55C MMLV-RT

Robust thermostable reverse transcriptase ideal for ambient temperature stable molecular assays.

- Reverse transcriptase activity up to 60°C
- Ideal for RNA with high secondary structure such as viral genomes
- Sensitive detection of low copy number RNA targets
- Ideal for developing fast, highly reproducible RT-qPCR assays

Challenges with RNA Secondary Structures

Product Information

PRODUCT	CAT NO.	VOLUME	REACTIONS
55C MMLV-RT Thermostable Moloney Murine Leukemia Virus (concentration 200 U/µL)	MDX117	50 µL	10,000 Units
		200 µL	40,000 Units
		1 mL	200,000 Units
		10 mL	2,000,000 Units

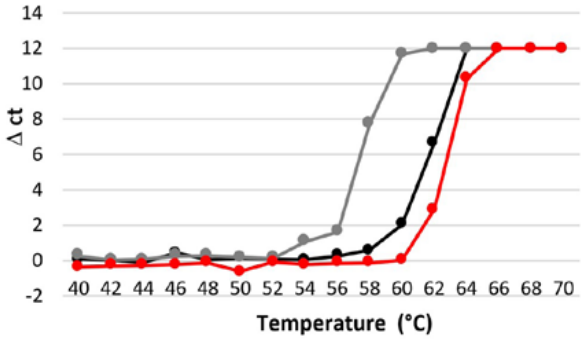
Performance Data

High Thermostability

Traditional Moloney Murine Leukemia Virus Reverse Transcriptase (MMLV-RT) is not thermostable and can only maintain its enzymatic activity at relatively low temperatures (up to 50°C). However for cDNA synthesis, a higher reaction temperature is desirable as it reduces RNA secondary structures which can inhibit reverse transcription and it minimizes nonspecific primer binding.

Meridian has developed 55C MMLV-RT a new reverse transcriptase that has higher thermal stability and reduced RNase H activity. The enzyme can be used to synthesize first-strand cDNA at temperatures up to 60°C, which improves the cDNA yield from difficult RNA targets that require higher temperature to denature strong secondary structures.

Comparison of thermostability of 55C MMLV-RT vs other RTases

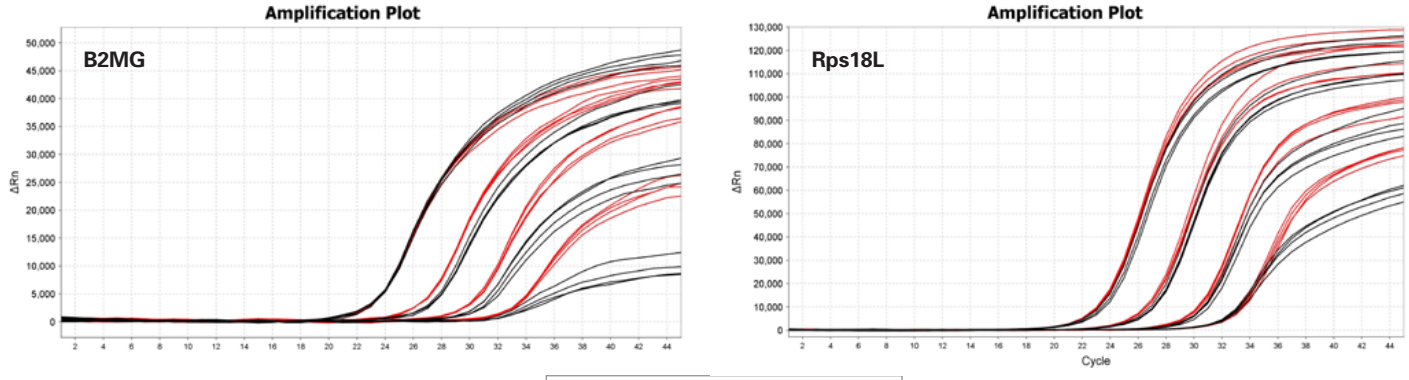


Performance of Meridian's 55C MMLV-RT (red), standard MMLV-RT (grey) and SuperScript III thermostable reverse transcriptase (Thermo, **black)** after pre-incubation at 40°C to 70°C for 10 mins, in a multiplex one-step RT-qPCR assay. Δct values were calculated against the ct value produced by the same enzyme stored at -20 °C. The data illustrates the increased thermal stability of 55C MMLV-RT when compared to other MMLV-RT enzymes and its ability to efficiently synthesize cDNA at temperatures up to 60°C.

MMLV-RT | SuperScript III (Thermo) | 55C MMLV-RT

Higher Enzyme Efficiency and Sensitivity

55C MMLV-RT is designed for greater efficiency of the reverse transcription reaction, improving cDNA yield and enabling a lower limit of detection (LOD) with higher sensitivity in one-step RT-qPCR assays.

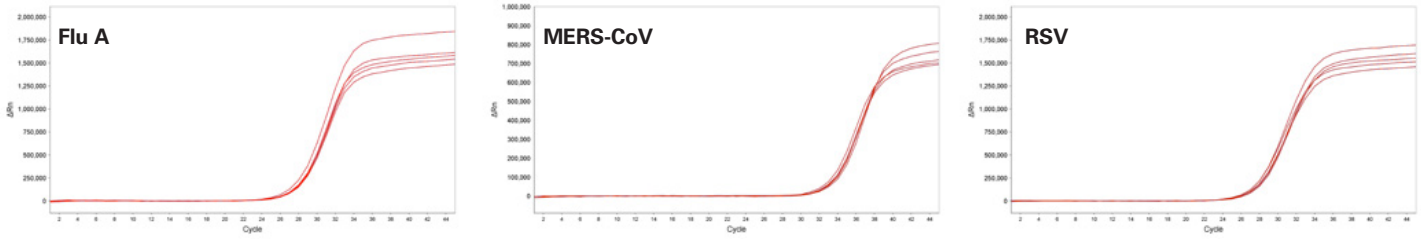


55C MMLV-RT | SuperScript III (Thermo)

The sensitivity of 55C MMLV-RT (red) was compared to SuperScript III (Thermo, **black)** in a multiplex one-step RT-qPCR assay using a 10-fold serial dilution of mammalian total RNA. The results demonstrate that 55C MMLV-RT has higher performance with better sensitivity and end-fluorescence.

Ideal for High-Throughput, Multiplex One-Step RT-qPCR Assays

55C MMLV-RT exhibits robust performance in one-step RT-qPCR assays detecting RNA viruses with strong secondary structures.



55C MMLV-RT

55C MMLV-RT was tested in a triplex one-step RT-qPCR assay on respiratory RNA virus targets (Influenza A, MERS-CoV and RSV). The results demonstrate the sensitivity and reproducibility of 55C MMLV-RT even in challenging conditions such as multiplex RT-qPCR reactions where targets may differ greatly in abundance.

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