QuantGene 9600

Fluorescence Quantitative PCR Detection System

Multi-C
Up To 6
Channels

BlueTooth

°C
Gradient

6 Partition
Temp. Control

AUTO-CASE

CMOS

Peltier
PeltierInside™

CE EMC RoHS

▶ Product Description

QuantGene 9600 is based on the excellent quality of the LineGene family, using the very mature thermoelectric refrigeration technology, a new light source and optical circuit design. The unique constant current power supply and 6-zone independent temperature control method ensure that the product is fast, accurate and stable in fluorescence quantitative analysis. The product adopts modular design, with a variety of configuration options, at the same time, the addition of temperature gradient, sample 4°C cryopreservation, automatic dehumidification and other functions , fully meet the scientific research and clinical medical needs.

▶ Product Features
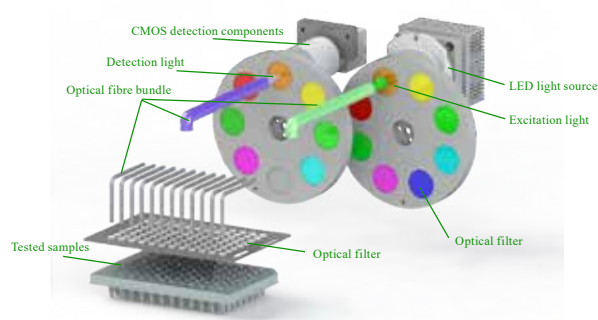
Top imaging photoelectric detection

- Top imaging technology was adopted to collect 96-well fluorescent signals without detection time difference. Fast detection, single channel detection need only 1 second;
- A new array of flat-field light source can greatly improve the excitation optical effect and enhance the fluorescence signal;
- The excitation and detection channels adopt independent filter wheels, which can cope with secondary excitation detection experiments without expanding the channel, such as the application of double hybrid probe;
- The cluster conduction design of high-end optical fiber is adopted to improve the fluorescence signal strength, reduce the optical conduction loss, and eliminate the edge optical path difference without calibration.

6 partition thermal cycling module

- The use of 72 series long life semiconductor refrigeration (Ferrotec Peltier), its life is three times higher than that of traditional TE;
- Micro heat pipe array technology, improve the heat conduction efficiency;
- 6 partition accurate and independent temperature control, improve the reaction speed;
- High temperature uniformity, fast ramping speed;

Intelligent adjustable hot cover

- Built-in high sealing hot cover to avoid reagent volatilization;
- The hot cover can be automatically adjusted to fit various kinds of test tubes.

Automatic pop-up sample bin

- Automatic pop-up sample warehouse design, easy to operate.

Full adaptable software system

- Large touch screen software operation, new humanized operation interface, greatly improve customer's experience;
- Equipped with mobile phone/tablet APP to realize remote operation and real-time monitoring by users;
- The new Ul design of international standards, to adapt to the mainstream market users at home and abroad operating habits;
- Flexible program setting, comprehensive analysis and reporting functions, all parameters can be stored;
- Intelligent software system, no need for debugging gain, wide range of linear analysis, good reproducibility of experimental results.
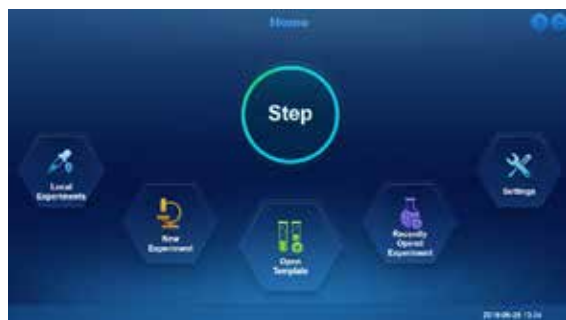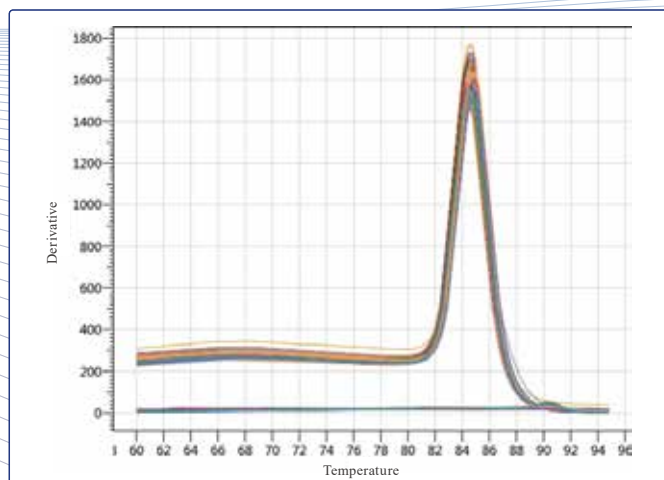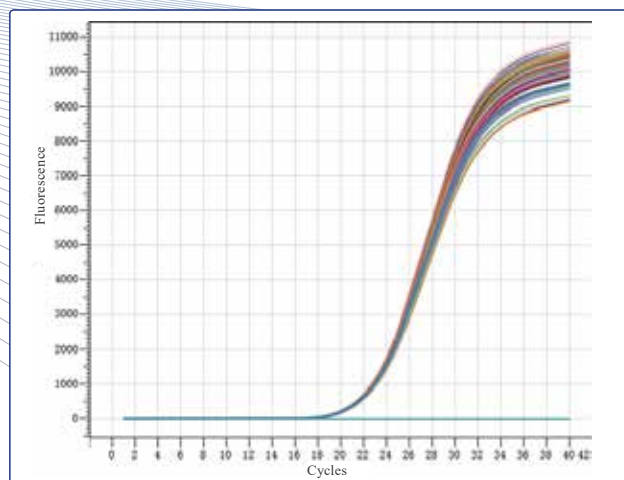
Touch version software

APP software

▶ CASES

Case 1: Absolute quantification---- Fluorescence detection consistency test

Ct value	1	2	3	4	5	6	7	8	9	10	11	12
A	24.48	24.45	24.46	24.51	24.4	24.44	24.37	24.35	24.33	24.36	24.43	24.4
B	24.4	24.47	24.4	24.43	24.38	24.43	24.44	24.48	24.43	24.44	24.39	24.4
C	24.45	24.49	24.43	24.35	24.49	24.38	24.32	24.46	24.4	24.45	24.43	24.34
D	24.44	24.51	24.4	24.41	24.36	24.43	24.3	24.39	24.41	24.46	24.44	24.43
E	24.46	24.37	24.45	24.41	24.36	24.3	24.41	24.51	24.32	24.43	24.38	24.37
F	24.37	24.43	24.43	24.37	24.42	24.38	24.38	24.35	24.35	24.35	24.39	24.39
G	24.35	24.39	24.5	24.34	24.37	24.44	24.45	24.45	24.42	24.32	24.37	24.47
H	24.4	24.42	24.37	24.37	24.44	24.42	24.37	24.32	24.47	24.42	24.39	24.36

Test summary: The test data of 96 samples shown in the figure above were analyzed according to the baseline threshold method: avgCt=24.40667, std=0.049133, and CV=0.2%, indicating that QuantGene 9600 real-time fluorescence quantitative PCR analyzer had very good repeatability in fluorescence detection wells.

## Case 2: Absolute quantification-fluorescence detection sensitivity test
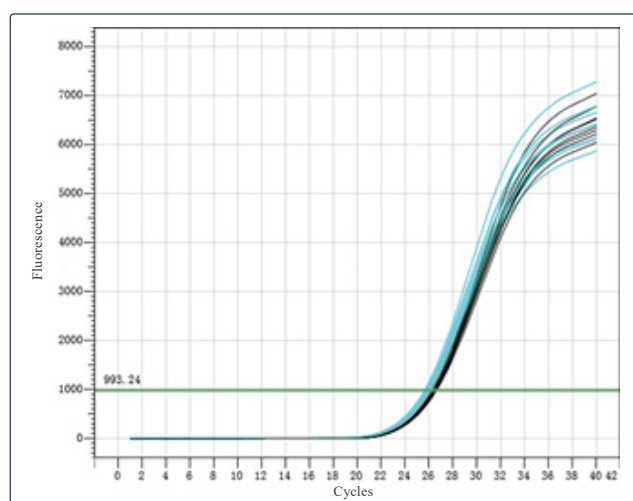
Serial number	1.5 x concentration Ct value (blue curve)	1 x concentration Ct value (black curve)	Ct differential
1	26.39	26.65	0.26
2	25.92	26.77	0.85
3	26.16	26.7	0.54
4	26.1	26.52	0.42
5	26.15	26.79	0.64
6	26.24	26.62	0.38
7	26.08	26.79	0.71
8	25.92	26.88	0.96
The average Ct	26.120	26.715	0.595

Test summary: Summary: as shown in the figure above, it can be seen from the 1.5 times concentration of the HBV fluorescence quantitative detection kit that the measured mean Ct value of 1.5 times concentration is 0.595 different from that of 1 times concentration (the theoretical Ct value should be 0.58 different), indicating that the fluorescence detection sensitivity of QuantGene 9600 real-time fluorescence quantitative PCR analyzer is high.

Case 3: Melting curve---Comparative test with an imported brand instrument
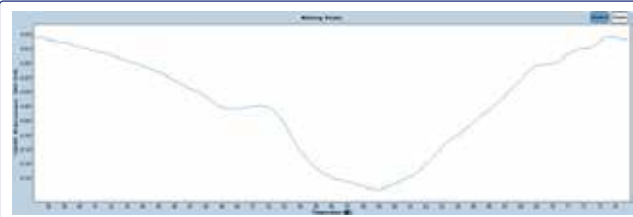
The melting curve of an imported brand instrument
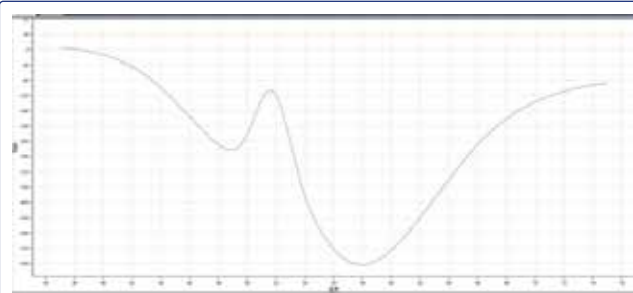
The melting curve of Bioer QuantGene 9600 instrument

Test summary:

It can be seen from the melting curve of the above comparison test that, based on the same test conditions, the melting curve of QuantGene 9600 real-time Fluorescence Quantitative PCR analyzer has more obvious peak effect and higher fluorescence detection sensitivity.

Case 4: End-point fluorescence genotyping --- KASP genotyping test
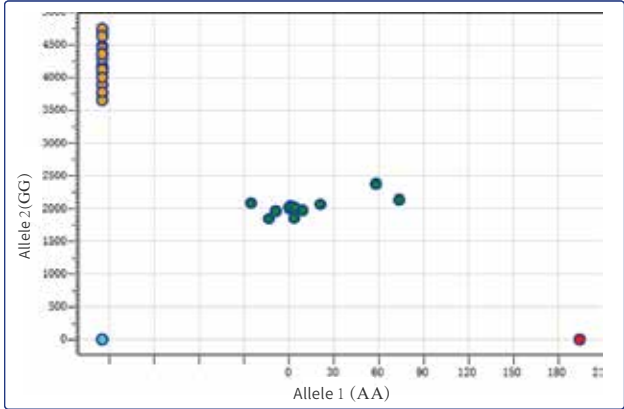
Genotyping verification results:

Serial number	Genotype	Whether there is a genetic mutation	Reaction on alcohol
1	GG	NO	No response
2	GA	YES	Blush
3	AA	YES	Allergy

Test summary:

Summary: From the experimental data shown in the chart, it can be seen that genotypes and phenotypes are consistent, indicating that the results of KASP genotyping test are correct.

▶ Product Parameters

Product name	QuantGene 9600 Fluorescent Quantitative Detection System					
Product model	FQD-96C					
Sample size	96×0.2ml【suitable for single tube, 8-row tube and 96-well plate (no skirt plate, half skirt plate)】					
Reaction system	10~100μl (96 module)					
Dynamic range	1~10^{10}					
Features	Qualitative/absolute quantitative, relative quantitative, SNP analysis, fusion curve method genotyping, standard curve, fusion curve, allele identification, gradient, HRM, automatic gain, user defined parameters, etc					
Detection of the channel	F1	F2	F3	F4	F5	F6
Apply probe/dye (part)	FAM,SYBR Green I	HEX/VIC/TET/JOE /CY3/TAMRA	ROX, TEXAS-RED	Cy5, Quasar-670	Cy5.5, Quasar-705	custom

Excitation wavelength	300~800nm	**Temperature control mode**	Block Mode and Tube Mode
Fluorescence detection wavelength	500~800nm	**Gradient control**	6 zone temperature control
Resolution	Differences as low as 1.5 times in copy number can be distinguished in single weight reactions	**Interface way**	USB, bluetooth
Module operating temperature range	4～105°C(minimum setting scale :0.1°C)	**Input power**	100~240VAC，50/60Hz, 1000VA
Maximum ramping rate	6.5°C/s	**Overall dimensions**	490mm×290mm×391mm
Temperature control precision	≤±0.1°C	**Weight**	28kg
Temperature uniformity	≤±0.2°C	**Security protection and alarm**	Overheat protection and alarm for hot cover, overheat protection for switching power supply
Hot cover temperature range	30~110°C(adjustable, default 105°C)	**Safety certification**	CE/EMC/RoHS2.0/IVD

*Effect value tested in standard lab environment.