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qPCR

qPCR reagents



TaqPath DuraPlex 1-Step RT-qPCR Master Mix

Enable automation with benchtop-stable reagents

Product overview

The Applied Biosystems™ TaqPath™ DuraPlex™ 1-Step RT-qPCR Master Mix is an automation-ready, single-tube master mix optimized for detection of viral and bacterial pathogens even in the presence of PCR inhibitors. The 4X concentrated formulation is capable of multiplexing 6 targets in a single well with exceptional sensitivity and specificity.

This fast-cycling general purpose reagent (GPR) is ideal for clinical, biopharma, and research customers who need a rapid, sensitive, and reproducible master mix for testing and developing high-throughput 1-step RT-qPCR assays. We offer the TaqPath DuraPlex 1-Step RT-qPCR Master Mix in 4X concentration, with two formulations:

- TaqPath DuraPlex 1-Step RT-qPCR Master Mix
- TaqPath DuraPlex 1-Step RT-qPCR Master Mix (No ROX™)

The benefits of TaqPath DuraPlex 1-Step RT-qPCR Master Mix help you:

- Automate your workflow with benchtop stability of completely assembled reactions at room temperature for a full workday
- Optimize your assay for high-order multiplexing of up to 6 targets in a single reaction
- Improve handling, in-use stability, and freeze-thaw conditions
- Increase confidence in detecting both RNA and DNA targets in samples containing challenging PCR inhibitors
- Ensure reproducible results with consistent lot-to-lot performance

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Automates your workflow

TaqPath DuraPlex 1-Step RT-qPCR Master Mix provides a full work day (over 8 hours) of stability of completely assembled reactions (master mix, sample, and assay) to enable the use of liquid handling and other automation equipment. This fast-cycling master mix can be used effectively for both RNA and DNA detection of bacterial, viral, and fungal targets. Figure 1 below shows consistent sensitivity with a multiplex assay tested at 0 and 8 hours compared to other manufacturers.

Assembled reaction stability with TaqPath DuraPlex 1-Step RT-qPCR Master Mix

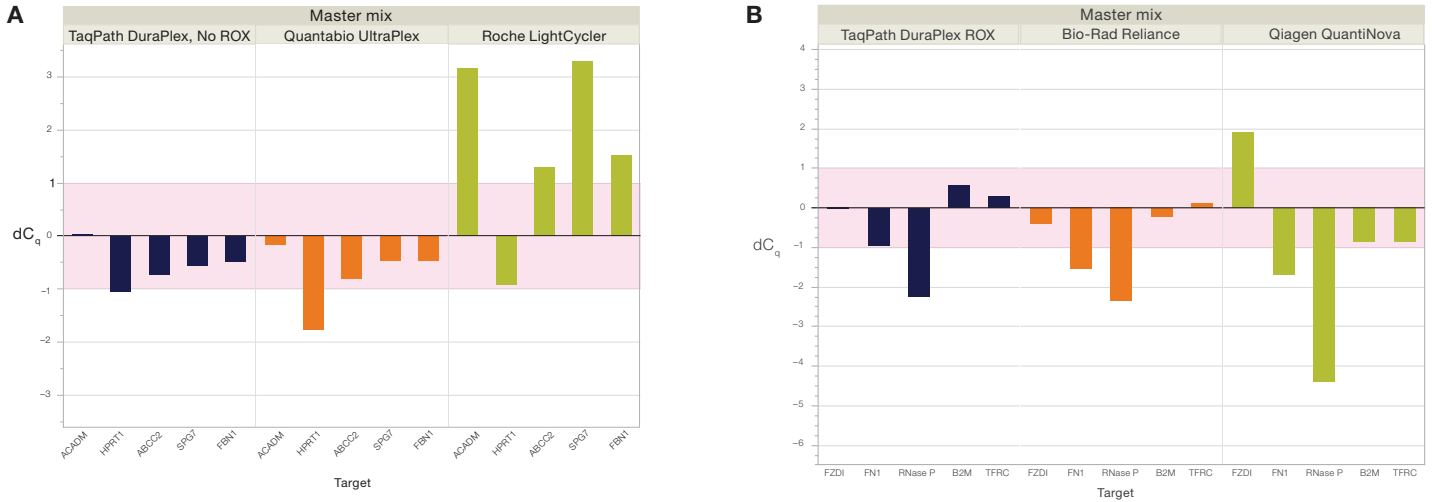


Figure 1. TaqPath DuraPlex 1-Step RT-qPCR Master Mix shows less change in C_q after 8 hours at room temperature (24°C), in assembled reactions, compared to master mixes from other suppliers. Assembled reactions consisted of master mix, RNA, and a 5-plex human gene expression assay. The shaded region on each graph denotes $\pm 1 C_q$ change from comparison of a reaction at 8 hours and a reaction at 0 hour (control). **(A)** Master mixes used: blue = TaqPath DuraPlex 1-Step RT-qPCR Master Mix (No ROX); orange = Quantabio™ UltraPlex™ 1-Step ToughMix™ master mix; and green = Roche™ LightCycler™ Multiplex RNA Virus Master Mix. **(B)** Master mixes used: blue = TaqPath DuraPlex 1-Step RT-qPCR Master Mix (with ROX passive reference dye); orange = Bio-Rad™ Reliance One-Step Multiplex RT-qPCR Supermix; and green = Qiagen™ QuantiNova™ Multiplex RT-PCR Kit.

Optimizes high-order multiplexing

TaqPath DuraPlex 1-Step RT-qPCR Master Mix has been validated with multiplex assays to detect up to 6 targets in a single well with the formulation without ROX dye and up to 5 targets in a single well with the ROX formulation. TaqPath DuraPlex 1-Step RT-qPCR Master Mix enables accurate detection of both low and high concentrations of RNA and DNA in samples and provides a wide dynamic range. Figure 2 demonstrates the excellent PCR linearity over an input range of 8 logarithmic units in a 5-plex assay.

Exceptional dynamic range of TaqPath DuraPlex 1-Step RT-qPCR Master Mix

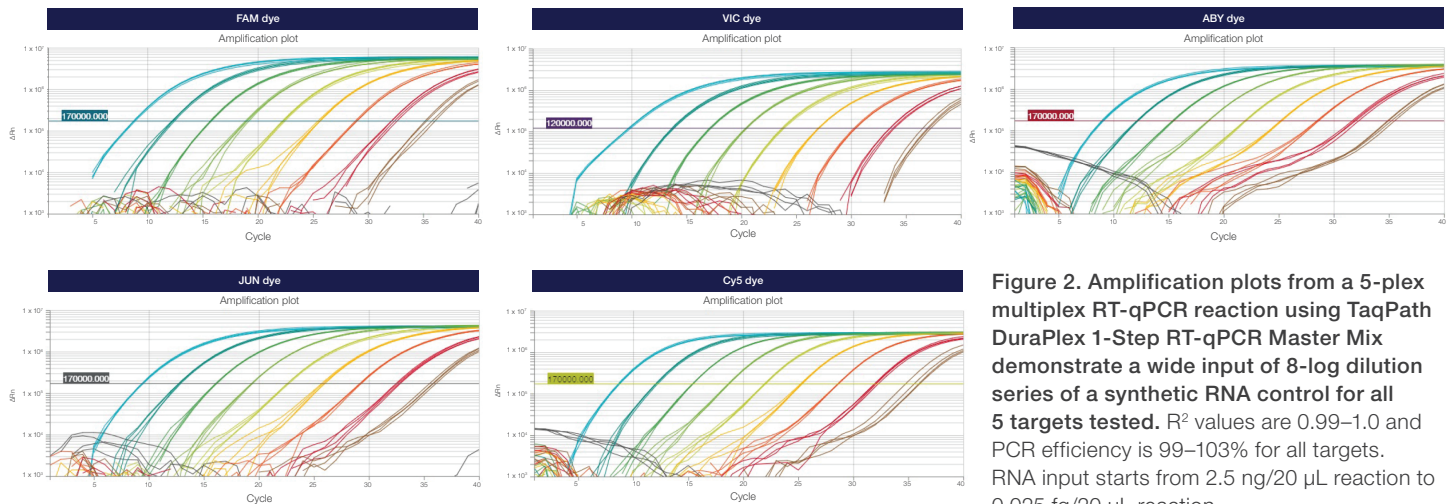


Figure 2. Amplification plots from a 5-plex multiplex RT-qPCR reaction using TaqPath DuraPlex 1-Step RT-qPCR Master Mix demonstrate a wide input of 8-log dilution series of a synthetic RNA control for all 5 targets tested. R^2 values are 0.99–1.0 and PCR efficiency is 99–103% for all targets. RNA input starts from 2.5 ng/20 μL reaction to 0.025 fg/20 μL reaction.

Improves handling

TaqPath DuraPlex 1-Step RT-qPCR Master Mix has been formulated to improve in-use handling with a lower viscosity to allow for more effective pipetting, including use with automated liquid-handling platforms. This master mix is stable at room temperature (24°C) for 1 week and can be stored under refrigeration (4°C) for a month after first use. The TaqPath DuraPlex 1-Step RT-qPCR Master Mix can be used confidently up to 8 freeze-thaw cycles without loss of performance. The novel formulation helps ensure that the master mix can be adapted to a variety of workflow scenarios. Figure 3 shows consistent performance of reagents stored for 1 week at room temperature.

TaqPath DuraPlex 1-Step master mix stability after 1 week at 24°C

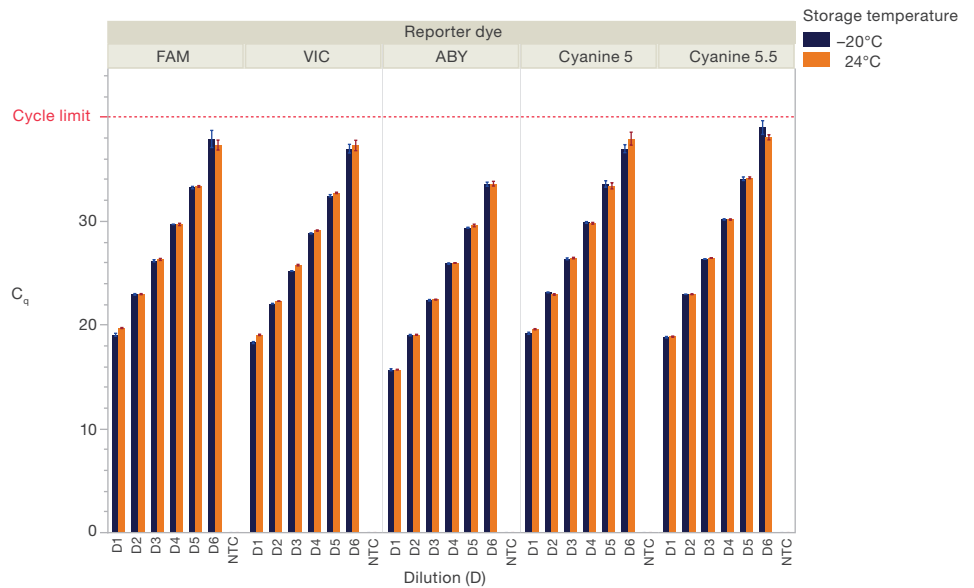


Figure 3. There is no change in performance of TaqPath DuraPlex 1-Step RT-qPCR Master Mix after storage for 1 week at 24°C, compared to product stored at -20°C. After 1 week of storage, a dilution series of RNA input was tested in a 5-plex multiplex reaction with TaqPath DuraPlex 1-Step RT-qPCR Master Mix. Blue bars indicated C_q values of control master mix stored at -20°C. Orange bars indicate C_q values after the master mix has been stored for 1 week at 24°C. Each error bar is constructed using 1 standard deviation from the mean.

Increases confidence

The unique proprietary formulation of the TaqPath DuraPlex 1-Step RT-qPCR Master Mix allows robust performance even in the presence of substances that can inhibit PCR. This feature results in effective template detection from both purified RNA and DNA, including those isolated from challenging clinical sample matrices such as viral transport medium (VTM), stool, blood, and urine. Figure 4 shows TaqPath DuraPlex 1-Step RT-qPCR Master Mix performance with common PCR inhibitors compared to that of other manufacturers. The master mix was less affected by the presence of these inhibitors and RT-qPCR results were achieved with minimal loss of sensitivity, even at concentrations that inhibit other products tested.

Superior inhibitor tolerance of TaqPath DuraPlex 1-Step RT-qPCR Master Mix

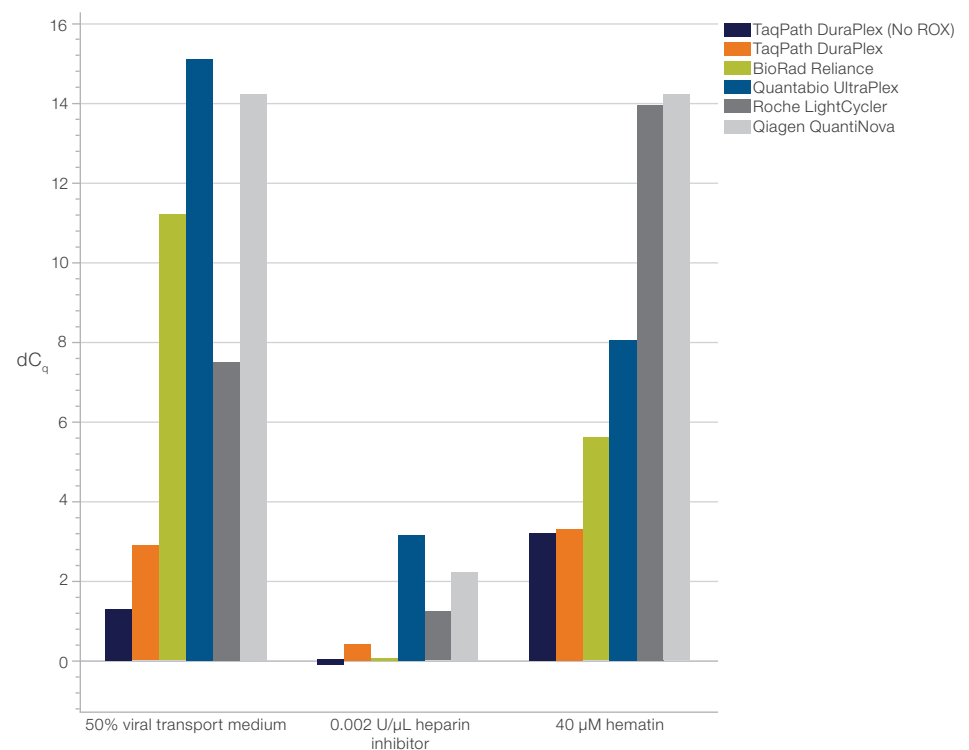


Figure 4. TaqPath DuraPlex 1-Step RT-qPCR Master Mix shows the least amount of C_q shift when challenged with three potential inhibitors of 1-step qPCR, compared to other 1-step master mixes. Viral transport medium was tested at 50% of total reaction volume, heparin was tested at 0.002 U/μL reaction, and hematin was tested at a concentration of 40 μM in the final reaction.

Helps ensure reproducibility

This GPR is labeled “For Laboratory Use” and is manufactured in an ISO 13485–certified and FDA-registered facility, which adheres to current good manufacturing practice (CGMP) principles. All lots of TaqPath DuraPlex 1-Step RT-qPCR Master Mix are functionally tested to help ensure lot-to-lot reproducibility for C_q values and consistency in dynamic range across a wide variety of assays. Figure 5 shows consistent performance of 3 lots of TaqPath DuraPlex 1-Step RT-qPCR Master Mix in 6-plex and 5-plex assays.

Lot-to-lot consistency with TaqPath DuraPlex 1-Step RT-qPCR Master Mix

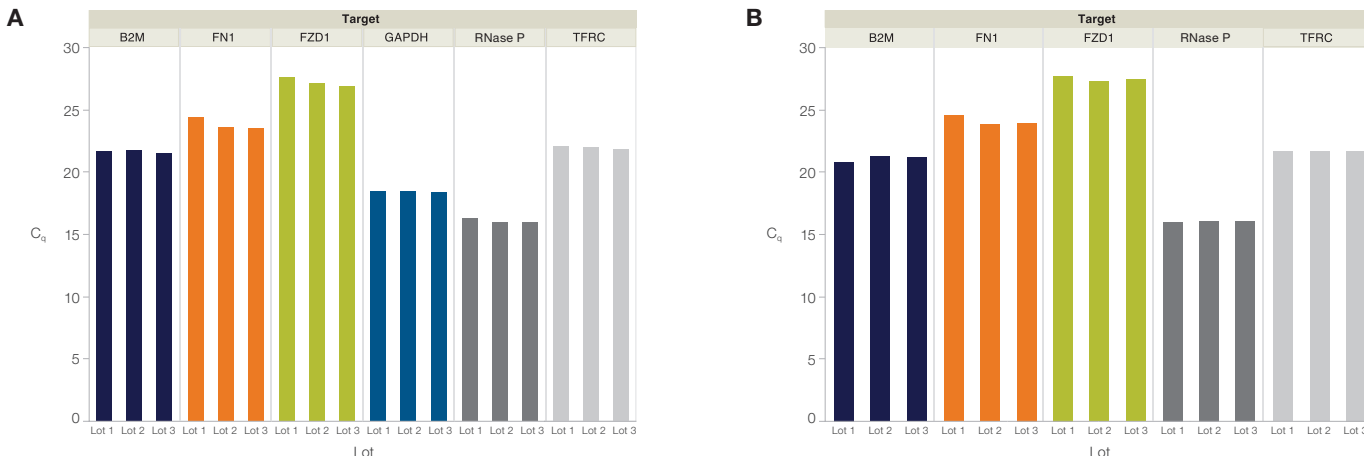


Figure 5. Three unique lots of TaqPath DuraPlex 1-Step RT-qPCR Master Mix were tested for consistency in performance. (A) C_q values for all 6 gene targets are similar in a multiplex reaction tested with the version of the product with no passive reference dye. (B) C_q values for all 5 gene targets are similar in a multiplex reaction tested with the ROX version of the product.

Ordering information

Description	Quantity	Cat. No.
TaqPath DuraPlex 1-Step RT-qPCR Master Mix	0.5 mL	A58666
	5 x 1 mL	A58667
	10 mL	A58668
TaqPath DuraPlex 1-Step RT-qPCR Master Mix (No ROX)	0.5 mL	A58669
	5 x 1 mL	A58670
	10 mL	A58671

Contact your Fisher Scientific sales representative to learn more about TaqPath DuraPlex 1-Step RT-qPCR Master Mix.

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