

qNTQX® Fast Cell Direct SYBR Green RT-qPCR Kit

Cat. no. LM601013 — Test Data Report

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qNTQX® Fast Cell Direct SYBR Green RT-qPCR Kit

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Product Overview

qNTQX® Fast Cell Direct SYBR Green RT-qPCR Kit is a cell-direct, two-step (dye-based) RT-qPCR reagent kit that combines rapid cell lysis, DNase I-mediated genomic DNA removal, reverse transcription and SYBR Green qPCR detection in a single streamlined workflow. Starting directly from 10^3 – 10^5 cells per 50 μ L lysis reaction, gene-expression results can be obtained in as little as 1.5 hours without a separate RNA extraction step. This report summarizes the application and performance data supporting the kit's platform universality, sensitivity, reproducibility, inhibitor tolerance, genomic DNA digestion efficiency and cDNA product stability.

Component	40 T	100 T
LM601013-A FCD Lysis Buffer	See kit label	See kit label
LM601013-B FCD Washing Buffer	See kit label	See kit label
LM601013-C FCD Stop Solution	See kit label	See kit label
LM601013-D DNase I	See kit label	See kit label
LM601013-E 4× Hifair® FCD RT Mix	See kit label	See kit label
LM601013-F 2× Hieff® FCD qPCR SYBR Master Mix	See kit label	See kit label
LM601013-G RNase Free H ₂ O	See kit label	See kit label

Component volumes scale with pack size (40 T / 100 T); refer to the kit label for exact fill volumes of each tube.

Key Performance Features

1. Universal across instrument platforms — a pre-optimized reference dye formulation removes the need to adjust ROX concentration for different qPCR instruments.
2. Fast — the complete workflow from cell lysis through reverse transcription to qPCR can be completed in as little as 1.5 hours.
3. Sensitive and reproducible — strong amplification efficiency and run-to-run consistency across a range of target GC contents.
4. Inhibitor-tolerant — tolerates up to 45% cell-lysate carryover in the RT step and up to 30% carryover cDNA in the qPCR step.
5. Stable — the reagent kit can be stored at 4 °C for 7 days and withstands up to 50 freeze-thaw cycles.

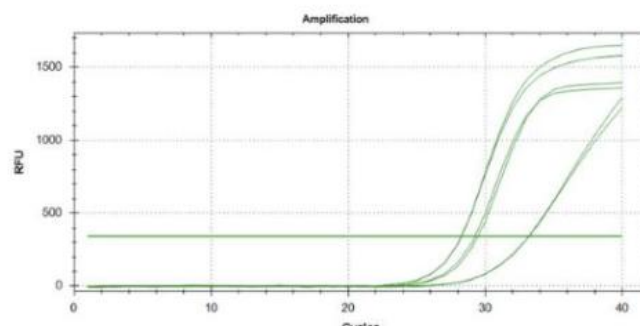
Application Cases

1. Platform Universality

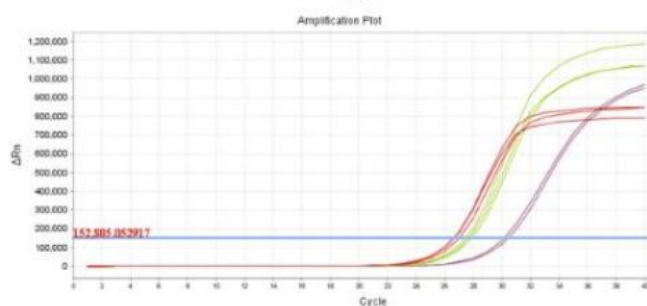
Amplification was performed on three different qPCR instrument platforms — Biorad CFX96 (No Rox), ABI Q5 (Low Rox) and ABI StepOnePlus (High Rox) — using 293 cells as template and the qNTQX® Fast Cell Direct SYBR Green RT-qPCR Kit (LM601013) reagent set, without any adjustment of the reference dye concentration for each platform.



Biorad
CFX96
(No Rox)



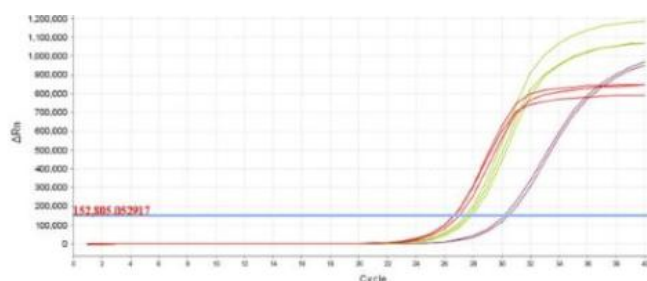
ABI Q5
(Low Rox)



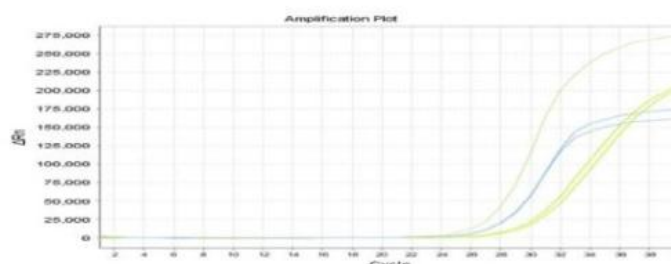
Amplification curves obtained on the Biorad CFX96 (No Rox) and ABI Q5 (Low Rox) platforms.



ABI Q5
(Low Rox)



ABI
Stepone
Plus
(High Rox)

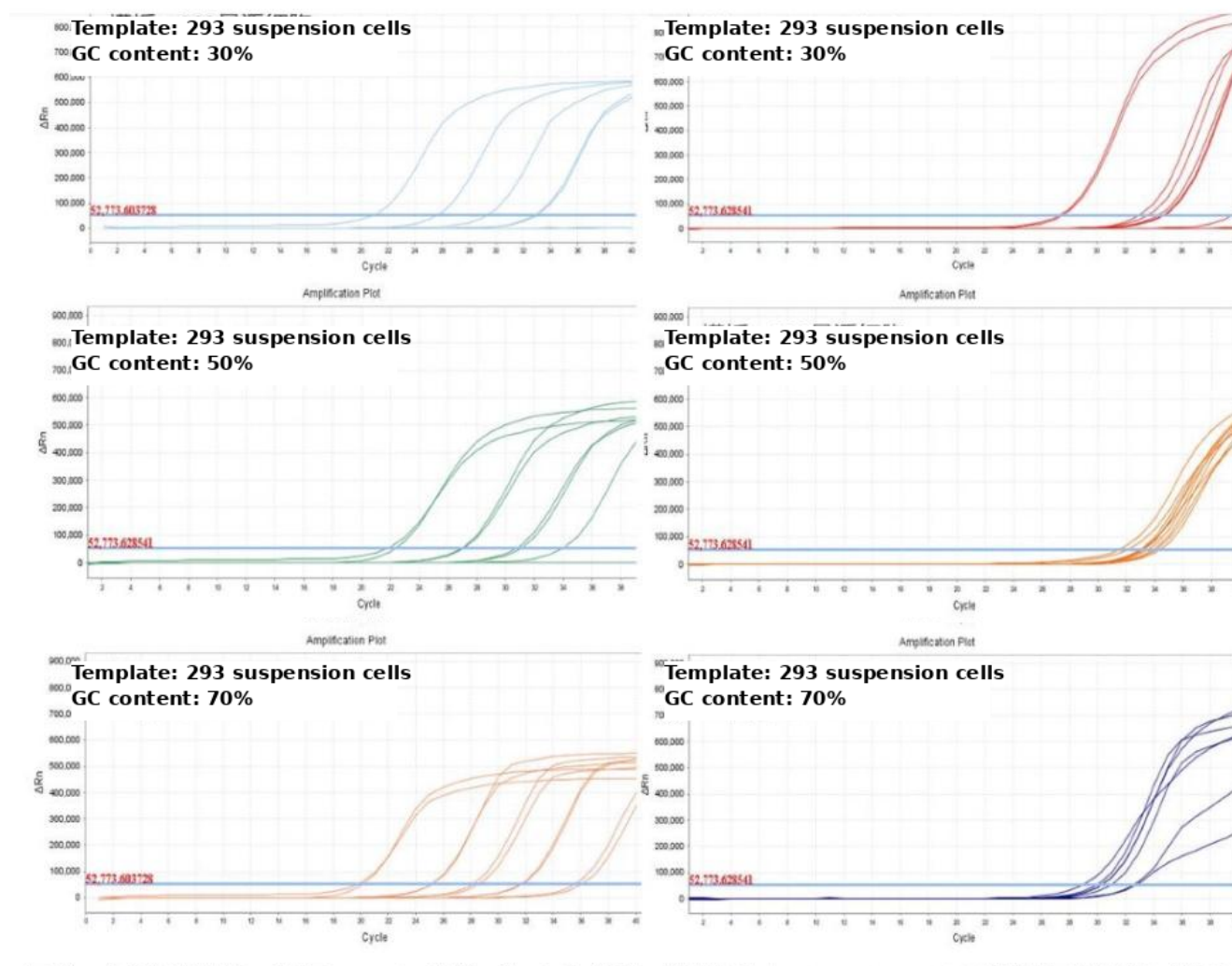


Amplification curves obtained on the ABI Q5 (Low Rox) and ABI StepOnePlus (High Rox) platforms.

Across all three instrument platforms and across repeated storage/testing days, the ΔC_t observed for the same template remained within 0.5 (a ΔC_t within ± 0.5 is considered a negligible difference), demonstrating that the kit performs consistently across mainstream qPCR instrument platforms without reagent adjustment.

2. Reproducibility and Sensitivity — Suspension Cells

Using 293 suspension cells as template, genes with 30%, 50% and 70% GC content were each detected in parallel using the qNTQX® LM601013 kit (left column of each pair) and a leading imported cell-direct RT-qPCR reagent (right column of each pair).

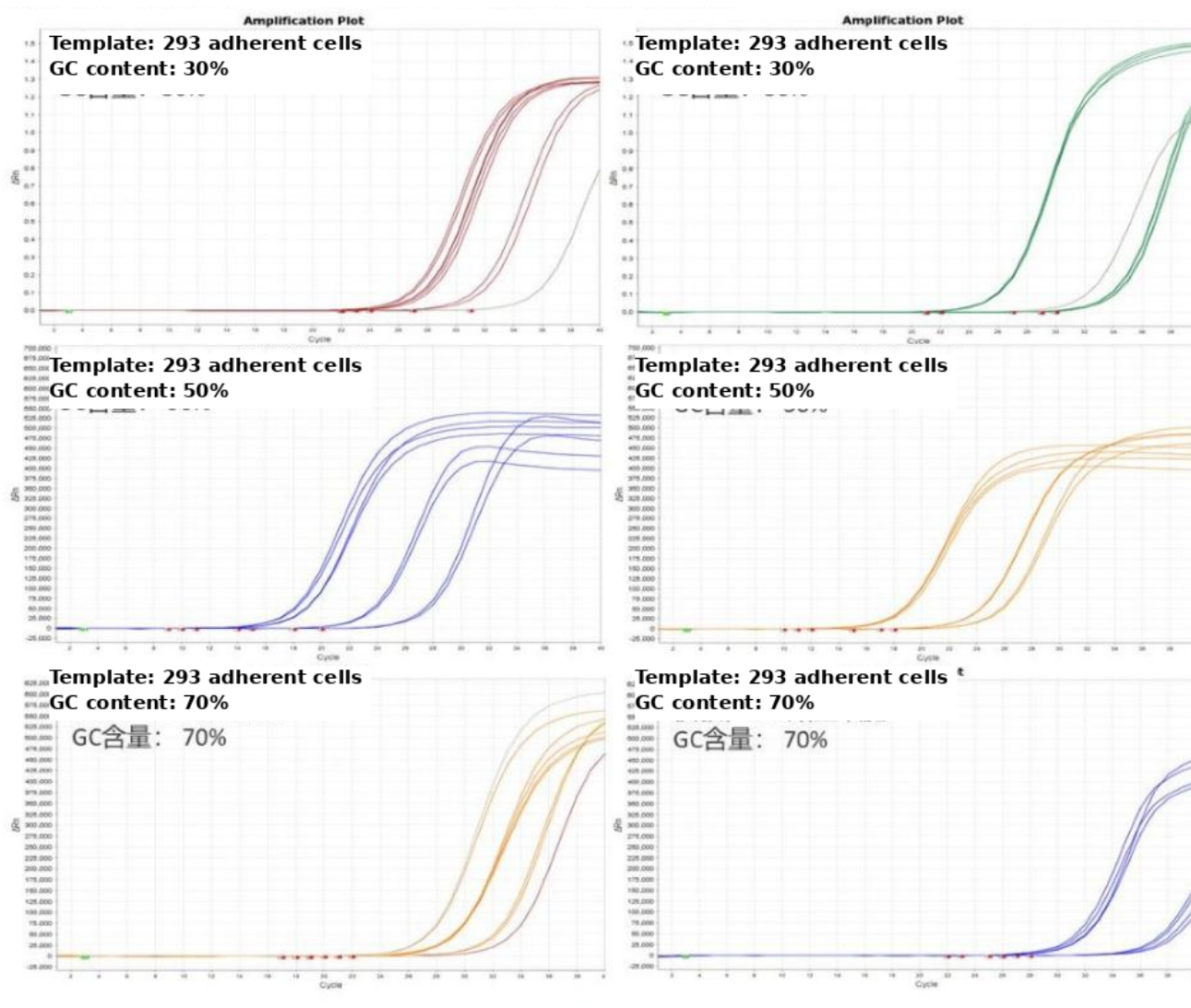


Amplification curves for 30%, 50% and 70% GC-content targets in 293 suspension cells: qNTQX® LM601013 (left) vs. imported product (right) for each GC-content pair.

Across all three GC-content levels tested, the Ct values obtained with LM601013 were consistently better than (i.e. lower / earlier than) those of the imported product, with tighter replicate clustering, indicating superior reproducibility and sensitivity regardless of target GC content.

3. Reproducibility and Sensitivity — Adherent Cells

The same GC-content comparison (30%, 50%, 70%) was repeated using 293 adherent cells as template, again comparing qNTQX® LM601013 (left column of each pair) against the imported product (right column of each pair).

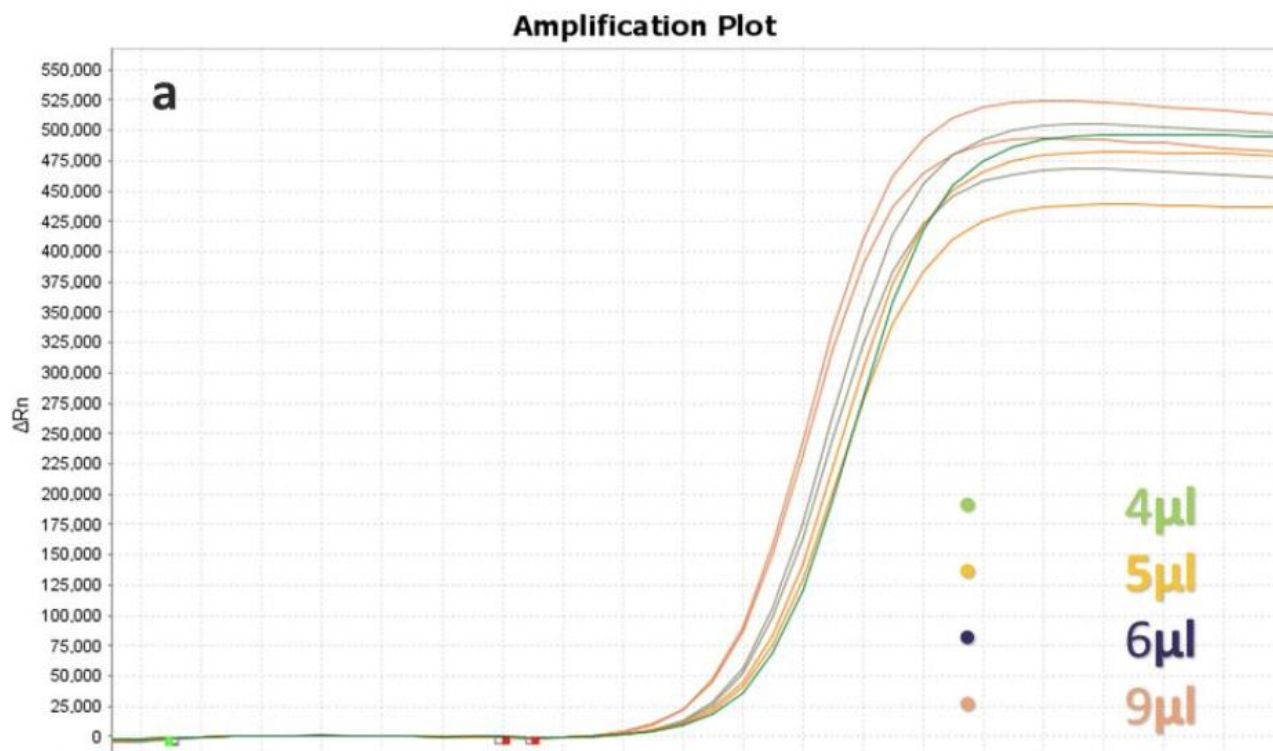


Amplification curves for 30%, 50% and 70% GC-content targets in 293 adherent cells: qNTQX® LM601013 (left) vs. imported product (right) for each GC-content pair.

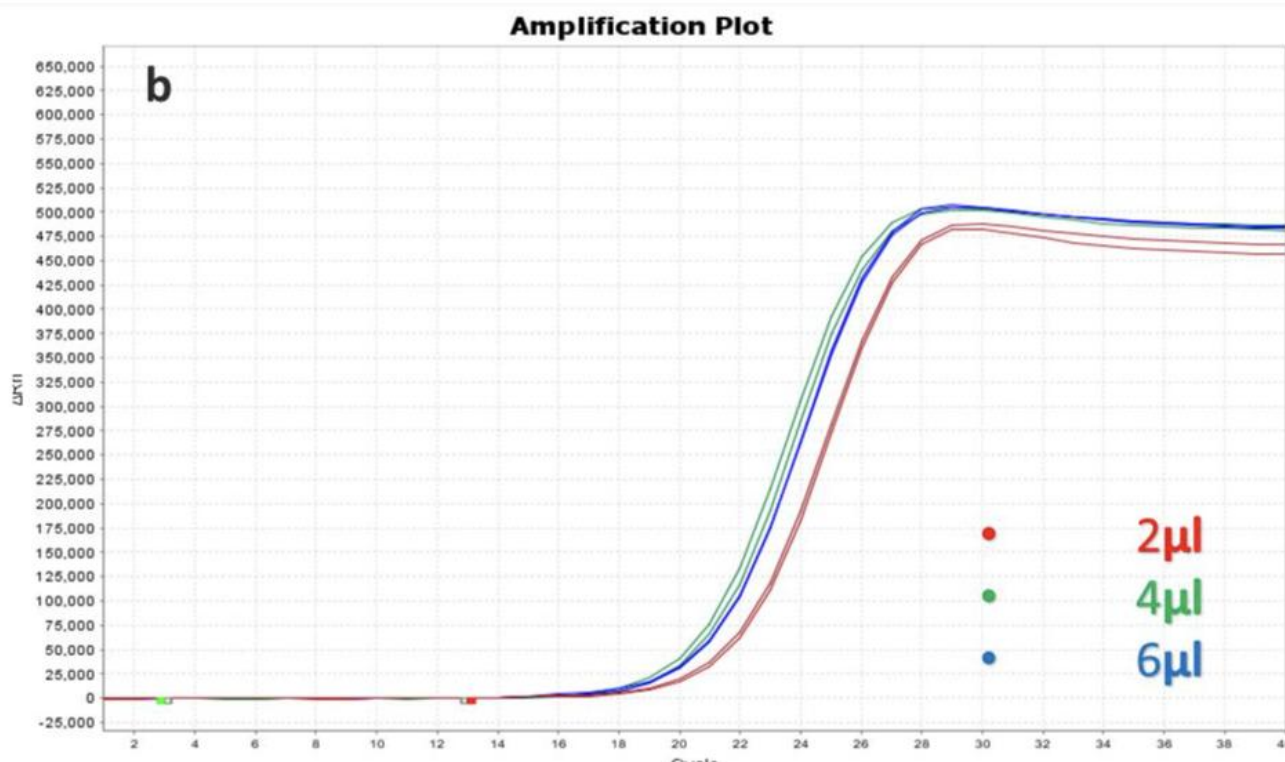
As with suspension cells, LM601013 gave earlier, more tightly clustered Ct values than the imported product across all GC-content levels tested in adherent cells, confirming reproducible, sensitive performance independent of cell culture format.

4. Inhibitor Tolerance

Cell-lysate carryover tolerance was assessed by spiking 4 μL (20%), 5 μL (25%), 6 μL (30%) and 9 μL (45%) of cell lysate directly into the reverse-transcription system (panel a). Downstream cDNA carryover tolerance was assessed by spiking 2 μL (10%), 4 μL (20%) and 6 μL (30%) of cDNA directly into the qPCR system (panel b).



(a) Amplification curves with 4/5/6/9 μL (20/25/30/45%) of cell lysate carried into the RT reaction.

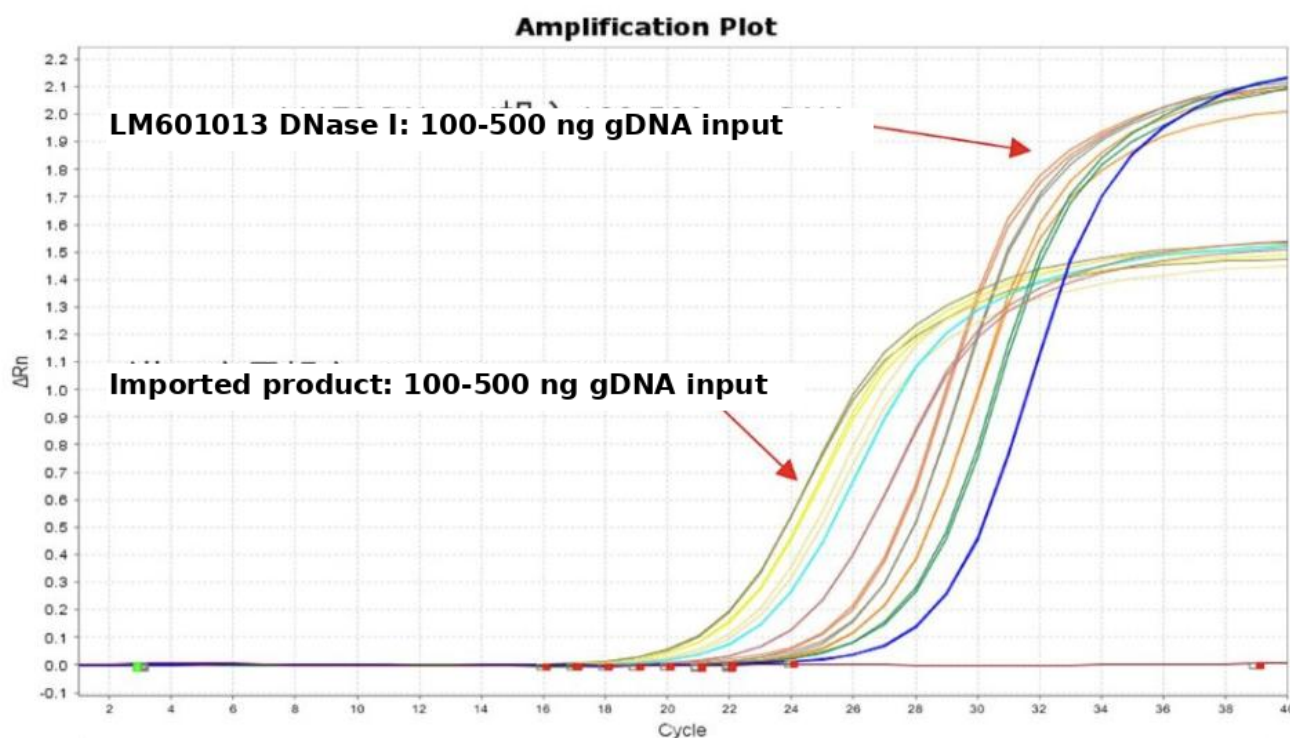


(b) Amplification curves with 2/4/6 μL (10/20/30%) of cDNA carried into the qPCR reaction.

The RT step tolerated up to 45% cell-lysate carryover, and the qPCR step tolerated up to 30% cDNA carryover, with only modest shifts in plateau signal and no failed amplifications, demonstrating strong inhibitor tolerance at both the reverse-transcription and qPCR stages of the workflow.

5. Genomic DNA Digestion Efficiency

100-500 ng of genomic DNA (gDNA) was spiked into the workflow and removed using the DNase I component of either the qNTQX® LM601013 kit or an imported product, followed by reverse transcription and qPCR quantification of the residual gDNA signal.

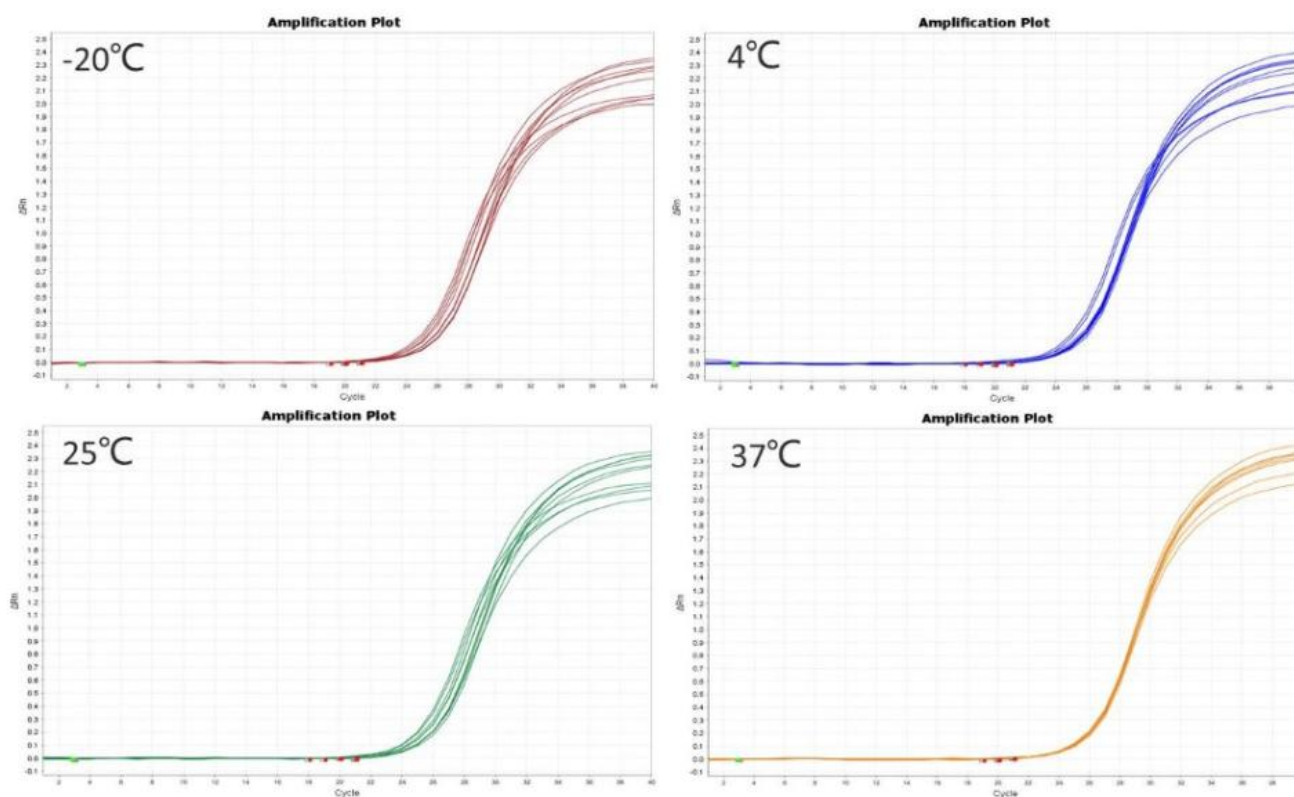


Residual gDNA amplification after DNase I digestion: LM601013 DNase I (right-shifted / later curves) vs. imported product (left-shifted / earlier curves) across 100-500 ng gDNA input.

Across the full 100-500 ng gDNA input range tested, residual gDNA amplification with LM601013 DNase I treatment was consistently later (i.e. lower residual signal) than with the imported product, showing that the kit's DNase I component removes genomic DNA more efficiently.

6. cDNA Product Stability

Using 293 cells as template, cDNA was generated with the qNTQX® LM601013 kit and then stored at –20 °C, 4 °C, 25 °C and 37 °C for 3, 7 and 14 days before qPCR quantification.



Amplification curves for cDNA stored at –20 °C, 4 °C, 25 °C and 37 °C for 3/7/14 days.

Across all four storage temperatures and all three storage durations tested, the ΔC_t of the quantified cDNA remained within 0.5 (a ΔC_t within ± 0.5 is considered a negligible difference), demonstrating that the cDNA product generated by this kit remains stable under a wide range of storage conditions.

Notes

1. Data presented in this report were generated by the reagent manufacturer (Yeasten) using the source formulation (LM601013) on which this Medino®-branded kit is based; results are provided for reference and may vary with sample type, instrument and operating conditions.
2. This product is for scientific research use only. Not for use in diagnostic or clinical procedures.