Thermal Cycler Dice™ Real Time System

Cat.# TP800 total system

【Component of the system】
・Thermal Cycler Dice™ Real Time System
・Laptop computer for operation
（Windows® Operation system）

This product is not available in the U.S. and Europe.

Specification

Description	Thermal Cycler Dice™ Real Time System
Code#	TP800
Dimensions	290（W）×517（D）×397（H）mm
Weight	23.5 kg
Voltage requirements	AC 100～240 V, 50/60 Hz, 620 W
Heating and Cooling system	Peltier element
Excitation source	Halogen lamp100 W
Maximum heating speed	3.0℃/s
Maximum cooling speed	2.0℃/s
Temperature control range	4.0～99.9℃（every 0.1℃）
Temperature control accuracy	±0.5℃ at 94℃/55℃ ±2.0℃ at 4℃

Filter unit	2 types（FAM™/SYBR®Green I, ROX™/Texas Red®） ＊：4 types at maximum
Detector	CMOS camera
Dissociation curve analysis	Yes
Real time monitoring	Yes
Sample capacity	96 samples
Reaction volume	Recommended: 25 μl Maximum: 50 μl
Container	0.2 ml tube, 96 well plate
Computer OS	Windows® XP

Related Products

Description	Cat.#	size
96well Hi-Plate for Real Time	NJ400	10 sheets
Sealing Film for Real Time	NJ500	100 sheets
0.2 ml Hi-8-Tube	NJ300	125 strips
0.2 ml Hi-8-Flat Cap	NJ302	125 strips
Plate Sealing Pads	9090	5
Lamp for Thermal Cycler Dice™ Real Time System	TP801	1
Filter Unit（HEX/VIC） for Thermal Cycler Dice™ Real Time System	TP802	1
Filter Unit（Cy5） for Thermal Cycler Dice™ Real Time System	TP803	1

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Distributors

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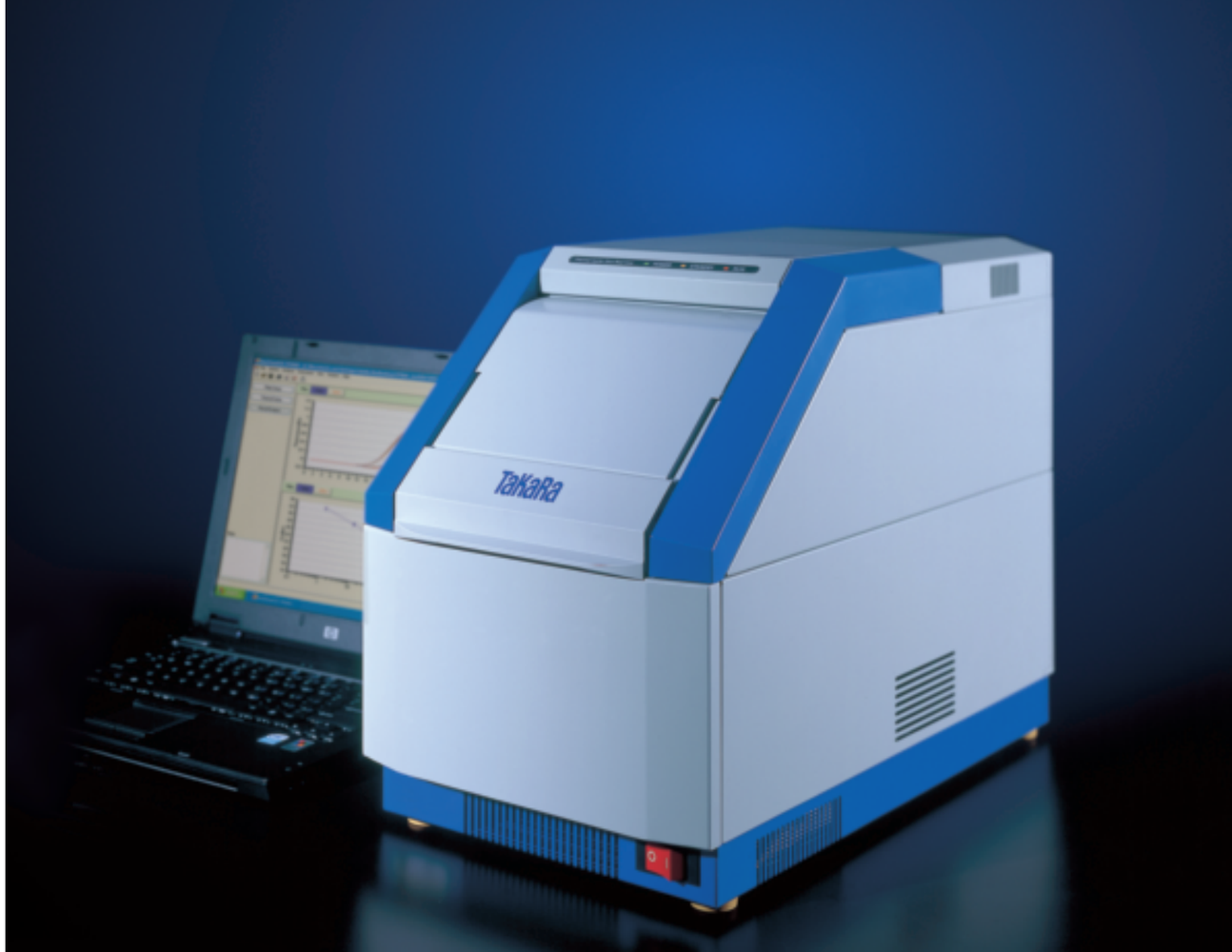
TaKaRa

Thermal Cycler Dice™
Real Time System



Thermal Cycler Dice™
Real Time System

The best Real Time PCR system for private use !

A real-time PCR that offers an accurate and reproducible quantification is indispensable for gene expression analysis. Takara Bio launched a real-time PCR instrument for 96 well plate. Thermal Cycler Dice™ Real Time is a compact system for 96 well plate type with high-performance hardware and easy-to-use software. We recommend this system as a "Perfect" real-time PCR instrument with confidence.

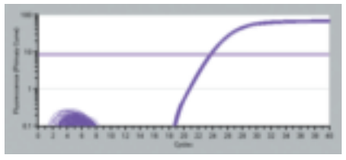
High-performance hardware

Temperature control and Optical system

This system uses the same Peltier element that is used in the Thermal Cycler Dice™ series to minimize the temperature difference between wells. And this system has reliable detection system using the camera shoot method to detect fluorescence. As a result, this system realize a high uniformity and reproducibility.

● Highly reliable results

The high uniform results is obtained in all 96 wells.
The same reactions were performed in all 96 wells and Ct values (Threshold Cycle) were compared. The result shows the excellent uniformity of each well.

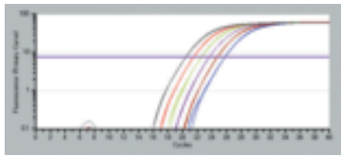


Average of Ct = 23.6
Standard deviation = 0.0931
CV (%) = 0.39

Template : λDNA 500 fg
Reagent : SYBR® *Premix Ex Taq*™ (Perfect Real Time) [Code# RR041A/B]

● 2-fold difference can be analyzed

To perform an accurate real-time PCR analysis, a high performance is needed for both the instrument and reagents. You can analyze the 2-fold difference of template concentration using SYBR® *Premix Ex Taq*™ (Perfect Real Time) (Code# RR041A/B) with this system.



Template : cDNA synthesized from mouse total RNA 6 orders, 1:2 serial dilution (312.5 pg to 10 ng)
* The cDNA amounts correspond to the total RNA amount. N=3
Target : Gapd gene

Easy-to-use software

Software that is fun to use

Designed from a researcher's standpoint with many useful functions
The user interface of this software is simple and intuitive, consisting of three main screens. It is easy-to-use for beginners and satisfactory for advanced users.

● Plate Setup

Enter the sample information on this screen. "Plate Document Editor" is a set of useful tools to enter the information and helps your plate setup. It is also possible to import parameter setting from another existing file.

● Thermal Profile Setup

Define the PCR conditions and select the filters on this screen. The setup can be done easily using the pull-down menu. And the thermal profile is shown visually. Detailed settings of the PCR condition are possible by using the extended menu.

● Result / Analysis

Adjust the analysis settings and view results on this screen. The results are shown on two screens, each of which can be used for any kind of graph. You can verify the data from various view points.

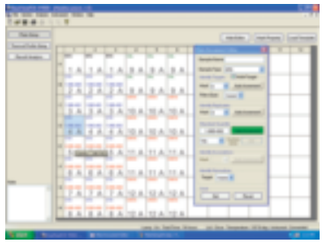
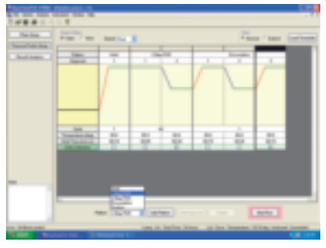
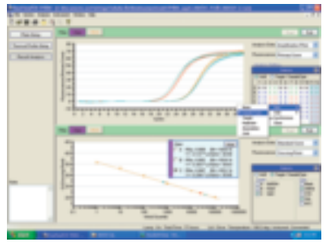


Plate Setup


Thermal Profile Setup


Result / Analysis

Various analytical methods

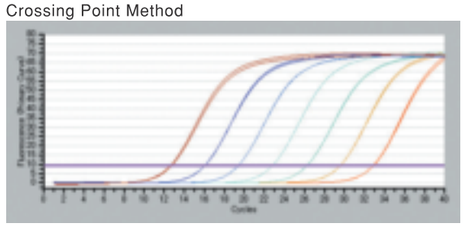
You can use various analytical methods. These methods can be switched by just one click.

● Calculate the Ct (Threshold Cycle) value

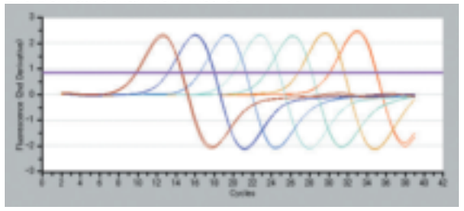
Crossing Point Method
Calculate the Ct value from the intersection of Amplification Plot (Primary Curve) and threshold line. The Ct value changes according to the threshold setting.

2nd Derivative Maximum Method
Calculate the Ct value from the 2nd derivative of Primary Curve. The highest peak of the 2nd derivative curve represents the point of maximum curvature of the primary curve. The cycle of this point is defined as Ct value.
This calculation method is more reproducible and accurate than the former one. The Ct value of this method is not influenced by the detection error, so it is not necessary to correct the fluorescent difference between wells. Moreover, the Ct value does not change according to the threshold setting, unlike the Crossing Point Method.

Crossing Point Method



2nd Derivative Maximum Method

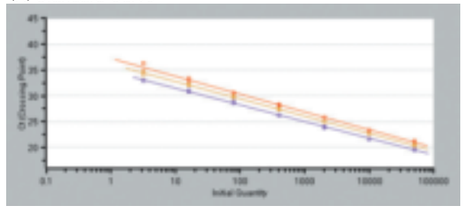


● Relative quantification analysis

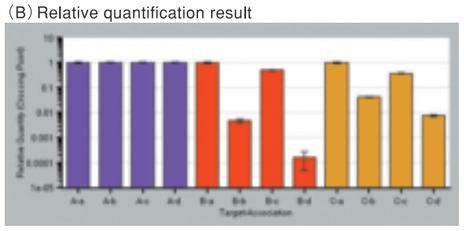
Standard Curve Method
Calculate the relative quantity of an unknown sample using the standard curve.

ΔΔCt (Comparative Ct) Method
In this method, the difference of the Ct value is converted into a relative quantity. This method can be used in experiments each target of which has nearly equal PCR efficiency.
In both of these methods, the target quantity is divided by normalizer quantity to obtain the normalized one. Next, the normalized quantity is divided by the calibrator normalized quantity to know the gene expression relative to calibrator. Finally, the results are displayed as a bar chart.

(A) Standard Curve



(B) Relative quantification result



【Experiment example】 Relative quantification by Standard curve method
The expressions of 3 genes were analyzed in about 4 experimental samples. In the experiment housekeeping gene expressions were also analyzed in each sample to normalize the amount of RNA. To calculate the relative quantities, the standard curve method was used. The gene expression result is shown as bar chart.

Fluorescence filters for SYBR® Green I & Probe

2 types of filters, FAM™/SYBR® Green I and ROX™/Texas Red®, are installed in the instrument. If necessary, you can add two more filters to those.
This system does not need ROX reference dye to normalize the detection error. It enables to use the ROX filter for detection and also to perform multiplex PCR with FAM&ROX filters. It is possible to perform not only SYBR® Green I assay but also various kinds of probe assays, such as TaqMan®, Molecular Beacon and Cycling probe.

Filter	Excitation (nm)	Emission (nm)
FAM™ (SYBR® Green I)	482	536
ROX™ (Texas Red®)	562	624

Compact design

The compact size of this system is achieved by the slide-lid with built-in mirror and the halogen lamp that is set in transverse. The operation is easy even if it is set on a shelf because the moving part of it is only the slide-lid. The sound under operation is quiet. All these features make it an ideal instrument for every lab.

Data management

You can export the graphs and data in various formats, such as Excel, Word and PDF, and make a report automatically. The report contains some graphs and basic information of the experiment. To make a report is good not only for saving your labor but also for the management of experiment data.

【File Type】
- Microsoft® Word (.doc)
- Microsoft® Excel (.xls)
- Microsoft® PowerPoint (.ppt)
- Adobe® PDF (.pdf)
- Comma Separated Value (.csv)
- Text (.txt)
- Bitmap (.bmp)