

Roche



Roche Digital LightCycler® System

Simplified workflow: Helping you unleash the true power of digital Polymerase Chain Reaction (PCR)

Digital 
LightCycler®

It's time for a leap forward in digital PCR technology.

The Digital LightCycler® System from Roche is a digital PCR system that combines sensitivity, precision, flexibility, and integration in one powerful clinical research tool. It was designed to help laboratories push forward the boundaries of clinical research and has the potential to advance global medical knowledge.

365 - The unique combination changing the future of digital PCR

The Digital LightCycler® System features a unique combination of features that together make it powerful clinical research tool¹⁻⁴.

3 Different nanowell plate configurations.

- 20,000 partition (45 µL)
High sensitivity plate
- 28,000 partition (30 µL)
Universal plate
- 100,000 partition (15 µL)
High resolution plate

6 Advanced optical channels (+1 control), which enables a high degree of multiplexing for DNA or RNA targets.

5 Times concentrated DNA and RNA master mixes where four parts of sample to one of master mix means up to two thirds of the total reaction volume can come from the extracted sample.

These three key features allow the Digital LightCycler® System to elevate clinical research through advances in four key areas



Sensitivity

The 20,000 partition plate is capable of detecting indels down to <0.2% allele fraction while the 28,000 partition plate can detect rare mutations down to <0.1% allele fraction.⁵



Precision

The 100,000 partition plate offers laboratories the ability to discriminate small differences between samples, excellent cluster tightness and clarity of results, and absolute quantification. Quick, clear, reproducible results may provide greater confidence with shorter turnaround times for publishable scientific research and the potential for the development of clinically viable assays.



Flexibility

The features on the Digital LightCycler® System make it a powerful research tool in digital PCR: Address multiple challenges at once with its three nanowell plates, choose batch size increments of between eight and 96 samples per run, increase resolution by combining lanes for results of a single sample, enable high multiplexing with a six optical channel analyser, and simplify your workflow with sample tracking and automated data analysis.



Integration

The Digital LightCycler® System brings reliable confidence in results by combining its three nanowell plate configurations, six advanced optical channels, and 5x concentrated master mixes with other powerful features—a closed system to minimise the chance of amplicon contamination, Laboratory Information System (LIS) connectivity, and absolute quantification without the need for standard curves.

1. <https://www.bio-rad.com/en-us/life-science/digital-pcr/qx-one-droplet-digital-pcr-ddpcr-system> (last accessed on 06/17/2022)
2. <https://www.qiagen.com/us/products/instruments-and-automation/pcr-instruments/qiacuity-digital-pcr-system/> (last accessed on 06/17/2022)
3. <https://www.stillatechnologies.com/6-color-dpcr/> (last accessed on 06/17/2022)
4. <https://www.thermofishers.com/order/catalog/product/4489084> (last accessed on 06/17/2022)
5. Roche Data on File. DH_02365.01_031B_Digital_LightCycler_Reagent_Feasibility_Report_v3. Document Number:000000000001200000501942.

Sophisticated instrumentation, simplified workflow

Whether developing assays or running clinical tests, the Digital LightCycler® System offers a simplified workflow.

Development workflow

Diagnostics workflow



Create/ receive orders

Create orders manually, import order-lists, or receive orders from the LIS. The system automatically sets up layout and creates samples.



Select plate type

Scan 2D barcode of selected nanowell-plate type. Sample set-up report will be generated and printed.



Sample preparation

Prepare reaction mixtures using 5x Roche RNA and DNA master reagents, combined with assay-specific primers and probes, and mixed with samples and controls.



Pipetting and partitioning

Pipette reaction mixtures into nanowell plate lanes then transfer the plates to partitioning engine, where reaction mixtures are distributed into nanowells. Monitor via touchscreen. Five minutes per plate.



Load analyser

Load plates onto analyser via plate drawer. Select run profile and detection channels.



Load analyser

Load plates onto analyser via plate drawer. Check and visually validate sample set-up.



Run

Run analyser.



Raw data export

Raw data is automatically or manually exported to chosen location or USB attached to analyser.



Approve results

Access and approve results, via one or two step approval, send directly to LIS, or create reports/ export raw data for diagnostics runs.



Development software

Import raw data into project files, input sample set-up, undertake clustering/thresholding and select analysis (with settings for absolute quantification/ Copy Number Variation (CNV)/ insertion-deletion assays).



Analysis package

Create analysis package (containing one or more target-specific tests), save, and import into analyser database for use in Laboratory Developed Test (LDT) workflows.

Choose the Digital LightCycler®
System and unleash the true
power of digital PCR.



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