

# Thermostable Reverse Transcriptase

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

- **Stable:** Reverse transcriptase activity up to 60°C
- **Robust:** Ideal for RNA with high secondary structure such as viral genomes
- **Sensitive:** Detection of low copy number RNA targets
- **Glycerol-free:** Formulation compatible with lyophilization and air-drying applications
- **Fast:** Ideal for developing fast, highly reproducible RT-qPCR assays

**Meridian new Thermostable Reverse Transcriptase is a robust thermostable MMLV-RT, designed to reduce RNase H activity and increase thermal stability. The enzyme offers higher cDNA yields and improved efficiency on GC-rich target RNAs and RNA with high secondary structure, such as viral RNA sequences.**

## HIGH SENSITIVITY

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 new Thermostable Reverse Transcriptase 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.

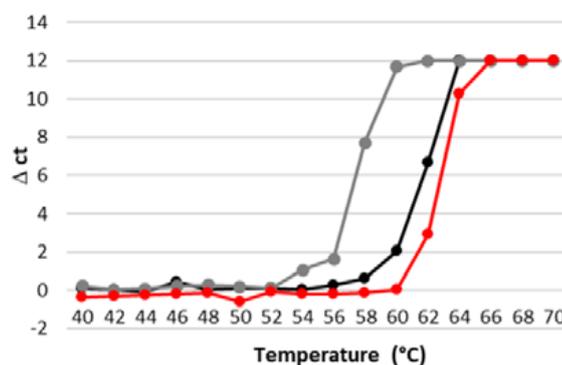
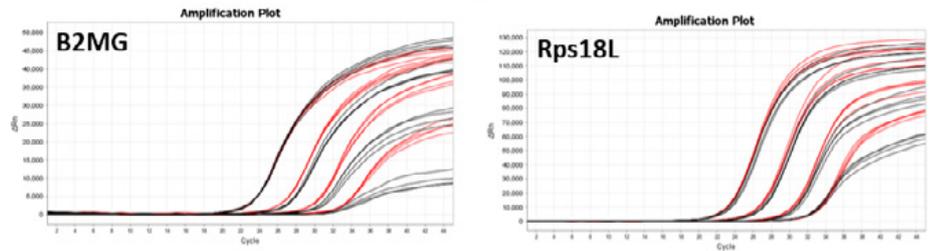


Fig. 1 Comparison of thermostability

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

## HIGHER ENZYME EFFICIENCY AND SENSITIVITY

Meridian's ThermoStable Reverse Transcriptase is designed for greater efficiency of the reverse transcription reaction, enabling a lower limit of detection (LOD) with higher sensitivity in one-step RT-qPCR assays.

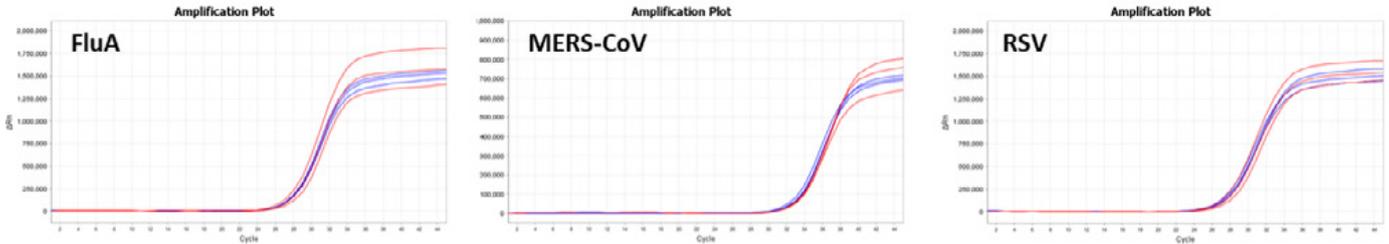


**Fig. 2 High sensitivity and specificity**

The sensitivity of ThermoStable Reverse Transcriptase (red) was compared to supplier T (black) in a multiplex one-step RT-qPCR assay using a 10-fold serial dilution of mammalian total RNA. The results demonstrate that Meridian's ThermoStable Reverse Transcriptase has higher performance with better sensitivity and end-fluorescence.

## COMPATIBLE WITH LYOPHILIZATION AND AIR-DRYING APPLICATIONS

ThermoStable Reverse Transcriptase proprietary formulation allows for incorporation into assays designed for subsequent lyophilization or air-drying.



**Fig. 3 Reproducible results**

Meridian's ThermoStable Reverse Transcriptase was used in an air-dryable RT-qPCR Mix and dried down in a fan assisted oven (red). After rehydration, the mix was tested against freshly prepared liquid mix (blue), in a triplex one-step RT-qPCR assay on respiratory RNA virus targets (Influenza A, MERS-CoV and RSV). The results demonstrate that ThermoStable Reverse Transcriptase retains the same activity level after air-drying even in challenging conditions such as multiplex RT-qPCR reactions.

## APPLICATIONS

The high-quality first-strand cDNA generated makes ThermoStable Reverse Transcriptase ideal for:

- Construction of cDNA libraries
- 2- Step qPCR assays
- Viral RNA targets
- Gene cloning

## Ordering Information

	Size	Cat. #
ThermoStable Reverse Transcriptase (200 U/ $\mu$ L)	10,000 Units	BIO-65111
	4 x 10,000 Units	BIO-65112

## Ordering information:

### USA

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