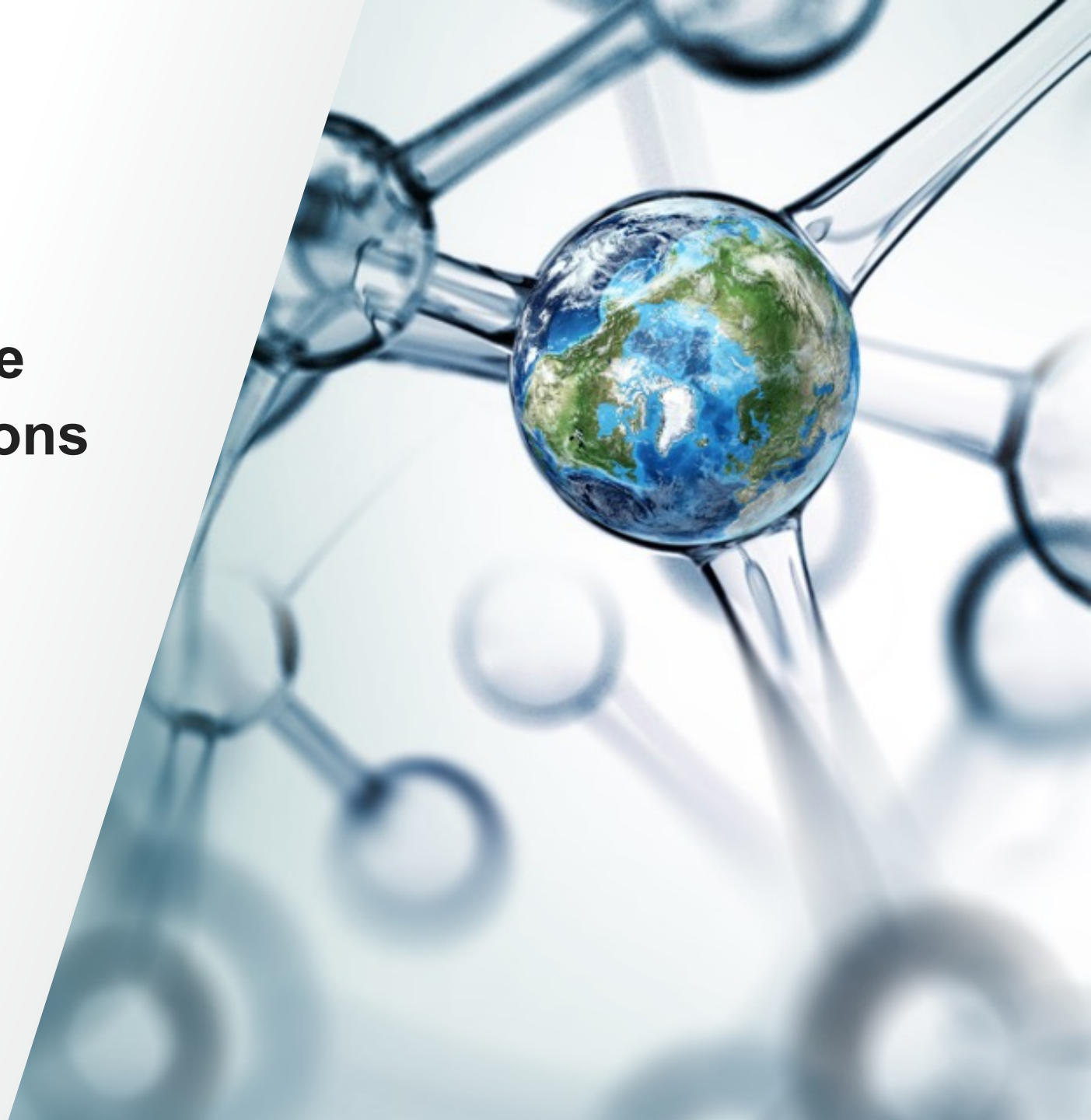
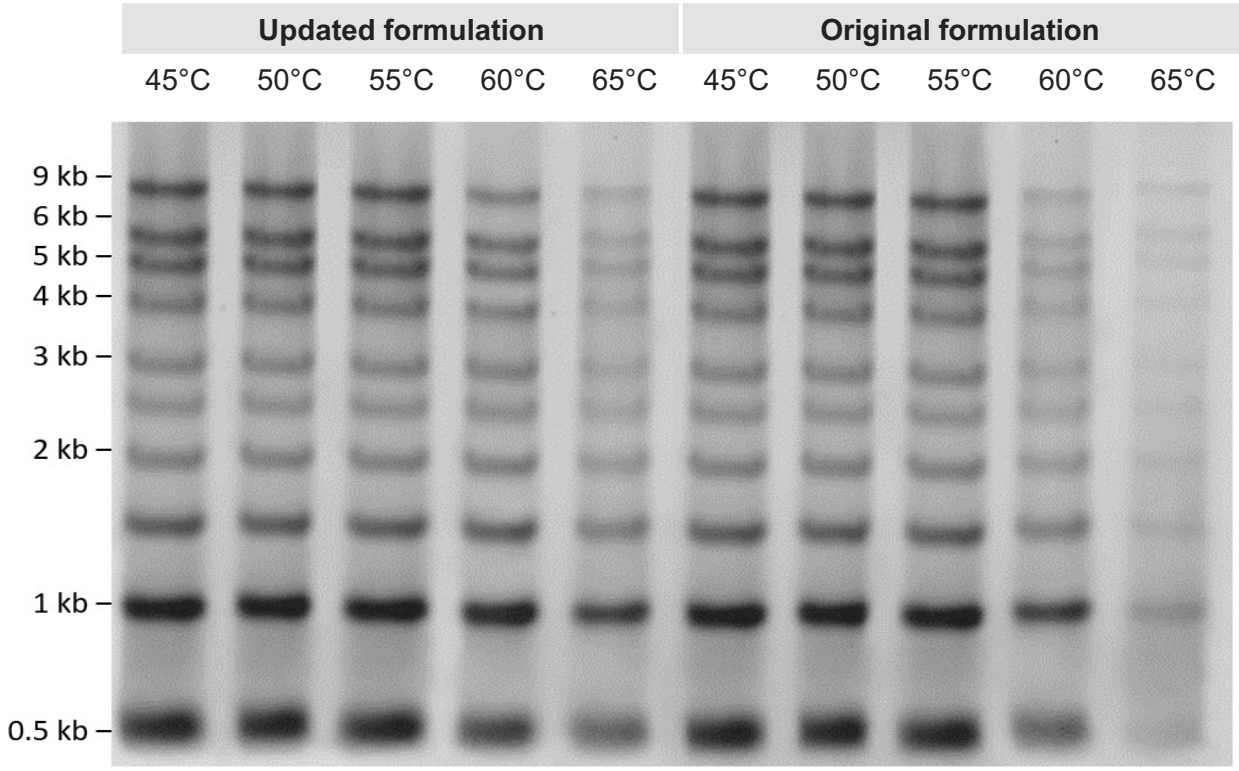
Performance comparison of the updated and original formulations of Maxima H Minus Reverse Transcriptase



The world leader in serving science

First-strand cDNA synthesis using Maxima H Minus Reverse Transcriptase (RT)



Ability to synthesize cDNAs of different lengths at a range of temperatures.

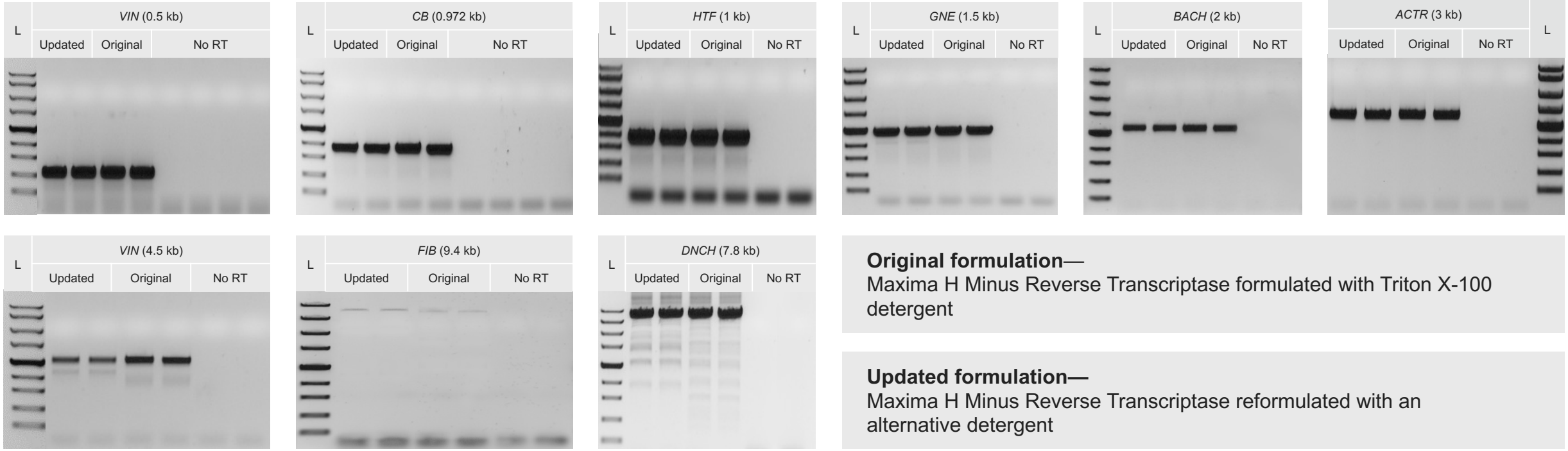
cDNA was synthesized using 1 µg/µL of Invitrogen™ RNA Millennium™ marker at different temperatures using both the updated and original formulations of Thermo Scientific™ Maxima™ H Minus Reverse Transcriptase. Reaction products were resolved on alkaline agarose gels.

Original formulation—
Maxima H Minus Reverse Transcriptase formulated with Triton™ X-100 detergent

Updated formulation—
Maxima H Minus Reverse Transcriptase reformulated with an alternative detergent

There is no difference in efficiency between the updated and original formulations of Maxima H Minus Reverse Transcriptase.

Expression analysis with targets of different lengths from human RNA, using Maxima H Minus RT



Original formulation—
Maxima H Minus Reverse Transcriptase formulated with Triton X-100 detergent

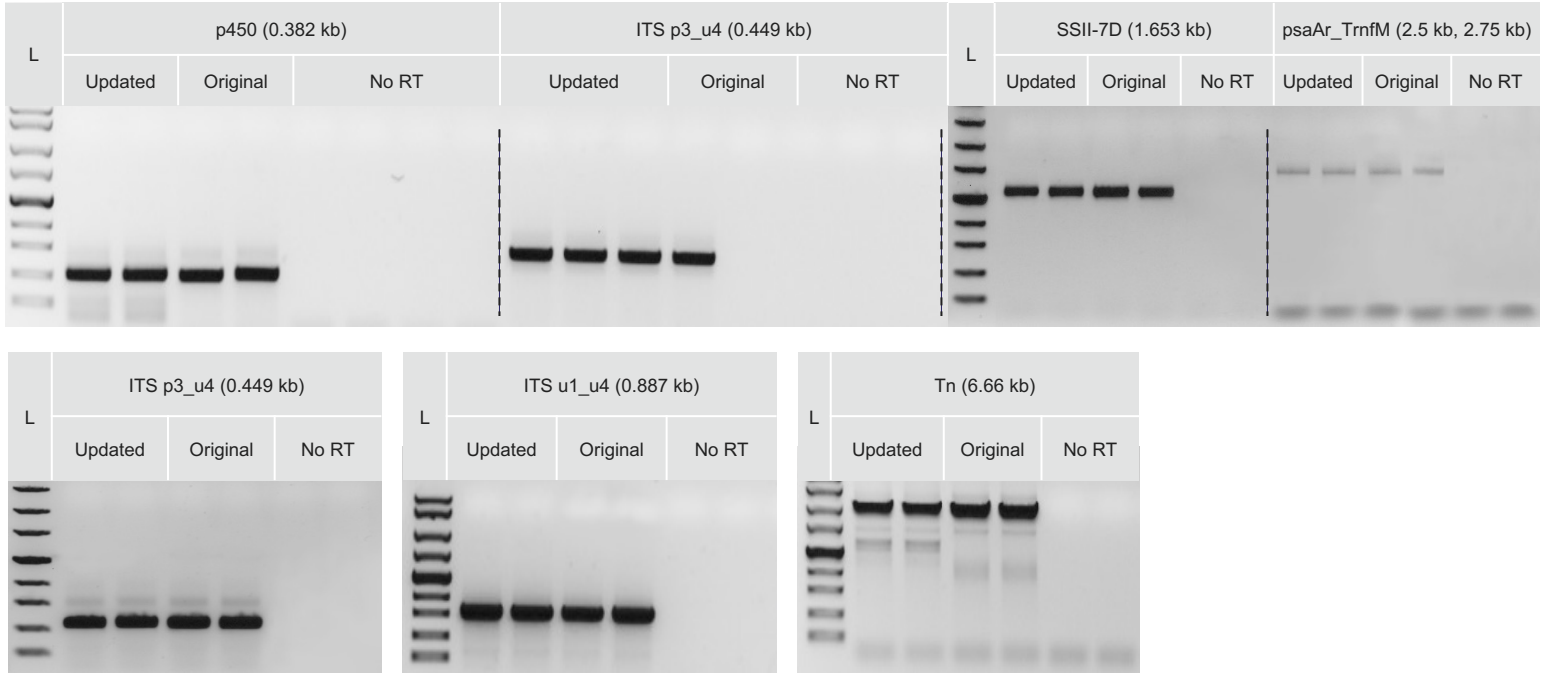
Updated formulation—
Maxima H Minus Reverse Transcriptase reformulated with an alternative detergent

Versatility of Maxima H Minus Reverse Transcriptase across a broad range of target lengths.

cDNA was synthesized from targets ranging from 0.5 to 9.4 kb, using 100 ng of human total RNA and the updated and original formulations of Maxima H Minus Reverse Transcriptase. Synthesized cDNA was PCR-amplified with Thermo Scientific™ Phusion™ Hot Start II High-Fidelity PCR Master Mix.

There is no difference in amplification across a broad range of targets of human RNA, between the updated and original formulations of Maxima H Minus Reverse Transcriptase.

Expression analysis with targets of different lengths from plant RNA, using Maxima H Minus RT



Original formulation—
Maxima H Minus Reverse Transcriptase formulated with Triton X-100 detergent

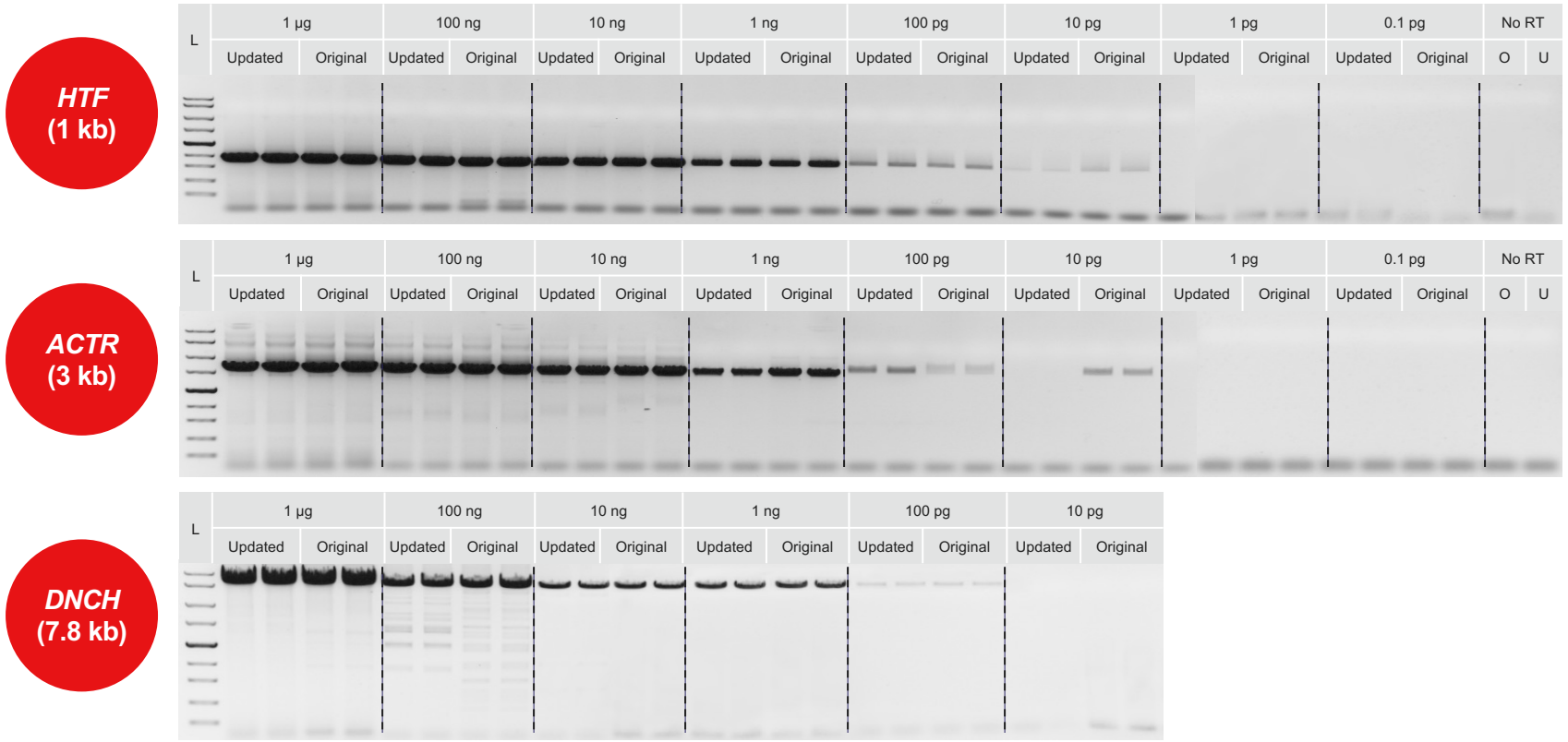
Updated formulation—
Maxima H Minus Reverse Transcriptase reformulated with an alternative detergent

Versatility of Maxima H Minus Reverse Transcriptase across a broad range of target lengths.

cDNA was synthesized from targets ranging from 0.382 to 6.6 kb, using 100 ng of plant RNA (**A**, wheat; **B**, tobacco) and the updated and original formulations of Maxima H Minus Reverse Transcriptase. Synthesized cDNA was PCR-amplified with Phusion Hot Start II High-Fidelity PCR Master Mix.

There is no difference in amplification across a broad range of targets of plant RNA between the updated and original formulations of Maxima H Minus Reverse Transcriptase.

Detection sensitivity of Maxima H Minus Reverse Transcriptase with human RNA



Original formulation (O)—
Maxima H Minus Reverse Transcriptase formulated with Triton X-100 detergent

Updated formulation (U)—
Maxima H Minus Reverse Transcriptase reformulated with an alternative detergent

Detection sensitivity with different amounts of input human RNA.

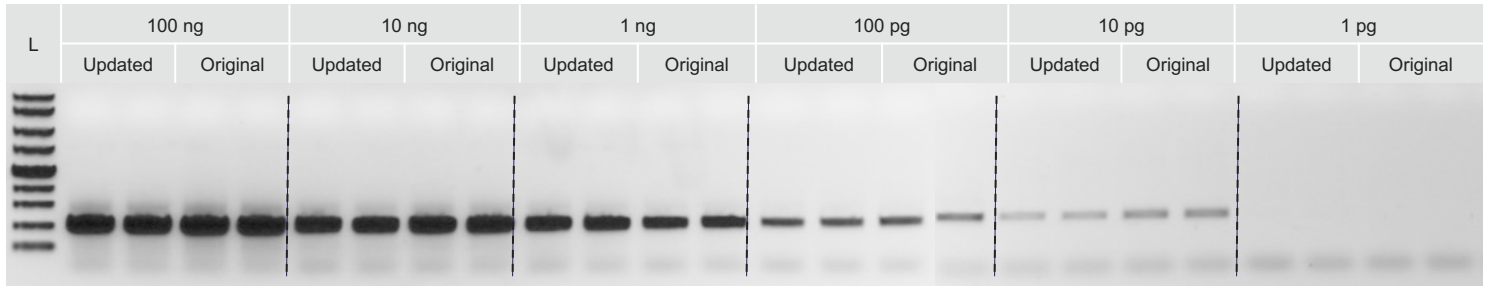
cDNA was synthesized from various targets (1 kb, 3 kb, 7.8 kb) with inputs of 10 pg to 1 µg of Invitrogen™ HeLa-S3 Total RNA, using the updated and original formulations of Maxima H Minus Reverse Transcriptase. Synthesized cDNA was PCR-amplified with Phusion Hot Start II High-Fidelity PCR Master Mix.

The updated formulation of Maxima H Minus Reverse Transcriptase retains detection sensitivity equivalent to that of the original formulation of Maxima H Minus Reverse Transcriptase.

Maxima H Minus Reverse Transcriptase sensitivity testing with plant RNA

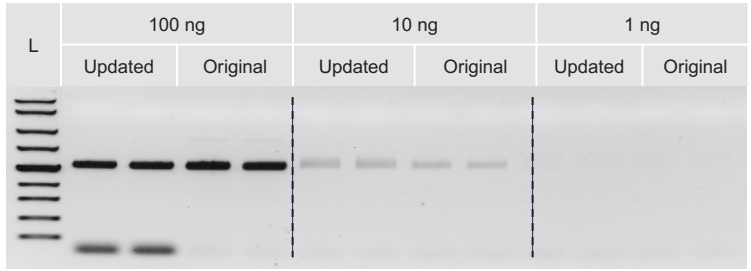
ITS-p3_u4 (0.449 kb)

A

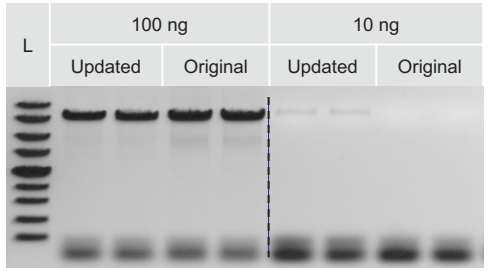


SSII-7D (1.65 kb)

B



Tn (6.66 kb)



Original formulation—
Maxima H Minus Reverse Transcriptase formulated with Triton X-100 detergent

Updated formulation—
Maxima H Minus Reverse Transcriptase reformulated with an alternative detergent

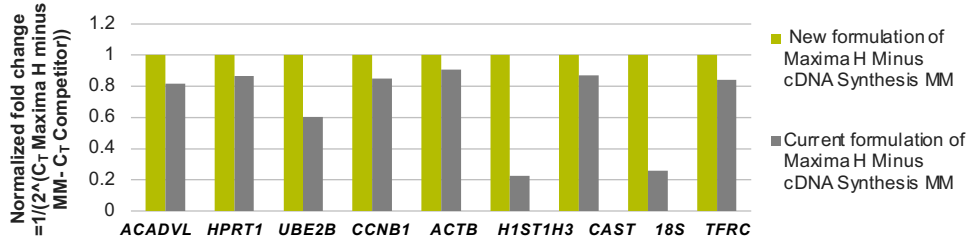
Detection sensitivity with different amounts of input plant RNA.

cDNA was synthesized from various targets (0.382–6.66 kb) with inputs of 10 pg to 1 µg of total plant RNA (**A**, wheat; **B**, tobacco), using the updated and original formulations of Maxima H Minus Reverse Transcriptase. Synthesized cDNA was PCR-amplified with Phusion Hot Start II High-Fidelity PCR Master Mix.

The updated formulation of Maxima H Minus Reverse Transcriptase retains detection sensitivity equivalent to that of the original formulation of Maxima H Minus Reverse Transcriptase.

Performance of Maxima H Minus cDNA Synthesis Master Mix with different targets in RT-qPCR

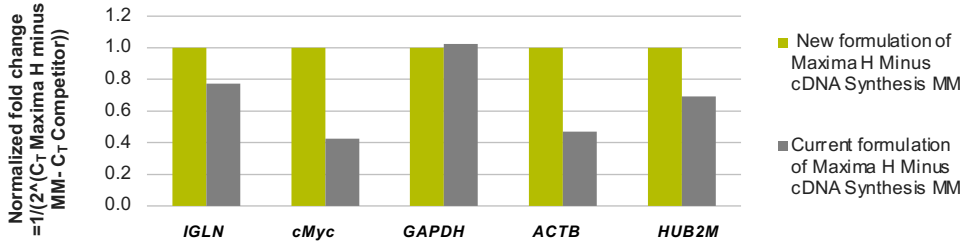
Applied Biosystems™ TaqMan® Assay



Performance of Maxima H Minus cDNA Synthesis Master Mix across different TaqMan® Assay targets.

cDNA was synthesized from 100 ng of HeLa-S3 total RNA input and analyzed with 9 different gene-specific primer sets in TaqMan Assays, using Applied Biosystems™ TaqMan® Fast Advanced Master Mix. Higher normalized fold changes indicate higher cDNA yields.

Applied Biosystems™ PowerTrack™ SYBR™ Green Assay



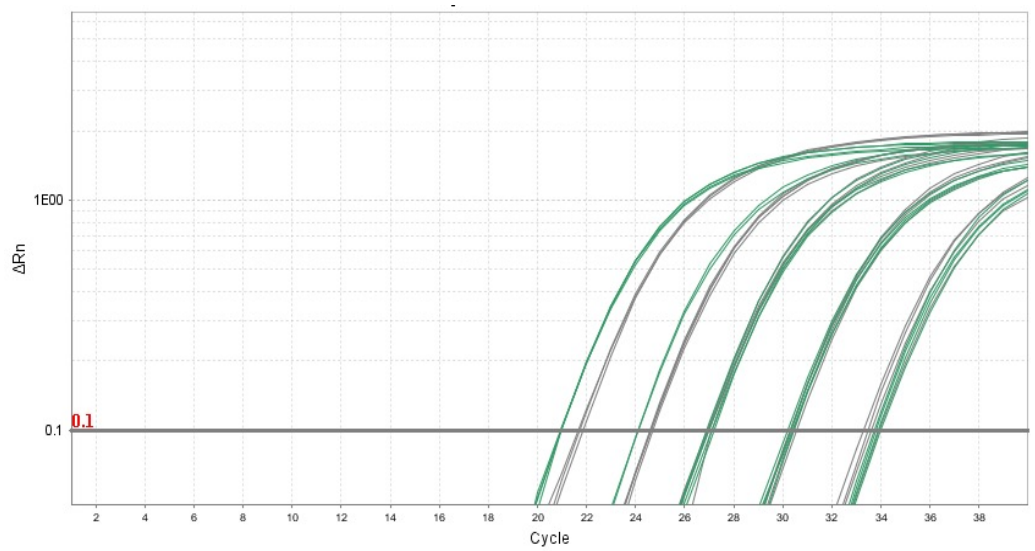
Performance of Maxima H Minus cDNA Synthesis Master Mix across different PowerTrack SYBR Green assay targets.

cDNA was synthesized from 100 ng of HeLa-S3 total RNA input and analyzed with 5 different gene-specific primer sets in SYBR Green assays, using Applied Biosystems™ PowerTrack™ SYBR™ Green Master Mix. Higher normalized fold changes indicate higher cDNA yields.

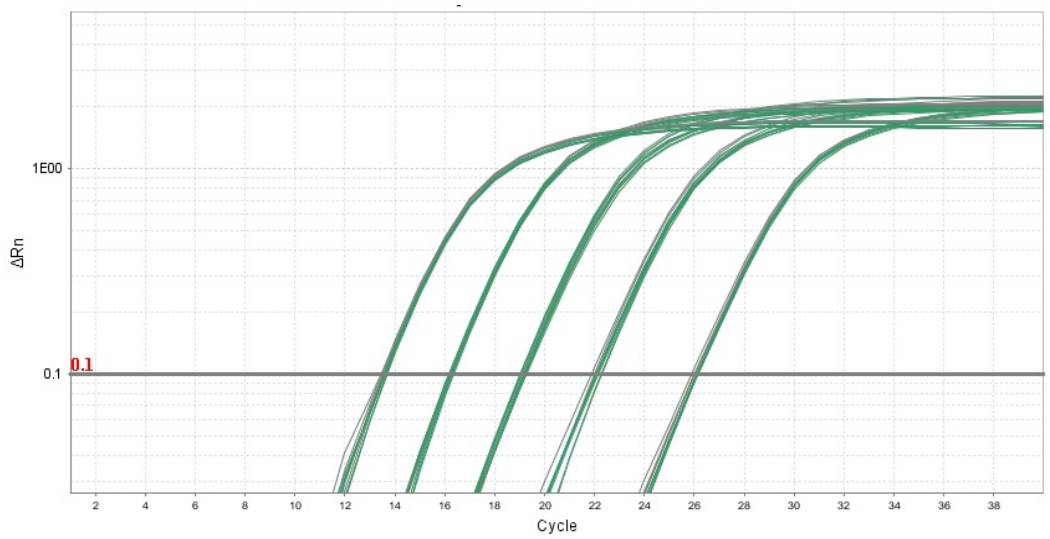
The updated formulation of Maxima H Minus cDNA Synthesis Master Mix retains performance equivalent to that of the original formulation of Maxima H Minus cDNA Synthesis Master Mix.

Dynamic range of RT-qPCR using Maxima H Minus cDNA Synthesis Master Mix

A TaqMan Assay (*UBE2B* gene)



B SYBR Green Assay (*GAPDH* gene)



Dynamic range of Maxima H Minus cDNA Synthesis Master Mix.

cDNA was synthesized from gene targets **(A)** *UBE2B* and **(B)** *GAPDH* with 100 ng to 100 pg of HeLa-S3 total RNA, using the updated (green) and original (gray) formulations of Maxima H Minus cDNA Synthesis Master Mix. cDNA was analyzed with **(A)** TaqMan Fast Advanced Master Mix and **(B)** SYBR Green Master Mix.
UBE2B: E = 102.9%, R^2 = 0.998 (updated formulation); E = 112.9%, R^2 = 0.995 (original formulation).
GAPDH: E = 109.9%, R^2 = 0.994 (updated formulation); E = 110.3%, R^2 = 0.994 (original formulation).

The updated formulation of Maxima H Minus cDNA Synthesis Master Mix retains dynamic range equivalent to that of the original formulation of Maxima H Minus cDNA Synthesis Master Mix.

Thank you