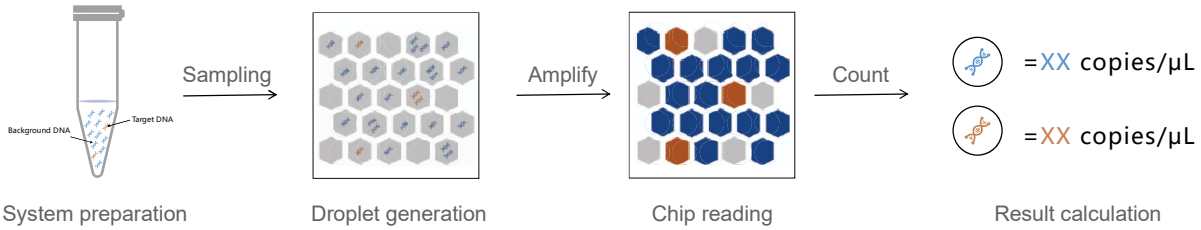
Life Science Equipment

AccuONE-300Pro dPCR

Digital PCR Principle



Digital PCR can directly perform absolute quantification of target molecules without the need for a standard curve. The principle is to disperse the sample nucleic acid molecules into a large number of microsystem units. Each unit contains 0, 1, or multiple target DNA templates. The microsystems are independently amplified in parallel. After the amplification, the units containing the target molecule templates will emit a fluorescent signal, and the analysis software calculates the initial concentration or copy number of the target molecule based on the ratio of yin and yang signals and the principle of Poisson distribution.

Technical Advantages

Absolute quantification

In contrast to the fluorescent PCR's amplification curve method, digital PCR utilizes the endpoint method. This allows for the direct determination of the absolute concentration value or copy number of the target nucleic acid.

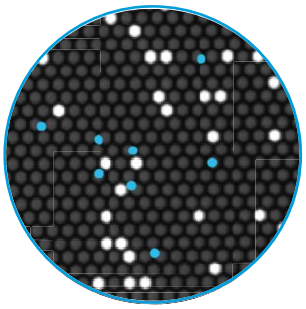
High sensitivity

Digital PCR distributes nucleic acid molecules into numerous reaction units, enabling independent fluorescence detection in each. With remarkable sensitivity, it can detect low-abundance mutations and resolve minor differences in copy numbers.

Robust Tolerance

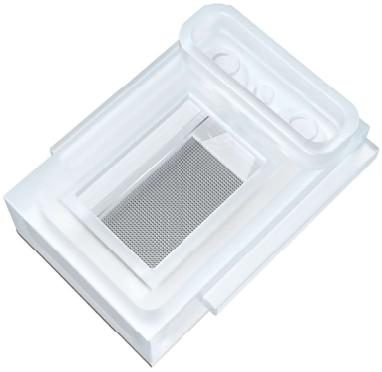
The highly dispersed system in digital PCR reduces the impact of inhibitory factors within the components on the PCR reaction. This ensures consistent amplification efficiency and robust tolerance to potential interfering elements.

Unique bio-chip structure



Solid phase separation technology route

The Unicorn chip-based digital PCR system adopts a solid-phase separation route, pre-set up a high-precision micron-level chamber without the need for additional sample preparation systems, within seconds Microdroplet preparation can be completed.



Microcavity chip structure

It effectively avoids cross-interference between samples and environmental pollution, and eliminates droplet breakage and fusion caused by PCR thermal reaction. The microdroplets are stable and observable, the chip can be read repeatedly, and the image can be traced.

Principle of droplet generation:

Sample injection

Inject the PCR reaction solution and sealing oil. The reaction solution enters first, followed by the sealing oil.

Inject

The PCR reaction solution continuous-ly enters the microcavity to form droplets, and the sealing oil seals the bottom of the chip.

Droplet generation

The droplet preparation is completed and the bottom oil seal is completed.

Replenish oil

Seal the top of the chip and the chip preparation is completed.

Sample injection is sample preparation:

- Integrated packaged chip, no need for other consumables.
- Chip specifications can be customized to meet differentiated needs.
- Complete droplet preparation instantly, further shortening experimental time.

Product features

AccuONE-300Pro

01
Open system; Support customized mix development

02
Amplified reading analysis integration

03
Microdroplet preparation, Simple and fast

04
Amplification and reading of two different procedures can be performed at the same time

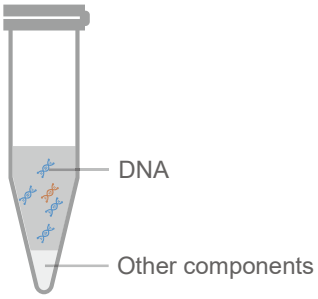
05
Professional analysis software with three-level authority management and audit tracking functions, meeting the requirements of 21CFR Part11 regulations

Application

More Accurate - accommodates more DNA templates

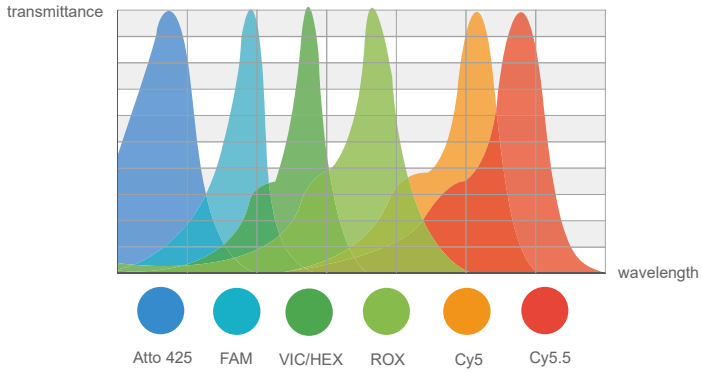
The highly concentrated 10× digital PCR master mix allows the maximum amount of DNA template to be added to be 12.5 μl, reducing the uncertainty caused by sampling errors and ensuring the reliability of the results.

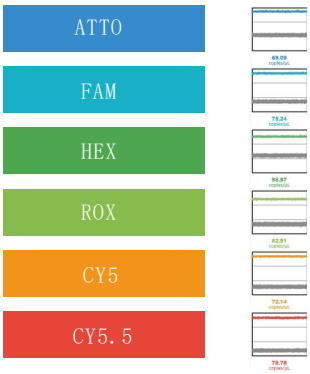
Composition	15μl system
10 × DigitalAmp PCR Buffer (Rox included)	1.5μl
DNA template	12.5μl
20 × F/R/P Mix (10 μM)	1μl



More Stronger - 6-color fluorescence, multiple detection

The multi-color fluorescence channel of AccuONE-300 can realize the simultaneous detection of multiple targets in a single tube, making it ideal for multiple pathogen detection (such as respiratory tract multiple joint detection, multiple bloodstream infection pathogen detection, multi-drug resistance mutation detection, DNA/RNA vector integrity detection, etc. project,) provides an efficient and adaptable hardware platform.





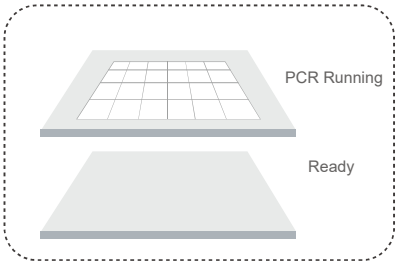
More flexible - Dual independent temperature control modules

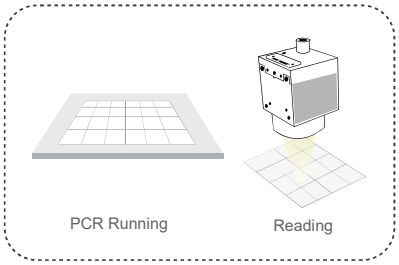
AccuONE-300Pro innovatively uses dual independent temperature control modules, which not only increases the detection throughput to high throughput, but also gives the system greater flexibility. Users can freely set different PCR programs for the two modules and independently to operate using either module.

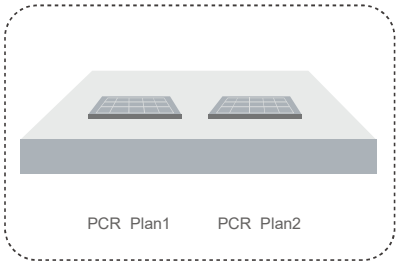
Dual temperature control modules can be used independently

Amplified reading imultaneously

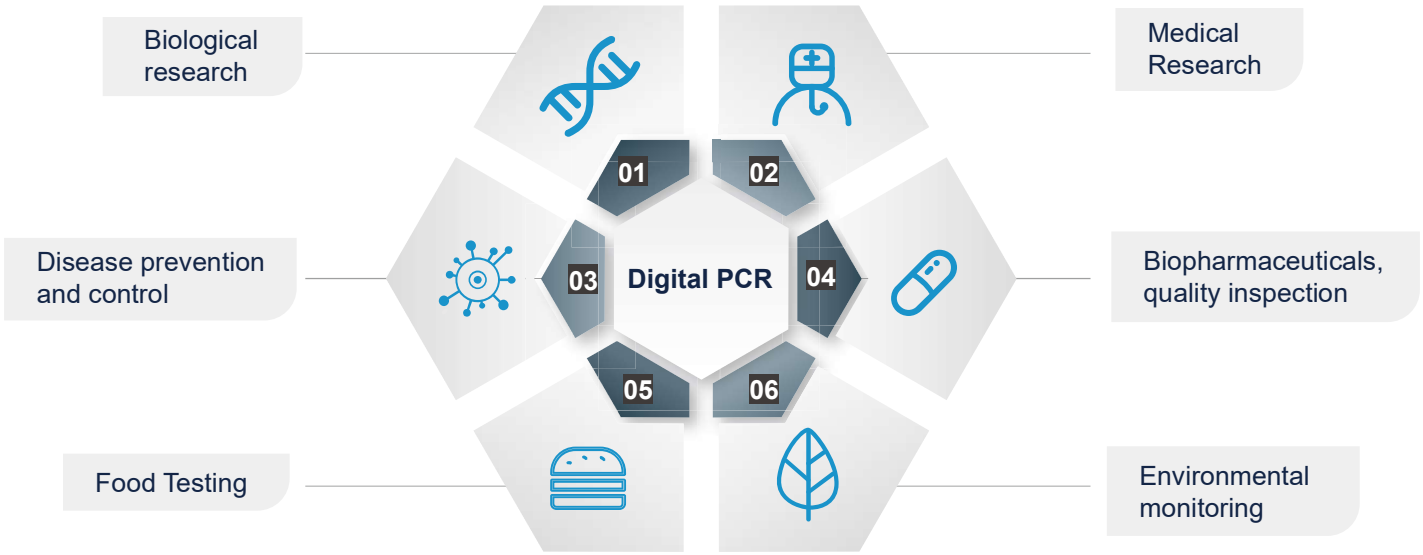
Two different PCR programs run simultaneously







Application



Specification

Model	AccuONE-300Pro
Micro-reaction unit	micro-cavity chip, solid phase segmentation
Bio-chip type	10k, 22k, 120k option, other type is customizable
Dropelet preparation	Pipetting without additional micro-droplet generation system
Reaction volume	15ul standard, adjustable within the 40ul range
Sample preparation time	≤10 seconds/piece
Excitation light source	High-efficiency maintenance-free LED light source
Detector	High-resolution CMOS sensor
Valid time of chip reading	Read repeatedly within 2 weeks
Number of fluorescence channel	6
Compatible dyes	Atto425, FAM, SYBR Green, EvaGreen, VIC/HEX, JOE, CY3, TAMARA, ABY, ROX, JUN, TYE655, CY5, Texas Red, CY5.5 and other similar wavelength dyes
Sample detection throughput	≥32, can complete the reading detection of at least 32 samples at one time
Daily detection throughput	128 in a single day (8 hours)
Internal thermal cycler	dual station design, each amplify ≥16 chips, the two amplification stations operate independently, allowing different PCR programs to be set;
Sample detection time	≤1 minute/piece, ≤32 minutes/32 pieces
Detection sensitivity	≤0.001%, can detect single-copy genes
Dynamic range	≥5 orders of magnitude, 1~250000 copies/sample

Reagent versatility	Compatible with probe method and dye method
Supporting reagents	10× high-concentration DNA detection reagent and 5× RT-dPCR one-step RNA detection reagent
Maximum sample input	≥12 μl
Software	Calculation of copy number, copy number concentration, mutation abundance, confidence interval range, accuracy; threshold line automatic or manual division, single or unified threshold division; output excel data, two-dimensional scatter plot, two-dimensional bar chart, three-dimensional space map; automatically identify complex droplet clusters, output chip actual hole position discrimination map; data quality control function, etc. automatically generate test reports;
Data security	Permission management, auditing and electronic signature functions to ensure the validity and reliability of data and meet FDA 21 CFR Part11 compliance requirements
Power supply	220V/50Hz-60Hz
Dimension (W×D×H, mm)	590×518×478
Net weight (KGS)	40

Order Information

Digital PCR Instrument

Name	Note	Order No.	Format
Gene amplifier & Biochip reader	all-in-one machine (6 colors)	IN0402	1PC

Digital PCR Reagent & Consumable

Name	Note	Order No.	Format
dPCR biochip box	Biochip version 2.0	CM0204	32T/box
Seal oil	Chip oil seal	CM0102	100T
10× probe method mix (including UDG)	Applied to probe method	MX0109	100T
10× Eva dye mix (including UDG)	Applied to dye method	MX0110	100T
10× dPCR Taq Master Mix(ROX, UDG-free)	Applied to probe method	MX0111	100T
One-step mix for bio chips, ROX substrate	Applied to probe method	MX0203	100T

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