Powerful hot-start DNA polymerase:

PCR performance comparison of Platinum II *Taq* and AccuPrime *Taq* enzymes

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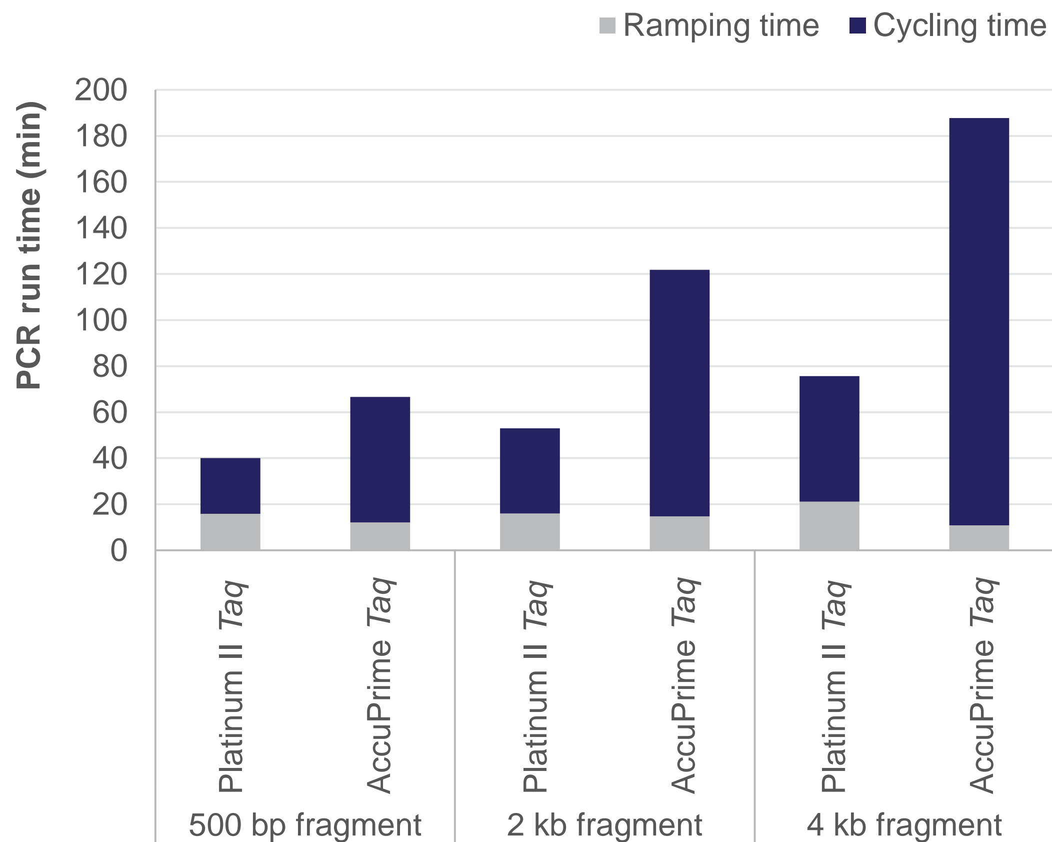
Comparison of PCR Run Time



Short PCR run time from fast cycling

500 bp, 2 kb, and 4 kb fragments were amplified from human genomic DNA (gDNA) using Invitrogen™ Platinum™ II *Taq* Hot-Start DNA Polymerase or Invitrogen™ AccuPrime™ *Taq* DNA Polymerase. PCR was set up in 50 µL reactions for 35 cycles. Cycling times for both polymerases are shown in dark blue, while ramping times on the Applied Biosystems™ ProFlex™ PCR System (6°C/sec peak block ramp rate) are shown in gray.

PCR results are obtained ≥2 times faster with the Platinum II *Taq* enzyme than with the AccuPrime *Taq* enzyme.

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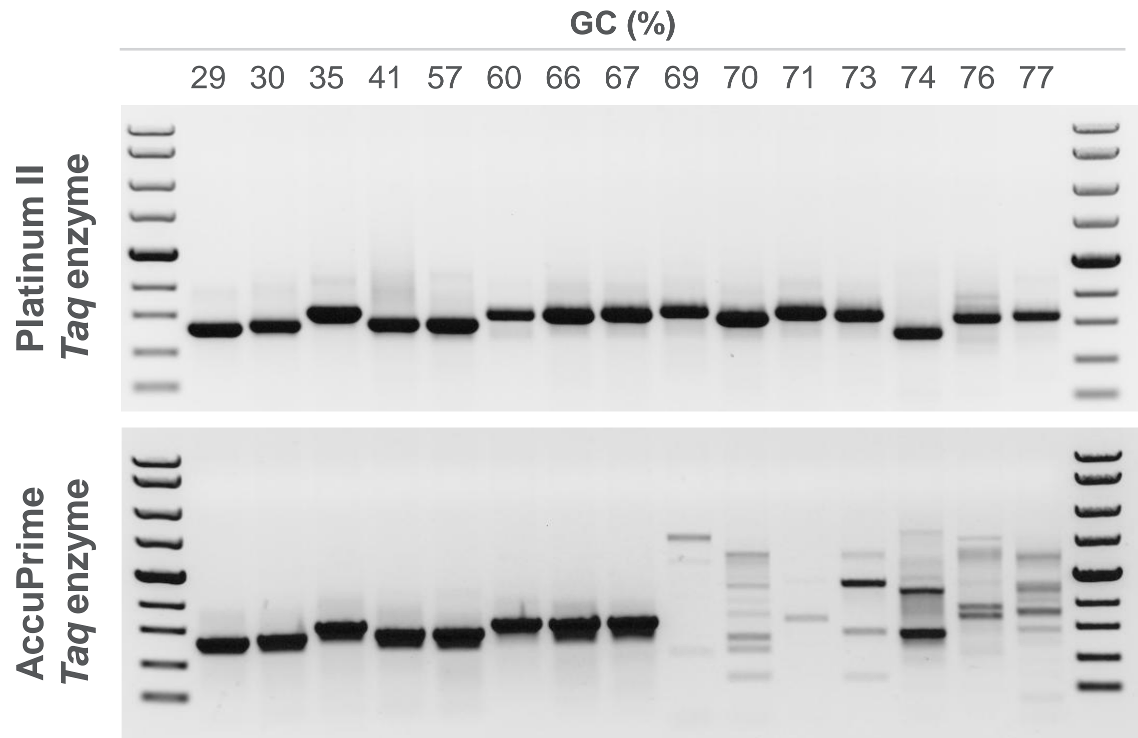
Amplification of AT-Rich and GC-Rich Targets



Robust amplification of high-AT and high-GC targets

DNA fragments of varying GC content (indicated above the corresponding lanes) were amplified using Platinum II *Taq* Hot-Start DNA Polymerase or AccuPrime *Taq* DNA Polymerase. 100 ng of human gDNA were used as templates in 50 µL PCR reactions. Invitrogen™ Platinum™ GC Enhancer was supplemented for targets with >65% GC. Ladder: Thermo Scientific™ ZipRuler™ Express DNA Ladder 2.

Targets with higher GC content (>67%) were amplified successfully with Platinum II *Taq* DNA Polymerase supplemented with Platinum GC Enhancer.

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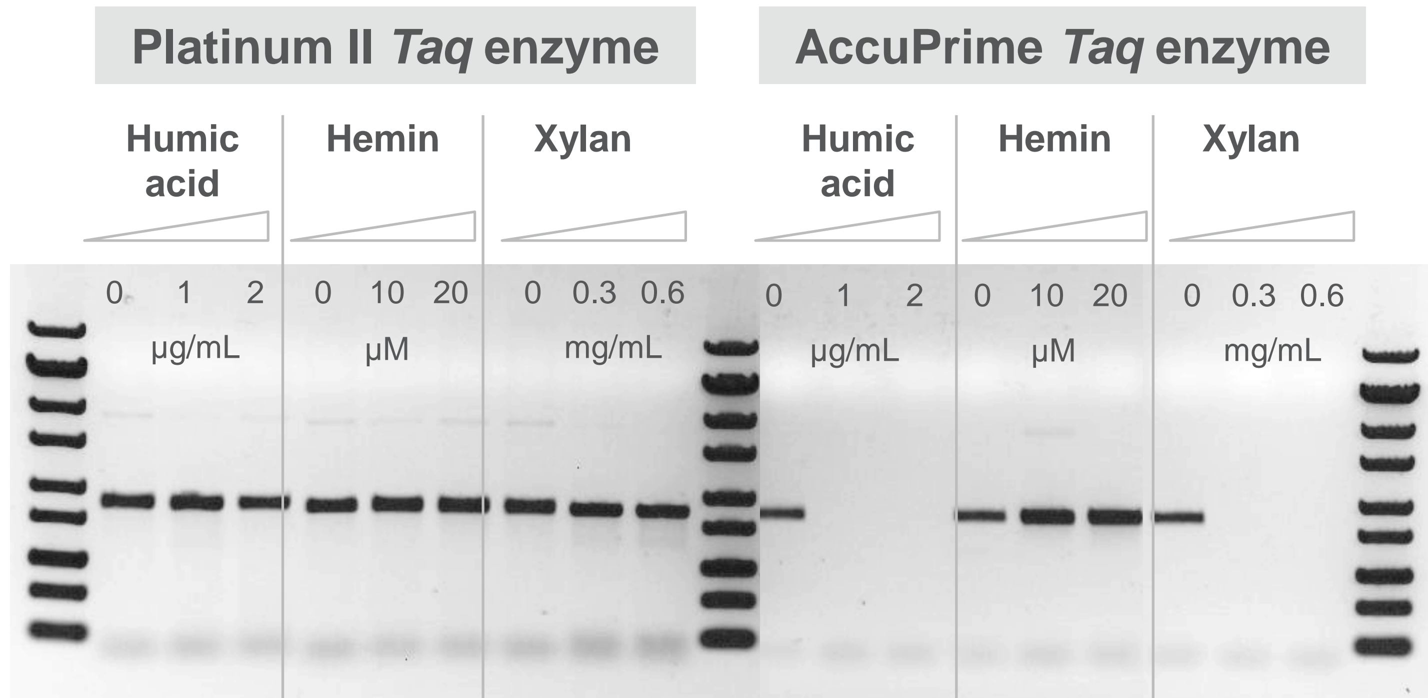
Tolerance to Common PCR Inhibitors



High tolerance to inhibitors

A 1 kb fragment of human gDNA was amplified using Platinum II *Taq* Hot-Start DNA Polymerase or AccuPrime *Taq* DNA Polymerase. The reactions were spiked in with humic acid (found in soil), hemin (found in blood), or xylan (found in plants) at the final concentrations indicated. Ladder: Thermo Scientific™ ZipRuler™ Express DNA Ladder 1.

Higher tolerance to common PCR inhibitors was observed with Platinum II *Taq* DNA polymerase.

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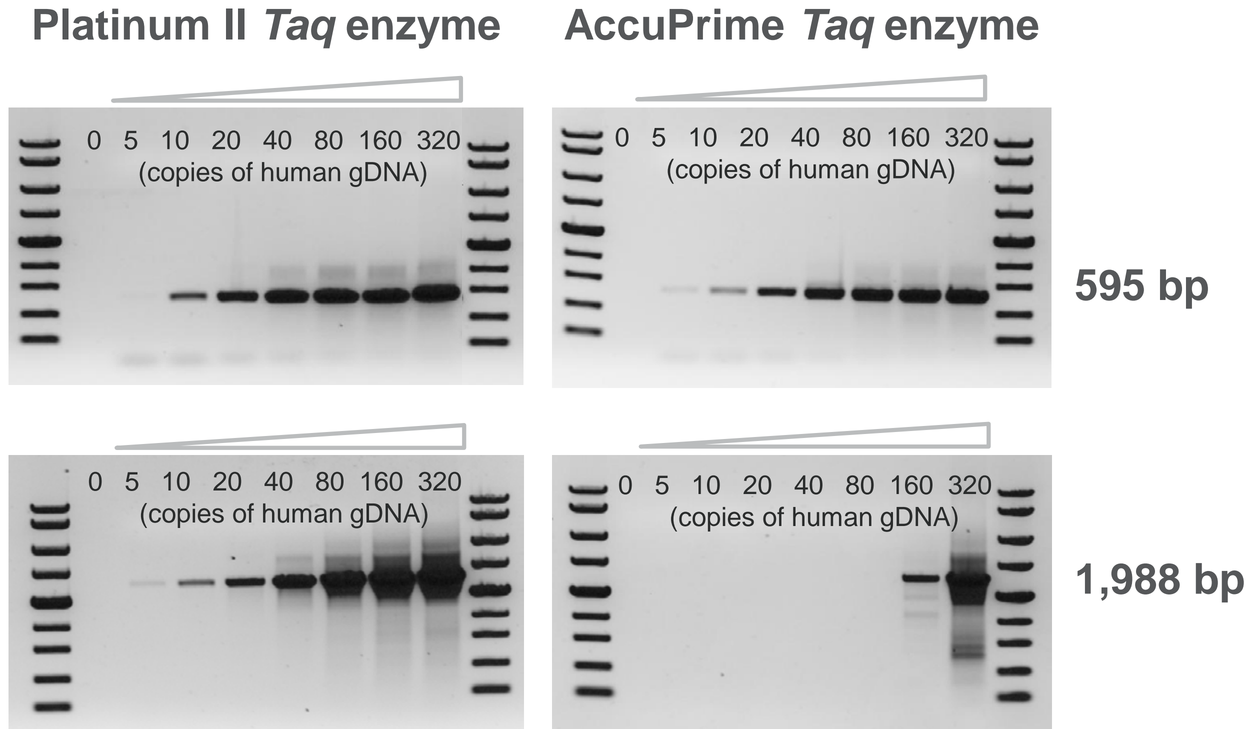


High sensitivity in detection of low DNA input

595 bp and 1,988 bp fragments were amplified from varying amounts of human gDNA using Platinum II *Taq* Hot-Start DNA Polymerase or AccuPrime *Taq* DNA Polymerase. Estimated copy numbers of input DNA in 50 µL PCR reactions are indicated. 0.0016 ng of human gDNA equals about 5 copies. Ladder: ZipRuler Express DNA Ladder 2.

Equal or better sensitivity was observed with Platinum II *Taq* enzyme compared to AccuPrime *Taq* enzyme, depending on the target length.

- Similar sensitivity with <1 kb fragments
- Better sensitivity with 1–2 kb fragments

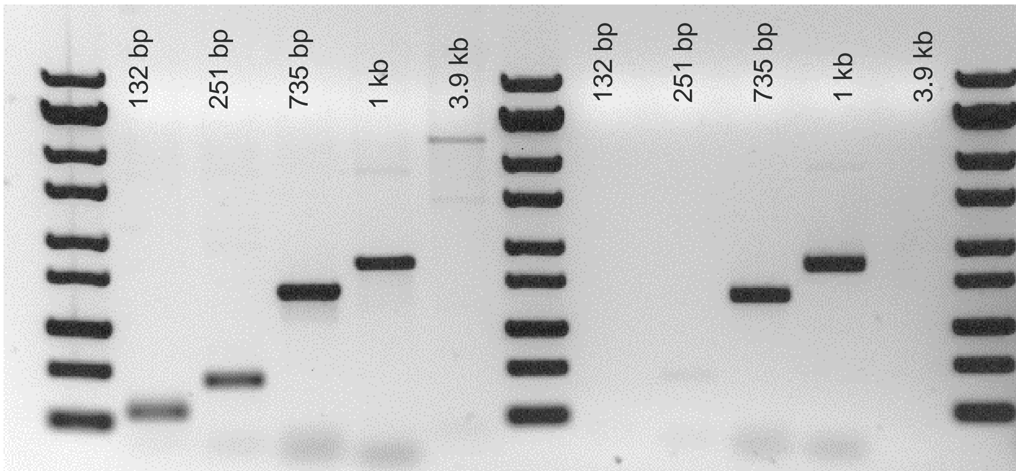
Using Same PCR Protocol for Different Targets

Platinum II *Taq* enzyme

3.9 kb cycling for all targets

AccuPrime *Taq* enzyme

3.9 kb cycling for all targets



60°C, 15 sec 68°C, 1 min	54°C, 30 sec 68°C, 4 min

Annealing and extension

Universal protocol for different PCR targets

Fragments of 132 bp, 251 bp, 735 bp, 1 kb, and 3.9 kb were amplified individually from 50 ng human gDNA using Platinum II *Taq* Hot-Start DNA Polymerase or AccuPrime *Taq* DNA Polymerase. PCR was set up in 50 µL reactions for 35 cycles. The annealing temperature, extension time, and other cycling parameters of the 3.9 kb fragment were followed for all fragments amplified. Ladder: ZipRuler Express DNA Ladder Express 1.

Different PCR assays can be cycled together using the same universal protocol using Platinum II *Taq* DNA polymerase, enabling significant time savings.

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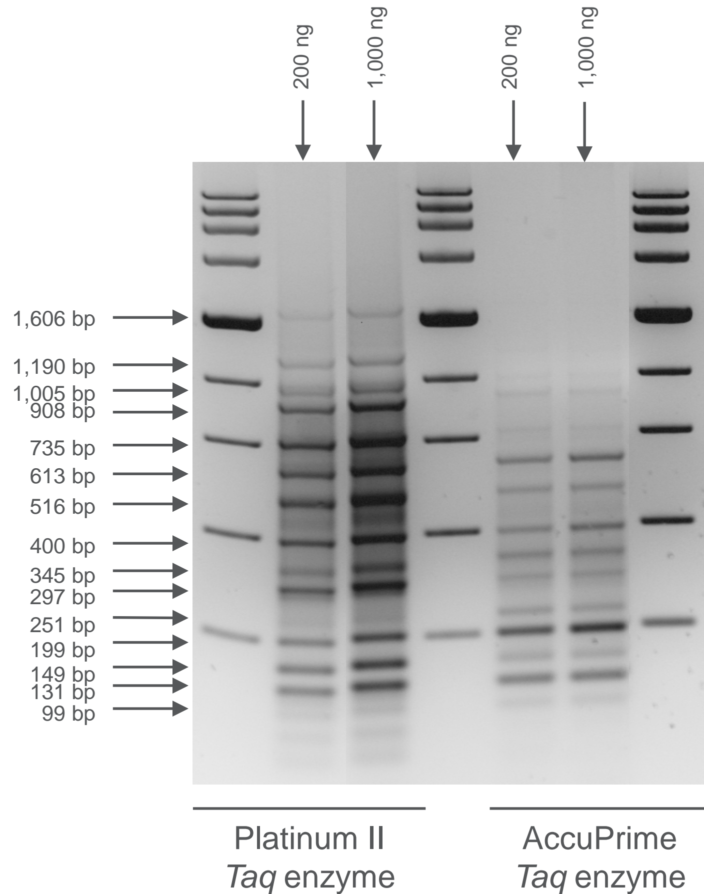

Enabling multiplex PCR

15 targets of increasing sizes (99 bp, 131 bp, 149 bp, 199 bp, 251 bp, 297 bp, 345 bp, 400 bp, 516 bp, 613 bp, 735 bp, 908 bp, 1,005 bp, 1,190 bp, and 1,606 bp) were simultaneously amplified from 200 ng and 1,000 ng of human gDNA using Platinum II *Taq* Hot-Start DNA Polymerase or AccuPrime *Taq* DNA Polymerase. PCR was set up in 50 µL reactions. Ladder: ZipRuler Express DNA Ladder Express 2.

Multiple targets, including longer fragments, can be amplified in the same reaction using Platinum II *Taq* enzyme, contrary to AccuPrime *Taq* enzyme.

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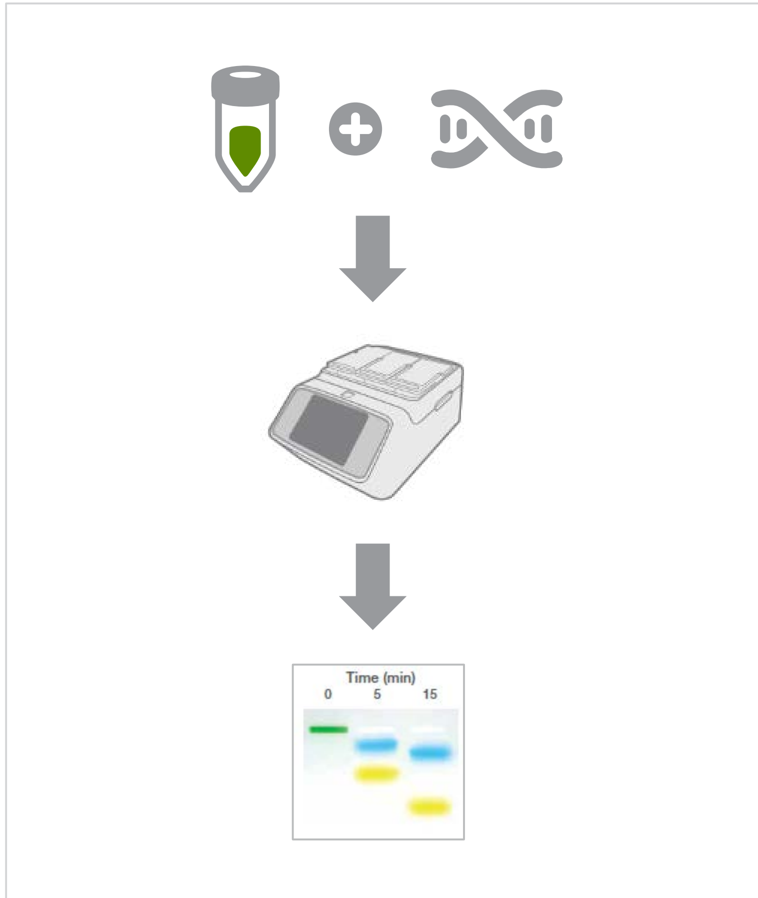
Availability of Direct Gel-Loading Formats



Green buffer formats

The green buffer options allow for direct gel loading to track DNA migration with two dyes during electrophoresis. The green buffer format is also available for master mixes. Green buffer product formats with direct gel loading help save time, prevent pipetting errors, and reduce waste in PCR.

The green buffer options are available as stand-alone and master mix product formats for the Platinum II *Taq* enzyme, but not for the AccuPrime *Taq* enzyme.

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Summary Comparison of Platinum II *Taq* and AccuPrime *Taq* DNA Polymerases

	Platinum II *Taq* Hot-Start DNA Polymerase	**AccuPrime *Taq* DNA Polymerase**
Hot-start modification	Antibody-mediated	Antibody-mediated
DNA synthesis rate	15 sec/kb	1 min/kb
Universal annealing protocol	Yes	No
Sensitivity	+++	++
Specificity	+++	+++
GC-rich amplification	+++	+
Inhibitor tolerance	++++	++
Amplicon length	Up to 5 kb	Up to 4 kb
Fidelity (vs. *Taq* enzyme)	1x	1x
Master mix format	Yes	Yes
Formats for direct gel loading	Yes	No

Request a sample of Platinum II *Taq* enzyme at thermofisher.com/platinumiitaq*

* Terms and conditions apply.

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