

QIAcuity[®] Digital PCR System

Fast. Scalable. Reliable.



The Magic is Inside

It's in the seamless integration of all digital PCR (dPCR) workflow components into an all-in-one walkaway instrument, delivering the speed and throughput every laboratory needs.

It's in the microfluidic nanoplate technology that puts every run ahead of the curve with its precision and sensitivity.



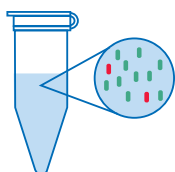
Got a needle in a haystack problem?

Digital PCR holds the answer.

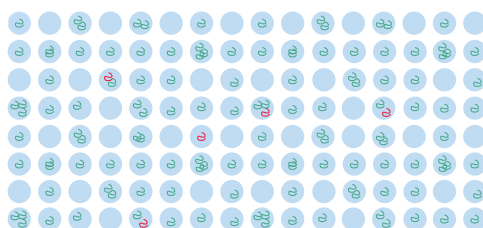
You know the struggles of performing sensitive research applications to identify faint genetic event against a strong background, especially when the positives are lost in a dense pool of negatives. Finding that rare allele or mutant sequence is a typical needle in a haystack problem. This is where digital measurement comes in handy.

Digital PCR (dPCR) is a nucleic acid quantification technique that works by dividing a bulk qPCR-like

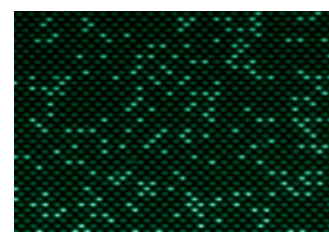
reaction mixture into numerous individual reactions called partitions and then measuring the endpoint fluorescence of each partition to determine the presence (1) or absence (0) of the target. This makes digital PCR less reliant on the kinetics of the PCR reaction and eliminates the need for standard curves as in qPCR. Statistical methods (Poisson law) are then used to calculate the absolute concentration of the target based on the number of positive and negative partitions.



Red - Target and Green - Background
(gDNA, cDNA; primers/probes;
master mix)



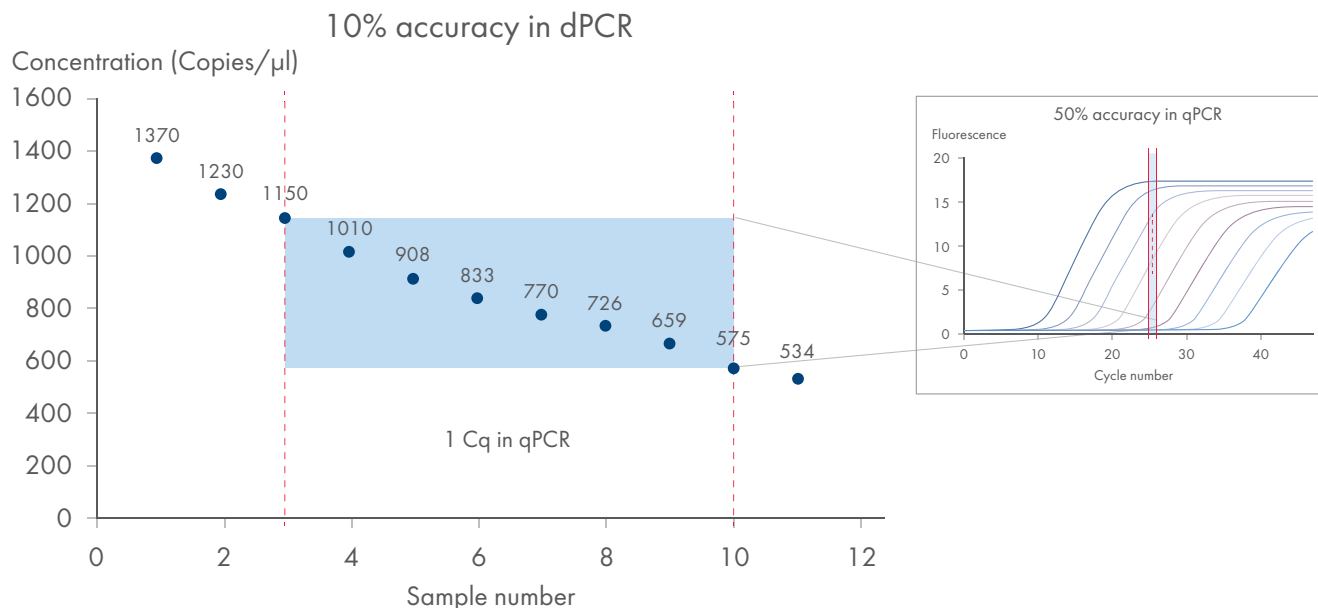
Random distribution of molecules into partitions



Absolute quantification: Copies/ μ l

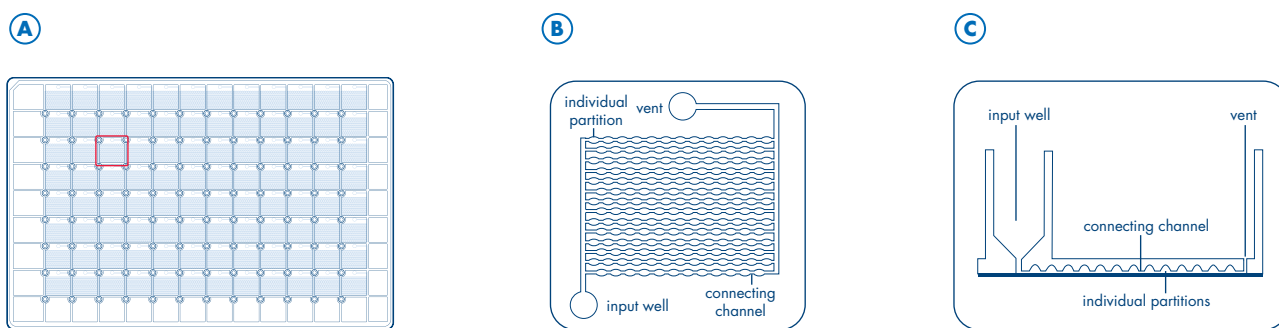
Absolute quantification provides reproducible data that can be more easily compared between laboratories. Further, due to the linear response

of the technology, dPCR offers a more precise measurement than qPCR and makes it surprisingly easy to detect the positives.



No droplets. No chips. No crystals. Digital PCR in nanoplates.

The QIAcuity Digital PCR System uses a microfluidic nanoplate technology to overcome challenges with inconsistent droplet generation, complex workflow, slow droplet readout, and limitations concerning the uncertainty of assays.



A Nanoplate with 96 well **B** Single well detail **C** Cross section view of the partitions

6 reasons why

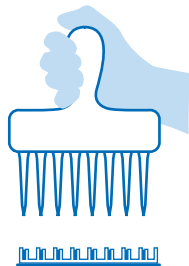
- Fixed partitions prevent variation in size and coalescence, maximizing consistency
- Sealed nanoplates eliminate the risk of contamination
- Simultaneous reading of all partitions/well allows quicker time-to-result
- qPCR-like plates provide a more familiar workflow, improving ease of use
- Plates and software are amenable to automation (e.g. on QIAgility and custom robotic lab automation systems), minimizing hands-on steps
- Simultaneous analysis of up to 12 targets in one reaction (12plex) saves precious samples

A simple and rapid workflow

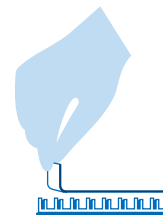
The nanoplate-based QIAcuity Digital PCR System provides a qPCR-like workflow that is fully integrat-

ed into a single instrument. It enables walkaway automation and delivers results in about two hours.

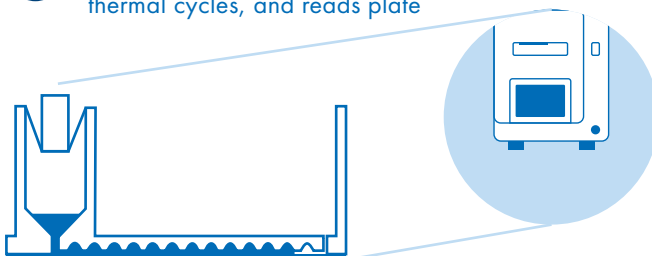
1 Pipette reaction mixtures to dPCR plate



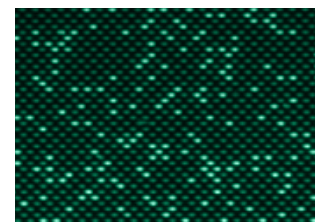
2 Apply rubber plate seal to dPCR plate and place in instrument



3 Instrument automatically partitions, thermal cycles, and reads plate



4 Analyze results



Explore digital PCR video tutorials: www.qiagen.com/qiacuity-demo



QIAcuity Digital PCR System

Features and benefits

With a fully integrated design, walk-away automation, ease of use, advanced multiplexing, scalable instrument and flexible plate configuration for high throughput and highly sensitive detection, the QIAcuity system can displace qPCR, ddPCR and existing dPCR systems as the method of choice for quantification of nucleic acid targets.

- **Scalable design**

The QIAcuity system comes in scalable instrument configurations with a single thermal cycler and capacity to run up to 4 plates or a dual thermal cycler and capacity to run up to 8 plates.

- **The highest throughput digital PCR system ever**

An 8-plate capacity allows up to 1248 samples to be analyzed in a single workday using a 96-well nanoplate.

- **Ultra-high multiplexing**

Up to 8 channels (6 standard channels + 2 hybrid channels for use with Long Stokes-Shift dyes) can be configured for multiplex quantification of up to 12 target DNA or RNA molecules in a given assay, saving time and reagents.

- **Fully automated digital PCR**

The QIAcuity system integrates reaction partitioning, thermal cycling and imaging into a single fully automated instrument that takes users from sample to result of up to 96 samples in 2 hours and up to 768 samples in 5 hours.

- **Simplified transition from qPCR**

The QIAcuity system is compatible with qPCR detection chemistries such as hydrolysis probes and EvaGreen dye, simplifying the transition from qPCR assays.



QIAcuity instruments

	QIAcuity One	QIAcuity Four	QIAcuity Eight
Plates processed	1	4	8
Detection channels	2 or 8 ¹⁾ (6+2 hybrid ²⁾)	8 ¹⁾ (6+2 hybrid ²⁾)	8 ¹⁾ (6+2 hybrid ²⁾)
Multiplexing capability	4 or 12 ³⁾	12 ³⁾	12 ³⁾
Thermocycler(s)	1	1	2
Time to result	Approx. 2 h	First plate approx. 2 h Every ~80 min a following plate	First plate approx. 2 h Every ~40 min a following plate
Throughput (samples processed in 8-hour shift, including overnight run)	Up to 480 (96-well) Up to 120 (24-well)	Up to 768 (96-well) Up to 192 (24-well)	Up to 1536 (96-well) Up to 384 (24-well)
Purpose	For non-clinical applications only	For non-clinical applications only	For non-clinical applications only

1) Requires use of QIAcuity High Multiplex Probe PCR Kit in case of multiplexing >5plex

2) Hybrid channels are used for Long Stokes Shift (LSS) dyes

3) Detection of 12 targets in parallel can be achieved by using amplitude multiplexing in the six standard channels. When combining hybrid channels for single plex LSS dyes and amplitude multiplexing, the total possible multiplex can be increased to 14. However, this combination is not recommended due to the optimization demand for all assays used in a reaction mix and their corresponding crosstalk compensation.

Example of detection channels and fluorophores				
Detection channels		Excitation (nm)	Emission (nm)	Recommended dyes
Green		463 – 503	519 – 549	FAM™, EvaGreen®
Yellow		513–534	551–565	HEX™, VIC®
Orange		541–563	582–608	TAMRA™, Atto 550
Red		568–594	613–655	ROX™, Texas Red®
Crimson		588–638	656–694	Cy5®, Quasar 680
Far Red		651–690	709–759	Cy5.5, Atto 680, Atto 700
Green	Yellow	463–503	551–565	DY-482XL (LSS G/Y)*
Orange	Red	541–563	613–655	DY-540XL (LSS O/R)*

* For Long Stokes Shift (LSS) dyes, the software provides generic dye names called “LSS” followed by the abbreviation of the used channel combination denoted by the first channel letters. For example, channel combination Green/Yellow is abbreviated as “LSS G/Y”.

You see the most with the QIAcuity Nanoplate 26K

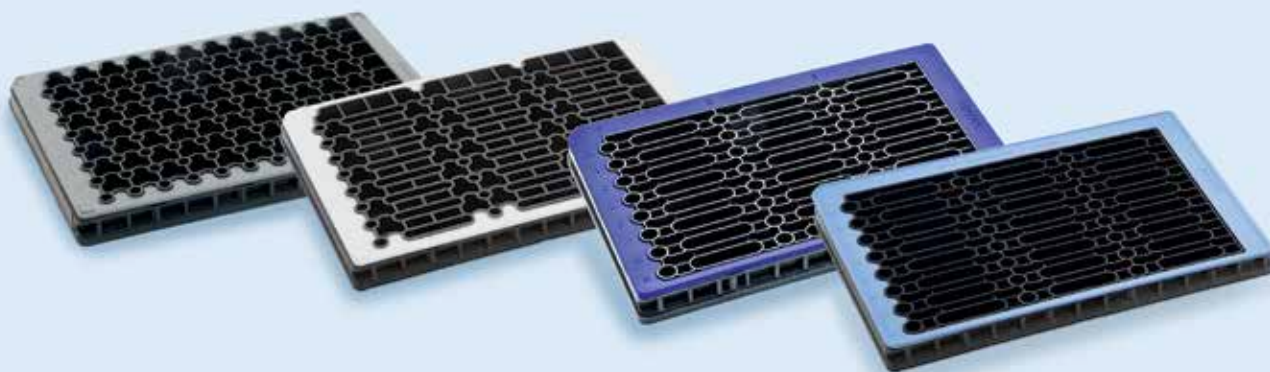
Finding a rare event (<10–20 copies per reaction) means confirming the presence or absence of a signal and not just precise quantification. Loading volume is critical when applied to samples with rare targets.

Imagine analyzing a DNA eluate containing a very rare event of

0.1 cp/μl, i.e., 3 cp in a 30 μl eluate. How many copies can you detect by digital PCR?

The QIAcuity Nanoplate 26K allows more loading, allowing you to see the most compared to that offered by any other dPCR method, including comparable plate methods.

QIAcuity Nanoplates



Features and benefits

The QIAcuity system offers distinct nanoplate configurations with flexible sample formats that accommodate a wide range of throughput and sensitivity requirements.

Plate type	Samples/plate	Partitions/well	Input volume	Key non-clinical applications
Nanoplate 26K 8-well	8	approx. 26,000	40 µl	Rare mutation detection, liquid biopsy, pathogen detection
Nanoplate 26K 24-well	24	approx. 26,000	40 µl	Rare mutation detection, liquid biopsy, pathogen detection
Nanoplate 8.5K 24-well	24	approx. 8500	12 µl	CNV detection, NGS library quantification
Nanoplate 8.5K 96-well	96	approx. 8500	12 µl	CNV detection, NGS library quantification

	QIAGEN Nanoplate 26K	MAP16 dPCR plate	ddPCR	
	40 µl	9 µl	20 µl	Reaction volume
	26 µl	6 µl	13 µl	Possible sample volume from the 30 µl eluate (assuming 4x master mix and 10x assay)
	20 µl	8.5 µl	16 µl (assuming 16K droplets)	Volume analyzed
3 cp in the eluate	2.6 cp	0.6 cp	1.3 cp	Copies transferred
	1.3 cp	0.57 cp	1.04 cp	Copies analyzed
10 cp in the eluate	8.7 cp	2 cp	4.3 cp	Copies transferred
	4.3 cp	1.9 cp	3.46 cp	Copies analyzed

QIAcuity Software

QIAcuity Control Software is an integral part of the QIAcuity system. It offers a GUI (graphical user interface) for basic functionalities such as plate setup, changing the order of plates to be processed, and monitoring run status in real-time.

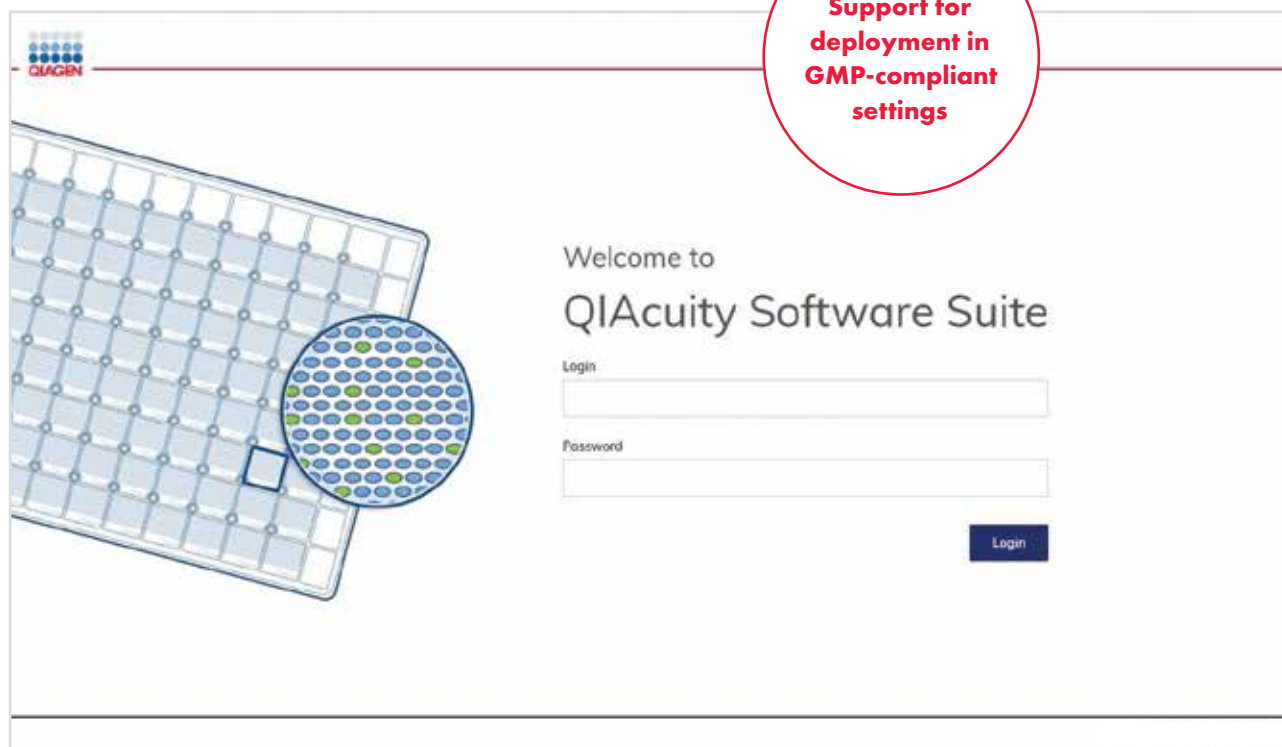
After a run, the data are stored in the instrument's memory and sent to the QIAcuity Software Suite for analysis.

The QIAcuity Software Suite, provided with the instrument and installed on a separate computer, controls one or multiple

QIAcuity instruments, either connected directly to one instrument or using an existing local area network (LAN).

When integrated into a local area network, the computer hosts the QIAcuity Software Suite as a server that is accessible via LAN to other computers serving as clients.

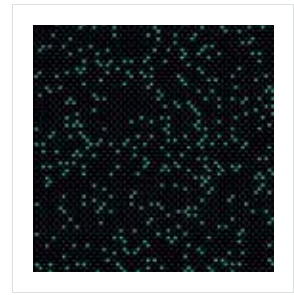
It allows multiple users to access the software from other rooms or offices and analyze data via a standard browser without installing the software on multiple computers or accessing and exchanging data via the internet.



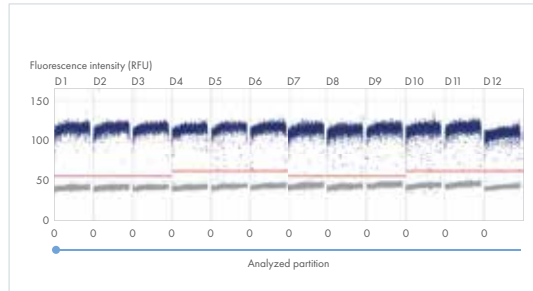
Example run and analysis views in the software



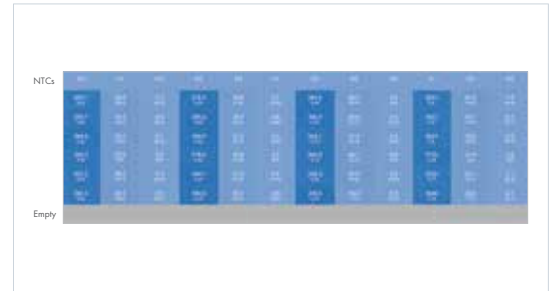
Plate image



Signal map



1D Scatterplot

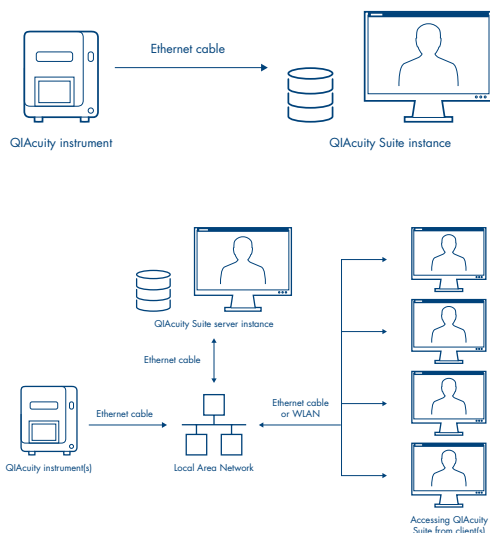


Heat map

Features and benefits

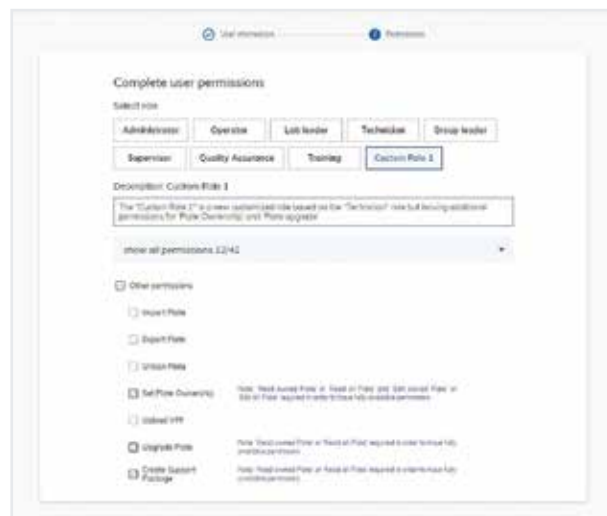
Easy to use – access, design and analyze from anywhere

- Direct connection via cable
- Network connection for multiple instruments and client access



Enables 21 CFR Part 11 compliance support in a GMP setting

- Audit trail and traceability
- Electronic signatures
- Advanced user management with customized roles and permissions



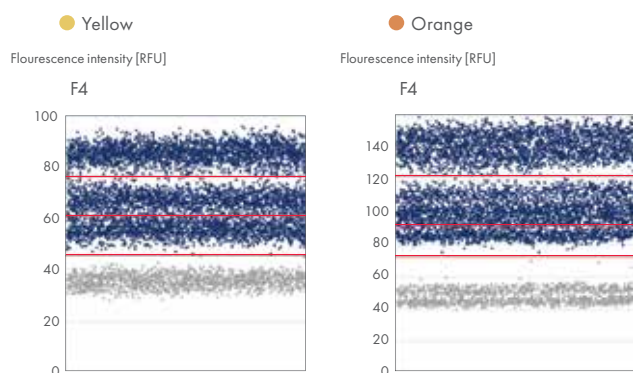
Increasing accuracy in multiplex dPCR with the custom cross talk matrix feature of the QIAcuity Software Suite

Multiplexing applications can be affected by the overlap of fluorescent dye signals into neighboring channels. Such cross talk can distort results and lead to inaccurate quantification. Starting with QIAcuity Software Suite 3.0, the default cross talk compensation is improved by the custom cross talk matrix (CXTM)

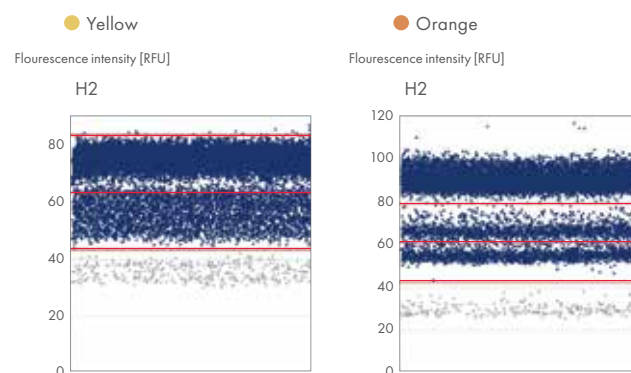
feature enabling assay-specific compensation for cross talk.

The usage of the CXTM is highly recommended for high multiplexing applications, since this feature allows maximum compensation of cross talk, high flexibility in dye selection and more confidence in quantifying data.

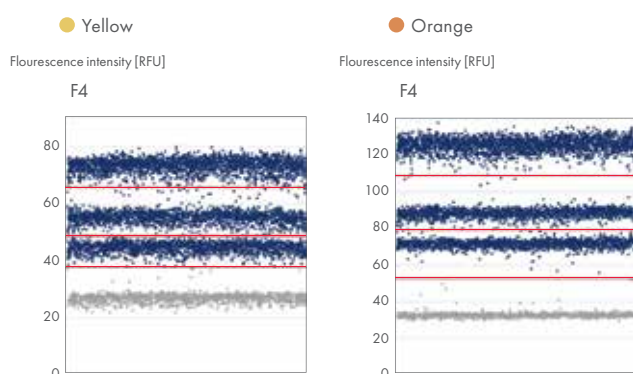
A
QIAcuity Nanoplate 8.5k
Suite 3.1 Default cross talk matrix



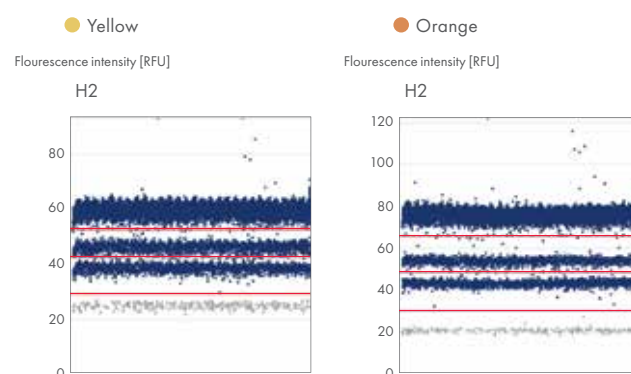
B
QIAcuity Nanoplate 26k
Suite 3.1 Default cross talk matrix



C
QIAcuity Nanoplate 8.5k
Suite 3.1 Custom cross talk matrix



D
QIAcuity Nanoplate 26k
Suite 3.1 Custom cross talk matrix

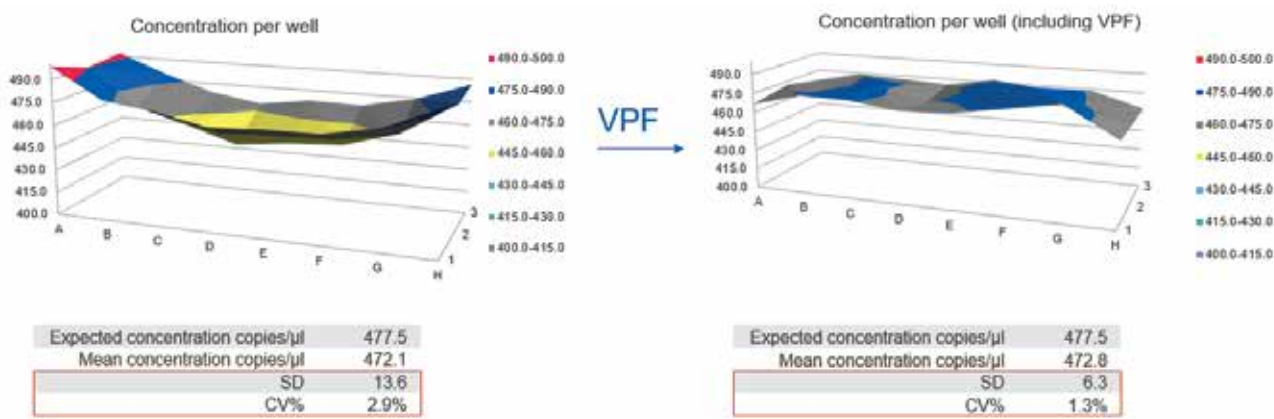


Custom cross talk matrices in QIAcuity Software Suite 3.1 greatly improve data quality in amplitude-based multiplexing reactions

Improving precision of concentration results by using a volume precision factor (VPF)

A precise determination of the cycled sample volume is needed to calculate target concentrations in dPCR. In general, nanoplates provide partitions of fixed sizes that enable an exact and reproducible sample concentration calculation. To compensate for even the slightest volume variations between different wells of a plate or between different plate batches, a volume precision factor (VPF) is available for each plate. The VPF is a set of factors

for each well included in the software. It consists of 96 individual factors that can address the well-to-well variability and reduce variations between different molding forms resulting in batch-to-batch variability. This increases the precision of concentration measurements in dPCR, particularly for sensitive applications such as rare mutation analysis.



Applying VPF to address well-to-well variability

Hyperwell option added to certain analysis for higher accuracy

Multiple wells can be grouped and analyzed as a single well to achieve higher accuracy. For the analysis, hyperwells are treated as a single well but with more partitions. This may be

helpful for rare event detection if the sample volume to be analyzed exceeds the volume that can be loaded into a single well.



For more information about QIAcuity Digital PCR System, visit: www.qiagen.com/qiacuity



QIAcuity reagents

The QIAcuity system is optimized for hydrolysis probes and EvaGreen dye, allowing you to expand applications using flexible dPCR chemistry.

A reagent for every need

- Optimized for best performance in nanoplate microfluidic for non-clinical applications
- Includes special reference dye needed for dPCR analysis and counting analyzable partitions
- Highly concentrated master mixes enabling larger sample volumes
- All mixes for single-plex and multiplex use
- QIAcuity OneStep Advanced Probe Kit with thermostable RT (HotStart) enabling multi-plate runs in high throughput
- QIAcuity UCP Probe PCR Kit with nucleic acid-depleted reagents minimizing contaminating DNA background
- QIAcuity High Multiplex Probe PCR Kit allowing multiplexing up to 12 targets in a single reaction



Dye-based

QIAcuity EG PCR Kit

QIAcuity OneStep Advanced EG Kit



Probe-based

QIAcuity Probe PCR Kit

QIAcuity UCP Probe PCR Kit

QIAcuity OneStep Advanced Probe Kit

QIAcuity High Multiplex Probe PCR Kit

QIAcuity assays

Thanks to the high sensitivity and superior precision and accuracy, a wide range of samples and applications for non-clinical purposes can benefit from digital PCR.



Wet-lab tested dPCR assays on GeneGlobe

- For DNA targets; for detection of copy number variation or mutations related to cancer and oncogenesis
- For quantification of microRNA targets
- For quantification of RNA/lncRNA targets and gene expression studies
- For detection of bacterial, fungal, parasitic, viral, antibiotic resistance or virulence factor genes



Rare mutation detection

dPCR LNA Mutation Assays
dPCR PanCancer Kits



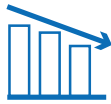
Pathogen detection

dPCR Microbial DNA Detection Assays
Custom dPCR Microbial Assay QIAcuity
mericon Food Testing Kits



Copy number variation

dPCR Copy Number Assays
dPCR CNV Probe Assays
dPCR CNV Probe Assay



Gene expression

QuantiNova LNA PCR Assays



miRNA detection

miRCURY LNA
miRNA PCR Assays



Cell and gene therapy

QIAcuity CGT dPCR Assays
CGT Viral Vector Lysis Kit
QIAcuity Residual DNA Quantification Kits
QIAcuity Mycoplasma Quant Kit
QIAcuity RCL Quant Kit

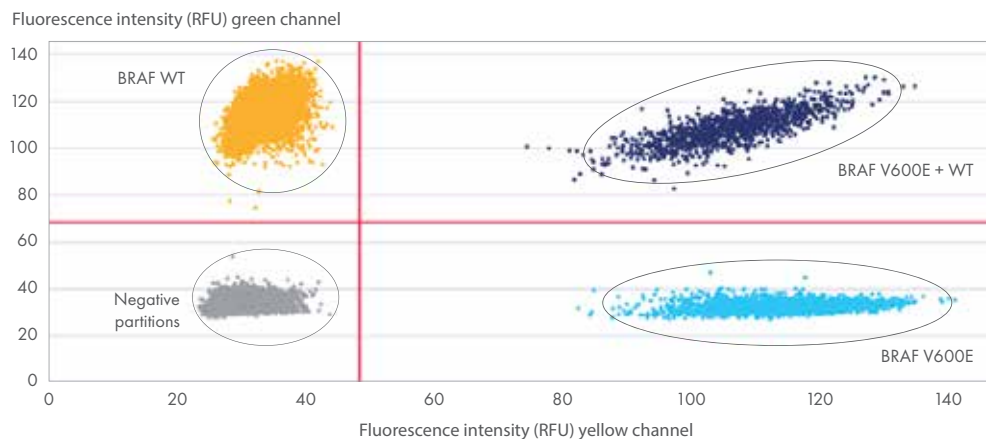


Find and configure your dPCR assay with ease at
<https://geneglobe.qiagen.com/applications/digital-pcr>



dPCR LNA Mutation Assays

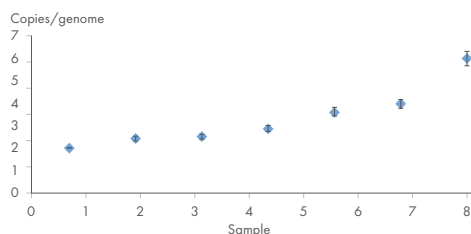
- Locked nucleic acid (LNA) technology increases assay specificity and sensitivity
- Duplex assay design detects mutated and wild-type sequences
- Two dye combinations allow detection of two targets in the same reaction



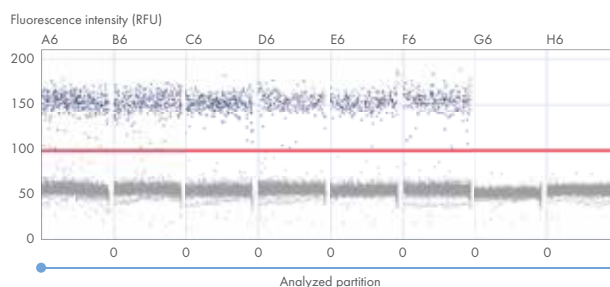
Detection of BRAF V600E mutation. dPCR LNA mutation detection/BRAF V600E assay showing four populations (single positives, single negatives, dual positives and dual negatives) in a 2D scatter plot and the ability to identify the threshold between the four populations.

dPCR Copy Number Assays

- Predesigned assays for all genes in the human genome deliver reliable results
- Three design locations per gene – 5', middle, 3' – to amplify your region of interest
- Simple and straightforward EvaGreen-based dPCR format enhances usability



MYC copy number determination in MCF-7 cell line. Copy number plot of MYC normalized with TERT as reference. The samples S1–S7 are WT/MCF-7 mixtures containing increasing amounts of MCF-7 DNA: S1=0%, S2=11%, S3=20%, S4=33%, S5=43%, S6=50% and S7=100%. MYC copy number determined using the QIAcuity System matched the expected numbers: S1=2, S2=2.4, S3=2.8, S4=3.3, S5=3.7, S6=4 and S7=6. The WT, MCF-7 and mixture samples were analyzed with 4 ng/reaction.

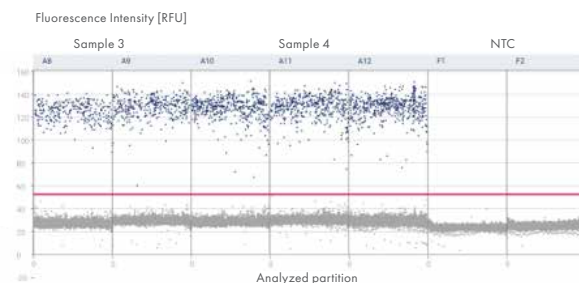
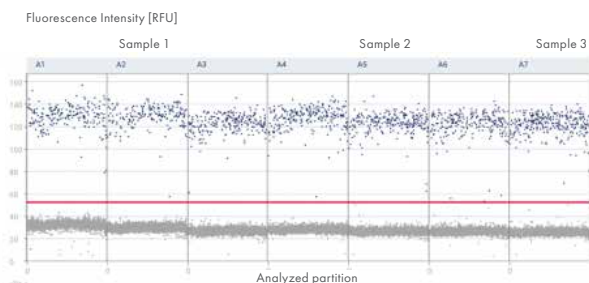
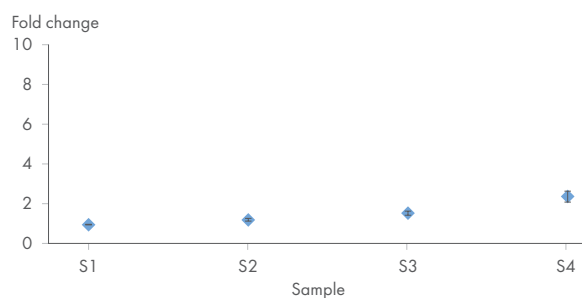


dPCR Copy Number Assay validation. 1D scatter plot showing single-well assay validation data of dPCR Copy Number Assay MYC with different human gDNA input amounts (**A6–C6**: 6 ng/reaction, **D6–F6**: 4 ng/reaction, **G6**: NTCs; Green channel for EvaGreen detection).

QuantiNova LNA PCR Assays

- Over 1.3 million assays detect any human, mouse or rat mRNA or lncRNA
- Short LNA-enhanced primers provide exceptional sensitivity and specificity
- EvaGreen-based dPCR allow accurate and convenient transcript analysis

IL4 gene expression analysis – detecting small expression changes with the highest precision. Synthetic IL4 RNA was spiked into non-IL4 expressing Universal Human Reference RNA (Thermo Fisher Scientific). IL4 fold-expression changes in samples S2, S3 and S4 were calculated using S1 as reference sample and HPRT as reference target. The mean fold change (from 3 technical replicates/sample) in IL4 expression: S1=0 (reference), S2=1.3, S3=1.5 and S4=2.3.

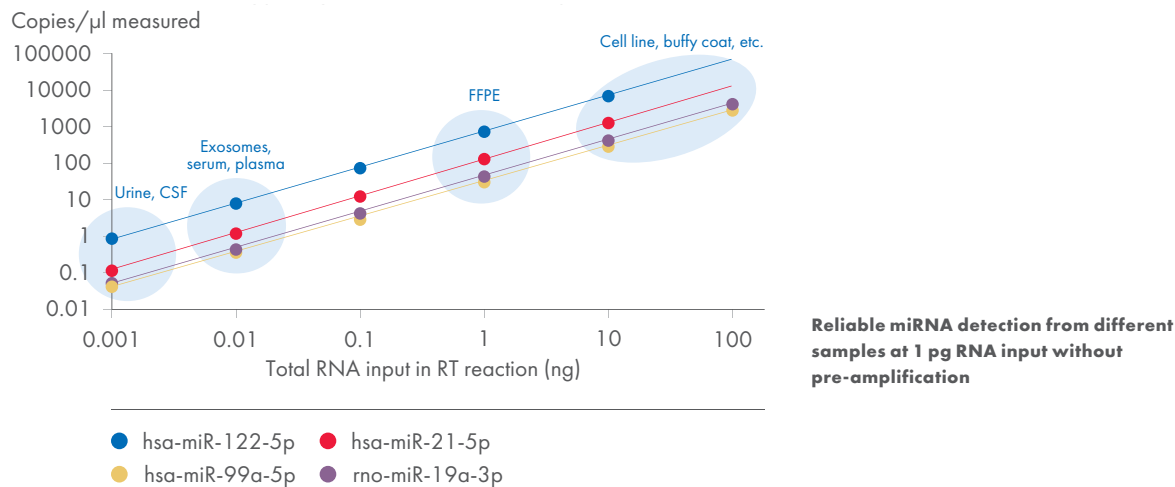


1D scatterplot showing the resolution of the IL4 QuantiNova LNA PCR Assay

miRCURY LNA miRNA PCR Assays

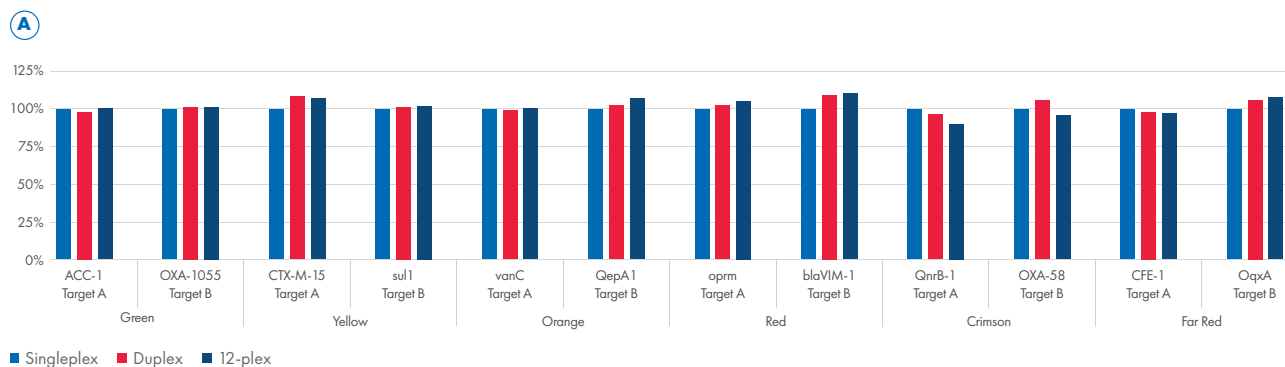
- One RT reaction for all miRNA and two LNA-enhanced miRNA-specific primers for highest specificity
- EvaGreen-based dPCR allow absolute quantification of miRNA expression changes
- Full miRBase coverage enables miRNA profiling from any organism

Typical yields from various samples



dPCR Microbial DNA Detection Assays

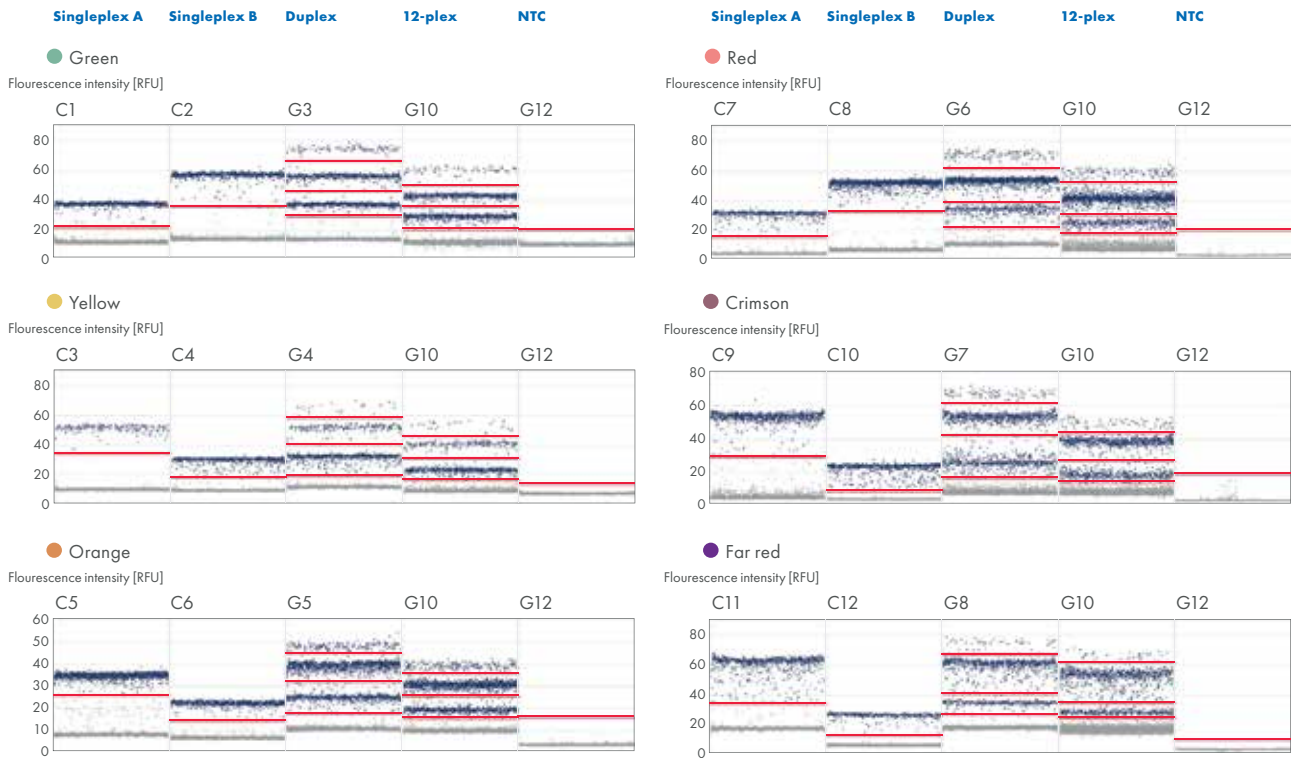
- Assays for more than 800 targets detecting microbial species, virulence genes, viruses or antibiotic resistance genes
- Amplitude multiplexing enables the analysis of up to 12 targets per reaction
- Combine microbial DNA and viral RNA targets in one reaction using the QIAcuity OneStep Advanced Probe Kit



Streamline wastewater workflows by detecting more targets simultaneously.

Twelve pathogen targets from the dPCR Microbial DNA Detection Assays Resistance Gene bundles (ACC-1, OXA-1055, CTX-M-15, sul1, vanC, QepA1, oprM, blaVIM-1, QnrB-1, OXA-58, CFE-1, OqxA) were successfully multiplexed in a single dPCR reaction.

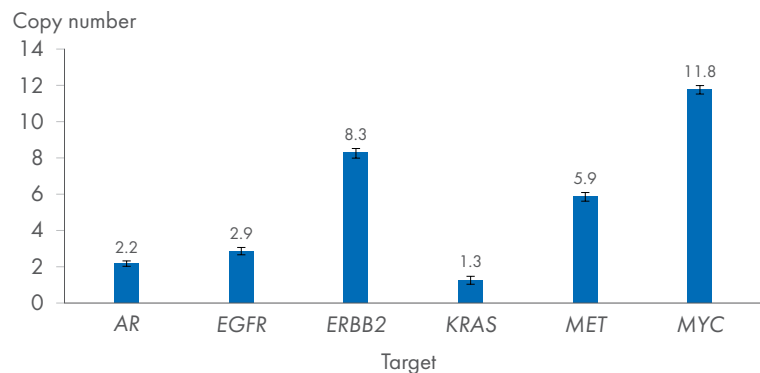
B



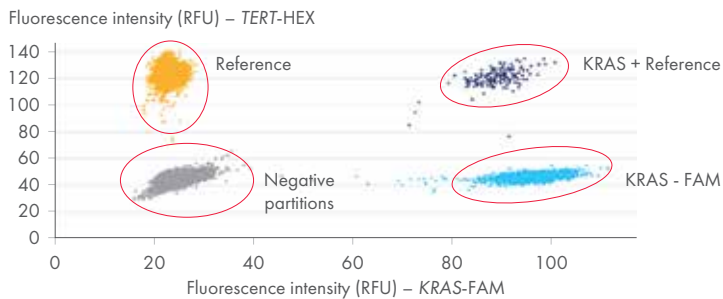
QIAcuity 1D scatterplots for the singleplex, duplex, and 12-plex reactions demonstrate the equivalent performance of the assays between singleplex reactions and amplitude-based multiplex reactions. The 1D scatterplots also highlight the new option in QIAcuity Software Suite 3.1 to set multiple thresholds. The results demonstrate consistent quantification between singleplex and multiplex reactions, showcasing the ability of the QIAcuity High Multiplex Probe PCR Kit to accurately detect multiple targets simultaneously.

dPCR CNV Probe Assays

- Highly sensitive discrimination between small copy number changes, such as one copy difference between samples with minimal template input
- Multiplexing of up to 12 CNV targets in a single reaction without replicates saves precious samples and increases sample throughput cost-effectively



dPCR detects CNVs in different target genes without the need for replicates. CNV analysis was performed in an SK-BR3 cell line using a Nanoplate 8.5k 96-well and dPCR CNV Probe Assay on the QIAcuity dPCR system.



2D scatterplots of duplex reactions for KRAS (target) and TERT (reference). The KRAS target was labeled with a FAM probe and the reference TERT with a HEX fluorophore for multiplexing. CNV analysis was done in an SK-BR3 cell line using a Nanoplate 8.5k 96-well and dPCR CNV Probe Assay on the QIAcuity dPCR system.

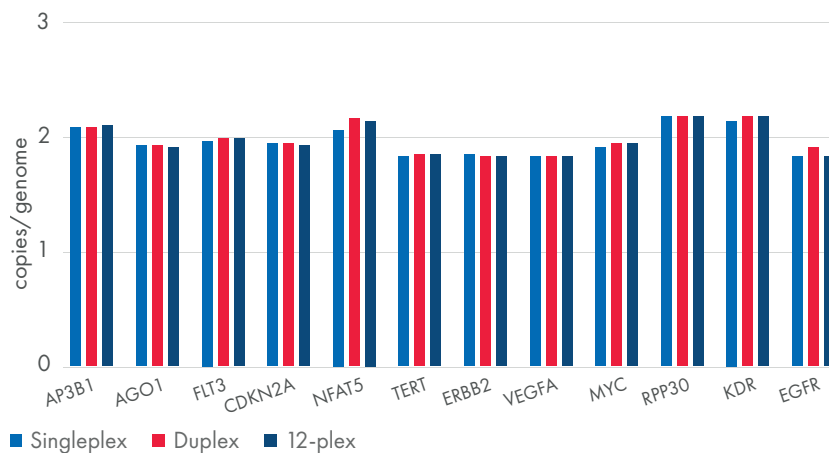


Download the **QIAcuity Application Guide** for detailed information about setting up experiments and analyzing results for applications, including copy number variation analysis, rare mutation detection and gene expression.



Detect more CNV targets with greater confidence in a single reaction.

A



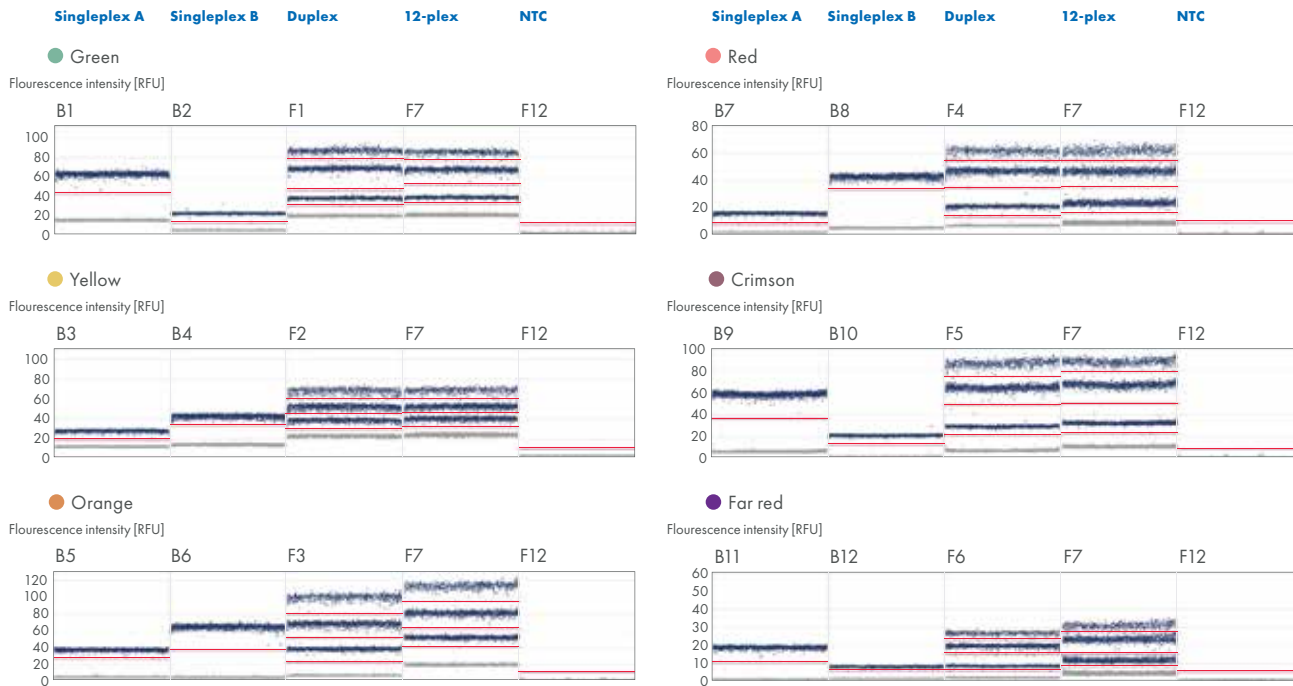
Copy number variation (CNV) analysis benefits significantly from the 12-plex capabilities of the QIAcuity High Multiplex Probe PCR Kit combined with the QIAcuity Software Suite 3.1. To demonstrate this, 12-plex reactions were assembled to compare the copy number of ten GOIs (FLT3, CDKN2A, NFAT5, TERT, ERBB2, VEGFA, MYC, RPP30, KDR, and EGFR) between a healthy human donor and the U-2 OS sarcoma cell line. The average copy number of the reference genes AGO1 and AP3B1 was used for normalization. All ten gene targets were also quantified in singleplex and duplex for comparison. In both singleplex, duplex and 12-plex reactions, the copy number of the ten GOIs and the two reference genes in the healthy donor was around 2, as expected (red dashed line).

B



In contrast, the results from both the singleplex, duplex and 12-plex reactions revealed genome instability in the sarcoma cell line, with the GOI copy numbers varying from 1.25 to 2.7.

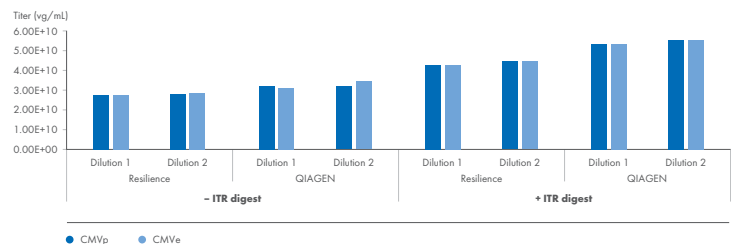
C



QIAcuity 1D scatterplots for the singleplex, duplex, and 12-plex reactions with healthy donor genomic DNA demonstrate the equivalent performance of the assays between singleplex reactions and amplitude-based multiplex reactions. The 1D scatterplots also highlight the new option in QIAcuity Software Suite 3.1 to set multiple thresholds.

CGT Viral Vector Lysis Kit and QIAcuity Cell and Gene Therapy (CGT) dPCR Assays

- Offer a standardized workflow for the lysis of AAV2, AAV5, AAV6, AAV8 and AAV9 and adenoviruses, enabling robust, accurate and precise viral titer determination
- Lysate is optimized for QIAcuity CGT dPCR Assays in combination with the QIAcuity Probe PCR Kit
- Assays enable singleplexed and multiplexed cell and gene therapy applications, including viral titer and vector copy number measurements



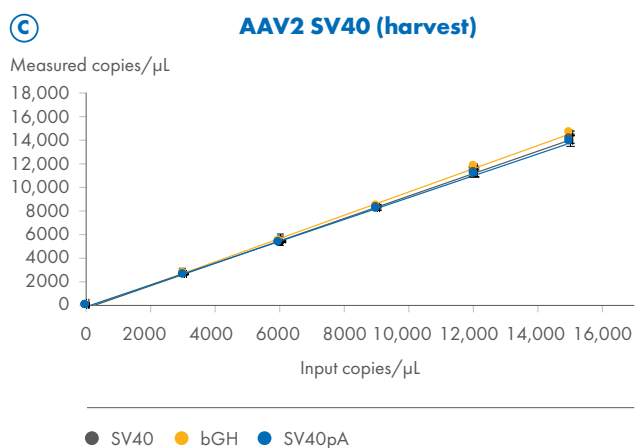
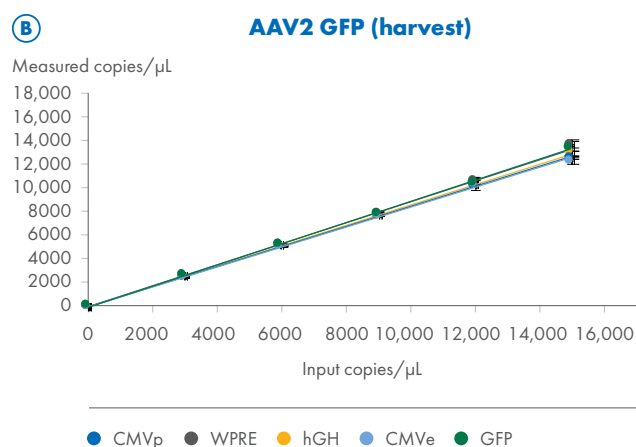
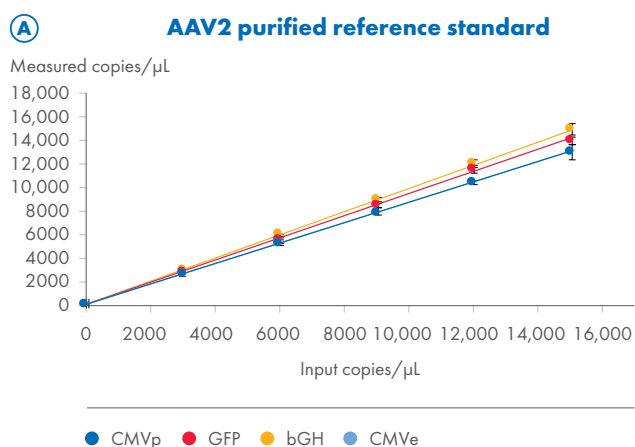
Increase of quantification with QIAGEN lysis over Resilience lysis

	ITR	CMVp	CMVe
- ITR digest	20%	16%	17%
+ ITR digest	18%	25%	25%

Increase of quantification when performing an ITR digest

	ITR	CMVp	CMVe
Resilience	71%	57%	55%
QIAGEN lysis	69%	69%	65%

Effect of ITR digest on differently processed AAV samples compared to heat lysis (Resilience protocol vs CGT Viral Vector Lysis Kit protocol). Purified AAV2 samples were processed using the CGT Viral Vector Lysis Kit (QIAGEN) or following the Resilience protocol (Resilience). QIAGEN lysis increases quantification by at least 16%. Digestion of secondary structure within ITR regions increases quantification by at least 55% depending on the target and processing workflow followed.



D

AAV2	CMVe	CMVp	WPRE	hGH pA	GFP	ITR	SV40p	bGH	SV40 pA
Coefficient of variation (8.5k) [%]	2.4	2.7	2.7	3.6	3.4	4.7	4.8	3.4	3.2
Coefficient of variation (26k) [%]	2.9	2.4	2.1	1.7	3.7	5.2	2.2	1.4	1.7
R ²	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Deviation (8.5k vs 26k) [%]	1.07	2.49	5.35	4.35	2.6	1.73	0.59	0.07	0.17

High linearity from 2.5–15,000 copies/ μ L independent of the targets and purity of the AAV sample quantified with CGT dPCR Assays. Coefficients of variation (CV) and R² values for all assays on 8.5k and 26k Nanoplates are shown. Deviations between the quantification on 8.5k and 26k Nanoplates were based on the calculated titers of at least three dilution steps.

Genomic Services

To realize the full potential of dPCR, you need high-quality multiplex assays to answer your specific biological questions in the most accurate way. However, assay design takes time and slows you down. Partnering with our Genomic Services is a straightforward and reliable way to extend your in-house resources and ensure robust assay performance for non-clinical applications.

What can you expect?

Highly efficient assay design

process: Optimized design tools, highly skilled design experts, and decades of experience

Versatile assay design offering:

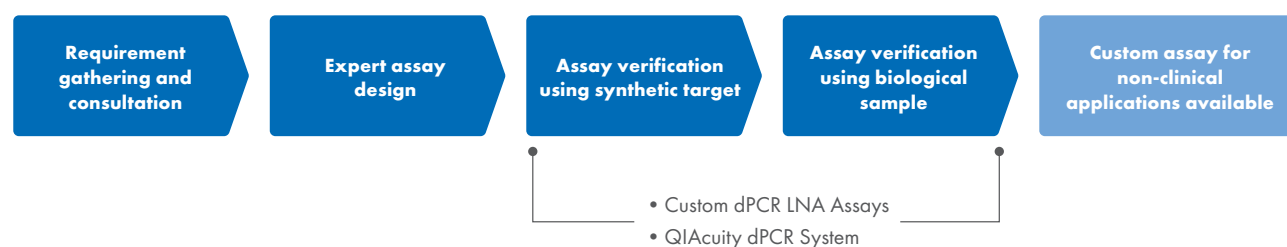
High-level multiplexing across any species and application, such as mutation detection, CNV, gene expression, and species detection

Enhanced specificity and

sensitivity: Assay design based on proprietary LNA technology

Highly flexible service offering:

Get a custom-designed assay or add an in-depth wet-lab verification service



Learn more about the service and consult an expert at
www.qiagen.com/custom-dPCR-assay-design



QIAcuity services

Our instrument service plans are offered at various levels, so you can choose the one that best fits your needs and budget. Let our highly-skilled certified service team keep your instrument maintained so you can focus on results

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- Receive priority support and service
- Reduce the risk of non-compliance
- Control costs
- Minimize disruption of laboratory performance

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Get a full overview of the QIAcuity service solutions at www.qiagen.com/qiacuity-services



Digital MIQE guidelines

As part of the PCR community, you're well aware of the reproducibility crisis in research and the daily challenges in a molecular biology laboratory using qPCR, dPCR, or any comparable techniques.

To support the community, a group of experts published the Minimum Information for Publication of Quantitative Real-Time PCR Experiments (MIQE) guidelines in 2009, targeting the reliability of results for credible publications, promoting reproducibility between laboratories, and increasing experimental transparency.

Fast forward to 2013, owing to a growing interest in dPCR because of its accessibility and affordability, the Minimum Information for Publication of Quantitative Digital PCR Experiments (dMIQE) guidelines were published to ensure global standardization. The guidelines were further updated in 2020.

- Why do we need such guidelines?
- What are these guidelines?
- How are these guidelines revolutionizing dPCR experiments?



Follow our three-part webinar series on dMIQE guidelines to find out:
www.qiagen.com/dMIQE-webinars



Voice of our customers



"We tested QIAGEN's QIAcuity dPCR for quantification of viral titer, vector copy number and residual host cell DNA – all critical to in-process quality control in gene therapy. It is easy to use, fast, scalable and complies with requirements for GMP. The system is a great addition to our analytical development and testing services, process development and R&D platforms which is available to our clients now."

Dana Cipriano, Senior Vice President, Testing and Analytical Services, Center for Breakthrough Medicines in King of Prussia, PA



"Digital PCR has been somewhat of a revolution in the field of copy number analysis because of the resolution. What I like about the QIAcuity system is the simple and fast workflow and that you use less plastic tips and plates in the process which is good for the environment."

Dr. Johanna Andersson-Assarsson, Department of Molecular and Clinical Medicine, University of Gothenburg



"With the new, high-throughput QIAcuity Eight, we were able to detect new variants of SARS-CoV-2 in wastewater samples successfully. This fast and scalable technology can provide a valuable addition to our environmental, biological testing services, which we will offer to our clients in the near future."

**Dr. Franz Durandet, President of I.A.G.E.
in Montpellier, France**



"When working with low microbial biomass concentrations, qPCR is a good tool for quantification, but dPCR is the best approach. The QIAcuity dPCR instrument allows us to consistently detect and quantify microorganisms in soil, rock and water."

**Prof. John R. Spear, Department of Civil and
Environmental Engineering, Colorado**



"Digital PCR has higher detection rates at low DNA concentrations and can handle high concentrations of PCR inhibitors present in marine coastal ecosystems. We found the QIAcuity especially straightforward and fast. It can quantify eDNA from invasive species with more accuracy and sensitivity, independent of the amplification efficiency."

**Per Sundberg, CEO, SeAnalytics AB,
Gothenburg, Sweden**



"Our lab loves using the QIAcuity digital PCR system for absolute quantification of targets from a wide range of samples. The workflow is straightforward, easy to learn, and generates incredibly consistent and sensitive results."

**Drew Capone and colleagues, University of North Carolina at
Chapel Hill, NC**



To learn more about QIAcuity instruments, assays and kits, visit:
[**www.qiagen.com/dpcr-products**](https://www.qiagen.com/dpcr-products)



For IVD applications, explore our QIAcuityDx Digital PCR System and visit:
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