offer products for the entire qPCR workflow. From RNA isolation, enzymes, qPCR reagents and highest quality plastics to the innovative FastGene® qFYR Real-Time PCR System with a powerful analysis software.

RNA Isolation Kits

- FastGene® RNA Basic Kit
- FastGene® RNA Premium Kit
- FastGene® RNA Viral Kit

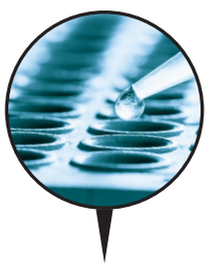
Reverse Transcription

- FastGene® Scriptase Basic
- FastGene® Scriptase II
- FastGene® Scriptase Ready Mixes



qPCR Reaction Mixes

- FastGene® IC Green 1-Step Mix
- FastGene® Probe 1-Step Mix
- FastGene® 2x IC Green Mixes
- FastGene® 2x Probe Mixes



Plastics

- FastGene® PCR Tubes
- FastGene® PCR 8-well strips
- FastGene® PCR plates
- FastGene® Two-Component Plates

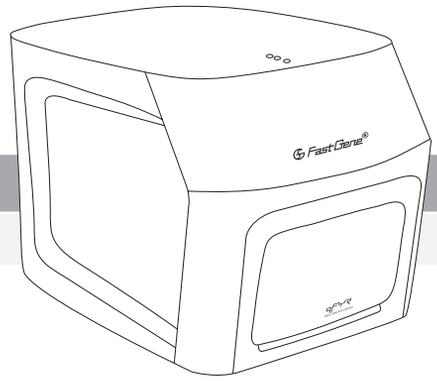
qPCR Cycler

- FastGene® qFYR

The FastGene® qFYR is an open platform device and works with dyes from different manufacturers. But, we recommend our FastGene® IC Green and Probe mixes as the ideal reagents for the FastGene® qFYR. Check them out on our website and find the right dye mix for your application.

MORE INFORMATION

Ordering information



Cat. No.	Product
FG-QPTC01	FastGene® qFYR Real-Time PCR System

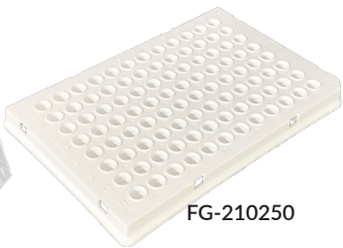
Get the right consumables for the qFYR

The FastGene® qFYR is compatible with low-profile (0.1 mL) PCR tubes/8-well PCR tube strips with transparent, flat tops, as well as non-skirted or semi-skirted low profile 96 well PCR reaction plates. It is not compatible with high-profile (0.2 mL) PCR reaction tube and convex tube covers.

Compatible FastGene® Plastics

Cat. No.	Product
FG-170350	Non-skirted, low-profile 96-well plate
FG-210250	Semi-skirted, low-profile 96-well plate
FG-HD0196(BC)	Semi-skirted, low-profile Two-component 96-well plate (optional barcode)
FG-018WF	0.1 ml clear 8-well strips, single flat caps
FG-19FC	0.1 ml white 8-well strips, flat cap strips

FG-170350



FG-210250

FG-HD0196(BC)

Get your personal demo of the FastGene® qFYR!

Get in touch with us and you will receive a complete product demonstration, or a demonstration adjusted to your specific needs!

+49 2421 554960

info@nippongenetics.eu

www.nippongenetics.eu

NIPPON Genetics EUROPE GmbH

+49 2421 55496 0
+49 2421 55496 11
info@nippongenetics.eu
www.nippongenetics.eu