invitrogen

Performance and flexibility to fit your amplification

Platinum DNA polymerases—designed for exceptional specificity, fidelity, and versatility

ThermoFisher SCIENTIFIC

Unique features of the latest Platinum DNA polymerases

Hot-start technology

Hot-start PCR offers a greater yield of the target amplicon, with the added convenience of room-temperature reaction setup. Invitrogen™ Platinum™ DNA polymerases utilize Platinum™ hot-start technology, which is based on proprietary antibodies that inhibit enzyme activity until the initial PCR denaturation step, preventing nonspecific amplification and primer degradation.

thermofisher.com/hotstart

Universal primer annealing

A universal annealing temperature of 60°C for primers simplifies PCR optimization steps and saves time when working with multiple primer sets. Enabled by an isostabilizing component of the Platinum™ II buffers, different PCR assays can be cycled together, using one protocol with the universal annealing temperature and extension step selected for the longest amplicon.

thermofisher.com/universalannealing

Platinum SuperFi II DNA Polymerase

Ultrahigh fidelity for highest confidence in PCR sequence accuracy

The Invitrogen™ Platinum™ SuperFi™ II DNA Polymerase is a hot-start, engineered proofreading DNA polymerase. Its fidelity is >300x that of *Taq* DNA polymerase, and its buffer is specially formulated for universal annealing (all primers anneal at 60°C).

Highlights

- >300x *Taq* fidelity
- No requirement to calculate primer annealing temperature
- Robust amplification of GC-rich targets, DNA of suboptimal purity, and long sequences
- High specificity and benchtop stability for 24 hours after reaction setup

>300x *Taq* DNA polymerase fidelity for preserving DNA sequence accuracy

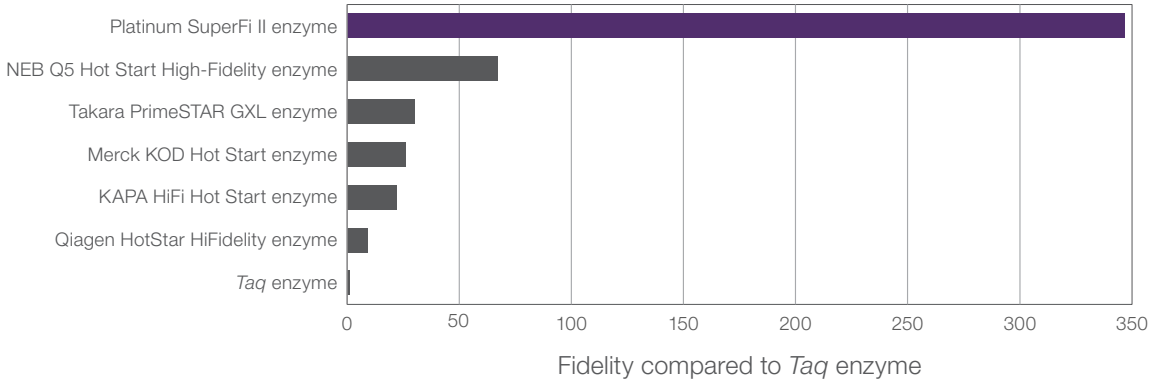


Figure 1. Fidelity comparison of commercially available enzymes and *Taq* enzyme. PCR amplicons (3.9 kb) obtained using different DNA polymerases were fragmented with a MuA transposase. Unique molecular identifiers (UMIs) of 12 random nucleotides were introduced during fragmentation to tag each product individually. After next-generation sequencing, reads from the same UMI family were aligned to call errors. Errors were identified only when present in all reads in the UMI family; otherwise they were discarded as sequencing errors. The fidelity values were normalized to *Taq* polymerase fidelity.

No need to calculate primer annealing temperature

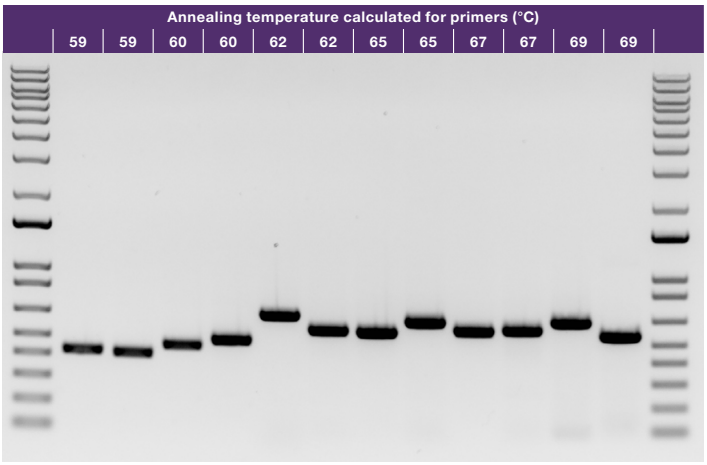


Figure 2. PCR amplification with high specificity and yield using a universal annealing temperature of 60°C. Primer sets with various optimal annealing temperatures were used to amplify 12 targets in human genomic DNA (gDNA) with a 60°C annealing temperature.

High success with amplification of 20–40 kb sequences

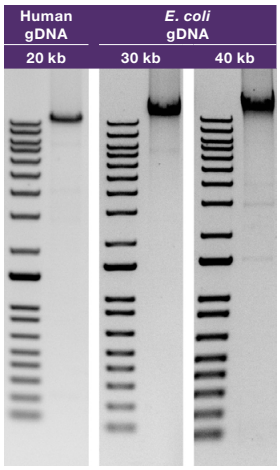


Figure 4. Amplification of long fragments. A 20 kb target from human gDNA and 30–40 kb targets from *E. coli* gDNA were successfully amplified using Platinum SuperFi II DNA Polymerase.

Benchtop stability for high-throughput applications

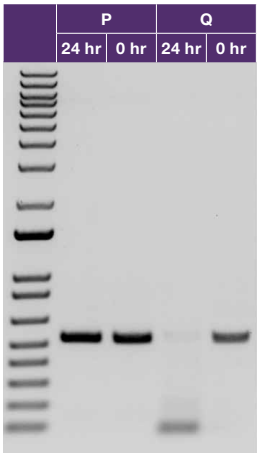


Figure 3. Stability of assembled reactions at room temperature. A 0.5 kb fragment was amplified by setting up reactions and leaving them at room temperature for 0 hr and 24 hr before PCR. Results using Platinum SuperFi II DNA Polymerase (P) and Q5™ Hot Start High-Fidelity DNA Polymerase from NEB (Q) are shown.

No additives needed for GC-rich amplification

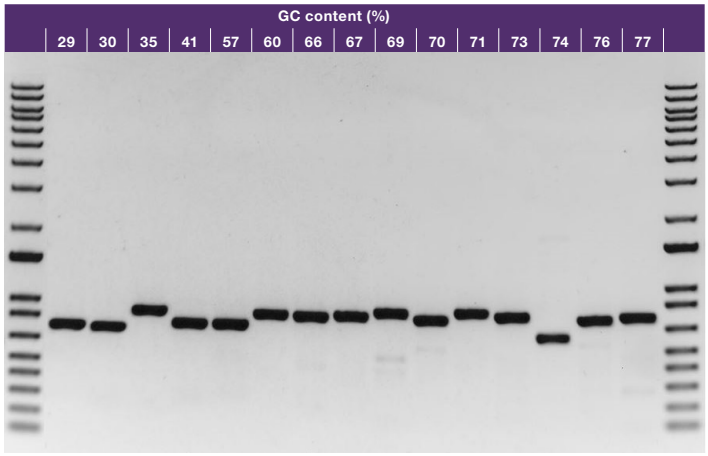
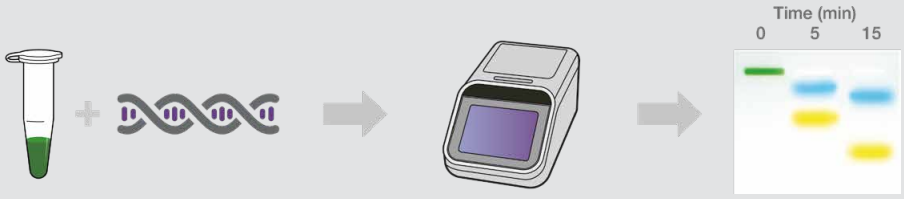


Figure 5. Robust amplification of GC-rich targets. Fifteen targets with a range of GC content were amplified from human gDNA without any supplementary buffer additives.

Find out more at **thermofisher.com/platinumsuperfi**

Direct gel loading simplifies PCR workflow

The green PCR master mix of Platinum enzymes offers the convenience of direct gel loading of PCR products, eliminating tedious steps of dye addition to samples and helping to reduce pipetting errors. The green buffer is compatible with downstream applications including DNA sequencing, ligation, and restriction digestion.



Platinum Direct PCR Universal Master Mix

Going straight from sample to PCR

Invitrogen™ Platinum™ Direct PCR Universal Master Mix is designed to amplify DNA sequences directly from a variety of sample types, without the need for DNA purification. The master mix contains a green dye for direct loading of PCR products onto agarose gels.

One master mix for different sample types and one annealing temperature (60°C) for different primer sets

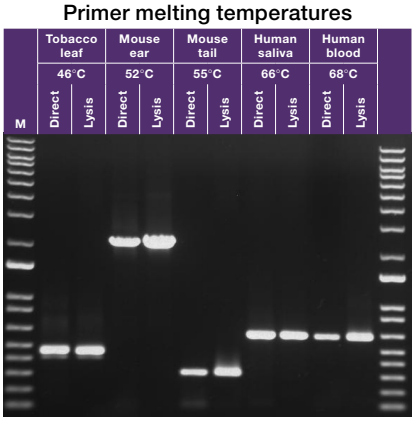


Figure 6. High PCR specificity and yield from direct amplification of various samples using a universal annealing temperature of 60°C following either a direct or lysis protocol.

Short PCR run time

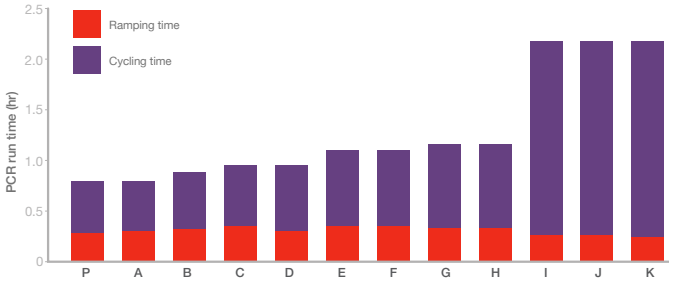


Figure 7. Fast cycling reduces PCR run time. A 1 kb fragment was amplified for 35 cycles using the Platinum Direct PCR Universal Master Mix (P) and direct PCR kits from other suppliers (A–K).

Find out more at **thermofisher.com/platinumdirect**

Highlights

- Direct DNA amplification from a variety of sample types
- PCR protocols with the universal annealing temperature
- Flexible workflow and fast PCR run time (<1 hour)
- Multiplexing with up to 5 targets

Two protocols to fit your needs

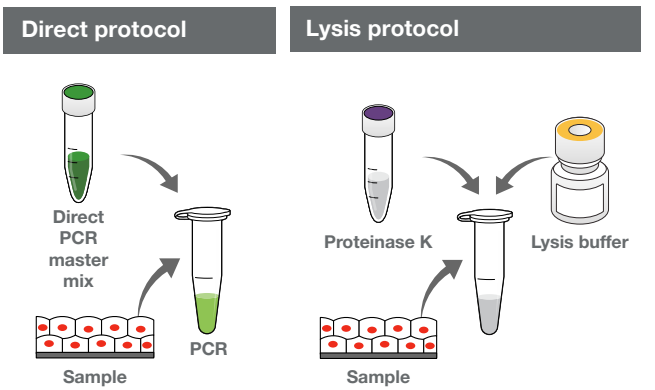


Figure 8. Direct and lysis protocols. Two protocols are available to amplify target DNA directly from crude samples. The direct protocol offers a shorter workflow, whereas the lysis protocol allows flexibility and long-term storage.

Multiple PCR targets in the same reaction

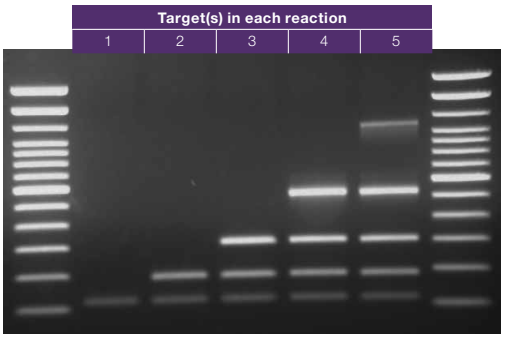


Figure 9. Efficient multiplexing in direct PCR. Five fragments of 0.1–1.1 kb were amplified from mouse tail in singleplex to 5-plex reactions, using the lysis protocol.

For uncompromised sensitivity and specificity, Invitrogen™ Platinum™ *Taq* DNA Polymerase, DNA-free, is certified for low DNA contamination (≤0.01 copy of bacterial gDNA, ≤0.001 copy of human gDNA per enzyme unit). Find out more at **thermofisher.com/dna-free**

Platinum II *Taq* Hot-Start DNA Polymerase

Engineered enzyme for high specificity and yield with fast cycling

Invitrogen™ Platinum™ II *Taq* Hot-Start DNA Polymerase is engineered for speed, specificity, and inhibitor tolerance. Its universal primer annealing feature reduces optimization steps and allows co-cycling of different PCR assays.

Highlights

- 4x faster DNA synthesis than standard *Taq* DNA polymerase
- Improved specificity, sensitivity, and yields
- High tolerance to common PCR inhibitors
- Efficient amplification of AT-rich and GC-rich targets

Fast DNA synthesis at 15 sec/kb

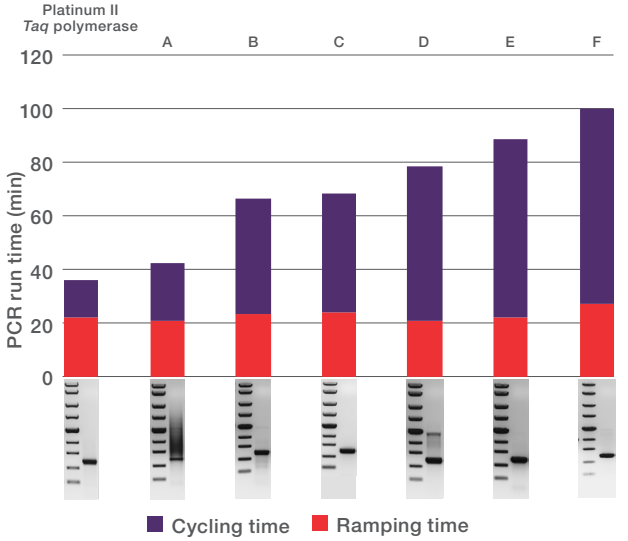


Figure 10. Fast cycling reduces PCR run time. A 0.5 kb fragment was amplified for 35 cycles, using Platinum II *Taq* Hot-Start DNA Polymerase and hot-start DNA polymerases from other suppliers (A–F).

Increased inhibitor tolerance

Figure 11. Tolerance to inhibitors. A 1 kb fragment was amplified from human genomic DNA that had been spiked with known PCR inhibitors, using Platinum II *Taq* Hot-Start DNA Polymerase.

High sensitivity and specificity

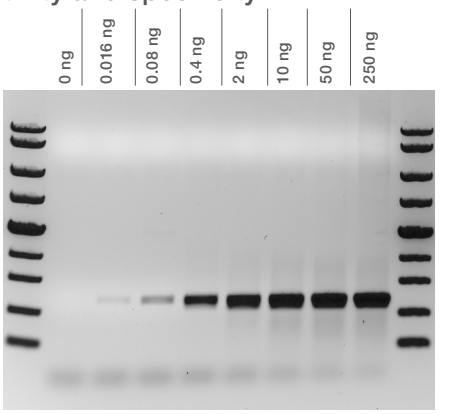


Figure 12. High sensitivity and reliable amplification from low amounts of input DNA. A 0.5 kb fragment was amplified from a range of human gDNA input, using Platinum II *Taq* Hot-Start DNA Polymerase.

Robust amplification of AT-rich and GC-rich DNA

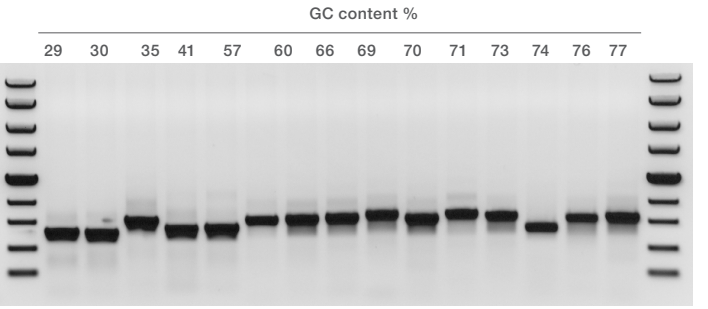


Figure 13. Efficient amplification of DNA sequences with a range of GC content. A series of DNA fragments of increasing GC content were amplified from human gDNA. Platinum™ GC Enhancer was used for targets with >65% GC.

Find out more at **thermofisher.com/platinumiitaq**

Assembled PCR reactions with Platinum SuperFi II or Platinum II *Taq* Hot-Start DNA Polymerase are stable for 24 hours at room temperature, enabling high-throughput applications with automation or long waits between runs.

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Resources

- Read application notes at **thermofisher.com/pcr-appnotes**
- See technical and how-to videos at **thermofisher.com/pcr-videos**
- Find education and technical tips at **thermofisher.com/pcr-education**
- Get our PCR workflow brochure at **thermofisher.com/pcr-brochure**
- Get our molecular biology handbook at **thermofisher.com/molbiobook**

PCR workflow solutions

Explore comprehensive Applied Biosystems™ and Invitrogen™ PCR products to spark your scientific aspiration. Boost your PCR at **thermofisher.com/pcrworkflow**

Reverse transcriptases | Oligo design | PCR reagents | Thermal cyclers | PCR plastics | Electrophoresis

Ordering information

Product	Quantity*	Cat. No.
Platinum SuperFi II DNA Polymerase	100 reactions	12361010
	500 reactions	12361050
Platinum SuperFi II PCR Master Mix	100 reactions	12368010
	500 reactions	12368050
Platinum SuperFi II Green PCR Master Mix	100 reactions	12369010
	500 reactions	12369050
Platinum Direct PCR Universal Master Mix	100 reactions	A44647100
	500 reactions	A44647500
Platinum II *Taq* Hot-Start DNA Polymerase	100 reactions	14966001
	500 reactions	14966005
Platinum II Hot-Start PCR Master Mix (2X)	100 reactions	14000012
	500 reactions	14000013
Platinum II Hot-Start Green PCR Master Mix (2X)	100 reactions	14001012
	500 reactions	14001013

* Additional sizes available

Find out more at **thermofisher.com/platinumenzymes**

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