VWR® qPCR and RT-qPCR Reagents – Performance Data

VWR® qPCR and RT-qPCR reagents and kits have been thoroughly tested and optimized to deliver exceptional performance, making them an ideal choice for your real-time PCR needs.

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VWR® QPCR MASTER MIX (CAT. NO. 73112-0100, -0500, -1000, -2500)

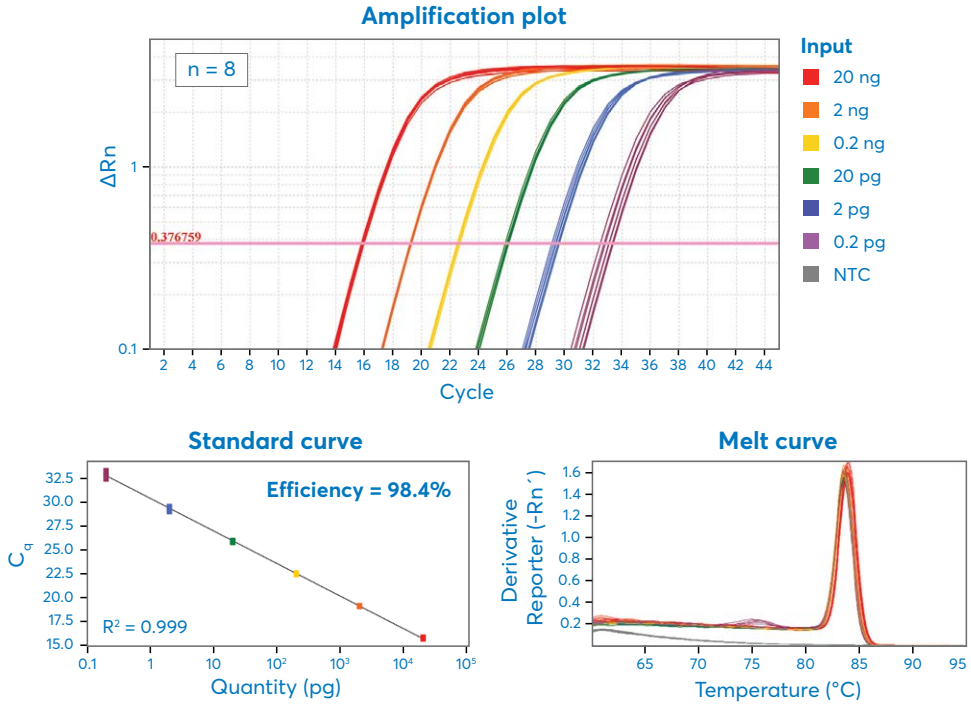


FIGURE 1: VWR® qPCR Master Mix offers exceptional sensitivity, reproducibility and performance. The VWR® qPCR Master Mix was used to perform real-time PCR targeting human GAPDH over a 6-log range of Jurkat-derived cDNA (20 ng – 0.2 pg) with 8 replicates at each concentration.

VWR® ONE-STEP RT-QPCR KIT (CAT. NO. 73212-0100, -0500, -1000, -2500)

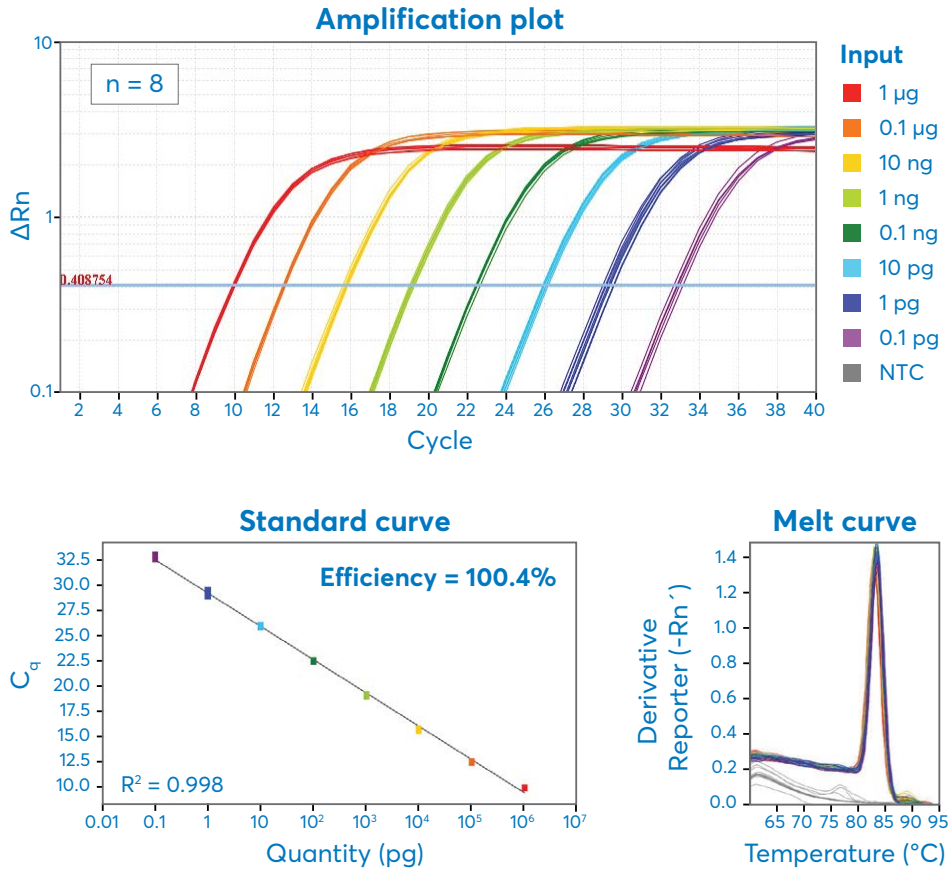


FIGURE 2: VWR® One-Step RT-qPCR Kit offers exceptional sensitivity, reproducibility and performance. The VWR® One-Step RT-qPCR Kit was used to perform RT-qPCR targeting human GAPDH over an 8-log range of Jurkat total RNA (1 µg – 0.1 pg) with 8 replicates at each concentration. Recommended reaction setup and cycling conditions were followed, which includes a 55°C incubation for 10 minutes for the thermostable VWR® Reverse Transcriptase.

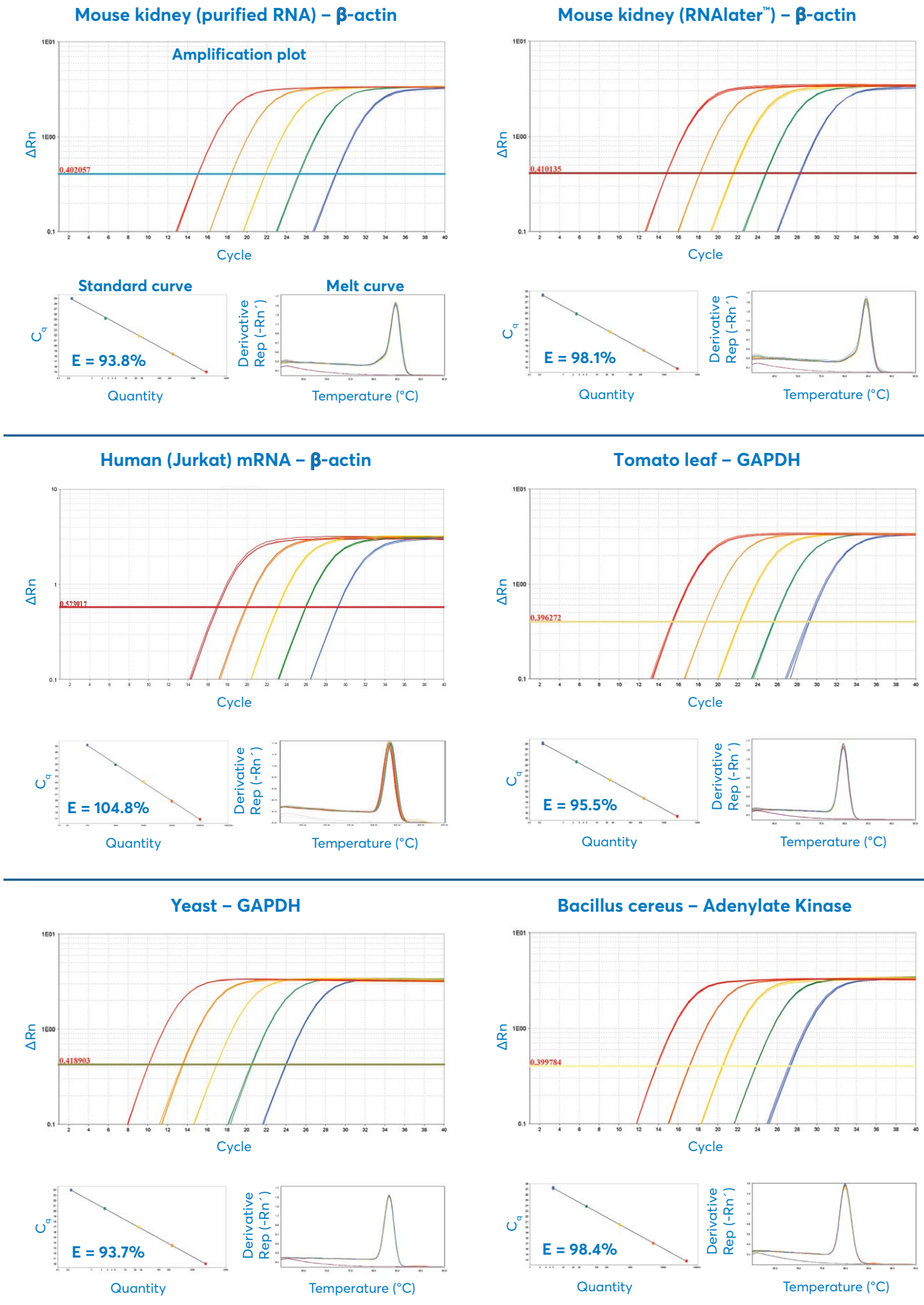


FIGURE 3: VWR® One-Step RT-qPCR Kit provides sensitive and accurate detection and quantitation across a wide variety of RNA sources. RNA from a wide range of organisms (mammals, plants, yeast and bacteria) and purification methods can successfully be used with the VWR® One-Step RT-qPCR Kit. High quality RT-qPCR results were observed with 50 ng – 5 pg of Jurkat total RNA as input using either ABI® 7500 Fast or ABI QuantStudio® 6 real-time instruments.

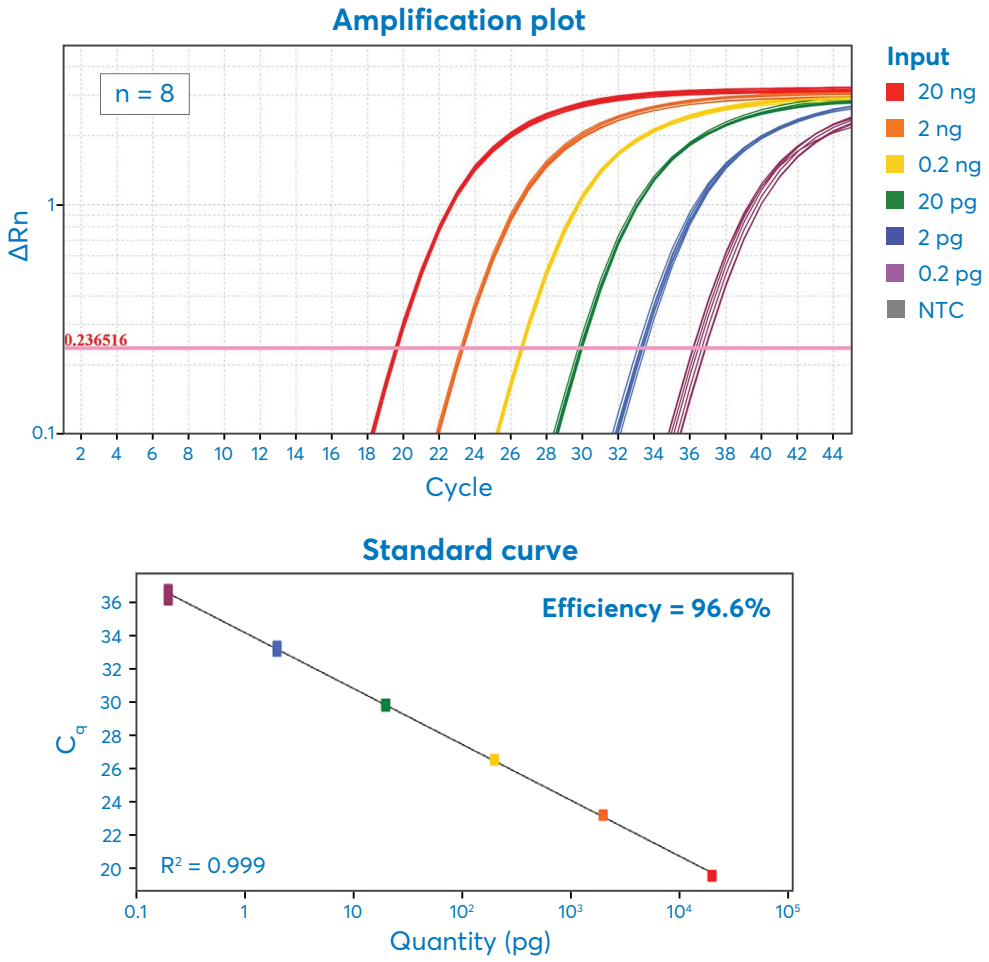
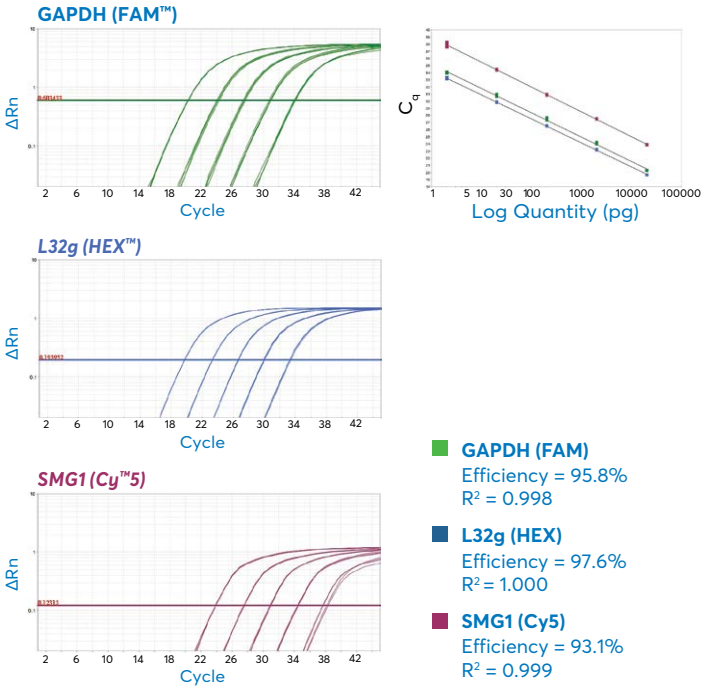


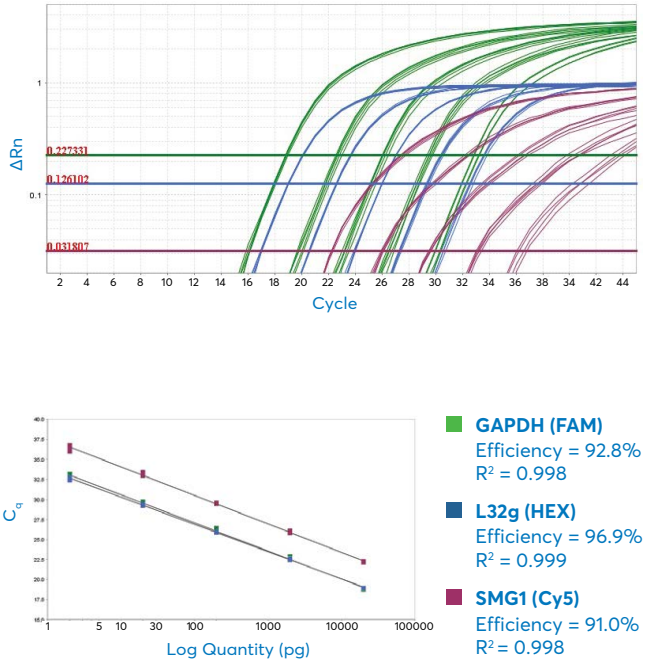
FIGURE 4: VWR® Probe qPCR Master Mix offers exceptional sensitivity, reproducibility and performance. The VWR® Probe qPCR Master Mix was used to perform real-time PCR targeting human GAPDH over a 6-log range of Jurkat-derived cDNA (20 ng – 0.2 pg) with 8 replicates at each concentration.

SINGLEPLEX



- **GAPDH (FAM)** Efficiency = 95.8% R^2 = 0.998
- **L32g (HEX)** Efficiency = 97.6% R^2 = 1.000
- **SMG1 (Cy5)** Efficiency = 93.1% R^2 = 0.999

MULTIPLEX



- **GAPDH (FAM)** Efficiency = 92.8% R^2 = 0.998
- **L32g (HEX)** Efficiency = 96.9% R^2 = 0.999
- **SMG1 (Cy5)** Efficiency = 91.0% R^2 = 0.998

FIGURE 5: VWR® Probe qPCR Master Mix offers robust performance in multiplex applications. The VWR® Probe qPCR Master Mix was used to perform singleplex (left) and multiplex (right) real-time PCR targeting human GAPDH, ribosomal protein L32g and PI-3-Kinase-Related Kinase SMG1 over a 5-log range of Jurkat-derived cDNA (20 ng – 2 pg) with 4 replicates at each concentration. For direct comparison of singleplex and multiplex qPCR, 0.4 µM primer was used for the lower-copy target (SMG1) and 0.2 µM primer for each higher-copy target (L32g and GAPDH) in both assays. The difference in primer concentration helped account for copy number differences.

VWR® PROBE ONE-STEP RT-QPCR KIT (CAT. NO. 73222-0100, -0500, -1000, -2500)

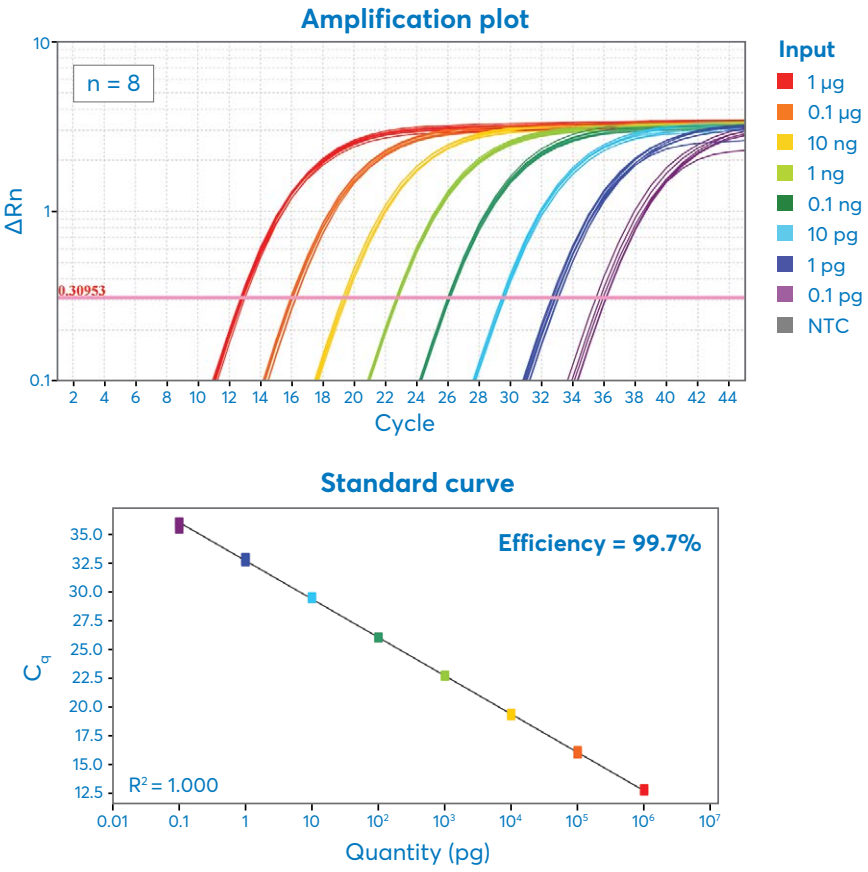


FIGURE 6: VWR® Probe One-Step RT-qPCR Kit offers exceptional sensitivity, reproducibility and performance. The VWR® Probe One-Step RT-qPCR Kit was used to perform RT-qPCR targeting human GAPDH over an 8-log range of Jurkat total RNA (1 µg – 0.1 pg) with 8 replicates at each concentration. Recommended reaction setup and cycling conditions were followed, which includes a 55°C incubation for 10 minutes for the thermostable VWR® Reverse Transcriptase.

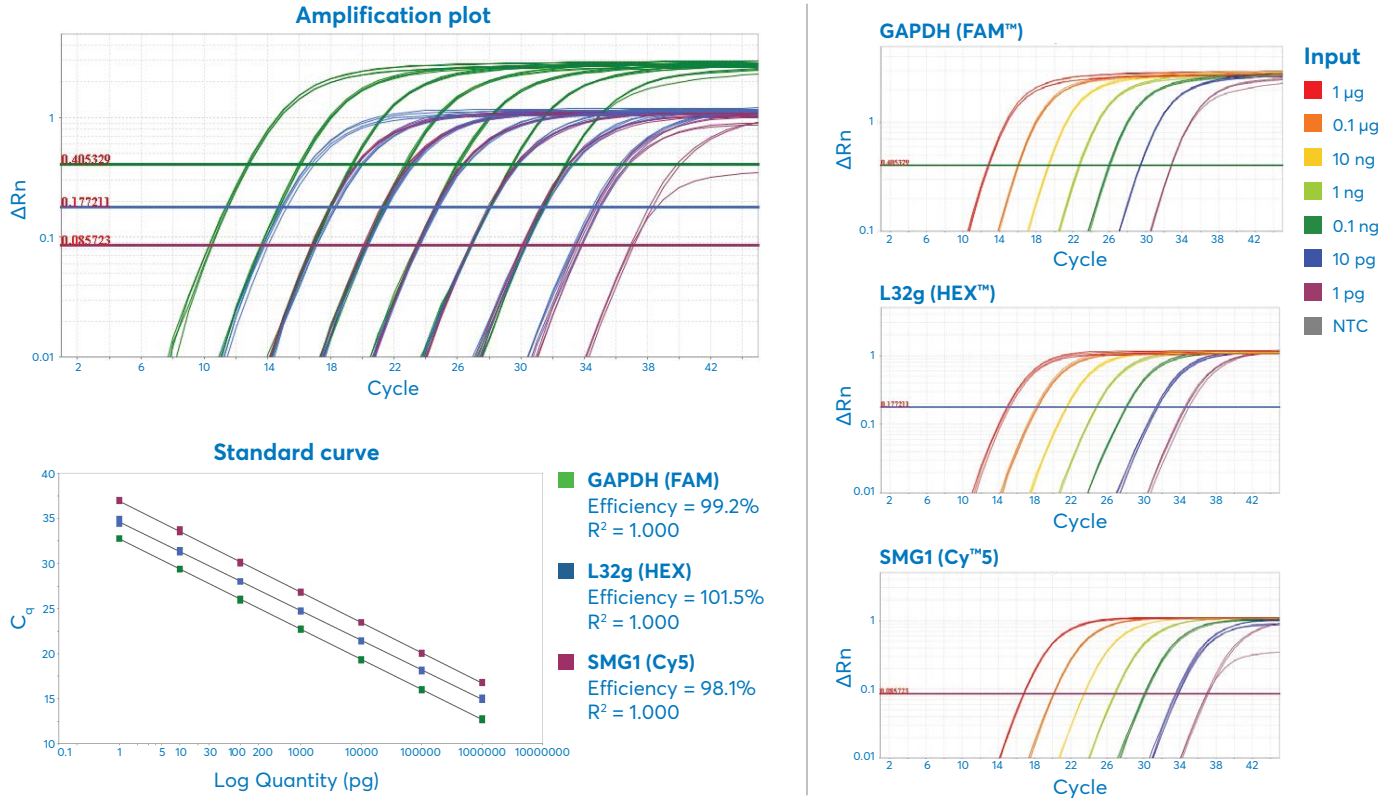


FIGURE 7: VWR® Probe One-Step RT-qPCR Kit offers robust performance in multiplex applications. The VWR® Probe One-Step RT-qPCR Kit was used to perform multiplex RT-qPCR targeting human GAPDH, ribosomal protein L32g and PI3-Kinase-Related Kinase SMG1 over a 7-log range of Jurkat total RNA (1 µg – 1 pg) with 4 replicates at each concentration. Overlayed amplification traces are displayed on the left and individual traces for each multiplex target on the right. For direct comparison of singleplex and multiplex qPCR, 0.4 µM primer was used for the lower-copy target (SMG1) and 0.2 µM primer for each higher-copy target, in both assays. The difference in primer concentration helped account for copy number differences.

VWR® Reverse Transcriptase

VWR® Probe One-Step RT-qPCR Kit

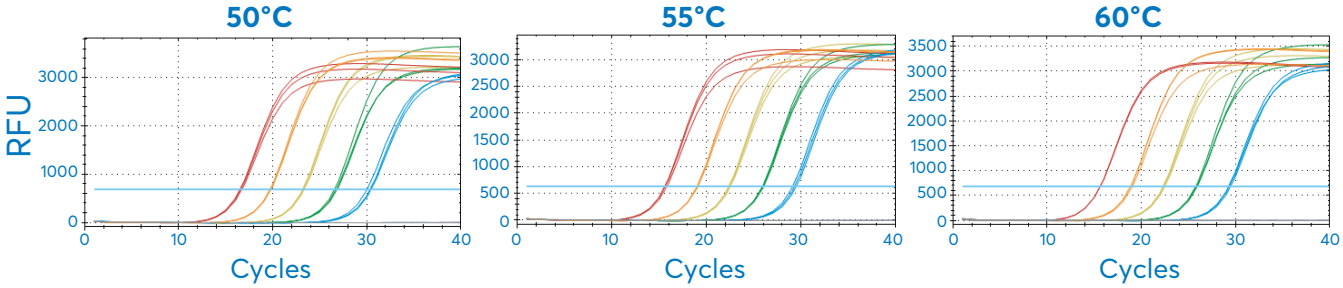
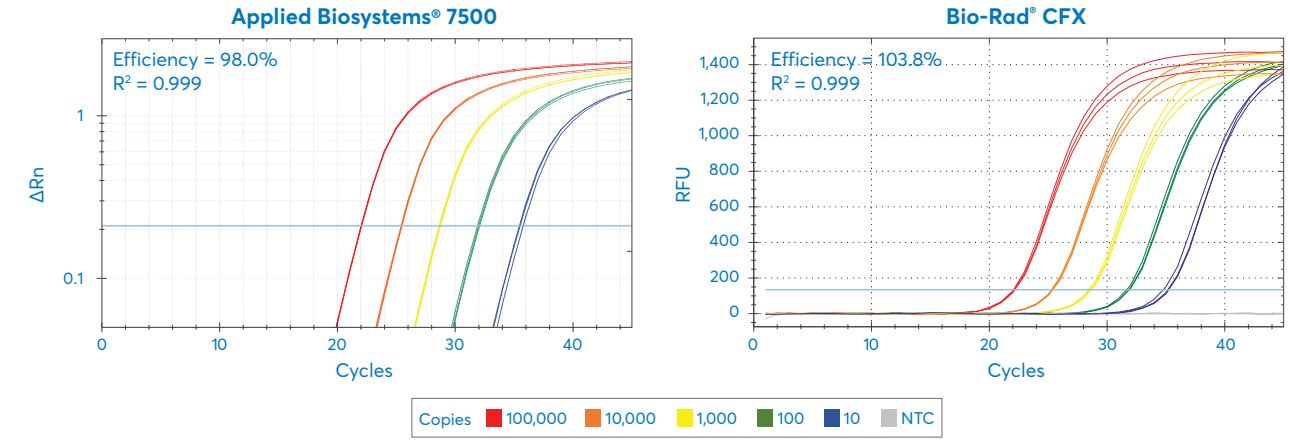


FIGURE 8: The increased thermostability of VWR® Reverse Transcriptase improves performance at higher reaction temperatures. An RT-qPCR assay targeting human ribosomal protein L32 RNA was performed over a 5-log range of Jurkat total RNA 5 pg – 50 ng) using an initial 10 min RT step performed at 50°, 55°C or 60°C, as depicted. The thermostable VWR® Reverse Transcriptase exhibited robust RT-qPCR performance across a wide range of temperatures, indicating that efficient reverse transcription was not affected by alterations in the reaction temperature.

VWR® PROBE ONE-STEP RT-QPCR MASTER MIX WITH UDG (CAT. NO. 73224-0100, -0500, -1000, -2500)

A. SARS-CoV-2



B. H1N1

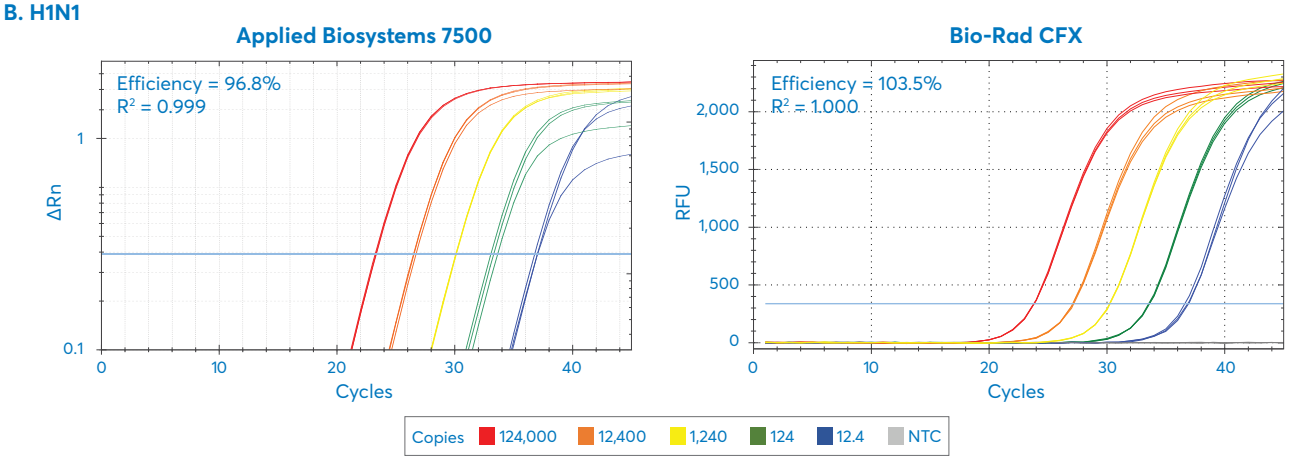
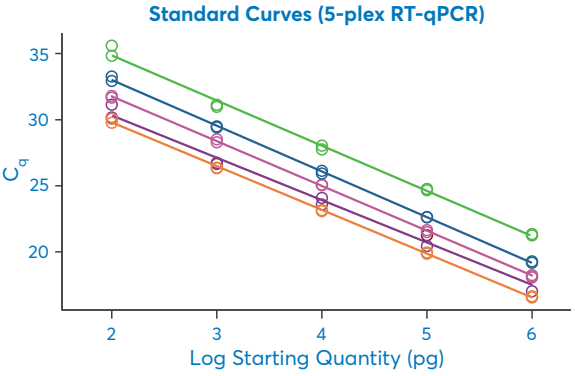


FIGURE 9: Robust amplification and detection of different viral RNA with VWR® Probe One-Step RT-qPCR Master Mix with UDG. The VWR® Probe One-Step RT-qPCR Master Mix with UDG was used to perform RT-qPCR targeting SARS-CoV-2 (N1 target) and H. influenza H1N1 (HA target). Performance was evaluated in two real-time instruments over a 5-log range of (A) 10–100,000 copies Synthetic SARS-CoV-2 RNA (Twist Biosciences®) diluted in 10 ng of Jurkat total RNA (BioChain®) and (B) 12–120,000 copies Influenza A (H1N1) RNA (ATCC®) diluted in 10 ng Jurkat total RNA. Sensitive, linear performance can be observed in the amplification of both viral targets.



Target	Fluorophore (channel)	Efficiency	R²
SDHA	HEX™	96.1%	0.996
SMG1	FAM™	94.7%	0.999
RPL32	Cy™5	97.2%	1.000
GAPDH	Tye™ (Quasar® 705)	105.1%	0.990
ACTIN	Texas Red®	100.5%	0.999

FIGURE 10: Multiplex detection (5 targets) with the VWR® Probe One-Step RT-qPCR Master Mix with UDG. The VWR® Probe One-Step RT-qPCR Master Mix with UDG was used to perform multiplex RT-qPCR over a 5-log range of Jurkat total RNA (100 ng to 10 pg) on a Bio-Rad® CFX96 real-time instrument. Standard curves and efficiencies for each target are shown. Reactions (20 µl) included primers and probes at 200 nM for all targets. All five targets were detected with excellent linearity and strong efficiencies in the multiplex reaction.

One or more of these products are covered by one or more patents.

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