



# Droplet Chip Digital PCR Analysis System

*DcentriGene 160*



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TECHNOLOGY**

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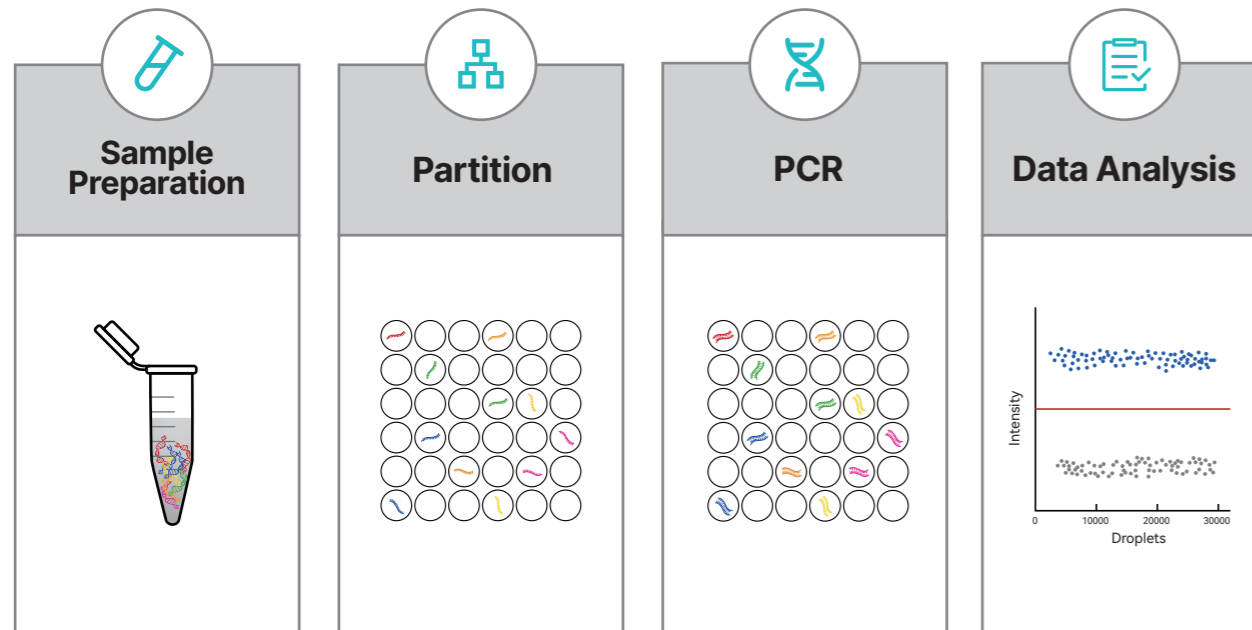
# Overview

The Droplet Chip Digital PCR Analysis System is a six-multiplex digital PCR platform designed for the precise and ultrasensitive quantification of nucleic acids without the need for a standard curve. The system comprises a MicroDrop Generator, dPCR Thermal Cycler, MicroChip Reader, and dedicated read and analysis software.

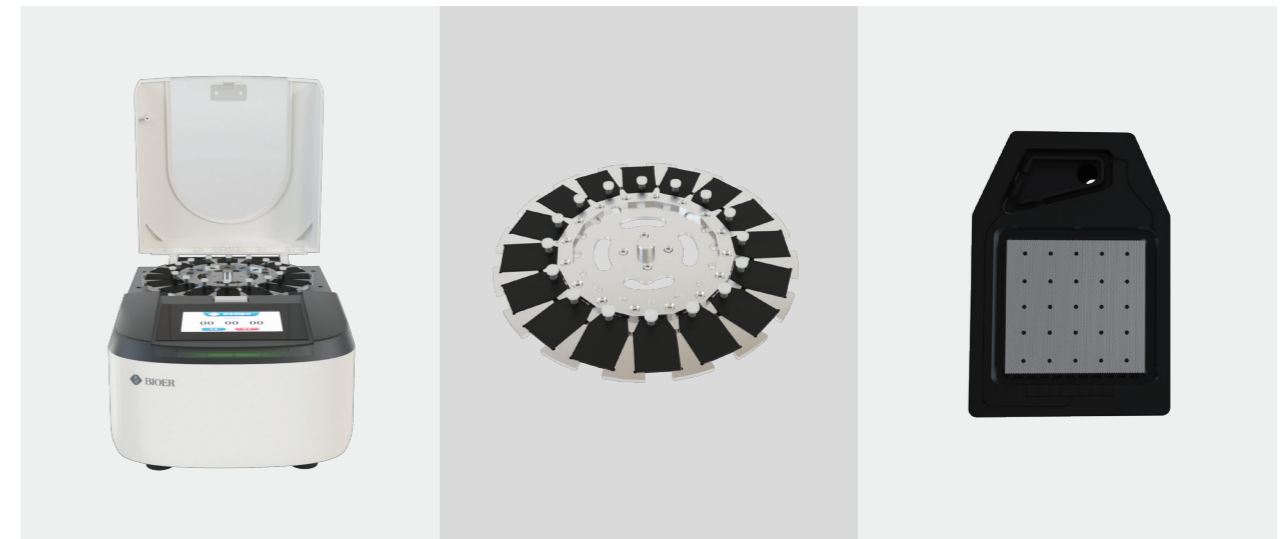
The MicroDrop Generator utilizes centrifugal force to efficiently partition the sample into 25,000 to 32,000 uniform droplets, eliminating dead volume and maximizing sample utilization. Each droplet encapsulates either one or zero target molecules. The dPCR Thermal Cycler features four independent temperature-controlled zones, each capable of performing PCR reactions for up to four samples simultaneously. The MicroChip Reader records fluorescence signals from individual droplets, distinguishing positive droplets containing amplified target genes from negative droplets without amplification.

Dedicated software efficiently acquires data and applies poisson distribution principles to provide accurate quantification of target nucleic acids.

## Workflow



## Key Features



### 3 MINUTES MicroDrop Generator - DcentriGene 16m

**Unique Droplet Preparation:** The patented centrifugal-driven droplet generation method eliminates dead volume and maximizes sample utilization.

**Safe and Contamination-Free:** Fully enclosed chip design to avoid cross contamination. One step sample loading without additional operations.

**Fast and Efficient:** Multi-channel design on the chip, capable of droplet generation for 16 samples within 3 minutes.

**Flexibly:** Sample can be flexibly adjusted, options range from 1 to 16.

### 70 MINUTES dPCR Thermal Cycler - DcentriGene 16c



No pressure device, amplification proceeds at atmospheric pressure.

Chip fully sealed, reducing contamination.

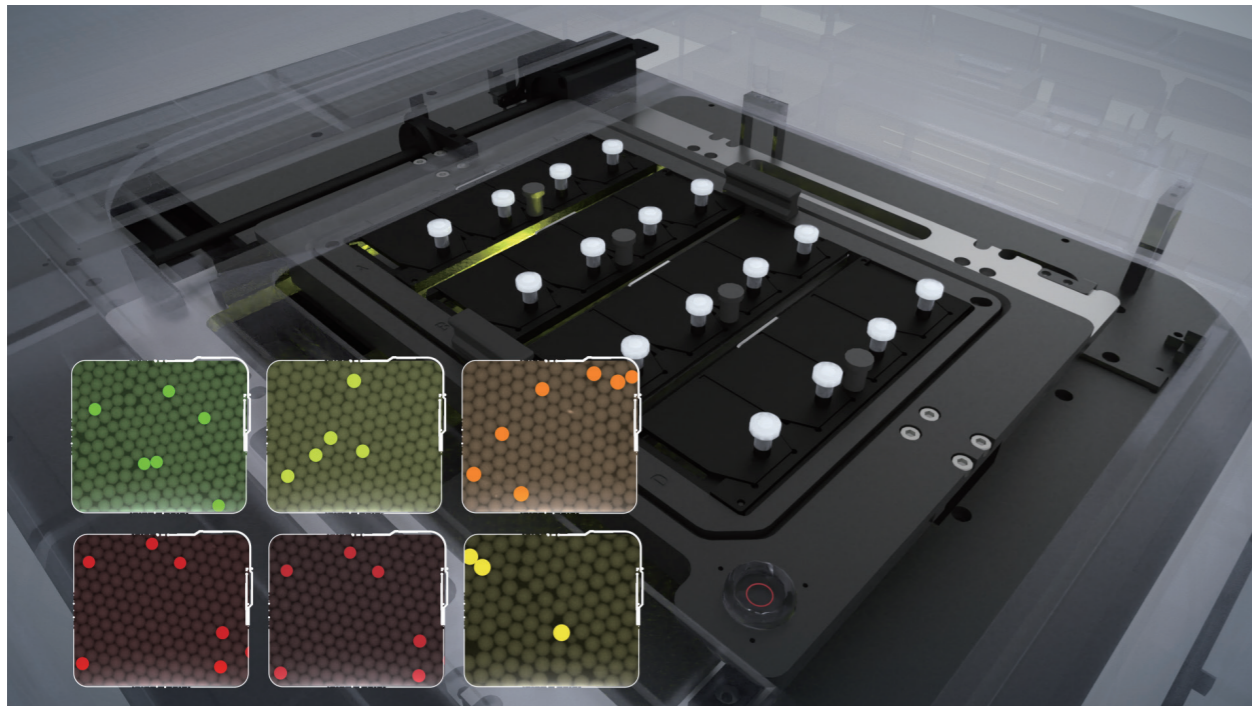
Specially designed anti-evaporation structure, reducing the evaporation during long-duration amplification cycles.

Four-zone independent temperature control, maximum temperature difference between adjacent modules is 6°C, minimum is 0.1°C.



## MicroChip Reader - DcentriGene 16r1/16r2/16r3

- ◆ Up to 6-color multiplexing, from 1 to 16 samples/run.
- ◆ Rapid read and analysis, single chip scanning time in 10s.
- ◆ Detect system modularization, customizable channels.
- ◆ Supports repeated chip scanning, helping improve detection accuracy.



## Software Analysis

- ◆ **01:** Analyze data using 1D, 2D, or 3D dot plots.
- ◆ **02:** Access raw data, as well as copy number variation, rare mutation detection, gene expression, and absolute quantification analysis modules.
- ◆ **03:** Supports image traceability function, allowing for visual analysis of individual droplet.
- ◆ **04:** Features droplet quality control analysis, enabling automatic assessment of droplet quality and evaluation of the number of valid droplets.



## Specifications

Product Name	MicroDrop Generator
Model	DcentriGene 16m
Sample Capacity	1-16
Droplet Count	25000-32000
Droplet Diameter	90µm
Loading Volume	15µL
Generation Rate	16 samples within 3 min
Utilization Rate	≥95%
Power supply	100-240VAC, 50/60Hz, 120VA
Dimensions	373mm×234mm×166mm (L×W×H)

Product Name	dPCR Thermal Cycler
Model	DcentriGene 16c
Sample Throughput	1-16
Max. Ramp Rate	2.5°C/s
Accuracy	≤0.1°C
Module work temperature range	30~99.9°C (Minimum setting scale: 0.1°C)
Run Time	70 min
Compatible Reagents	Dye-and Probe-based kits
Temperature Zone	4
Power supply	~220VAC, 50Hz, 1200W
Dimensions	558mm×380mm×315mm(L×W×H)

Product Name	MicroChip Reader					
Model	DcentriGene 16r1/16r2/16r3					
Sample Throughput	1-16					
Fluorescence detection channel	F1	F2	F3	F4	F5 (customizable)	F6 (customizable)
Applicable dyes	FAM, Eva Green	VIC, HEX, JOE	ROX	Cy5	CY5.5	CY3
Light Source	LED					
Detector	CCD					
Scan Speed	10s (per chip per channel) 25min(16 chips and 6 channels)					
Dynamic Range	1-100000 copies/sample					
Sensitivity	1 copy					
Input power	220V~50Hz 200VA					
Dimension	542mm×390mm×280mm (L×W×H)					





## Application Filed



## Compatible Regents and Consumables

### BioUltraQ Exact dPCR Mix

#### Introduction:

This product is a 2× PCR premix designed for use with Droplet Chip Digital PCR Analysis System (DcentriGene 160), fully compatible with the system's hardware and software. The key component of this reagent is an ultrapure, thermostable DNA polymerase modified with high-affinity monoclonal antibodies, providing a hot-start mechanism with high tolerance to common PCR inhibitors. All reagents included are specifically developed for digital PCR, ensuring uniform droplet generation, minimizing droplet fusion during amplification, and enabling robust PCR amplification of single-copy templates. Tailored for digital PCR, this product delivers exceptional specificity and efficient amplification of low-concentration templates.

#### Features:

- Easy to Use:** The 2× Exact dPCR Mix is a ready-to-use premix, requiring only optimization of primers and probes.
- Broad Compatibility:** Suitable for a wide range of DNA template samples.

#### Application Cases:

##### Case 1:

Viral DNA from five different concentrations of Hepatitis B Virus (HBV) culture were extracted using the BSC86 MagaBio Plus Virus DNA/RNA Purification Kit III and quantified via digital PCR using the BioUltraQ Exact dPCR Mix.

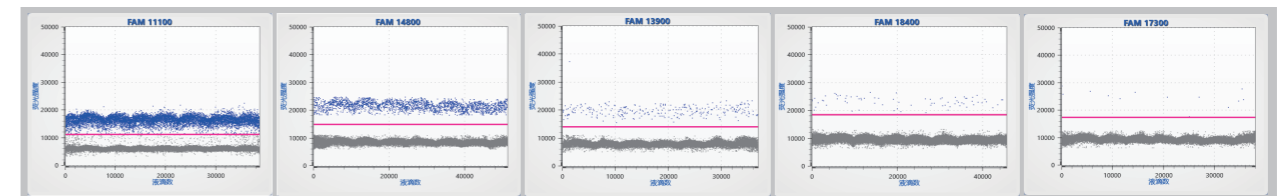


Figure 1: Scatter plot of amplification for five different concentrations of Hepatitis B samples.

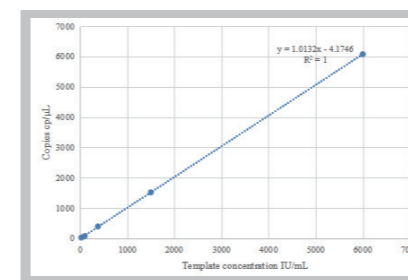


Figure 2: Slope graph of amplification for five different concentrations of Hepatitis B samples.

**Result:** The results indicate that the BioUltraQ Exact dPCR Mix provides accurate calibration and exhibits good linearity for Hepatitis B samples.

## BioUltraQ Exact One-Step RT-dPCR Mix

### Introduction:

This product is specifically designed for RNA template amplification and is compatible with Droplet Chip Digital PCR Analysis System (DcentriGene 160), fully integrated with the system's hardware and software. It includes the RNA to cDNA reverse transcription process, followed by one-step digital PCR amplification. Developed specifically for digital PCR, this product offers excellent specificity and high efficiency, even with low-concentration templates.

### Features:

- ✓ **Easy to Use:** The 2x BioUltraQ Exact One-Step RT-dPCR Mix is a ready-to-use premix, requiring only optimization of primers and probes.
- ✓ **Broad Compatibility:** Suitable for a wide range of RNA template samples.

### Application Cases:

#### Case 1:

Viral RNA from five different concentrations of Hepatitis C Virus (HCV) culture were extracted using the BSC86 MagaBio Plus Virus DNA/RNA Purification Kit III and quantified via digital PCR calibration using the 2x BioUltraQ Exact One-Step RT-dPCR Mix.

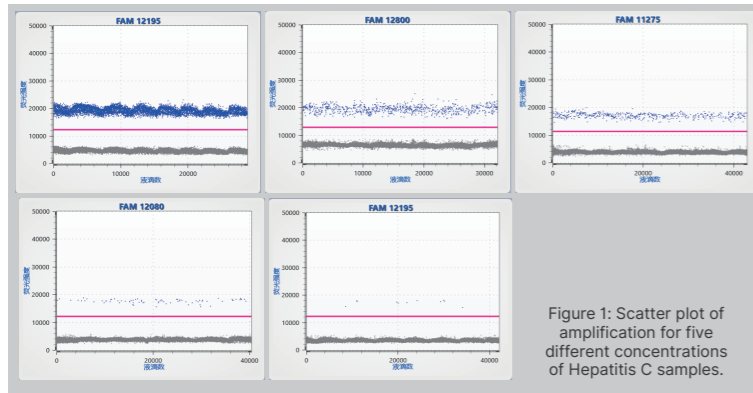


Figure 1: Scatter plot of amplification for five different concentrations of Hepatitis C samples.

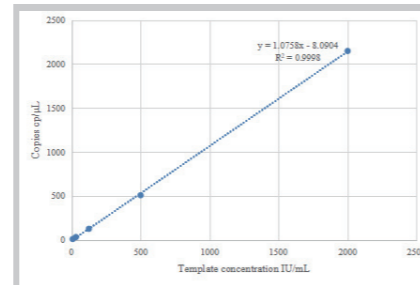


Figure 2: Slope graph of amplification for five different concentrations of Hepatitis C samples.

## Microcard Kit

### Introduction:

This product includes the Microcard and Microdrop oil, designed to be fully compatible with Droplet Chip Digital PCR Analysis System (DcentriGene 160), both in hardware and software. The Microcard features a sophisticated design, and when used with MicroDrop Generator (DcentriGene 16m), it can generate 25000–32000 droplets within just 3 minutes. The Microdrop oil is hot-resistant, maintaining droplet stability at 95°C without fusion. This product is intended to be used together with BioUltraQ series reagents.

### Features:

- ✓ **Easy to Use:** The Microcard is specially designed to generate over 32000 droplets in just three minutes.
- ✓ **Stable Performance:** The Microdrop Oil is hot-resistant and maintains droplet stability at 95°C without fusion.
- ✓ **Contamination Prevention:** The droplet generation and amplification process after adding the reaction liquid does not require opening the lid, effectively preventing contamination.



## Ordering Information

### Instruments

Cat. No.	Product Name	Model	Description
BYR6B31E	MicroDrop Generator	DcentriGene 16m	Droplet Generation
BYR6B32E	dPCR Thermal Cycler	DcentriGene 16c	PCR
BYR6B33E	MicroChip Reader	DcentriGene 16r1	Six-channel Detection
BYR6B45E		DcentriGene 16r2	Four-channel Detection
BYR6B44E		DcentriGene 16r3	Two-channel Detection

### Reagents and Consumables

Cat. No.	Product Name	Package	Storage Condition
BSB106T1	BioUltraQ Exact dPCR Mix	8T	-25°C~-15°C
BSB106S1	BioUltraQ Exact dPCR Mix	64T	-25°C~-15°C
BSB106M1	BioUltraQ Exact dPCR Mix	192T	-25°C~-15°C
BSB107T1	Microcard Kit	8T	2~37°C
BSB107S1	Microcard Kit	64T	2~37°C
BSB107M1	Microcard Kit	192T	2~37°C
BSB111T1	BioUltraQ Exact One-Step RT-dPCR Mix	8T	-25°C~-15°C
BSB111S1	BioUltraQ Exact One-Step RT-dPCR Mix	64T	-25°C~-15°C
BSB111M1	BioUltraQ Exact One-Step RT-dPCR Mix	192T	-25°C~-15°C
BSB125T1	BioUltraQ Exact dPCR Mix for EvaGreen	8T	-25°C~-15°C
BSB125S1	BioUltraQ Exact dPCR Mix for EvaGreen	64T	-25°C~-15°C
BSB125M1	BioUltraQ Exact dPCR Mix for EvaGreen	192T	-25°C~-15°C
BSB126T1	BioUltraQ Exact Multiplex dPCR Mix for Probes	8T	-25°C~-15°C
BSB126S1	BioUltraQ Exact Multiplex dPCR Mix for Probes	64T	-25°C~-15°C
BSB126M1	BioUltraQ Exact Multiplex dPCR Mix for Probes	192T	-25°C~-15°C