invitrogen

Platinum DNA polymerases

Exceptional fidelity, specificity, and versatility—designed for the highest success in PCR

ThermoFisher SCIENTIFIC

Did you know

Platinum hot-start technology

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

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

Platinum SuperFi DNA Polymerase

>100x *Taq* fidelity for 100% confidence

Invitrogen™ Platinum™ SuperFi DNA Polymerase combines exceptional fidelity and trusted Platinum hot-start technology with high processivity. Featuring greater than 100x *Taq* fidelity, Platinum SuperFi DNA Polymerase is ideally suited for cloning, mutagenesis, and other applications benefiting from superior sequence accuracy.

Highlights

- Exceptional >100x *Taq* fidelity
- High specificity and increased yields with Platinum hot-start technology
- Robust amplification of difficult-to-amplify targets, including those of suboptimal purity or with greater than 65% GC content
- Convenient workflow with room-temperature reaction setup and direct gel loading with green buffer formats

Applications

- High-fidelity PCR
- Cloning and subcloning
- Site-directed mutagenesis
- Amplification of GC-rich templates
- Template generation for sequencing
- High-throughput PCR
- Amplification of samples with suboptimal purity
- Long PCR (up to 20 kb)
- Fast PCR
- Multiplex PCR

High fidelity

The relative fidelity values of Platinum SuperFi DNA Polymerase and other DNA polymerases were determined using next-generation sequencing (NGS). The relative fidelity of Platinum SuperFi DNA Polymerase was calculated to be greater than 100x that of *Taq* DNA polymerase.

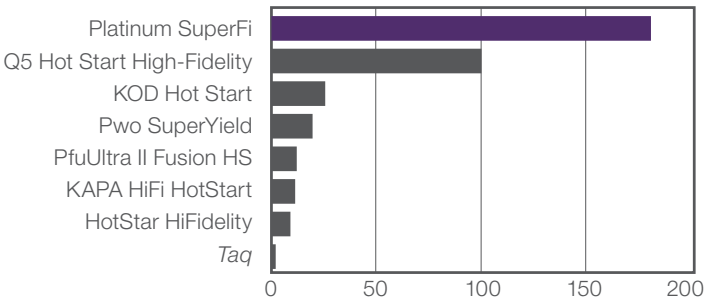


Figure 1. Relative fidelity values of different DNA polymerases. Polymerase fidelity was measured by next-generation sequencing. The background level of experimental errors was estimated from PCR-free library sequencing data. The polymerase fidelities were normalized to *Taq* polymerase. It is difficult to determine fidelity values greater than 100x *Taq* in a statistically significant manner because the extremely low error rates are at the background level.

Broad range of amplicon lengths up to 20 kb

The high processivity of Platinum SuperFi DNA Polymerase also enables fast cycling protocols and amplification of long targets up to 20 kb.

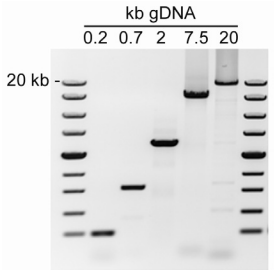


Figure 2. Versatility across a broad range of amplicon lengths. Amplification of human gDNA fragments ranging from 0.2 to 20 kb with Platinum SuperFi DNA Polymerase.

Resistance to inhibitors

Platinum SuperFi DNA Polymerase is engineered with a DNA-binding domain resulting in high processivity and increased resistance to common PCR inhibitors such as heparin, xylan, and humic acid.

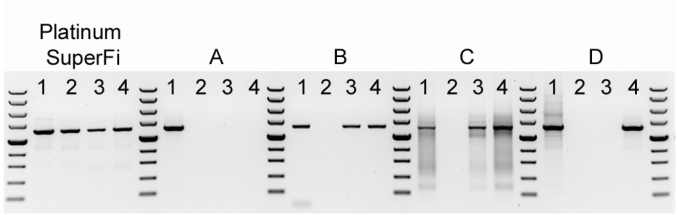


Figure 3. Resistance to inhibitors. Amplification of a 2 kb human gDNA fragment using Platinum SuperFi DNA Polymerase or high-fidelity DNA polymerases from other suppliers (A–D) in reaction mixtures containing 1: no inhibitor, 2: heparin (0.15 µg/µL), 3: xylan (0.5 µg/µL), or 4: humic acid (0.15 µg/µL).

Direct PCR amplification from blood

It is possible to directly use a wide range of blood concentrations in PCR reactions performed with Platinum SuperFi DNA Polymerase.

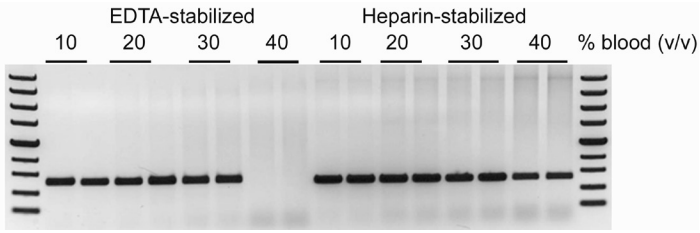
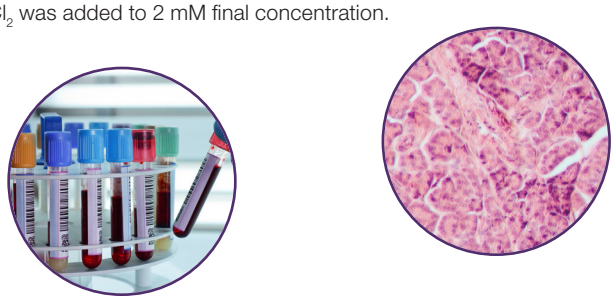


Figure 4. Direct amplification of gDNA from whole blood. Amplification of a 585 bp gDNA fragment from varying percentages of human blood (v/v) was performed using Invitrogen™ Platinum™ SuperFi PCR Master Mix. $MgCl_2$ was added to 2 mM final concentration.



Amplification from FFPE samples

Inhibitors and damaged DNA can be problematic when amplifying DNA extracted from formalin-fixed, paraffin-embedded (FFPE) samples. Platinum SuperFi DNA Polymerase provides robust amplification of DNA isolated from FFPE samples.

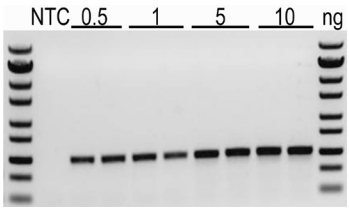


Figure 5. Amplification from FFPE samples. A 527 bp mouse gDNA fragment was amplified from different amounts of DNA template extracted from *Mus musculus* kidney FFPE sample (NTC = no-template control; 0.5, 1, 5, and 10 ng).

Helpful tips

T_m calculator

Annealing temperature rules for Platinum SuperFi DNA Polymerase are different from many common DNA polymerases (such as *Taq* DNA polymerases). For optimal results, use the T_m calculator on our website.

Go to **thermofisher.com/tmcalculator**

Direct gel loading simplifies PCR workflow

Platinum SuperFi DNA Polymerase and Platinum *Taq* DNA Polymerase are offered with convenient green buffer options for direct gel loading of PCR products, eliminating tedious steps of dye addition. Left lane of gel image shows PCR reaction mixture prior to electrophoresis. Right two lanes show gel dye migration following 5 and 15 minutes of electrophoresis.

Versatile across AT-rich to GC-rich targets

All Platinum SuperFi DNA Polymerase formats are supplied with a separate vial of Invitrogen™ SuperFi™ GC Enhancer formulated for specific amplification and improved yields of targets with high GC content.

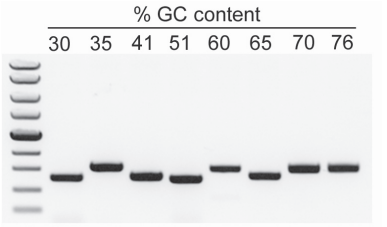


Figure 6. Platinum SuperFi DNA Polymerase provides high specificity and robust yields. Seven fragments, 500–800 bp in length and of varying GC content, were amplified from 50 ng of human gDNA. SuperFi GC Enhancer was added for 70% and 76% GC fragments.

Did you know

High-throughput PCR

Assembled PCR reactions with Platinum SuperFi and Platinum *Taq* DNA Polymerases are stable for 24 hours at room temperature, enabling high-throughput applications.

Multiplex PCR with minimal optimization

Platinum SuperFi DNA Polymerase enables simultaneous amplification of a range of DNA targets with minimal optimization.

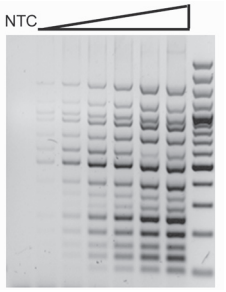


Figure 7. Simultaneous amplication of multiple targets. Fifteen fragments (100 bp–1,500 bp) were amplified from human gDNA using Platinum SuperFi DNA Polymerase. Triangle indicates increasing amounts of input DNA in 50 µL PCR reactions (NTC = no-template control; 0.08, 0.4, 2, 10, 50, and 250 ng).

Benchtop stability

Extended stability of the Platinum SuperFi DNA Polymerase enzyme at room temperature enables high-throughput applications.

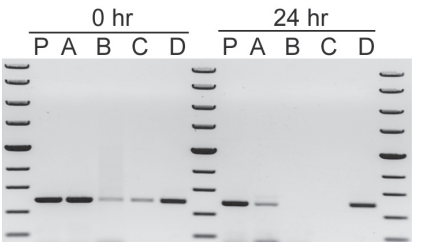


Figure 8. Platinum SuperFi DNA Polymerase stability at room temperature. PCR reactions were set up and incubated at room temperature 0 and 24 hr before loading in the thermal cycler. Even after 24 hr of room-temperature incubation, Platinum SuperFi DNA Polymerase enables high specificity and yields with its superior hot-start technology. Amplification was performed using Platinum SuperFi DNA Polymerase (lane P) and DNA polymerases from other suppliers (A–D).

Learn more at **thermofisher.com/platinumsuperfi**

Platinum *Taq* DNA Polymerase

Hot-start enzyme for high specificity and yield

Invitrogen™ Platinum™ *Taq* DNA Polymerase is a hot-start enzyme ideal for sequence detection with high specificity. Even low-abundance DNA templates and difficult GC-rich templates can be successfully amplified for accurate results.

Highlights

- High specificity and increased yields with antibody-mediated hot-start PCR
- Convenient room-temperature reaction setup
- Direct gel loading with green buffer formats
- Versatile formulation for a broad range of amplicons

High specificity and yields

Platinum *Taq* DNA Polymerase provides high specificity and robust yields.

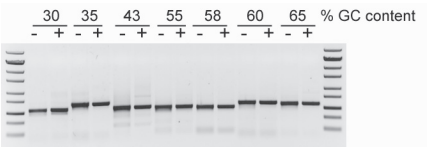


Figure 9. Platinum *Taq* DNA Polymerase provides high specificity and robust yields. Seven fragments of varying GC content were amplified from 30 ng of human gDNA using both colorless (–) and green (+) PCR buffers.

Applications

- Genotyping
- Gene expression profiling
- Colony PCR
- High-throughput PCR
- Next-generation sequencing
- Amplification of GC-rich templates

Robust amplification of high-GC regions

Specific amplification and improved yields of targets with difficult-to-amplify, high GC content are enabled with specifically formulated GC enhancer.

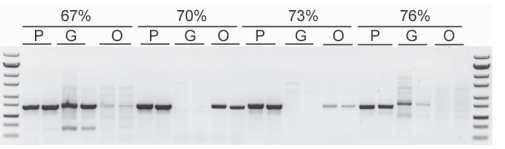


Figure 10. Invitrogen™ Platinum™ Hot Start PCR Master Mix provides robust amplification of GC-rich DNA. GC-rich fragments were amplified from human gDNA using Platinum Hot Start PCR Master Mix supplemented with GC enhancer (P) or hot-start *Taq* PCR master mixes from other vendors (O, G).

Benchtop stability

Extended stability of the Platinum *Taq* DNA Polymerase hot-start enzyme at room temperature enables high-throughput applications.

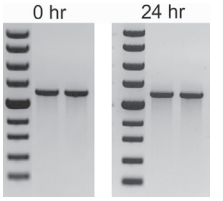


Figure 11. Platinum *Taq* DNA Polymerase stability at room temperature. PCR reactions were set up and incubated at room temperature 0 and 24 hr before loading in the thermal cycler. Even after 24 hr, highly specific amplification is enabled with stable antibody-mediated hot-start technology.

Learn more at **thermofisher.com/platinumtaq**

Helpful tips

Tip for GC-rich DNA

All product formats of Platinum SuperFi and Platinum *Taq* DNA Polymerases are provided with specially formulated GC enhancers for targets with high GC content. Instructions for use are provided in protocols.

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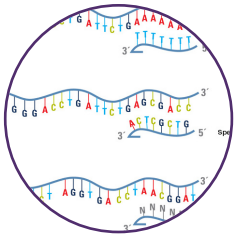
Ordering information

Product	Quantity	Cat. No.
Platinum SuperFi DNA Polymerase and Master Mixes		
Platinum SuperFi DNA Polymerase	100 units	12351-010
	500 units	12351-050
	5 x 500 units	12351-250
Platinum SuperFi Green DNA Polymerase	100 units	12357-010
	500 units	12357-050
	5 x 500 units	12357-250
Platinum SuperFi PCR Master Mix	100 reactions	12358-010
	500 reactions	12358-050
	5 x 500 reactions	12358-250
Platinum SuperFi Green PCR Master Mix	100 reactions	12359-010
	500 reactions	12359-050
	5 x 500 reactions	12359-250
SuperFi Buffer	4 x 1.25 mL	12355-005
SuperFi Green Buffer	4 x 1.25 mL	12356-005

Product	Quantity	Cat. No.
Platinum *Taq* DNA Polymerase and Master Mixes		
Platinum *Taq* DNA Polymerase	120 reactions	10966-018
	300 reactions	10966-026
	600 reactions	10966-034
	5,000 reactions	10966-083
Platinum *Taq* Green Hot Start DNA Polymerase	120 reactions	11966-018
	300 reactions	11966-026
	600 reactions	11966-034
	5,000 reactions	11966-083
Platinum Hot Start PCR Master Mix	50 reactions	13000-012
	200 reactions	13000-013
	1,000 reactions	13000-014
Platinum Green Hot Start PCR Master Mix	50 reactions	13001-012
	200 reactions	13001-013
	1,000 reactions	13001-014

Every step counts

Every step of your experiment is important. From the DNA polymerase at the heart of the PCR reaction to plastics, thermal cyclers, and nucleic acid electrophoresis, we offer complete solutions for every step of your PCR workflow. Discover our innovative and high-quality products to streamline your experiments.



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Custom oligos

Applied Biosystems™ thermal cyclers

Applied Biosystems™ MicroAmp™ plastics

Invitrogen™ E-Gel™ precast agarose gels and imaging

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