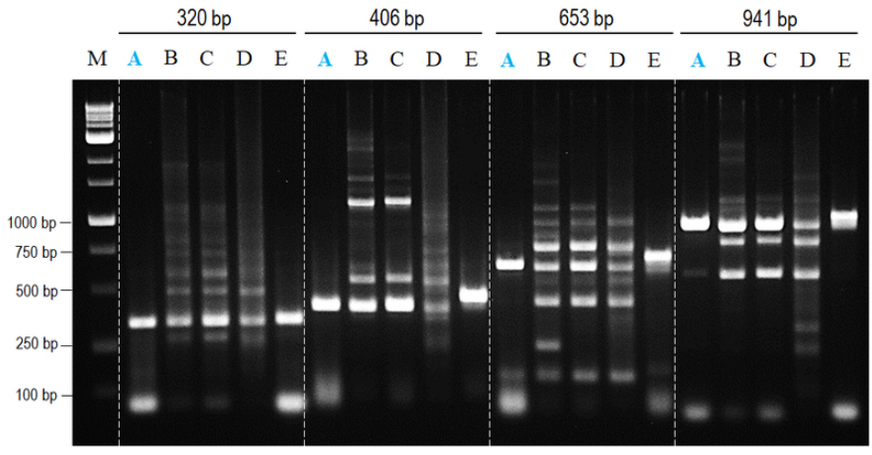
MQ HotStart NanoTaq DNA Polymerase

Cat No: PR-M-003-500
Size: 500 Units (5U/µl)
Stored at -20°C

MOLEQULE-ON®

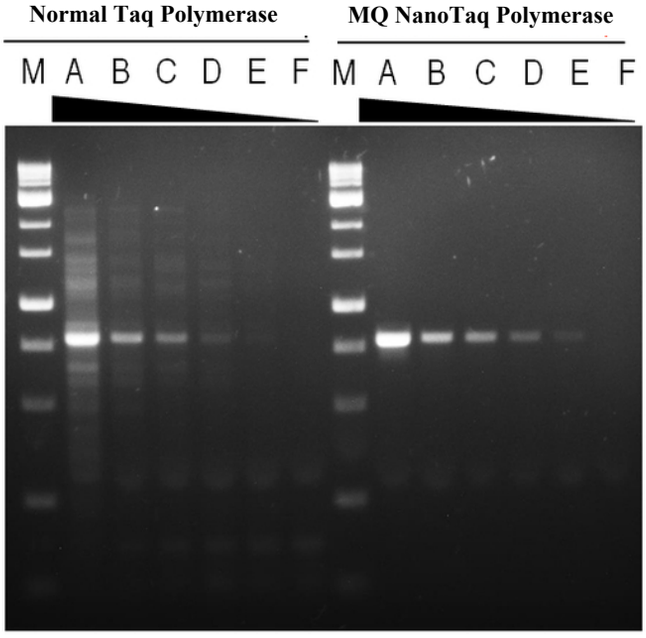
Description

MOLEQULE-ON HotStart NanoTaq DNA Polymerase, is an enhanced hot start enzyme DNA Polymerase engineered with nano technology, which differentiates from the traditional methods of hot start enzymes. It provides the convenience and reliability towards your research destination. MQ NanoTaq covers reactions at room temperature and cycling conditions (using same protocol) as the conventional Taq as well as reducing nonspecific primer annealing, improving product yield and ideal for PCR products application of up to 5kb.



A: MQ NanoTaq, **B**: Competitor 1, **C**: Competitor 2, **D**: Competitor 3, **E**: Competitor 4

Figure 1. Comparison of non-specific amplifying effects. All amplifications were performed in accordance with manufacturer's instructions to amplify 320 to 941 bp amplicons from human genomic DNA. MQ NanoTaq provided both higher specificity and yield products with least band shifting compared to other commercial antibody-mediated hot start polymerase.



	Template (ng)	Copy
A	3	870
B	0.3	87
C	0.2	58
D	0.1	29
E	0.03	9
F	NTC	0

Figure 2. Sensitivity and reliable amplification from low amounts of input DNA. Amplification of a 803 bp fragment from 3; 0.3; 0.2; 0.1; 0.03; 0 (no template control) ng of human genomic DNA were amplified in 20µL PCR reactions using MQ NanoTaq DNA Polymerase.

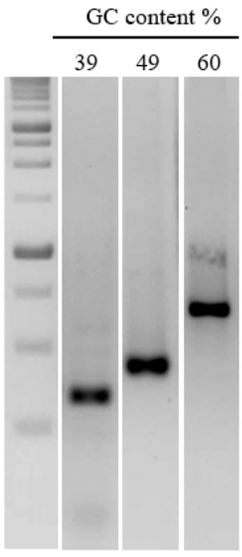


Figure 3. Efficient amplification of DNA sequences with a range of GC content. A series of DNA fragments of increasing GC content were amplified from human gDNA. MQ HotStart NanoTaq DNA Polymerase was used for targets with >50% GC.

Required materials but not provided

- Thermal cycler
- Vortex mixer
- Microcentrifuge
- Plates and seals for your instruments

Unit Definition

One unit is defined as the amount of enzyme that will catalyze the incorporation of 10 nmol of dNTP into acid- insoluble form in 30 min at 74°C in a reaction containing 25 mM TAPS (tris-[hydroxymethyl]-methyl-amino- propane-sulfonic acid, sodium salt), pH 9.3 at 25°C, 50 mM KCl, 2 mM $MgCl_2$, 1 mM β-mercaptoethanol, 0.2 mM dATP, dGTP, and dTTP, 0.1 µM [α-32P] dCTP, and activated salmon sperm DNA.

Reaction Setup

1. For each 20µl reaction, assemble the following in a 0.2 ml PCR tube on ice just prior to use:

	Volume	Final Conc.
10X PCR Buffer	2 µl	1X
10mM dNTPs Mix	- µl	200 µM
Forward Primer 5-10uM	- µl	0.1-0.5µM
Reverse Primer 5-10uM	- µl	0.1-0.5µM
MQ HotStart NanoTaq	1 µl	-
DNA Template	- µl	3 ng
PCR Grade Water	Up to 20 µl	-
Total Volume	20 µl	

2. Mix gently. If necessary, centrifuge briefly and cap tubes.
3. Place them into Thermocycler and process for 30-35 cycles as follows:

Initial Denaturation	3 min at 95°C	
Denaturation	30 sec	30-35 cycles
Annealing	30 sec at the proper annealing temperature	
Extension	1 min at 72°C	
Final extension	5 min at 72°C	-

Note: Optimal conditions for amplification will vary depending on the primers and thermal cycler used. It may be necessary to optimize the system for individual primers, template, and thermal cycler.

Template

Purified high quality DNA is needed for a success PCR reaction.