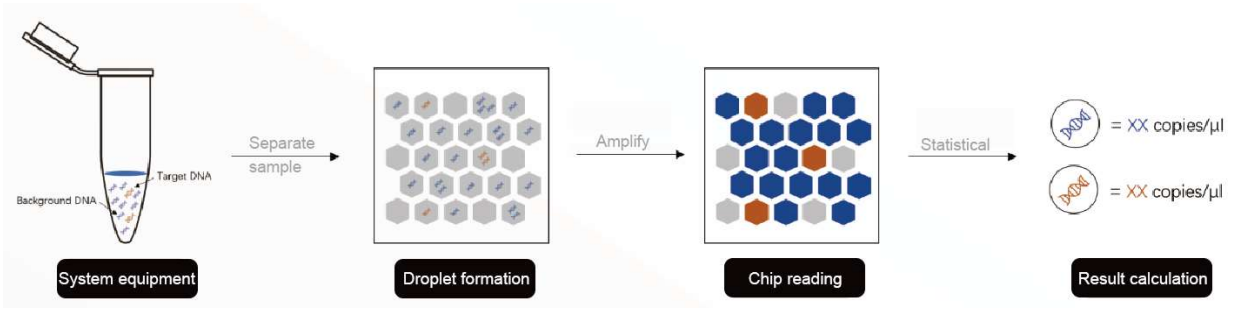
Life Science Equipment

AccuONE-300 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 A fluorescent signal is emitted, 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.

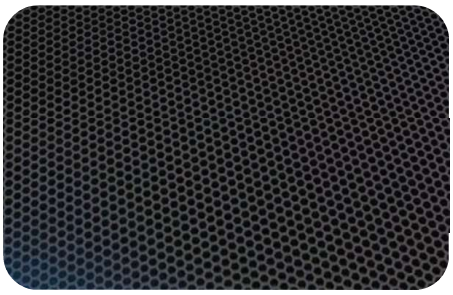
High sensitivity

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.

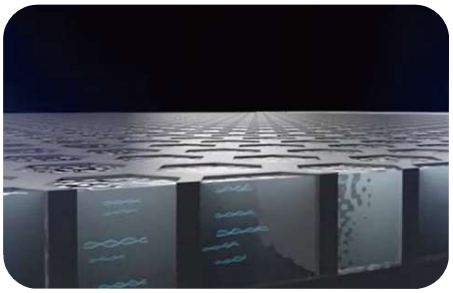
Robust Tolerance

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

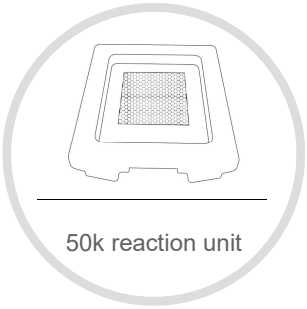


The Unicorn chip-based digital PCR system adopts the "solid-phase segmentation" route, using the MEMS process to etch and process the wafer to form a micron-level chamber, and the microsystem reaction solution completes the PCR process in the solid-phase microcavity.



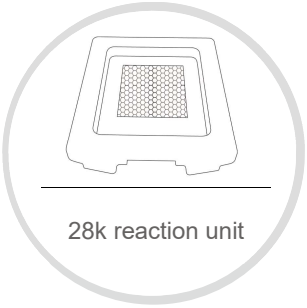
This avoids damage to the stability of each microsystem caused by cross-interference and violent thermal reactions.
The chip is uniform and stable, each micro unit can be independently observed, the chip can be read repeatedly, and the image can be traced.

Various specifications of chips are available:



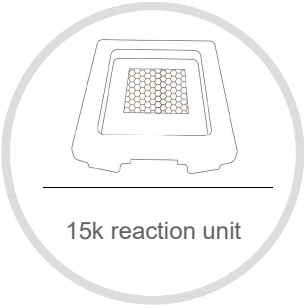
Performance preferred

Small difference CNV analysis
Low frequency mutation analysis



Mainstream specifications

Methylation analysis
Liquid biopsy
Multiple pathogen testing
Gene expression analysis



Cost preferred

Nucleic acid quantification
NGS library quantification
Product development,
Performance verification

Product features

AccuONE-300

01
Open system; Support customized mix development

02
Integration of thermal cycling and bio-chip reading

03
Closed chip, Anti-pollution

04
Up to 60 chips can be processed simultaneously amplification and reading

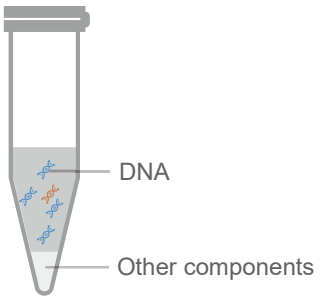
05
Professional analysis software with three-level authority management and audit tracking functions, meeting the requirements of 21CFR Part11 regulations

Application

More Accurate - accommodates more DNA templates

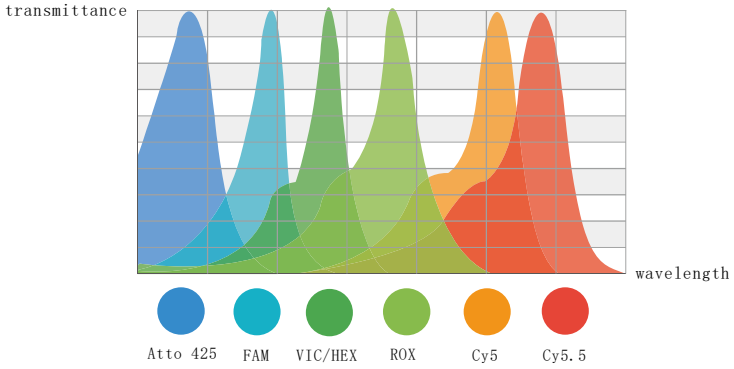
The highly concentrated 10× digital PCR master mix allows the maximum amount of DNA template to be added to be 17 μl, reducing the uncertainty caused by sampling errors and ensuring the reliability of the results.

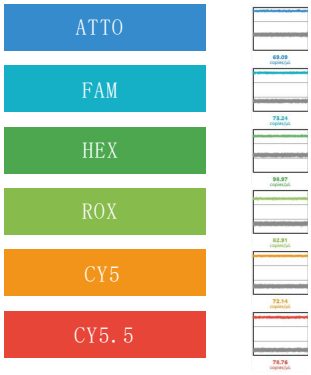
Composition	20μl system
10 × DigitalAmp PCR Buffer (Rox included)	17μl
DNA template	2μl
20 × F/R/P Mix (10 μM)	1μl



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, and is suitable for applications such as 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.

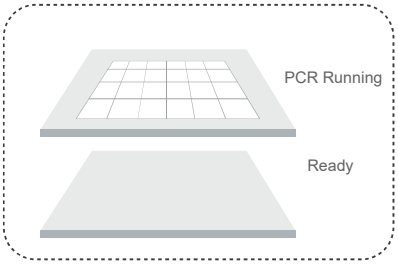




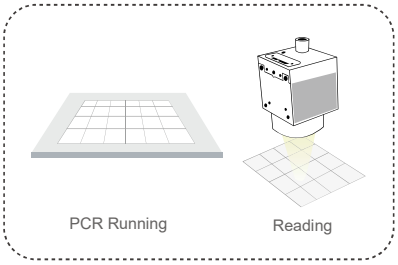
More flexible - Dual independent temperature control modules

AccuONE-300 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.

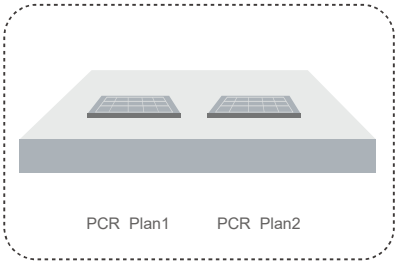
Dual temperature control modules can be used independently



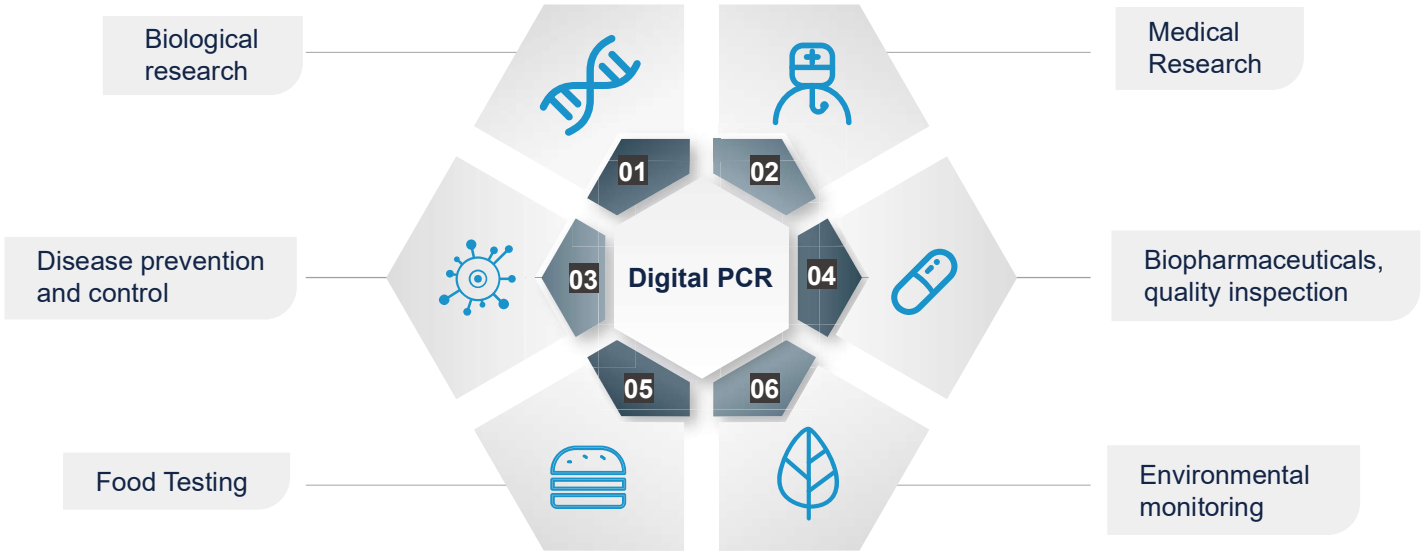
Amplified reading imultaneously



Two different PCR programs run simultaneously



Application



Specification

Model	AccuONE-300
Chip	Single/Multi-Throughput Chip
Linear range	Five orders of magnitude
Reaction volume	15~40μl
Sample effective utilization rate	>95%
Number of independent temperature control modules	2pc
Detection channel	2~6pc
Light source	Stand-alone high-energy LED
Detector	High resolution CMOS sensor
Adaptation reagent type	Probe / dye method

Ordering Information

Product	Description	Item No.
Sample preparation instrument	One throughput	IN0101
Sample preparation instrument	Four throughputs	IN0102
Biochip amplification & reader	/	IN0401