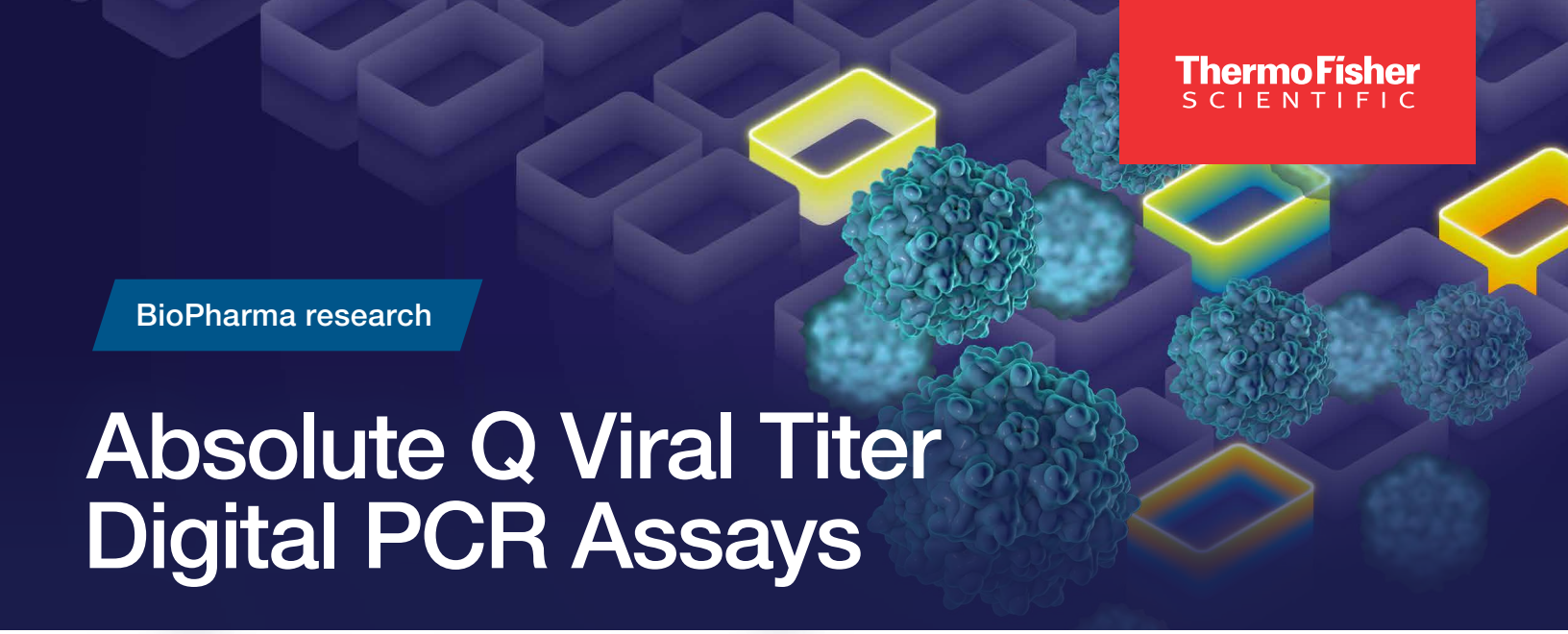


BioPharma research

Absolute Q Viral Titer Digital PCR Assays

Absolute quantification of viral vectors for cell and gene therapy development

As demand for cell and gene therapy continues to increase, so does demand for viral vectors and plasmid DNA development. Gene and cell therapies utilize a variety of viral vectors for gene transfer, including adeno-associated viruses (AAV), lentiviruses, retroviruses, herpes viruses, adenoviruses, and others. Among them, AAV, and its use in AAV-mediated gene therapy, is garnering the most interest due to the virus's safety profile—i.e., infection with the vector is not pathogenic and it cannot replicate on its own. The AAV viral vectors, as well as the messenger RNAs produced from plasmid DNA template, are the critical intermediates that produce and carry the chimeric antigen receptor (CAR) to T cells, enabling CAR-T therapies.

Accurately measuring viral titer for gene therapy development

Controlling the concentration of a potential therapeutic is difficult since viral particles are produced in living cells and then purified. The process of generating and purifying viral vectors is also susceptible to contamination by host cell DNA, mycoplasma, and other contaminants. The viral titer must be measured accurately, precisely, and consistently to ensure correct formulation. Harmful adventitious agents (virus, bacteria, and fungi) and contaminant DNA must be detected and screened out with the highest sensitivity to ensure product quality and safety.

While qPCR remains the gold-standard tool for the quantitation of therapeutic viral vectors, such as AAV used in cell and gene therapies, digital PCR (dPCR) offers significant advantages over qPCR methods for the quantification of the target DNA molecules present in a sample. dPCR can provide an absolute count of nucleic acids, enabling the precise quantification of AAV vectors, bacterial contaminants, and residual host cell DNA. No reference standard is required, improving precision and removing a source of variation. dPCR is also less sensitive to contaminants that affect amplification, including those present in solutions used during the development of AAV-mediated gene therapies.

Applied Biosystems™ Absolute Q™ Viral Titer Digital PCR Assays enable easy, accurate, absolute quantification of viral vectors. The assays can be run individually, or as part of a custom multiplex assay that analyzes your target gene of interest. This enables you to measure the concentration and evaluate the quality of the viral vector for biopharma manufacturing and gene therapy research.

Predesigned assays simplify your workflow

Predesigned Absolute Q Viral Titer Digital PCR Assays consist of a forward primer, a target-specific probe, and a reverse primer premixed together at specified concentrations. The assays require no further design, optimization, or verification. Just add your sample and reagent, then run your experiment.

- **Simple**—streamlined workflow for ease of use with your dPCR instrument
- **Fast**—Minimal hands-on time; results in 90 minutes when used with the QuantStudio Absolute Q Digital PCR System
- **Dependable**—analyze your data with confidence using verified assays backed by a performance guarantee*

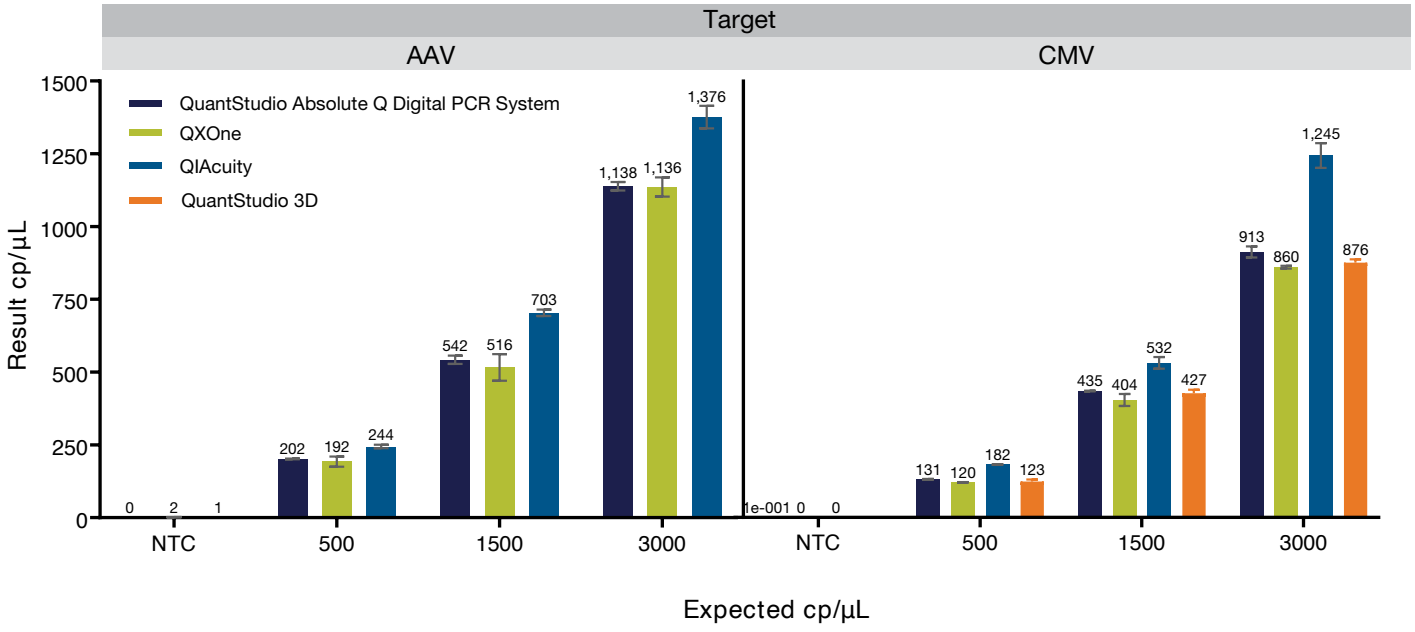
We stand behind every predesigned Absolute Q assay you buy from us

We guarantee* the performance of all of our predesigned Absolute Q assays for dPCR experiments. Our application-specific portfolio of assays enables you to obtain the highest quality and performance available. These assays are designed and verified using up-to-date annotations and gold-standard Applied Biosystems™ TaqMan® chemistry.

If an Absolute Q digital PCR assay does not perform according to conformance documentation, we will replace it at no cost or credit your account.*

Find out more at
thermofisher.com/absoluteqassayguarantee

Mean (result cp/µL) vs. expected cp/µL



Each error bar is constructed using 1 standard deviation from the mean

Quantification of AAV and CMV viral vector dilution series across multiple digital PCR platforms using the Applied Biosystems™ Absolute Q™ AAV and Absolute Q™ CMV dPCR assays.

Learn more about Absolute Q digital PCR assays at
thermofisher.com/absoluteqassays

Ordering information

Target	Dye	Cat. No.
Absolute Q Viral Titer Digital PCR Assays		
Adeno-associated virus (AAV) ITR-2	VIC/MGB-NFQ	A52740
Cytomegalovirus (CMV) promoter	VIC/QSY7	A52741
Custom dPCR assay		Please inquire

Powerfully simple digital PCR

Simplify your workflow even further by combining Absolute Q dPCR assays with the QuantStudio Absolute Q Digital PCR System—DNA sample to results can be done in <2 hours with minimal hands-on time. Moreover, there's no steep learning curve, as the workflow is identical to real-time PCR.

To complete your dPCR solution, use Applied Biosystems™ Absolute Q™ DNA Digital PCR Master Mix. Optimized for use with the QuantStudio Absolute Q Digital PCR System and Absolute Q assays, the 5X formulation enables analysis of a higher sample volume and delivers accurate quantification of DNA targets without using a standard curve.

Applied Biosystems™ QuantStudio™ Absolute Q™ solution

Product	Cat. No.
QuantStudio Absolute Q Digital PCR System	Please inquire
Absolute Q DNA Digital PCR Master Mix (5X)	A52490

* Terms and conditions apply. To see full details of the guarantee, go to **thermofisher.com/absoluteqassayguarantee**

Experience powerfully simple dPCR with Absolute Q Viral Titer Digital PCR Assays at **thermofisher.com/dpcr-viraltiter**

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