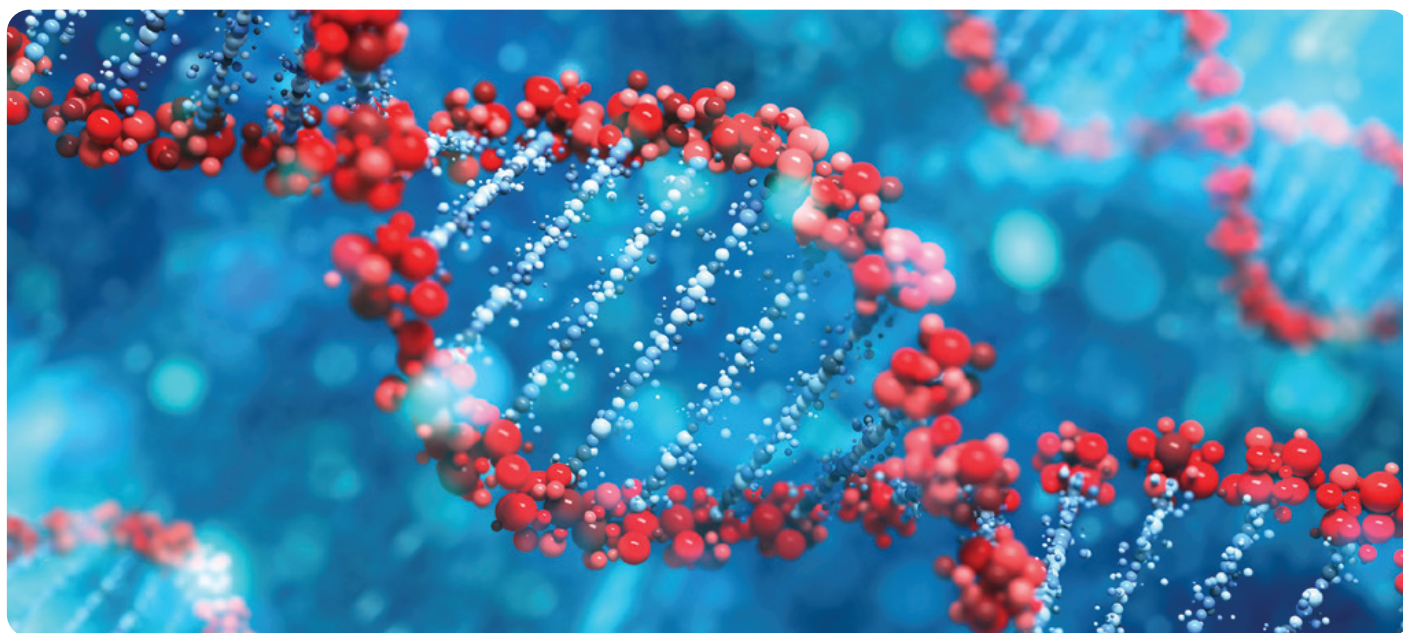


Reagent Solutions for Molecular Diagnostics

PCR/RT-PCR Enzymes, Optimized Mixes and dNTPs



MOLECULAR REAGENTS FOR MDX APPLICATIONS



HUMAN DIAGNOSTICS



VET HEALTH



BLOOD BANKING



GENETIC SCREENING



ENVIRONMENTAL



WATER TESTING



FOOD TESTING



DNA BARCODING

Meridian is a primary manufacturer of specialized high-quality molecular reagents and offers solutions to a wide range of industries to diagnose and treat diseases, discover new therapeutics or develop tests for environmental, food and cosmetic safety.

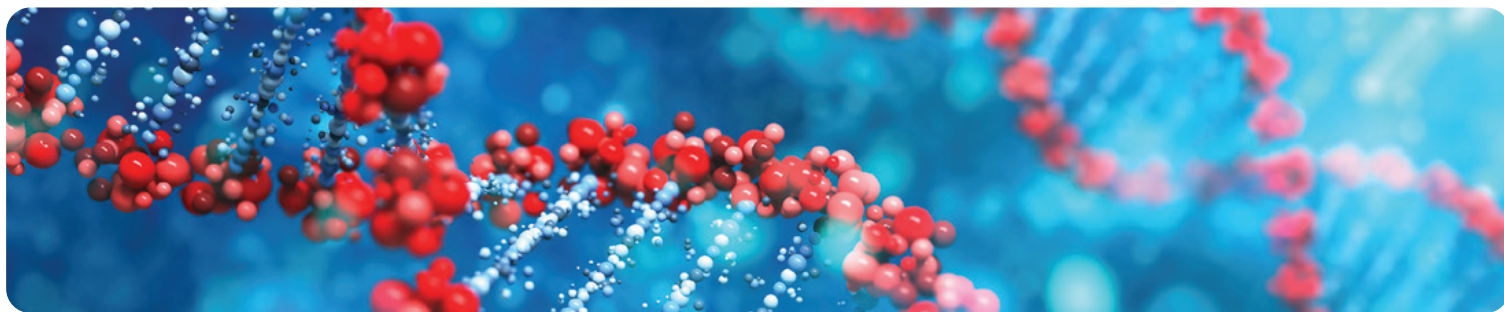
Products include PCR and RT-PCR enzymes, ultra-pure dNTPs and buffer systems for IVD assay development and optimization. In addition to these reagents, Meridian has also developed a range of ready-to-use solutions for molecular diagnostic manufacturers. These include enzymes and mixes formulated for lyophilization, internal quality controls to monitor extraction and co-purification of inhibitor in qPCR/RT-qPCR assays as well as a unique mix designed for direct qPCR from crude lysates.



Product Selection Chart

- Suitable
- Recommended

	Cat#	Master Mix	Hot-Start	Ambient-Temperature Assays	Proof-Reading	Low Residual DNA	Fast Reactions	Multiplex Reactions	Inhibitor-Rich Samples	Low Copy Template
qPCR	Low DNA qPCR Mix	MDX030	✓	Chemical			●●		●●	●●
	Fast qPCR Mix	MDX020	✓	Antibody				●●	●●	●●
	Hi-Throughput dUTP Mix	MDX031 & MDX060	✓	Antibody				●	●●	
	Inhibitor-Tolerant qPCR Mix	MDX013	✓	Antibody				●●	●●	
RT-qPCR	Inhibitor-Tolerant RT-qPCR Mix	MDX016	✓	Antibody			●●	●●	●●	●●
	Fast 1-Step RT-qPCR Mix	MDX032	✓	Antibody				●●	●●	
	Low LOD 1-Step RT-qPCR Mix	MDX025	✓	Antibody				●●	●●	●●
	Lyo-Compatible MMLV-RT	MDX042		No	●●			●	●	
	RNase-Tolerant MMLV-RT	MDX043		No				●	●●	
	MMLV-RT	MDX044		No				●	●	
Ambient-Temp Stable qPCR/RT-qPCR	Air-Dryable™ qPCR Mix	MDX082	✓	Antibody	●●			●●	●●	●
	Air-Dryable™ 1-Step RT-qPCR Mix	MDX095	✓	Antibody	●●			●●	●●	●
	Air-Dryable™ Direct DNA qPCR Blood	MDX092	✓	Antibody	●●			●●	●●	●
	Lyo-Ready™ qPCR Mix	MDX021 & MDX023	✓	Antibody	●●			●●	●●	●
	Lyo-Ready™ 1-Step RT-qPCR Mix	MDX024	✓	Antibody	●●			●	●●	
	Lyo-Ready™ 1-Step RT-qPCR Virus Mix	MDX062	✓	Antibody	●●			●	●●	
LAMP	Lyo-Ready™ LAMP Mix	MDX097	✓	No	●●			●●	●●	●●
	Bst DNA Polymerase	MDX012		No				●●	●●	
	High Conc. Glycerol-Free Bst	MDX018		No	●●			●●		●
Enzymes	Taq DNA Polymerase	MDX001		No				●	●	●
	Taq HS DNA Polymerase	MDX008		Antibody				●●	●●	●●
	Glycerol-Free Taq HS	MDX011		Antibody	●●			●●	●	
	Aptamer Taq HS (Glycerol-Free)	MDX015		Aptamer	●●			●●	●●	●●
	Low DNA Taq HS	MDX009 & MDX010		Chemical				●●	●●	
	High-Fidelity Pfu	MDX003		No		●●				
	High-Specificity Pfu HS	MDX006		Aptamer		●●			●●	●●







Optimized Mixes







PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
qPCR (DNA Template) Hot-Start Master Mixes				
Low DNA qPCR Mix Ideal for microbial and fungal DNA detection assays.		MDX030	5 mL	500 Rxn
			100 mL	10,000 Rxn
Fast qPCR Mix Suitable for fast high-multiplex qPCR assays.		MDX020	5 mL	500 Rxn
			100 mL	10,000 Rxn
Fast qPCR Mix, 5x Suitable for fast high-multiplex qPCR assays (5x concentration).		MDX072	2 mL	500 Rxn
			40 mL	10,000 Rxn
Digital PCR Mix, 5x Suitable for digital PCR (dPCR) assays (5x concentration).		MDX074	2 mL	500 Rxn
			40 mL	10,000 Rxn
Hi-throughput dUTP qPCR Mix Optimized formulation for efficient dUTP incorporation to remove background PCR product contamination.		MDX031	5 mL	500 Rxn
			100 mL	10,000 Rxn
Inhibitor-Tolerant qPCR Mix Designed for amplification direct from crude lysates or inhibitor-rich samples such as urine, cerebral spinal fluid (CSF), blood as well as plants.		MDX013	5 mL	500 Rxn
			100 mL	10,000 Rxn
Inhibitor-Tolerant qPCR Mix, 5x Designed for amplification direct from crude lysates or inhibitor-rich samples such as urine, cerebral spinal fluid (CSF), blood as well as plants (5x concentration).		MDX073	2 mL	500 Rxn
			40 mL	10,000 Rxn
RT-qPCR (RNA Template) Hot-Start Master Mixes				
Fast 1-Step RT-qPCR Mix RT-qPCR mix formulated for fast, automated, high-throughput systems.		MDX032	10 mL	1,000 Rxn
			100 mL	10,000 Rxn
Inhibitor-Tolerant RT-qPCR Mix, 4x All-in-one, 4x master mix designed for RT-qPCR from crude samples such as sputum, stool and saliva. No sample extraction required.		MDX016	1 mL	200 Rxn
			50 mL	10,000 Rxn
Low LOD 1-Step RT-qPCR Mix Suitable for detecting RNA and DNA viruses at very low levels for applications such as blood bank or transplant viral testing.		MDX025	10 mL	1,000 Rxn
			100 mL	10,000 Rxn
Ambient-Temperature Stable qPCR/RT-qPCR Hot-Start Master Mixes				
Air-Dryable™ qPCR Mix, 4x Ready-to-use qPCR mix ideal for oven or air-drying technologies.		MDX082	5 mL	1,000 Rxn
			50 mL	10,000 Rxn
Air-Dryable™ RT-qPCR Mix, 4x Ready-to-use RT-qPCR Mix ideal for oven or air drying technologies.		MDX095	5 mL	1,000 Rxn
			50 mL	10,000 Rxn
Air-Dryable™ Direct DNA qPCR Blood, 4x Inhibitor-tolerant qPCR mix ideal for oven or air-drying technologies. Can be used for direct detection using whole blood, serum or plasma samples.		MDX092	5 mL	1,000 Rxn
			50 mL	10,000 Rxn
Lyo-Ready™ qPCR Mix Ready-to-use, glycerol-free qPCR master mix formulated with a specialized blend of excipients for lyophilization into beads or pellets.		MDX021	5 mL	500 Rxn
			100 mL	10,000 Rxn

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

Optimized Mixes *continued*













































PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
Ambient-Temperature Stable qPCR/RT-qPCR Hot-Start Master Mixes <i>Continued</i>				
Lyo-Ready™ qPCR Mix, 2.6x Ready-to-use, glycerol-free qPCR master mix formulated with a specialized blend of excipients for lyophilization into beads or pellets (2.6x concentration).		MDX023	8 mL	1,000 Rxn
			100 mL	12,500 Rxn
Lyo-Ready™ 1-Step RT-qPCR Mix Ready-to-use, glycerol-free RT-qPCR master mix formulated with a specialized blend of excipients for lyophilization into beads or pellets.		MDX024	10 mL	1,000 Rxn
			100 mL	10,000 Rxn
Lyo-Ready™ 1-Step RT-qPCR Virus Mix Ready-to-use, glycerol-free RT-qPCR master mix formulated with a specialized blend of excipients and highly suited for amplification of RNA viruses with a high secondary structure.		MDX062	10 mL	1,000 Rxn
			100 mL	10,000 Rxn
Loop-Mediated Isothermal Amplification (LAMP) Master Mixes				
Lyo-ready™ LAMP Mix Ready-to-use, glycerol-free RT-qPCR master mix formulated with a specialized blend of excipients for lyophilization into beads or pellets.		MDX097	5 mL	800 Rxn
			50 mL	8,000 Rxn

Polymerases

PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
DNA Polymerases				
Taq DNA Polymerase DNA Polymerase provided with optimized buffer system for fast PCR reactions across a range of templates. (<i>*Enzyme only</i>)		MDX001	100 µL	500 Units
			10 mL	50,000 Units
			10 mL	50,000 Units*
Taq HS DNA Polymerase Antibody-mediated hot-start enzyme ideal for fast multiplex reactions. Robust performance with low-copy number targets even in the presence of PCR inhibitors. (<i>*Enzyme only</i>)		MDX008	100 µL	500 Units
			10 mL	50,000 Units
			10 mL	50,000 Units*
Glycerol-Free Taq HS 50 U/µL Lyophilization-compatible, high concentration (50 U/µL), glycerol free DNA enzyme for automated high-throughput testing (<i>provided as separate antibody, enzyme and dilution buffer</i>).		MDX011	20 µL	1,000 Units
			500 µL	25,000 Units
Aptamer Taq HS (Glycerol-Free) 50 U/µL A high concentration, lyophilization-compatible Taq DNA polymerase containing a DNA aptamer which binds reversibly to the polymerase. Suitable for developing highly specific, high-throughput assays.		MDX015	20 µL	1,000 Units
			500 µL	50,000 Units
Low DNA Taq HS 5 U/µL Heat-activated, thermostable DNA polymerase suited amplification of bacterial and fungal DNA.		MDX009	100 µL	500 Units
			10 mL	50,000 Units
Low DNA Taq HS 10 U/µL Heat-activated, thermostable DNA polymerase suited to amplification of bacterial and fungal DNA.		MDX010	50 µL	500 Units
			5 mL	50,000 Units

 Human Diagnostics
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Polymerases *continued*

PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
High-Fidelity Polymerases				
High-Fidelity Pfu 3' - 5' proofreading exonuclease activity with an error rate of 3.0×10^{-6} and generates blunt-ended amplicons up to 5 kb in length.	 	MDX003	200 µL 10 mL	500 Units 25,000 Units
High-Specificity Pfu HS Mix High-fidelity, aptamer-based hot start DNA polymerase tailored for low GC bias amplification.	 	MDX006	5 mL 100 mL	200 Rxn 4,000 Rxn
Isothermal Polymerases				
Bst DNA Polymerase Stable, heat resistant DNA polymerase optimized for LAMP and contains 5' > 3' DNA polymerase activity and strong strand displacement activity.	      	MDX012	1 mL 20 mL	- -
High Conc. Glycerol-Free Bst Lyophilization-compatible DNA polymerase for isothermal applications.	      	MDX018	8 µL 80 µL	- -
Inhibitor-Tolerant Bst Buffer Optimized buffer for MDX012 and MDX018 that increases the amplification speed, sensitivity, and tolerance to salt and other inhibitors found in clinical samples and transport media.	      	MDX019	2 mL 100 mL	- -
Reverse Transcriptase				
Lyo-compatible MMLV-RT High-concentration MMLV-RT suitable for incorporation into lyophilized RT-PCR assays.	     	MDX042	8 µL 80 µL	1,000 Rxn 10,000 Rxn
RNase-Tolerant MMLV-RT Mixture of MMLV-RT and RNase inhibitor ideal for RT-qPCR assays.	     	MDX043	200 µL 2 mL	1,000 Rxn 10,000 Rxn
MMLV-RT MMLV-RT suitable for generating first strand cDNA of up to 9 kb.	    	MDX044	200 µL 2 mL	1,000 Rxn 10,000 Rxn
Next-Generation Sequencing				
NGS Clean and Select Beads Paramagnetic SPRI beads designed for clean-up and size selection of DNA fragments or NGS libraries.		MDX041	50 mL 500 mL	- -
NGS ER Enzyme Mix A mix that processes both 3' and 5' overhangs generating product that is 5' phosphorylated with 3' A overhang.		MDX040	6 mL	1,000 Rxn
NGS Ligase Enzyme that catalyzes the ligation of adaptors to 3' A overhangs.		MDX037	2 mL	1,000 Rxn
NGS Library Quantification qPCR-based assay for the quantification of only adapter-ligated library molecules.		MDX039	1 Kit	500 Rxn

-  Human Diagnostics
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Components

PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
Buffers				
NGS High-Fidelity Pfu Buffer, 10x Optimized for use with High-Fidelity Pfu (MDX003).		MDX038	5 mL	1,000 Rxn
NGS End-Repair Buffer, 5x Optimized for use with NGS ER Enzyme Mix (MDX040).		MDX035	10 mL	1,000 Rxn
NGS Ligase Buffer, 5x Optimized for use with NGS Ligase (MDX037).		MDX036	3 mL	1,000 Rxn
Taq PCR Buffer, 5x Optimized for use with Taq DNA Polymerase (MDX001) and Taq HS DNA Polymerase (MDX008).		MDX002	2 mL	500 Rxn
Bst Reaction Buffer, 10x Optimized for use with Bst DNA Polymerase (MDX012) and High Conc. Glycerol-Free Bst (MDX018).		MDX076	5 mL	-
			10 mL	-
Enzyme Dilution Buffer, 1x A glycerol containing 1x dilution buffer, for the dilution of enzymes to reaction concentration.		MDX078	5 mL	-
			100 mL	-
Enzyme Dilution Buffer (10x) Glycerol free A glycerol-free, 10x dilution buffer, for the dilution of enzymes to reaction concentration.		MDX080	5 mL	-
			10 mL	-
Tissue Extract-PCR Buffers Lysis and neutralization buffer optimized for use with Taq HS DNA Polymerase (MDX008) to perform PCR direct from crude lysate.		MDX004	1 Kit	1,000 Rxn
Fast qPCR Buffer, 4x Optimized for use with Taq HS DNA Polymerase (MDX008).		MDX033	2.5 mL	500 Rxn
			50 mL	10,000 Rxn
1-Step RT-qPCR Buffer, 4x Optimized for use with Taq HS DNA Polymerase (MDX008) and RNase-Tolerant MMLV-RT (MDX043).		MDX034	2.5 mL	500 Rxn
			50 mL	10,000 Rxn
Lyo-Ready qPCR Buffer, 2.5x Optimized for use with Glycerol-Free Taq HS (MDX011). In order to produce lyophilized, ambient-temperature stable qPCR reagents, dNTPs, MgCl ₂ and glycerol-free Taq DNA polymerase are not included in the buffer.		MDX022	8 mL	1,000 Rxn
			100 mL	12,500 Rxn
Lyo-Ready qPCR Buffer w/o Excipients, 4x Optimized for use with Glycerol-Free Taq HS (MDX011).		MDX061	2.5 mL	500 Rxn
			100 mL	20,000 Rxn
Taq Dilution Buffer This Buffer provides the optimal conditions to store Meridian polymerases, conferring long-term stability at -20 °C (MDX008).		MDX007	5 mL	-
			100 mL	-
Inhibitor-Tolerant PCR Buffer, 5x Used with Taq HS DNA Polymerase (MDX008) for amplification direct from crude lysates or inhibitor-rich samples such as urine, cerebral spinal fluid (CSF), blood as well as plants.		MDX075	2 mL	500 Rxn
			100 mL	20,000 Rxn
Inhibitor-Tolerant Bst Buffer Optimized buffer for MDX012 and MDX018 that increases the amplification speed, sensitivity, and tolerance to salt and other inhibitors found in clinical samples and transport media.		MDX019	2 mL	-
			100 mL	-
General Reagents				
Uracil DNA Glycosylase (UDG)* Enzyme that efficiently hydrolyzes uracil from ssDNA or dsDNA. Endonuclease, exonuclease, nickase and RNase-free.		MDX054	10 mL	10,000 Units
Proteinase K Solution RNase and DNase free, ideal for removing endogenous nucleases when purifying native DNA or RNA.		MDX055	25 mL	500 mg

* Uracil DNA Glycosylase (MDX054) is not available in the US

Components *continued*

PRODUCT	APPLICATION	CAT NO.	VOLUME	REACTIONS
General Reagents <i>Continued</i>				
RNase Inhibitor Inhibits a broad spectrum of eukaryotic RNases, including RNases A, B and C to control for contaminants in RT-PCR assays.		MDX056	250 µL	10,000 Units
			2.5 mL	100,000 Units
Taq HS Antibody A mix of anti-Taq antibodies designed to inhibit Taq DNA polymerase activity at room temperature. For use in hot-start PCR.		MDX014	20 µL	1,000 Units
			250 µL	12,500 Units

dNTPs

Ready-to-use sequencing grade dNTPs available individually, as sets, or pre-blended dNTP mixes. Ultra-pure (>99% by HPLC) free of PCR inhibitors, DNase and RNase.

PRODUCT	CAT NO.	VOLUME
dNTPs Lithium Salt		
dNTP Set, 100 mM Provided as four separate solutions at 100 mM concentration (dATP, dCTP, dGTP & dTTP).	MDX050	4 x 250 µL 4 x 50 mL
dNTP Mix, 100 mM Supplied as a mixture (dATP, dCTP, dGTP & dTTP). Total concentration of mix is 100 mM (25 mM of each nucleotide).	MDX051	500 µL 50 mL 100 mL 1 L
dUTP Mix, 50 mM Supplied as a mixture (10 mM dATP, dCTP, dGTP and 20 mM dUTP).	MDX058	50 mL
dUTP, 100 mM	MDX059	50 mL
dATP, 100 mM	MDX046	50 mL
dCTP, 100 mM	MDX047	50 mL
dGTP, 100 mM	MDX048	50 mL
dTTP, 100 mM	MDX049	50 mL
dNTPs Sodium Salt		
dNTP Mix, 10 mM sodium salt*	MDX067	<i>Please Enquire</i>
dNTP Mix, 40 mM sodium salt*	MDX083	<i>Please Enquire</i>
dNTP Mix, 100 mM sodium salt*	MDX084	<i>Please Enquire</i>
dATP Mix, 100 mM sodium salt*	MDX063	<i>Please Enquire</i>
dCTP Mix, 100 mM sodium salt*	MDX064	<i>Please Enquire</i>
dGTP Mix, 100 mM sodium salt*	MDX065	<i>Please Enquire</i>
dTTP Mix, 100 mM sodium salt*	MDX066	<i>Please Enquire</i>

* Not available in China

qPCR and RT-qPCR Extraction Controls

Designed for validating the steps within a qPCR or RT-qPCR assay to produce more reliable and accurate results.

qPCR

The qPCR Extraction Controls are *E. coli* cells of a known concentration containing the Internal Control DNA sequence (with no known homology to any organism, so that it does not interfere with the detection of the sample DNA). Genetic material from the test sample and the DNA extraction control are simultaneously extracted by common extraction methods with the control being as sensitive to the same inhibition and extraction failure as the test sample.

Product Highlights

- Extraction control undergoes the same sample processing as test sample
- Can be used with a variety of sample types including inhibitor-rich samples such as blood, urine and sputum
- Confirms successes of extraction step and monitors co-purification of PCR inhibitor inhibitors
- Probe based designed specifically for multiplex qPCR assays
- Control DNA is unique with no homology to any organism

PRODUCT	CAT NO.	VOLUME	REACTIONS
qPCR Extraction Control RED (Quasar® 670)	MDX026	10 mL	2,000 Rxn
qPCR Extraction Control ORANGE (Cal Fluor® 560)	MDX027	10 mL	2,000 Rxn

RT-qPCR

VLP-RNA Extraction Control is RNA molecule without any known homology, protected in a protein nanocage, harnessing the stability of viral structures. VLP-RNA Extraction Control is spiked into the biological sample and undergoes the entirety of the sample processing, enabling users of RT-qPCR assay to not only validate the success of the extraction and the reverse transcription steps, but also to determine the presence of PCR inhibitors, reducing the chance of obtaining false negatives and resulting in reliable and accurate results. The VLP-RNA Extraction Control is provided with its own detection system and can have its sequence customized if necessary.

Product Highlights

- Contains a defined number of copies of target RNA molecules, encapsidated within a virus-like particle (VLP)
- RNA sequence is customizable up to 1000nt
- Non-infectious material for ease of handling and shipping
- Closely mimics the test sample, undergoing the same processing route from lysis and extraction to RT-qPCR detection
- Compatible with commonly used RNA extraction methods and lyophilization

PRODUCT	CAT NO.	REACTIONS
VLP-RNA Extraction Control Red	MDX068	1 mL (~1x10 ⁴ copies/μL)
		20 mL (~1x10 ⁴ copies/μL)
VLP-RNA Extraction Control Orange	MDX069	1 mL (~1x10 ⁴ copies/μL)
		20 mL (~1x10 ⁴ copies/μL)
VLP-RNA Extraction Control	MDX071	<i>Please enquire</i>

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