

RainDrop^{Plus}™ Digital PCR System

PRODUCT BRIEF

Overview

The RainDrop^{Plus}™ Digital PCR System provides absolute quantification and ultra-sensitive detection of nucleic acid beyond the limits of real-time PCR. This high level of performance is critical for research applications including rare mutation detection, absolute quantification of expression profiles or low-fold gene expression, SNP measurement, and viral quantification.

The System

The RainDrop^{Plus} Digital PCR System consists of two instruments – the Source for droplet generation, and the Sense for droplet detection.

The Source instrument distributes nucleic acid molecules into partitions such that each partition contains one or no copy of a template. End-point PCR is performed on each partitioned sample in a thermal cycler. After PCR, droplets from each sample are then detected on the Sense instrument. The PCR-positive and PCR-negative droplets are counted to provide absolute quantification of the target nucleic acid (Figure 1).

Applications

- Absolute quantification of standards
- Cancer mutation quantification
- Copy number variation analysis
- Pathogen detection and load determination
- Environmental monitoring
- GMO detection and contamination
- Gene expression analysis
- Next-generation sequencing library quantification

Advantages

- **Faster Turnaround Time:** Delivers rapid turnaround time and higher throughput
- **Automated Analysis:** AutoGates provide a statistical method to remove subjectivity and streamline time to results
- **Absolute Quantification:** Accurate and precise detection without a standard curve
- **High Sensitivity:** Up to 6 log dynamic range enables ultra-sensitive detection
- **True Multiplex dPCR:** Maximize the amount of data that can be detected from a single sample

Streamlined Workflow

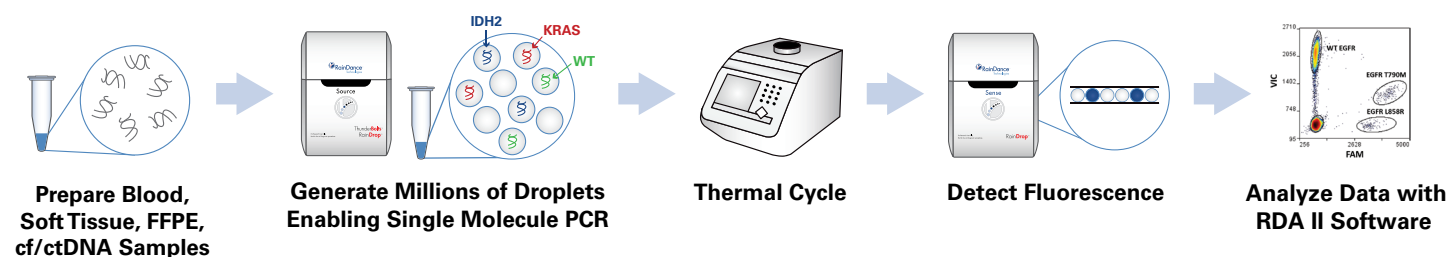


Figure 1: Simple workflow for the RainDrop^{Plus} Digital PCR System

Multiplexed dPCR with AutoGates for Liquid Biopsy Samples

The multiplexing capability of the RainDrop *Plus* System removes the need to waste or divide valuable sample. This enables the detection of multiple rare variants to maximize the amount of data obtained per sample.

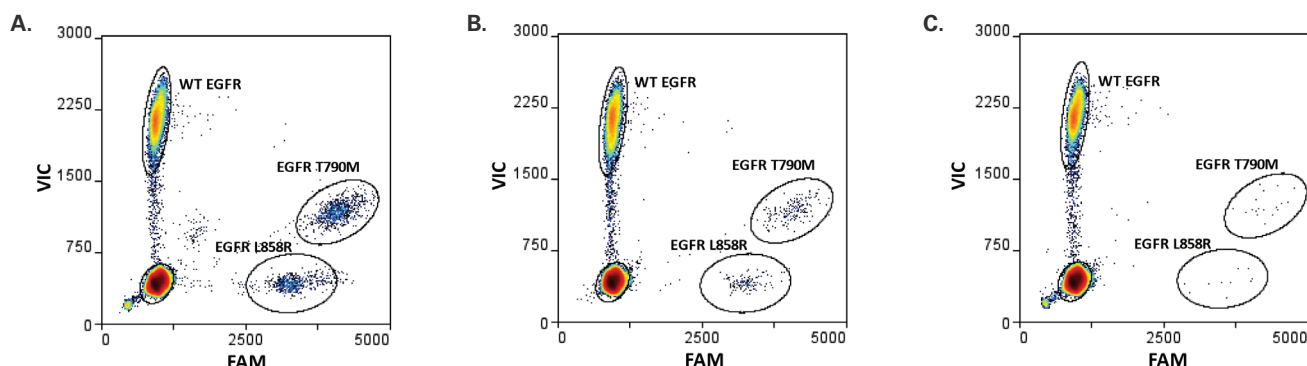


Figure 2: Two common mutations in lung cancer, EGFR p.L858R and p.T790M, detected simultaneously from 80 ng of cell-free DNA at 5% (A), 1% (B) and 0.1% (C).

System Specifications

System capacity	1 - 8 samples
Reaction volumes	25 μ L - 50 μ L
Number of partitions/reaction volume	5 million - 10 million
PCR detection method	Endpoint
Sample illumination	Laser
Detection channels	FAM (512 nm) and VIC (543 nm)
Linear dynamic range	6 orders of magnitude
Precision (at 95% confidence interval)	± 10 %
Source/Sense instrument dimensions (H x W x D)	15 x 11 x 17 in / 37 x 26 x 43 cm
Compatible chemistries	TaqMan [®] and EvaGreen chemistries

Order Information

Product	Description	Part Number
RainDrop [®] Digital PCR System	RainDrop Digital PCR System: <ul style="list-style-type: none">- Source/Sense instruments with dedicated control computers- RainDrop <i>Plus</i> System control software- RainDrop Analyst II software with AutoGates- On-site installation and training	20-04400
RainDrop [®] 96 Consumable Kit (96 Samples)	Source and Sense chips (12), PCR tube caps, carrier oil	20-04410
RainDrop [®] 96 Consumable Kit 5 Pack (96 Samples)	Source and Sense chips (60), PCR tube caps, carrier oil	20-04411

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