







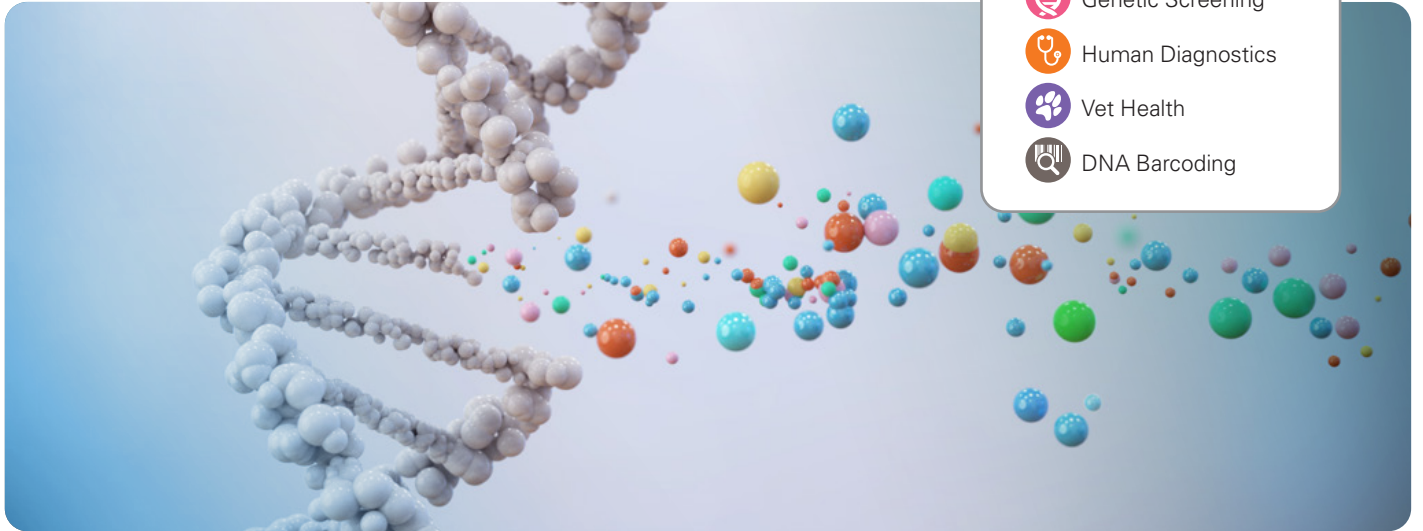


# Master Mixes for Molecular Ambient-Temperature Stable Assays

DNA Polymerases and qPCR/RT-qPCR Master Mixes Formulated for Lyophilization or Oven/Air-Drying

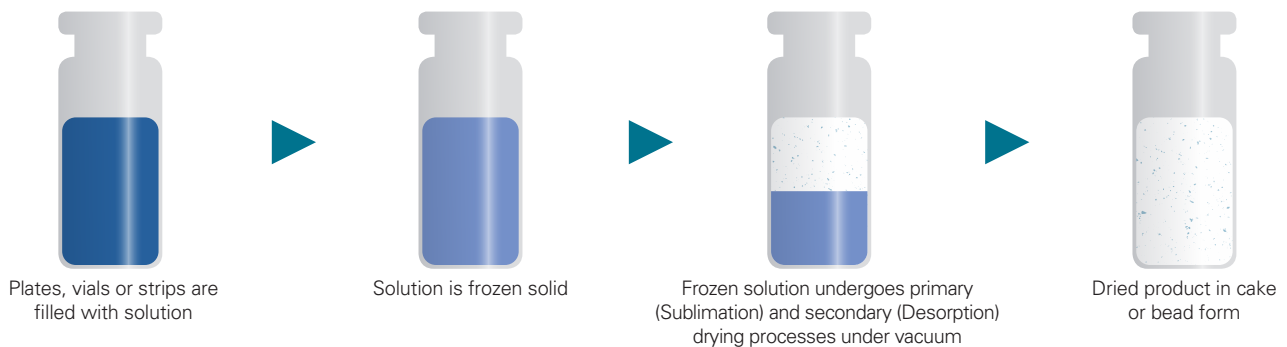
**APPLICATION KEY**

-  Food Testing
-  Water Testing
-  Environmental
-  Blood Banking
-  Genetic Screening
-  Human Diagnostics
-  Vet Health
-  DNA Barcoding



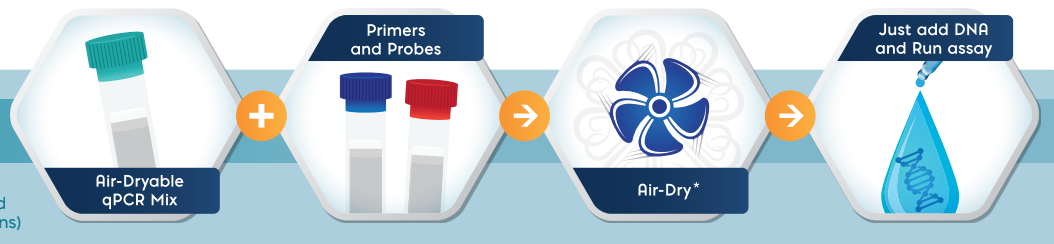
Molecular diagnostic tests are progressively moving towards lyophilized and air-dried formats. There are several advantages for this, including room temperature shipping and storage, extended shelf-life and increased flexibility in sample volume. In order to be compatible with drying however, enzyme preparations must be glycerol-free and include specialized excipients that preserve the mixture as it is exposed to various conditions including freezing, temperature ramps, vacuum and dehydration. An ideal lyophilization formulation for example, should stabilize an enzyme in a freeze-dried format and allow very fast rehydration and reactivation of the enzyme preparations, without impacting its performance post rehydration.

## Key Steps in Lyophilization Process



## HOW IT WORKS

\*(Wet mix can be dispensed into vials, plates or strips & subsequently air-dried under temperature-controlled conditions)



## Air-Dryable™ qPCR Mix

Applications: 

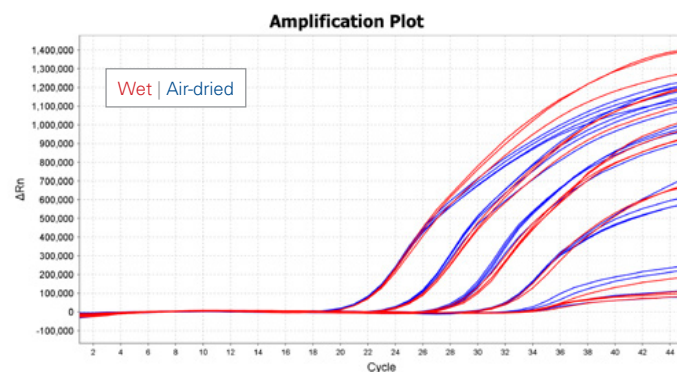
- Simple and easy to use glycerol-free mix containing Taq polymerase, reaction buffer, dNTPs, MgCl<sub>2</sub>, and air-dry excipients
- Ideal for multiplex assays on POC diagnostic platforms or automated high-throughput instruments
- Compatible with a range of air-drying protocols to produce an ambient temperature stable mix
- Reduces cost and complexity

### PRODUCT HIGHLIGHTS

#### Full enzyme activity following air-drying

Activity of Air-Dryable qPCR Mix in both wet and air-dried formats were compared by singleplex qPCR assay on 10-fold dilution mouse cDNA template. The air-dried mix showed no loss of activity and sensitivity when compared to freshly prepared wet mix up to the assay limit of detection.

PRODUCT	CAT NO.	VOLUME	REACTIONS
Air-Dryable™ qPCR Mix, 4x	MDX082	5 mL	1,000 Rxn
		50 mL	10,000 Rxn



## Air-Dryable™ RT-qPCR Mix

Applications: 

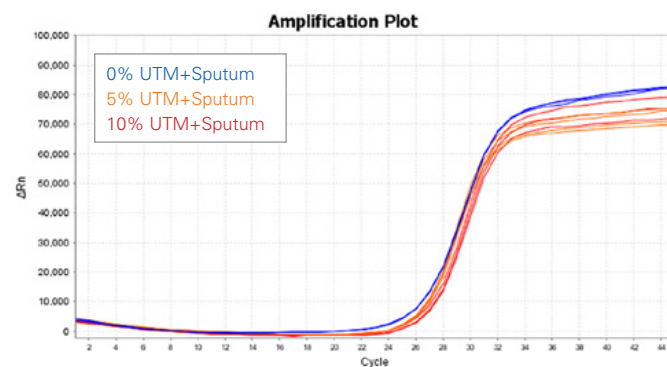
- Simple and easy to use
- Ideal for multiplex assays on POC diagnostic platforms or automated high-throughput instruments
- Compatible with a range of air-drying protocols to produce an ambient temperature stable mix
- Reduces cost and complexity

### PRODUCT HIGHLIGHTS

#### High-tolerance to PCR inhibitors in sputum samples

Amplification profile of a mouse RNA target spiked into samples containing 10%, 5% or 0% artificial sputum in Universal Transport Media (UTM). The data illustrates that the performance of Air-Dryable 1-Step RT-qPCR Mix (MDX095) exhibits high tolerance towards inhibitors present in artificial sputum and UTM.

PRODUCT	CAT NO.	VOLUME	REACTIONS
Air-Dryable™ 1-Step RT-qPCR Mix, 4x	MDX095	5 mL	1,000 Rxn
		50 mL	10,000 Rxn



## Air-Dryable™ Direct DNA qPCR Blood

Applications:    

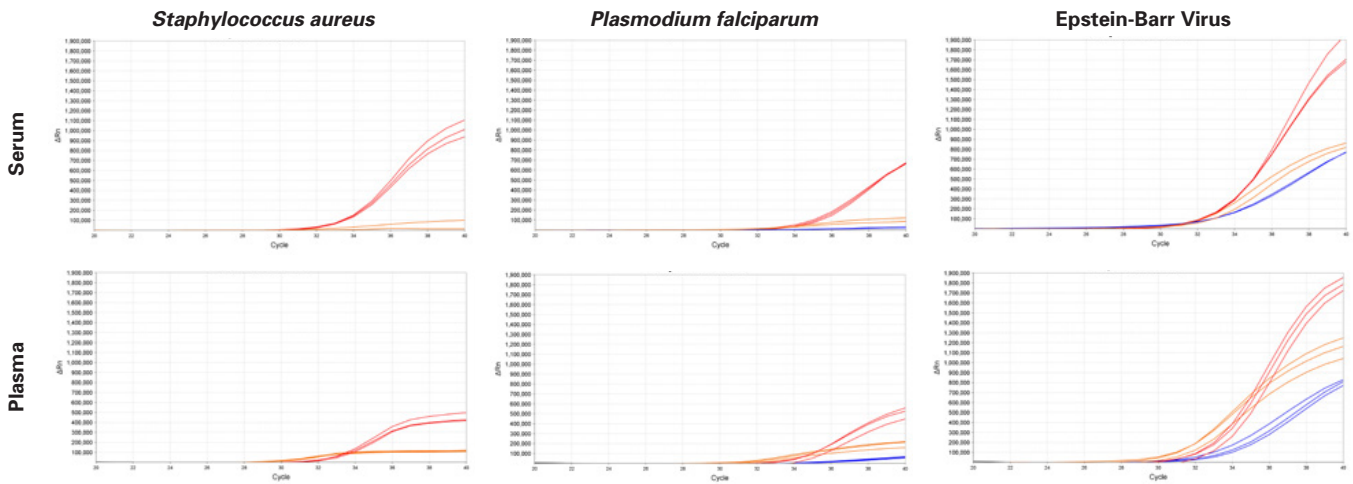
- Glycerol-free mix containing Taq polymerase, reaction buffer, dNTPs, MgCl<sub>2</sub>, and air-dry excipients
- Specifically designed to overcome PCR inhibitors found in whole blood, plasma and serum
- Ideal for developing direct (extraction-free) qPCR assays that are ambient-temperature stable

PRODUCT	CAT NO.	VOLUME	REACTIONS
Air-Dryable™ Direct DNA qPCR Blood, 4x	MDX092	5 mL	1,000 Rxn
		50 mL	10,000 Rxn

### PRODUCT HIGHLIGHTS

#### High reaction efficiency on plasma, serum and whole blood samples containing anticoagulants

Plasmid DNA containing the target *S. aureus*, *P. falciparum* and Epstein-Barr virus was spiked into 10% serum or 10% K2-EDTA plasma and amplified in a triplex reaction using air-dried MDX092 format (red) and kits from supplier R (orange) and supplier T (blue). The results illustrate higher end fluorescence and better sensitivity with MDX092 than with mixes from supplier R and T.



## Lyo-Ready™ qPCR Mix

- Ready-to-use and glycerol-free qPCR master mix formulated with a specialized blend of excipients
- Ideal for multiplex assays on automated high-throughput instruments
- Compatible with a range of lyophilization protocols to produce freeze-dried beads or cakes

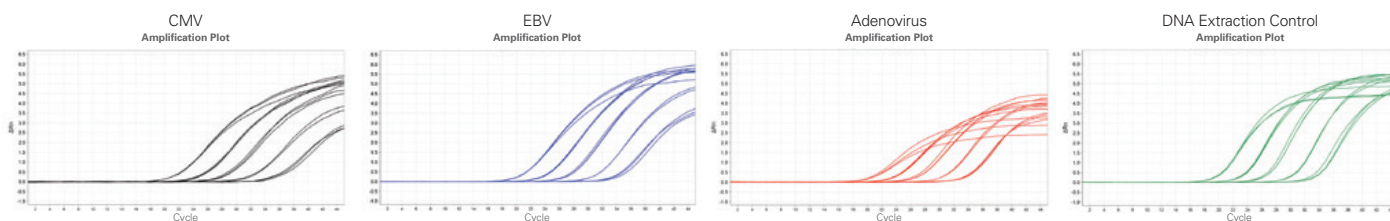
Applications:    

PRODUCT	CAT NO.	VOLUME	REACTIONS
Lyo-Ready™ qPCR Mix	MDX021	5 mL	500 Rxn
		100 mL	10,000 Rxn
Lyo-Ready™ qPCR Mix 2.6x	MDX023	4 mL	500 Rxn
		100 mL	12,500 Rxn

## PRODUCT HIGHLIGHTS

### Powerful multiplexing capacity

Three viral sequences, Cytomegalovirus (CMV) Adenovirus, Epstein-Barr Virus (EBV) and a DNA Extraction Control were amplified with equal efficiency from synthetic DNA templates with Lyo-Ready qPCR Mix in a quadruplex qPCR probe assay.



## Lyo-Ready™ 1-Step RT-qPCR Mix

- Glycerol-free RT-qPCR master mix formulated with a specialized blend of excipients
- Suited for multiplex assays and low-copy number targets
- Virus mix (MDX062) is optimized for amplification of RNA or DNA viruses with high secondary structure from either extracted or intact virus samples

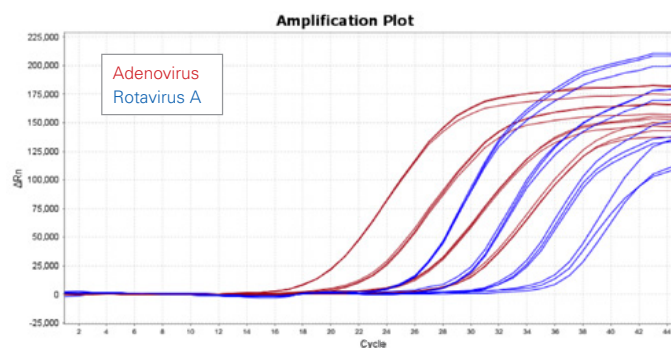
Applications:    

PRODUCT	CAT NO.	VOLUME	REACTIONS
Lyo-Ready™ 1-Step RT-qPCR Mix	MDX024	10 mL	1,000 Rxn
		100 mL	10,000 Rxn
Lyo-Ready™ 1-Step RT-qPCR Virus Mix	MDX062	10 mL	1,000 Rxn
		100 mL	10,000 Rxn

## PRODUCT HIGHLIGHTS

### High sensitivity amplification from both DNA and RNA templates

Rotavirus A (dsRNA) and Adenovirus (dsDNA) were amplified in a single multiplexed RT-qPCR assay using inactivated crude viral lysates and Lyo-Ready 1-Step RT-qPCR Mix. The result illustrates that both viruses were amplified with high sensitivity, demonstrating the ability of Lyo-Ready 1-Step RT-qPCR Mix to detect low-copy number RNA and DNA targets simultaneously from a single sample.



## Lyo-Ready™ LAMP Mix

Applications:

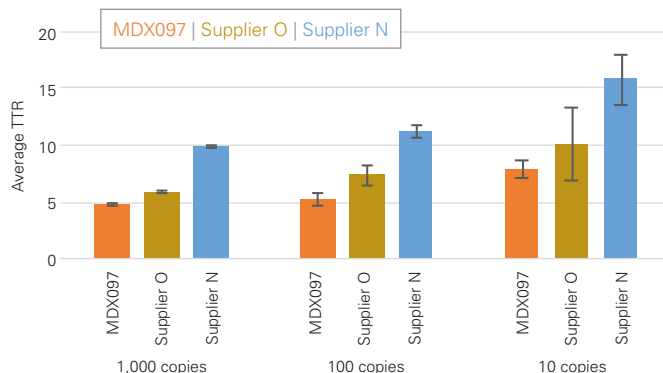
- Ideal for POC diagnostic platforms or automated high-throughput instruments
- Optimized for Loop-Mediated Isothermal DNA Amplification (LAMP)
- Concentrated 4x master mix
- Contains all the required excipients for subsequent lyophilization

### PRODUCT HIGHLIGHTS

#### Better Sensitivity with Lower Sample Input

The average time to results (TTR) for Lyo-Ready LAMP Mix (orange) and a mix from supplier O (tan) and supplier N (blue) were compared using a 10-fold serial dilution for the of BRCA1 gene (1,000, 100 and 10 copies). The relative concentrations of LAMP oligos were optimized to obtain earlier TTR compared to other experiments. The results demonstrate the increased sensitivity and greater reproducibility of the Lyo-Ready LAMP Mix, with earlier TTR values and a lower SD when compared to other suppliers. Reactions were incubated at 65°C for 60 min and TTR were measured at 1:10 of end fluorescence.

PRODUCT	CAT NO.	VOLUME	REACTIONS
Lyo-Ready™ LAMP Mix	MDX097	5 mL	800 Rxn
		50 mL	8,000 Rxn



## DNA Polymerase

### Aptamer Taq HS (Glycerol Free)

Applications:

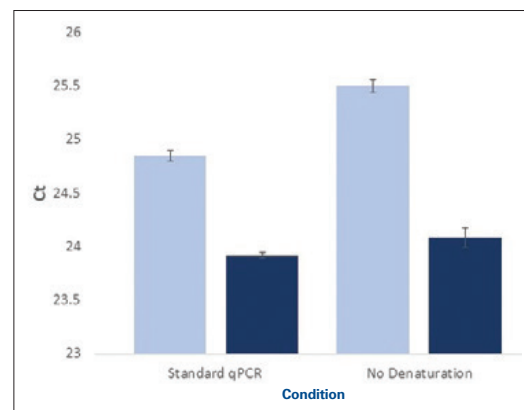
- Highly suited to multiplex, high-throughput viral detection assays requiring high specificity
- No activation step - reduce an assay run time by up to 15 minutes
- Convenient room temperature reaction set-up
- High enzyme concentration (50 U/μL) compatible with lyophilization protocols

### PRODUCT HIGHLIGHTS

#### Fast Hot-Start

Comparison of qPCR performance of Aptamer Taq HS (glycerol free) vs an antibody hot-start Taq. PCR reactions were run with and without an initial 2 minute high temperature activation step for both polymerases and Ct values were compared. No difference was observed in the Ct values between the reactions for the Aptamer Taq HS (glycerol free), indicating that an activation step does not have an effect on polymerase performance. In contrast, the antibody hot-start Taq had a lower Ct value in the reaction with a 2 min high-temperature denaturation step indicating a improvement in performance over the reaction with no activation step. Overall, the data illustrates the immediate activation of the Aptamer Taq HS (glycerol free) allowing for faster hot-start and faster reaction protocols.

PRODUCT	CAT NO.	VOLUME	REACTIONS
Aptamer Taq HS (glycerol free) (50 U/μL)	MDX015	20 μL	50 mL
		500 μL	500 mL



## Glycerol-Free Taq HS 50 U/μL

Applications: 

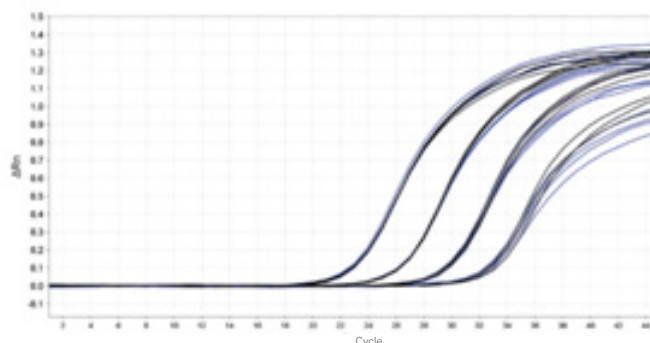
- Lyophilization-compatible DNA polymerase ideal for automated high-throughput testing
- Provided as separate 'tubes' of Taq, hot-start antibody, and enzyme dilution buffer
- Can be used with Lyo-Ready qPCR Buffer (Cat #MDX022) to develop lyophilized qPCR mixes

### PRODUCT HIGHLIGHTS

#### Comparison of freshly prepared and lyophilized glycerol-free Taq HS master mixes

A 10-fold serial dilution of template DNA was used to set up two sets of qPCR assays. One set was lyophilized (blue) and the other left as a wet mix (black). Results illustrate that lyophilization of Glycerol-Free Taq HS does not have an effect on the quality of the qPCR, as both the assays demonstrate identical efficiency and sensitivity.

PRODUCT	CAT NO.	VOLUME	REACTIONS
Glycerol-Free Taq HS 50 U/μL	MDX011	20 μL	1,000 Units
		500 μL	25,000 Units
Lyo-Ready qPCR Buffer 2.5x	MDX022	4 mL	1,000 Rxn
		100 mL	12,500 Rxn



## Reverse Transcriptase

### Lyo-compatible MMLV-RT

Applications: 

- High-concentration MMLV-RT suitable for incorporation into lyophilized RT-PCR assays
- Demonstrates high efficiency in RT-qPCR assays and high sensitivity detection of low copy number RNA targets

PRODUCT	CAT NO.	VOLUME	REACTIONS
Lyo-compatible MMLV-RT	MDX042	8 μL	1,000 Rxn
		80 μL	10,000 Rxn

➤ To test a sample or to ask additional questions, E: [info@meridianlifescience.com](mailto:info@meridianlifescience.com)

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