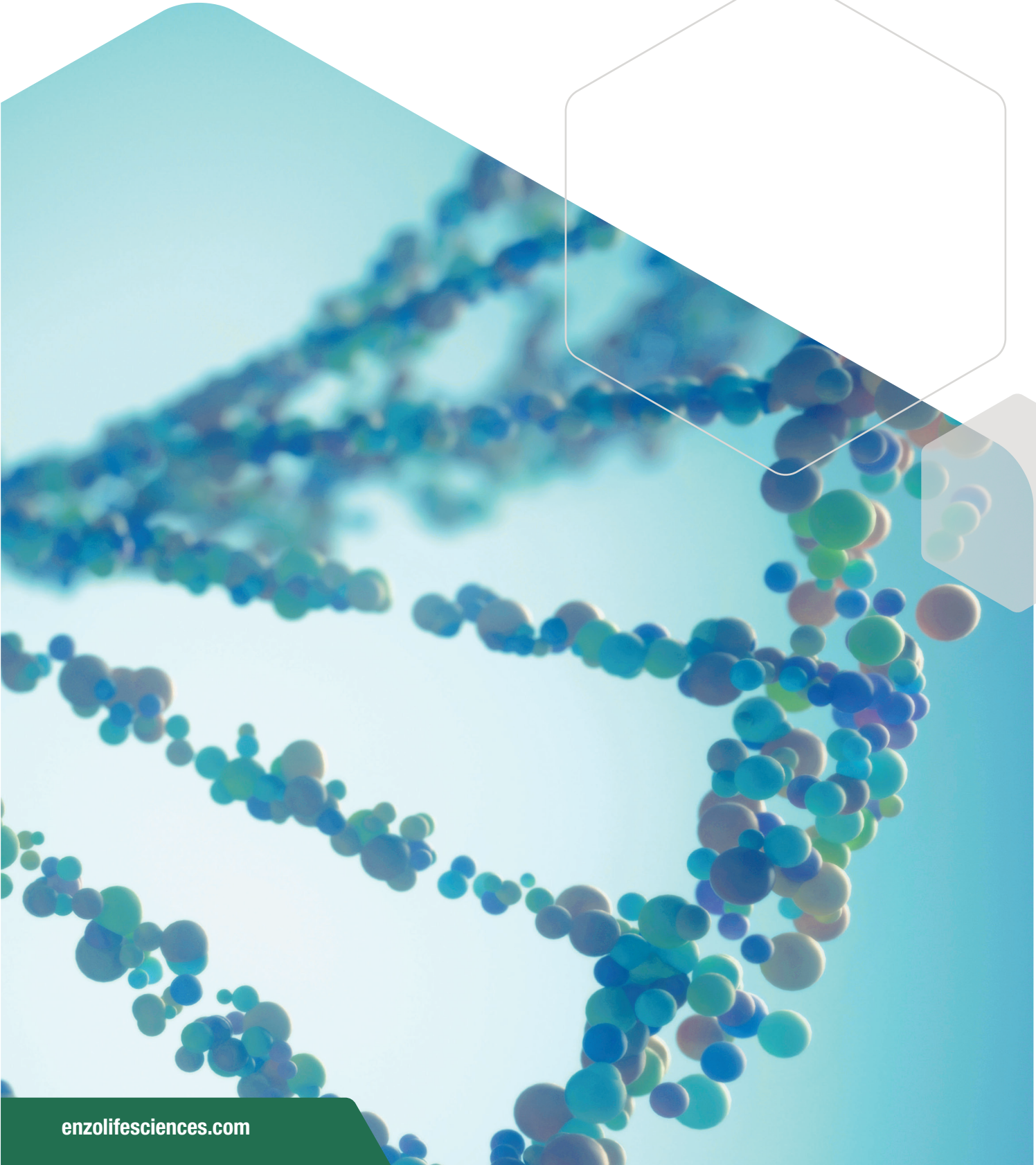
# AMPIGENE® PCR Solutions

## Comprehensive PCR Solutions



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# Advanced PCR Technology Built on a History of Innovation

Established in 1976, Enzo focuses on developing innovative products and services for improving human healthcare through basic research, drug development, and patient care. Enzo remains at the forefront of target amplification technologies critical in the detection of infectious agents, cancer markers, and genotyping, which opened the door for many of the well-known molecular diagnostics assays in use today.

Enzo's AMPIPROBE® platform and quality critical reagents enabled rapid response to the SARS-CoV-2 pandemic. We used our expertise to expand our AMPIPROBE® portfolio with additional critical targets. All our AMPIPROBE® products use our innovative AMPIGENE® technology.

## Advanced PCR Technology

AMPIGENE® PCR products use the latest polymerase technology and buffer chemistry to improve PCR performance.

- Suitable for unprocessed sample
- Custom and bulk options available

## Advanced AMPIGENE® PCR Solutions Workflow From Sample Extraction to Analysis

### EXTRACTION

**AMPIXTRACT® Nucleic Acid Extraction Kits**

| Product Name | Product # |
|---|---|
| Viral & Pathogen Nucleic Acid Extraction Kit | ENZ-GEN249 |
| General Tissue Section DNA Isolation Kit | ENZ-GEN500 |
| Paraffin Tissue Section DNA Isolation Kit | ENZ-GEN501 |
| Urine DNA Isolation Kit | ENZ-GEN502 |
| Blood and Cultured Cell DNA Extraction Kit | ENZ-GEN503 |
| DNA Isolation Kit for Plasma/Serum | ENZ-45018 |

### AMPLIFICATION

**AMPIGENE® Polymerase and Mixes**

| Product Name | Product # |
|---|---|
| *Taq* DNA Polymerase | ENZ-PRT100 |
| *Taq* Mix | ENZ-NUC100 |
| Hot Start *Taq* DNA Polymerase | ENZ-NUC123 |
| Hot Start *Taq* Mix | ENZ-NUC125 |
| High Fidelity Polymerase | ENZ-NUC130 |
| High Fidelity Mix | ENZ-NUC131 |
| High Fidelity Red Mix | ENZ-NUC132 |
| Hot Start High Fidelity Polymerase | ENZ-NUC133 |
| Hot Start High Fidelity Mix | ENZ-NUC134 |
| Hot Start High Fidelity Red Mix | ENZ-NUC135 |
| qPCR Green Mix | ENZ-NUC103/4 |
| qPCR Probe Mix | ENZ-NUC105/6/7 |
| qPCR 1-Step Green Kit | ENZ-NUC108/9 |
| qPCR 1-Step Probe Mix | ENZ-NUC110/11/12 |

### DETECTION

**CYGREEN® Dye, AMPIGENE® cDNA Synthesis kit, and DNA Ladders**

| Product Name | Product # |
|---|---|
| CYGREEN® Nucleic Acid Dye | ENZ-GEN105 |
| cDNA Synthesis Kit | ENZ-KIT106 |
| DNA Ladder 100 - 1,500 bp | ENZ-GEN101 |
| DNA Ladder 50 - 1,500 bp | ENZ-GEN102 |
| DNA Ladder 250 - 10,000 bp | ENZ-GEN103 |
| DNA Ladder 100 - 10,000 bp | ENZ-GEN104 |

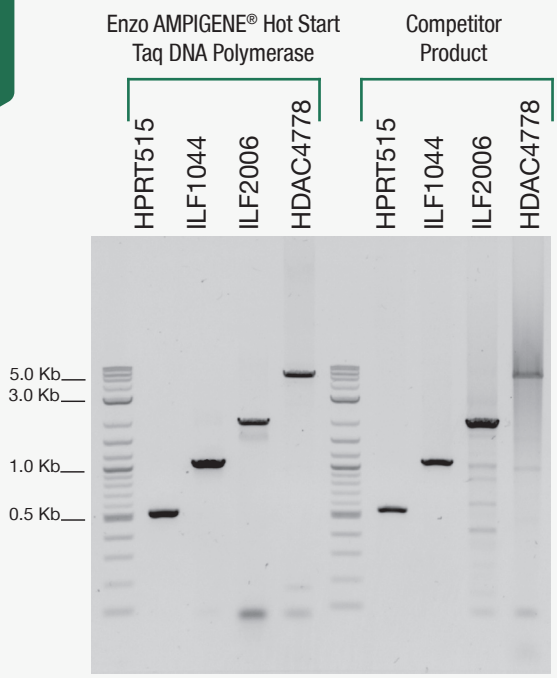
# AMPIGENE® Hot Start *Taq* DNA Polymerase

AMPIGENE® Hot Start *Taq* DNA Polymerase and *Taq* Mix (ENZ-NUC123 & ENZ-NUC125) use the latest polymerase technology and buffer chemistry to improve PCR performance for difficult template targets. Our enzyme and buffer system allow for superior amplification from GC and AT-rich sequences.

- Ultra-sensitive and reliable technology
- Convenient ready-to-use 2X mix option (ENZ-NUC125)
- Excellent for low copy number template detection
- High performance with complex templates such as GC and AT-rich sequences and mammalian genomic DNA

*Enhanced Speed, Yield, and Sensitivity.*

**STRONG SIGNAL PROVIDES CLEAR RESULTS**




**Performance of AMPIGENE® Hot Start Taq DNA Polymerase (ENZ-NUC123) vs. Competitor.** Human Genomic DNA (5ng) template was targeted with four separate primer sets in 20µl PCR volume.

**ORDERING INFORMATION**

| Product Name | Sizes | Product # |
|---|---|---|
| AMPIGENE® *Taq* DNA Polymerase | 500U | ENZ-PRT100 |
| AMPIGENE® *Taq* Mix | 40, 200, 100 rxn | ENZ-NUC100 |
| AMPIGENE® Hot Start *Taq* DNA Polymerase | 200U, 500U | ENZ-NUC123 |
| AMPIGENE® Hot Start *Taq* Mix | 200, 1000 rxn | ENZ-NUC125 |
| AMPIGENE® High Fidelity Polymerase | 100U, 500U | ENZ-NUC130 |
| AMPIGENE® High Fidelity Mix | 50 rxn | ENZ-NUC131 |
| AMPIGENE® High Fidelity Red Mix | 50 rxn | ENZ-NUC132 |
| AMPIGENE® Hot Start High Fidelity Polymerase | 100U, 500U | ENZ-NUC133 |
| AMPIGENE® Hot Start High Fidelity Mix | 50 rxn | ENZ-NUC134 |
| AMPIGENE® Hot Start High Fidelity Red Mix | 50 rxn | ENZ-NUC135 |
| AMPIGENE® dNTP Mix | 500 µL (10 mM) | ENZ-NUC102 |

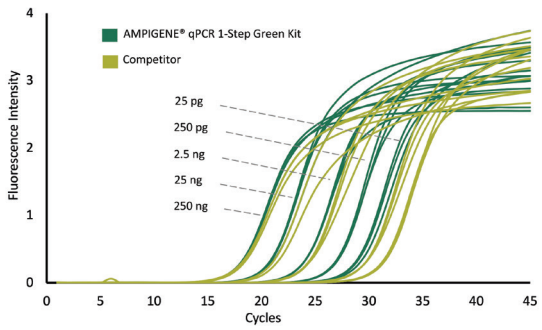
# AMPIGENE® qPCR/RT-PCR Solutions

AMPIGENE® qPCR Mixes use the latest developments in buffer chemistry to deliver high-performing dye-based or probe-based real-time PCR with added enhancers and stabilizers to improve reaction sensitivity and specificity. Available with different concentrations of the ROX reference dye (Hi ROX, Lo ROX, or No ROX).

## AMPIGENE® qPCR Green Mixes (ENZ-NUC108)

- Proprietary intercalating dye that does not interfere with PCR
- Antibody-mediated hot start PCR
- Compatible with all standard and fast cycling real-time PCR platforms

### SUPERIOR PERFORMANCE AT LOWER RNA CONCENTRATION




**Performance of AMPIGENE® qPCR 1-Step Green Kit vs. Competitor.** Amplification of increasing concentration of mouse liver RNA (25pg to 250ng per 20µl reaction) with actg1 gene primers.

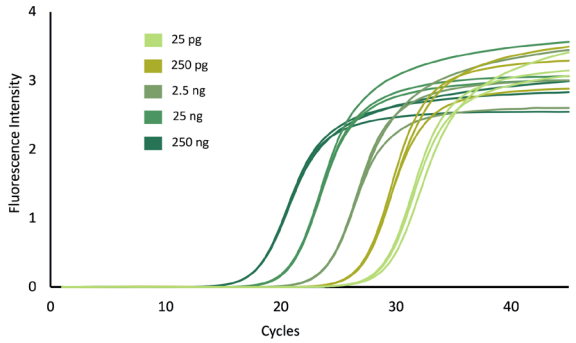
**ORDERING INFORMATION**

| Product Name | Sizes | Product # | |
|---|---|---|---|
| AMPIGENE® qPCR Green Mix | 200 rxn<br>1000 rxn | Lo-ROX | ENZ-NUC103 |
| | 200 rxn<br>1000 rxn | Hi-ROX | ENZ-NUC104 |
| AMPIGENE® qPCR 1-Step Green Kit | 200 rxn<br>1000 rxn | Lo-ROX | ENZ-NUC108 |
| | 200 rxn<br>1000 rxn | Hi-ROX | ENZ-NUC109 |

## AMPIGENE® qPCR Probe Mixes (ENZ-NUC110)

- Enhancers and stabilizers improve reaction sensitivity and specificity
- Designed for use on a wide range of probe technologies (Taqman®, Molecular Beacons®, and Scorpion® probe)

### EFFICIENT AMPLIFICATION OF TOTAL RNA OVER A BROAD DYNAMIC RANGE




**Performance of AMPIGENE® qPCR 1-Step Probe Kit.** Amplification of increasing concentration of mouse liver RNA (10pg to 1µg per 20µl reaction) with actg1 gene primers.

**ORDERING INFORMATION**

| Product Name | Sizes | Product # | |
|---|---|---|---|
| AMPIGENE® PCR Probe Mix | 200 rxn<br>1000 rxn | Lo-ROX | ENZ-NUC105 |
| | 200 rxn<br>1000 rxn | Hi-ROX | ENZ-NUC106 |
| | 200 rxn<br>1000 rxn | No-ROX | ENZ-NUC107 |
| AMPIGENE® qPCR 1-Step Probe Mix | 200 rxn<br>1000 rxn | Lo-ROX | ENZ-NUC110 |
| | 200 rxn<br>1000 rxn | Hi-ROX | ENZ-NUC111 |
| | 200 rxn<br>1000 rxn | No-ROX | ENZ-NUC112 |

## AMPIGENE® RT-PCR 1-Step Kits (ENZ-KIT105)

**Provide optimized and efficient cDNA synthesis and PCR in a single tube**

AMPIGENE® PCR 1-Step Kits (Dye or Probe-based) use the latest developments in reverse transcriptase (RTase) technology and buffer chemistry for efficient cDNA synthesis and PCR in a single tube. The modified Moloney Murine Leukemia Virus (MMLV) RTase is blended with an RNase inhibitor to prevent RNA degradation by contaminating RNase.

- Detect low copy number targets (1pg – 10ng total RNA or >0.01pg mRNA)
- Thermostable and extremely active MMLV RTase
- Convenient one-tube reaction

# AMPIGENE® Isothermal DNA Amplification

## *Bst* Polymerases and Mixes

AMPIGENE® *Bst* Polymerase (recombinant fragment of *G.stearothermophilus* DNA polymerase) is ideal for nucleic acid amplification methods taking place at a single incubation temperature — such as whole genome, multiple displacement, and isothermal amplifications, including loop-mediated isothermal amplification (LAMP).

- Operates over a broad temperature range
- Rapid and consistent results
- Flexible format – available with or without dye (for real-time detection with any thermocycler or combination heat source and detector)

**ORDERING INFORMATION**

| Product Name | Sizes | Product # |
|---|---|---|
| AMPIGENE® *Bst* Polymerase | 1600U, 8000U | ENZ-NUC138 |
| AMPIGENE® *Bst* Polymerase with Dye | 1600U, 8000U | ENZ-NUC139 |
| AMPIGENE® *Bst* Mix | 100 rxn | ENZ-NUC140 |

# AMPIGENE® Lyo-Probe Kits

AMPIGENE® Lyo-Probe is a lyophilizable RT-qPCR kit for the sensitive detection of RNA sequences. This formulated kit is ideal for assay development to provide enhanced functionality without loss of activity post lyophilization.

- Detection of low copy number targets
- Antibody-mediated hot start technology with improved tolerance to common PCR inhibitors
- Glycerol-free buffer

**ORDERING INFORMATION**

| Product Name | Sizes | Product # |
|---|---|---|
| AMPIGENE® Lyo-Probe Mix | 200, 1000 rxn | ENZ-NUC141 |
| AMPIGENE® Pre Lyo-Probe 1-Step Evaluation Kit | 200 rxn | ENZ-NUC142 |
| AMPIGENE® Lyo-Probe 1-Step Kit | 2000 rxn | ENZ-NUC143 |

# AMPIGENE® PCR Reagents

## AMPIGENE® RNase Inhibitor

AMPIGENE® RNase Inhibitor works to inhibit RNase activity for sensitive applications such as RT-qPCR, cDNA synthesis, and RNA sequencing.

- Inhibits eukaryotic RNases, including RNase A, B, and C
- Ribonuclease- and phosphatase-free
- Stable up to 65°C for up to 30 minutes

## AMPIGENE® Reverse Transcriptase

AMPIGENE® Reverse Transcriptase (RTase) is a modified MMLV RTase engineered for superior cDNA synthesis speed, specificity, and full-length cDNA product. This improved RTase is optimized for the following:

- High yields from as little as 20pg RNA
- Thermostable reverse transcriptase above 55°C
- Reduced RNase activity

**ORDERING INFORMATION**

| Product Name | Sizes | Product # |
|---|---|---|
| AMPIGENE® RNase Inhibitor | 2500U | ENZ-NUC136 |
| AMPIGENE® Reverse Transcriptase | 10000U, 40000U | ENZ-NUC137 |

## AMPIGENE® End-Point PCR

PCR is a routine procedure, but amplifying specific targets can still be challenging. Enzo has developed *Taq* DNA polymerase products to help you achieve successful results. We offer these in pre-optimized mixes or as standalone enzymes.

# End-Point Polymerase

## What PCR product would be best for your application?

| | AMPIGENE® Taq DNA Polymerase (ENZ-PRT100) | AMPIGENE® Hot Start *Taq* DNA Polymerase (ENZ-NUC123) | AMPIGENE® High Fidelity Polymerase (ENZ-NUC130) | AMPIGENE® Hot Start High Fidelity Polymerase (ENZ-NUC133) |
|---|---|---|---|---|
| **APPLICATION** | | | | |
| Standard PCR | • | • | | |
| Long PCR | | | • | • |
| High-throughput | | • | | • |
| Multiplex PCR | | • | | • |
| High fidelity PCR | | | • | • |
| PCR from solid tissue | • | • | | |
| GC-rich templates | | • | • | |
| Genotyping | | • | | |
| Bisulfite PCR | | • | | |
| Methylated DNA | • | • | • | • |
| TA cloning | • | • | | |
| Blunt end cloning | | | • | • |
| Crude sample PCR | | • | | |
| Site-directed mutagenesis | | | • | • |
| NGS | | | • | • |
| **PROPERTIES** | | | | |
| Amplicon length | <6 kb | <6 kb | <20 kb | <20 kb |
| Fidelity vs. *Taq* | 1x | 1x | 100x | 100x |
| Prevents primer dimers | | • | | • |
| Processivity | | 17 nuc/sec | 30-100 nuc/sec | 30-100 nuc/sec |
| Amplification of GC and AT-rich templates to over 17.5kb | | | • | • |
| **FORMAT OPTIONS** | | | | |
| Loading dye added | | | • | • |
| Ready mix | • | • | • | • |

## RELATED PRODUCTS

| Product Name | Sizes | Product # |
|---|---|---|
| CYGREEN® Nucleic Acid Dye | 100 µL | ENZ-GEN105 |
| AMPIGENE® cDNA Synthesis Kit | 50 rxn<br>200 rxn | ENZ-KIT106 |
| AMPIGENE® DNA Ladder 100-1,500 bp<br>AMPIGENE® DNA Ladder 50 -1,500 bp<br>AMPIGENE® DNA Ladder 250 -10,000 bp | 100 Lanes<br>100 Lanes<br>100 Lanes | ENZ-GEN101<br>ENZ-GEN102<br>ENZ-GEN103 |
| gDNA Removal Kit | 50 rxn<br>250 rxn | ENZ-KIT136 |
| PCR Decontamination Kit | 100 rxn | ENZ-KIT137 |
| PCR & Gel Clean-up Kit | 20 Tests<br>50 Tests<br>200 Tests | ENZ-GEN100 |

Enzo

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