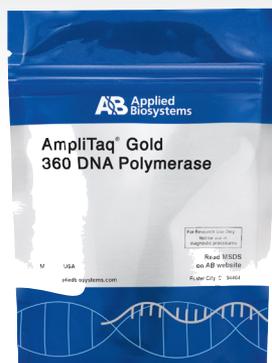


# PCR essentials

The world's most trusted PCR solutions



life technologies™

AB applied biosystems | invitrogen™

Invitrogen offers you the best selection of high-quality PCR products that you've relied on for years. And now, with the Applied Biosystems portfolio of PCR tools, you have even more high-quality products to choose from. From leading-edge thermal cyclers to best-in-class enzymes to plates and tubes, we have it all to streamline your research.

Cloning	Fast PCR	Genotyping	Sequencing and resequencing	Methylation
<b>PCR APPLICATION GUIDE</b>				
<p>PCR is the preferred method to obtain a greater quantity of target DNA to clone. Downstream applications using high-purity cloned genes include:</p> <ul style="list-style-type: none"> <li>• cDNA library construction</li> <li>• Gene family characterization</li> <li>• Large-scale genome mapping using YACs/BACs</li> </ul>	<p>Fast PCR not only saves you time, it also enables you to do more research with your resources. Ideal applications include:</p> <ul style="list-style-type: none"> <li>• Standard PCR</li> <li>• High-throughput screening</li> <li>• Colony PCR library screening</li> </ul>	<p>Use PCR to study differences in DNA sequences. Related applications include:</p> <ul style="list-style-type: none"> <li>• Allele-specific PCR</li> <li>• Fragment length polymorphism analysis</li> <li>• Haplotyping</li> <li>• Linking emulsion PCR</li> <li>• SNP analysis</li> <li>• Microsatellite studies</li> </ul>	<p>PCR is used upstream of direct sequencing applications. Use direct sequencing for:</p> <ul style="list-style-type: none"> <li>• Mutation detection</li> <li>• Candidate gene analysis</li> <li>• Genetic linkage studies</li> <li>• Evolutionary studies</li> <li>• Genome (gap filling and shotgun) sequencing</li> <li>• Primer walking</li> </ul>	<p>Study epigenetic effects by amplification of bisulfite-treated DNA:</p> <ul style="list-style-type: none"> <li>• Specific amplification of long CpG islands</li> <li>• Difficult targets</li> </ul>
<b>RECOMMENDED ENZYMES</b>				
<ul style="list-style-type: none"> <li>• AmpliTaq Gold® 360 DNA Polymerase (or Master Mix)</li> <li>• Platinum® Taq DNA Polymerase High Fidelity</li> <li>• Platinum® Taq DNA Polymerase</li> <li>• AccuPrime™ Taq DNA Polymerase High Fidelity</li> </ul>	<ul style="list-style-type: none"> <li>• AmpliTaq Gold® Fast PCR Master Mix</li> </ul>	<ul style="list-style-type: none"> <li>• AmpliTaq Gold® Fast PCR Master Mix</li> <li>• AmpliTaq® and AmpliTaq Gold® 360 DNA Polymerases</li> <li>• Platinum® GenoType Tsp DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>• AmpliTaq Gold® Fast PCR Master Mix</li> <li>• AmpliTaq® and AmpliTaq Gold® 360 DNA Polymerases</li> <li>• Platinum® Taq DNA Polymerase High Fidelity</li> </ul>	<ul style="list-style-type: none"> <li>• AmpliTaq Gold® 360 Master Mix and DNA Polymerase</li> <li>• AmpliTaq® 360 DNA Polymerase</li> <li>• Platinum® Taq DNA Polymerase</li> </ul>
<b>COMPATIBLE THERMAL CYCLERS</b>				
<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® 96-Well Fast Thermal Cycler (0.1 mL)</li> <li>• Veriti® 96-Well Thermal Cycler (0.2 mL)</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>



Bacterial gene amplification	Viral gene amplification	Long PCR (5–20 kb)	Multiplex PCR
<p>Use PCR to analyze bacterial genomes—vital for antibiotic and vaccine development. Also useful for:</p> <ul style="list-style-type: none"> <li>• Pathogen detection</li> <li>• Amplified fragment length polymorphism (AFLP) analysis used in comparative bacterial genomics</li> </ul>	<p>PCR assays are a highly sensitive, specific, and fast means of detecting viruses for:</p> <ul style="list-style-type: none"> <li>• Nucleic acid sequence–based amplification (NASBA)</li> <li>• Pathogen detection</li> </ul>	<p>An enzyme blend efficiently amplifies larger targets for:</p> <ul style="list-style-type: none"> <li>• Sequence mapping</li> <li>• Mitochondrial genome PCR</li> <li>• Gene cluster studies</li> <li>• cDNA cloning of long transcripts</li> </ul>	<p>Use multiplex PCR to amplify many targets in a single tube. This method provides target-specific amplification with primers specific for each target. Used for:</p> <ul style="list-style-type: none"> <li>• Human identification studies</li> <li>• Variable number of tandem repeats (VNTR) screening</li> </ul>
<ul style="list-style-type: none"> <li>• AmpliTaq Gold® Fast PCR Master Mix</li> <li>• AmpliTaq Gold® 360 Master Mix and DNA Polymerase</li> <li>• AmpliTaq Gold® 360 Master Mix</li> <li>• Platinum® Taq DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>• AmpliTaq® and AmpliTaq Gold® 360 DNA Polymerases</li> <li>• Platinum® Taq DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>• Platinum® Taq DNA Polymerase High Fidelity</li> <li>• AccuPrime™ Taq DNA Polymerase High Fidelity</li> <li>• Elongase Enzyme Mix</li> </ul>	<ul style="list-style-type: none"> <li>• Platinum® Taq DNA Polymerase High Fidelity</li> <li>• AmpliTaq Gold® 360 Master Mix and DNA Polymerase</li> </ul>
<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>	<ul style="list-style-type: none"> <li>• Veriti® Thermal Cyclers</li> <li>• GeneAmp® PCR System 9700</li> <li>• 2720 Thermal Cycler</li> </ul>

# PCR instruments

Since the introduction of our first thermal cycler in 1987, Applied Biosystems has continued to develop and support innovative PCR instruments to empower your research.



## The Power of MORE

**The Applied Biosystems® Veriti® Thermal Cycler—designed to meet your current and future PCR needs**

The Veriti® Thermal Cycler delivers the proven reliability you expect from Applied Biosystems, with enhanced features to handle all of your PCR applications. Four formats are available to meet your thermal cycling needs: Veriti® 96-Well (0.2 or 0.1 mL), 384-Well, and 0.5 mL 60-Well. An intuitive color touch-screen interface provides you with a powerful yet simple user interface to help simplify instrument setup and use.

Additionally, the Veriti® 96-Well Thermal Cycler provides you with the flexibility to run fast or standard PCR as well as the capability to perform better-than-gradient PCR optimization with VeriFlex™ Blocks.

- Six temperature blocks for PCR optimization on Veriti® 96-Well Thermal Cyclers
- Optimal for fast and standard PCR
- Reliability you expect
- Exceptionally easy to operate
- Optional VeriLink™ Remote Management Software allows you to network and manage your systems, providing you with peace of mind with features like email notifications

## Economical benchtop instrument

**The Applied Biosystems® 2720 Thermal Cycler—your personal thermal cycler**

The personal-sized 2720 Thermal Cycler is ideal for basic PCR and cycle sequencing applications. It incorporates many features of the GeneAmp® PCR System 9700 to enable similar performance and reliability in a more compact package and at a lower price.

- Compact design maximizes bench space
- Precise and uniform heating and cooling
- Convenient graphical interface
- Reliable and cost-effective



Table 1. PCR instrument selection guide.

Instrument model	Veriti® 96-Well System	Veriti® 384-Well System	Veriti® 60-Well System	96-Well 9700	Dual 96-Well 9700	Dual 384-Well 9700	60-Well 9700	2720
Sample block	0.1 mL or 0.2 mL alloy blocks (non-interchangeable)	0.02 mL aluminum	0.5 mL aluminum	0.2 mL aluminum, silver, or gold-plated silver	0.2 mL aluminum (2 x 96-Well)	0.02 mL aluminum (2 x 384-Well)	0.5 mL aluminum	0.2 mL aluminum
Function	PCR optimization, fast PCR, standard PCR	High-throughput 384-well isothermal sample block	60-well (0.5 mL) isothermal sample block for larger post-PCR sample volumes	Most flexible research format	Medium-/high-throughput dual 96-well sample blocks enable 192 samples per run	High-throughput, small sample volume	Larger post-PCR sample volumes	96-well personalized cyclers
Features	VeriFlex™ Blocks: 6 Peltier blocks for PCR optimization or to run up to six annealing temperatures in the same run	VeritiLink™ networking capability provides control of 12 instruments from a single instrument	Supports 0.5 mL thin-walled tubes, which enable better heat transfer and more efficient cycling	Standard 0.2 mL format and sample block options enable enhanced performance and durability	High-throughput dual 96-well sample blocks enable 192 samples per run	High-throughput dual 384-well sample blocks enable 768 samples per run, optional auto-lid	Supports 0.5 mL thin-walled tubes, which enable better heat transfer and more efficient cycling	Exceptionally small footprint designed with vents in the rear, allowing several cyclers to be placed side by side to conserve valuable bench space
Temperature accuracy	±0.25°C (35°C–99.9°C)							± 0.5°C (35°C–100°C)
Temperature range	4°C to 99°C							
Dimensions	Height: 24.5 cm (9.6 in) Width: 23.7 cm (9.3 in) Depth: 48.5 cm (19.1 in)			Height: 26 cm (10 in) Width: 30 cm (12 in) Depth: 40.6 cm (16 in)	Height: 26 cm (10 in) Width: 30 cm (12 in) Depth: 52 cm (20.5 in)		Height: 26 cm (10 in) Width: 30 cm (12 in) Depth: 40.6 cm (16 in)	Height: 22 cm (8.7 in) Width: 21 cm (8.3 in) Depth: 36 cm (14.2 in)
Part numbers	4375305 (0.1 mL), 4375786 (0.2 mL)	4388444	4384638	4314879, N8050001, 4314878	4343176	N8050002, 4314487	4310899	4359659

## Interchangeable block design

### Meet wide-ranging needs with the flexible Applied Biosystems® GeneAmp® PCR System 9700

The GeneAmp® PCR System 9700 is a high-performance thermal cycler with built-in flexibility provided by different block temperature modes and a range of user-interchangeable PCR block options.

- Convenient graphical interface
- Interchangeable blocks available: 60-well, 0.5 mL; 96-well, 0.2 mL; and dual 96- or 384-well formats
- Optional robotics-compatible auto-lid available with dual 384-well block



# Everyday PCR enzymes

Invitrogen offers you best-in-class PCR enzymes with brands you trust. With the new AmpliTaq Gold® 360 DNA Polymerase and Platinum® Taq DNA Polymerase for your everyday hot-start needs, and specialty enzymes to tackle your specific problems, Invitrogen has what you need for successful PCR.

Table 2. PCR enzyme selection guide.

Product	Amplify wide target range	Target size	Specificity	Fidelity (vs. Taq)	Yield	Speed	Convenience
AmpliTaq Gold® 360 Master Mix	****	<3 kb	**	1x	****	***	****
AmpliTaq Gold® 360 DNA Polymerase	****	<3 kb	**	1x	***	**	****
Platinum® Taq DNA Polymerase	***	<5 kb	**	1x	***	**	****
Platinum® Taq DNA Polymerase, High Fidelity	***	<20 kb	**	6x	****	**	****
AccuPrime™ Taq High Fidelity	***	<20 kb	***	9x	****	**	****
AmpliTaq Gold® Fast PCR Master Mix, UP	****	<1.5 kb	**	1x	***	*****	*****
GeneAmp® Fast PCR Master Mix	***	< 2 kb	**	1x	***	*****	*****
AmpliTaq® 360 DNA Polymerase	****	<5 kb	*	1x	*	*	*

## Fast PCR with hot-start specificity

Use AmpliTaq Gold® Fast PCR Master Mix, UP for fast results in your sequencing applications

AmpliTaq Gold® Fast PCR Master Mix, UP helps reduce your time-to-results while delivering specific, high-yield amplicons enabling easy production of high-quality sequencing data.

- Uses your existing primers to amplify standard 600 bp targets from genomic DNA in about 40 minutes
- When combined with modified cycle sequencing conditions for Fast cycle sequencing, you can go from sample to basecalling in approximately 4 hours
- Sensitive enough to detect up to 10 copies of a single gene in 10 ng of genomic DNA

Use GeneAmp® Fast PCR Master Mix for fast PCR in 25 minutes

Decrease your turnaround time by reducing amplification times by approximately 1/3 over conventional PCR reaction times.

- Amplifies standard 500 bp targets from genomic DNA in under 25 minutes
- Detects single-copy genes in 10 ng of human genomic DNA

Combine these convenient master mixes with the Applied Biosystems® Veriti® 96-Well Fast Thermal Cycler (page 4) for faster PCR than ever before.

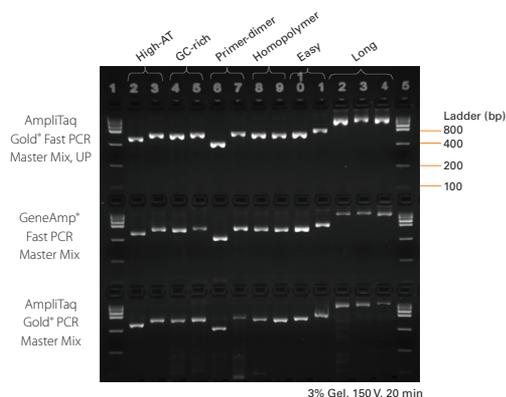


Figure 1. Robust results with Applied Biosystems® Fast PCR Master Mixes. Various target types, including high-AT, GC-rich, primer-dimer, homopolymer, easy, and long, were amplified on the Veriti® 96-Well Fast Thermal Cycler using a three-step protocol. Each amplicon was amplified from 10 ng of human genomic DNA. Amplification times for a 600 bp fragment varied as follows: 40 min for AmpliTaq Gold® Fast PCR Master Mix, UP, 25 min for GeneAmp® Fast PCR Master Mix, and 2 hr for the standard AmpliTaq Gold® PCR Master Mix.

# Hot-start PCR for high specificity and yield

Invitrogen offers you top brands of antibody-mediated and chemically modified hot-start reagents so you can choose the enzyme mix that will work best for your research.

Product	Hot-start technology	Template length	Fastest activation time	Includes AccuPrime™ System technology for improved specificity	Best for high-throughput applications	Best for GC-rich templates	Best for sequencing applications	SuperMix/ master mix available	Loading dye version
AmpliTaq Gold® 360 DNA Polymerase	Chemically modified	<3 kb			X	X	X	X	
Platinum® Taq DNA Polymerase	Antibody-mediated	<3 kb	X	X				X	X

## Hot-start amplification of a broad range of targets with AmpliTaq Gold® 360 DNA Polymerase and Master Mix

AmpliTaq Gold® DNA Polymerases have been optimized to amplify a wide range of targets while delivering the high specificity and reliability you have come to expect from traditional AmpliTaq Gold® DNA Polymerase.

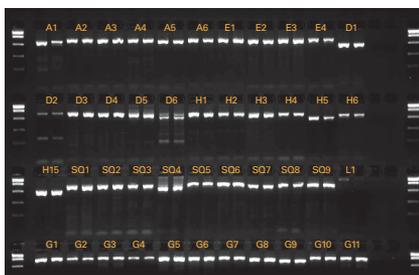
- Increased specificity with trusted hot-start technology
- Amplify the the broadest range of targets (<3 kb) that contain high GC, high AT, homopolymer runs, and more
- Increased yield compared with AmpliTaq Gold® DNA Polymerase
- Achieve excellent sequencing data from all amplicons
- Available in a master mix format for increased convenience and even better results

## Hot-start amplification of longer targets with Platinum® Taq DNA Polymerase and SuperMix

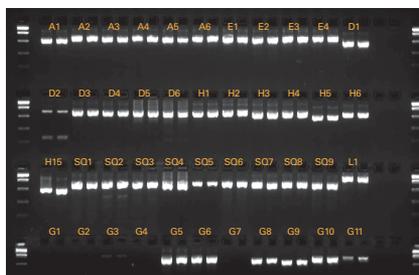
Platinum® Taq DNA Polymerase uses antibody-mediated hot start to enable increased specificity, yield, and sensitivity over standard Taq products.

- Helps decrease time spent optimizing PCR reactions (e.g., [Mg<sup>2+</sup>], annealing temperature, primer concentration, etc.)
- Increases yield of PCR product
- Allows for assembly of reactions at room temperature
- Less background and nonspecific PCR products, including reduced primer-dimer products
- Enables increased sensitivity so less target is required
- Available in both a convenient SuperMix format or with a blue loading dye for subsequent gel use (Platinum® Blue PCR SuperMix)

Panel A. AmpliTaq Gold® 360 Master Mix

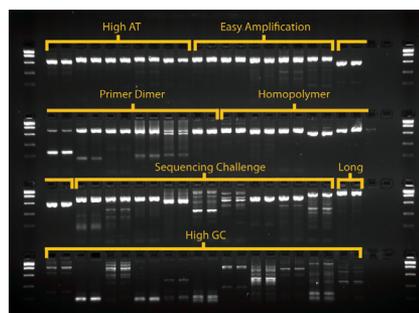


Panel B. QIAGEN HotStarTaq® Master Mix

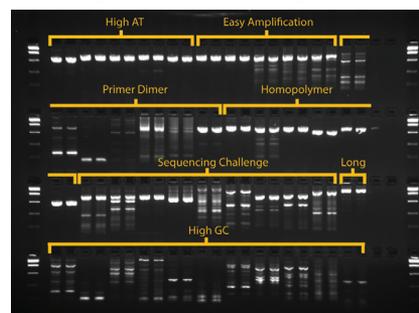


**Figure 2. AmpliTaq Gold® 360 Master Mix amplifies a broader range of targets.** Panel A shows products amplified with AmpliTaq Gold® 360 PCR Master Mix, while panel B shows the same products amplified using the QIAGEN HotStarTaq® Master Mix. PCR was performed using 1 ng of template DNA per reaction, using cycling conditions according to each manufacturer's recommendations. All enzyme concentrations were standardized at 0.025 U/μL. Annealing temperatures were uniform across the selected targets. Amplicons ranged from 300 to 1,400 bp in length, with an average length of 553 bp. Each reaction was performed in duplicate. Amplicons are labeled as follows: E = Easy Amplification; A = High AT; G = High GC; L = Long; D = Primer-Dimer; H = Homopolymer; SQ = Sequencing Challenge. The High GC amplicon (G) reactions included 5 μL of 360 GC Enhancer.

Panel A. Platinum® Taq DNA Polymerase



Panel B. Sigma JumpStart™ DNA Polymerase



**Figure 3. Platinum® Taq DNA Polymerase shows more coverage for more amplicons.** (A) Products amplified with Platinum® Taq DNA Polymerase; (B) the same products amplified with Sigma JumpStart™ DNA Polymerase. PCR was run using 1 ng of template DNA and 1.25 units of enzyme in each 50 μL reaction. Annealing temperatures were uniform across the amplicon panel. Amplicons ranged from 300 to 1,400 bp in length, with an average length of 553 bp. Each reaction was performed in duplicate.

### How to choose between different hot-start technologies: antibody-mediated or chemically modified?

Although there are several types of hot-start enzymes, the most reliable and widely used techniques involve chemically modified hot-start or antibody-mediated hot-start enzymes.

Chemically modified hot-start reagents, like AmpliTaq Gold® 360 DNA Polymerase, are best for customers who are doing high-throughput applications. This enzyme withstands longer periods at room temperature. However, the activation time is longer and the read lengths are shorter.

Antibody-mediated hot-start products like Platinum® Taq DNA Polymerase help deliver fast activation times and minimal template degradation, which promote the amplification of longer fragments. However, antibody-mediated chemistries tend to exhibit reduced specificity and involve longer setup times.

With both types of hot-start technologies available from Invitrogen, you can choose the chemistry that works best for your research.

# High-fidelity PCR enzymes

High fidelity improves accuracy in your PCR reactions. Proofreading enzymes are added to the mix to help reduce the error rate over standard *Taq* polymerases. We recommend high-fidelity enzymes for applications like cloning, where sequence accuracy is essential.

## Easily amplify long templates

Use Platinum® *Taq* DNA Polymerase High Fidelity and AccuPrime™ *Taq* DNA Polymerase High Fidelity for amplicons up to 20 kb

When your template is longer than 10 kb, it is best to use a high-yield PCR enzyme blend that contains both *Taq* polymerase and a proofreading enzyme (3'–5' exonuclease activity), such as Platinum® *Taq* DNA Polymerase High Fidelity. This offers you a balance of high yield and moderate fidelity for robust PCR performance for targets up to 20 kb. This PCR enzyme blend helps improve yield and enables more robust results for small targets as well. Use the Platinum® *Taq* High Fidelity SuperMix for increased convenience.

For even greater specificity, AccuPrime™ *Taq* High Fidelity includes AccuPrime™ accessory proteins that help enhance specific primer–template hybridization during each cycle of PCR. This enzyme blend also offers robust performance for targets up to 20 kb.

## Get even higher fidelity with *Pfx* enzymes

Use Platinum® *Pfx* and AccuPrime™ *Pfx* DNA Polymerases for ultra high fidelity

Enzyme blends combined with a proofreading enzyme offer increased fidelity, but for even more fidelity in your PCR reaction, Platinum® *Pfx* DNA Polymerase offers the lowest error rate. Platinum® *Pfx* DNA Polymerase amplifies targets up to 12 kb.

For even greater specificity combined with the greatest fidelity, AccuPrime™ *Pfx* DNA Polymerase combines the increased specificity of AccuPrime™ accessory proteins with enhanced fidelity due to the *Pfx* proofreading enzyme.

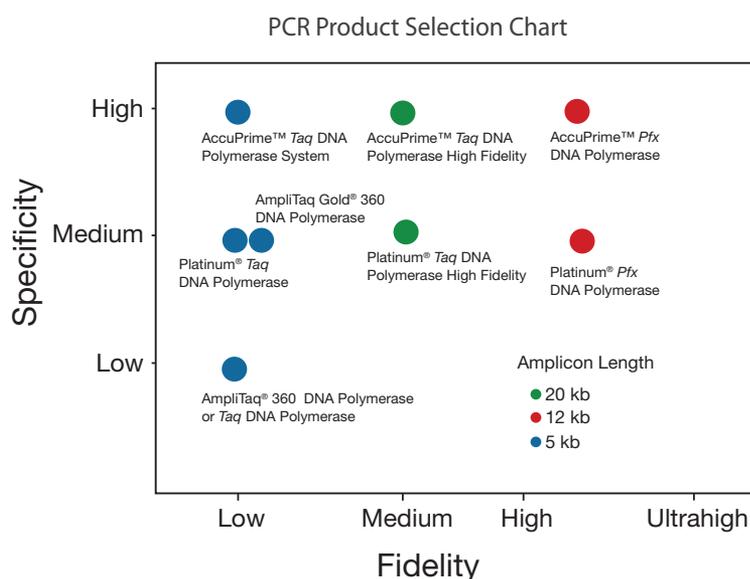


Figure 4. PCR enzyme portfolio.

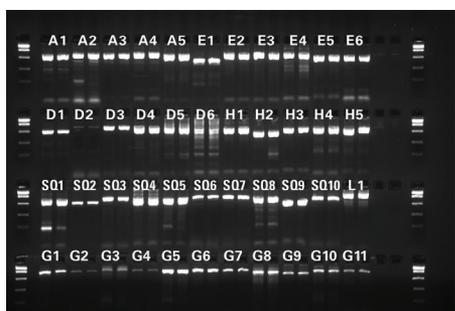
## Routine PCR

### AmpliTaq® 360 DNA Polymerase takes your PCR further

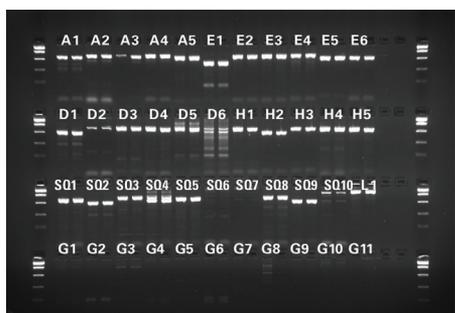
The new AmpliTaq® 360 DNA Polymerase has been optimized to amplify a wide range of targets while helping deliver the reliability you have come to expect from traditional AmpliTaq® DNA Polymerase.

- Reliably amplify a broad range of targets which contain high GC, high AT, homopolymer runs, and more
- Optional 360 GC Solution allows you to tackle the most challenging GC-rich fragments with ease
- Superior yield allows you to do more with your PCR amplicons
- Enables fewer false positives and reduced bacterial background
- Obtain reproducible results from the most trusted source for PCR
- Enables superior sequencing results even with difficult targets

Panel A. AmpliTaq® 360 DNA Polymerase



Panel B. Promega GoTaq® Green DNA Polymerase



**Figure 5. AmpliTaq® 360 DNA Polymerase amplifies a broader range of targets than Promega GoTaq® Green DNA Polymerase.** Panel A shows data produced with AmpliTaq® 360 DNA Polymerase, while Panel B shows the same targets amplified using the Promega GoTaq® DNA Polymerase. PCR was performed using 1 ng of template DNA and 1.25 units of enzyme in each 50 µL reaction. Annealing was uniform across the selected targets. Amplicons ranged from 300 to 1,400 bp in length, with an average length of 553 bp. Each reaction was performed in duplicate. Amplicons are labeled as follows: E = Easy Amplification; A = High AT; G = High GC; D = Primer-Dimer; H = Homopolymer; SQ = Sequencing Challenge. The high GC target (G) reactions included 2–10 µL of 360 GC Enhancer, depending upon the target used.

## Additional PCR products

As part of our complete PCR solution, Invitrogen offers a suite of products optimized for your success.

### Reverse transcriptases

Invitrogen offers SuperScript® III Reverse Transcriptases for your gene expression research. Learn more at [www.invitrogen.com/superscript](http://www.invitrogen.com/superscript) to find the reagent best suited to your application.

### Custom oligos

Invitrogen offers DNA oligo products and services when you need them. Custom oligos are offered with standard deoxynucleotides, modified bases, and 5'- and 3'-modified nucleotides. We offer both standard and premium oligos for improved purity. Our online ordering system is easy to use; order today at [www.invitrogen.com/oligos](http://www.invitrogen.com/oligos).

### dNTPs

dNTPs are deoxynucleotide triphosphates dissolved in glass-distilled water and titrated to pH 7.0 with NaOH. Available packaged individually, in a set, or blended in a dNTP mix. Our nucleotides are supplied as a ready-to-use solution at a concentration of 100 mM for convenience and flexibility.

### Nuclease-free water

Ambion® and GIBCO® DEPC-treated water is certified nuclease-free and autoclaved pre- and post-packaging to ensure sterility and inactivation of DEPC. It is rigorously tested for contaminating nonspecific endonuclease, exonuclease, and RNase activity.

### E-Gel® precast agarose gels

E-Gel® precast agarose gels are a self-contained, complete electrophoresis system that eliminates pouring gels, making buffers, and even UV illumination. Just load your samples and get results in as little as 7 minutes. Learn more at [www.invitrogen.com/egels](http://www.invitrogen.com/egels).

# Plastic consumables

Applied Biosystems® MicroAmp® disposables are optimized to provide unmatched temperature accuracy and uniformity for fast, efficient PCR amplification. The plastics are compatible with Applied Biosystems® platforms, including PCR instruments. Choose your format based on throughput requirements or your thermal cycler block.



## 96-well reaction plates with barcode

Process multiple samples in parallel with MicroAmp® Optical 96-Well Reaction Plates with Barcode

MicroAmp® reaction plates minimize light interference and distribute heat uniformly and quickly.

- Frosted plastic minimizes interfering fluorescence from cycling block

- Optimized for well-to-well temperature uniformity
- Optimized for use with Applied Biosystems® endpoint and real-time PCR systems
- Available in 0.1 mL Fast PCR plate with barcode<sup>1</sup>



## 384-well reaction plates with barcode

Optimized for use with Applied Biosystems® endpoint and real-time PCR systems

These plates complement real-time PCR systems and the dual 384-Well GeneAmp® PCR System 9700. The barcodes help eliminate tracking errors, and the optical properties of the plates replicate those of other MicroAmp® optical plastics.

- Best plate for real-time PCR
- Best plate for high-throughput PCR



## Reaction tubes for small-scale studies

MicroAmp® reaction tubes and tube strips uniformly distribute heat for precise PCR results

- Available in 8 tubes strips
- Available in regular or optical caps for real-time
- Available in 0.1 mL fast tubes and strips<sup>1</sup>
- Captive lid with positive-click closure assures proper seating

- Polished surface and conical bottom ensure maximum sample recovery
- Option of autoclavable tubes allows clean, controlled start

<sup>1</sup>Reduces PCR reaction time from 2 hours to as little as 25 minutes when used with the Veriti® 96-Well Thermal Cycler and other Fast PCR systems.

PLASTIC CONSUMABLES COMPATIBILITY CHART FOR APPLIED BIOSYSTEMS® INSTRUMENTS

Category/Part Description	P/N	Endpoint PCR Systems								Real-Time PCR Systems							Genetic Analyzers		
		Veriti® 96-Well 0.1 mL	Veriti® 96-Well 0.2 mL	Veriti® 384-Well	60-Well Veriti®/9700 (60-well)	2720	6100	9700 (96-well)	9700 (384-well)	StepOne™	StepOnePlus™	7000	7300/7500	7500 Fast	7900HT (96-well)	7900HT (384-well)	7900HT Fast	310*	3100/3130 3700/3730
<b>96-Well Plates</b>																			
MicroAmp® Fast Optical 96-Well Reaction Plate (0.1 mL) - 10 plates	4346907	x															x	x	x
MicroAmp® Fast Optical 96-Well Reaction Plate with Barcode (0.1 mL) - 20 plates	4346906	x															x	x	x
MicroAmp® Fast Optical 96-Well Reaction Plate with Barcode (0.1 mL) - 200 plates	4366932	x															x	x	x
MicroAmp® Optical 96-Well Reaction Plate - 10 plates	N8010560		x			x	x	x				x	x			x			x
MicroAmp® Optical 96-Well Reaction Plate - 500 plates	4316813		x			x	x	x				x	x			x			x
MicroAmp® Optical 96-Well Reaction Plate with Barcode - 20 plates	4306737		x			x	x	x				x	x			x			x
MicroAmp® Optical 96-Well Reaction Plate with Barcode - 500 plates	4326659		x			x	x	x				x	x			x			x
MicroAmp® Optical 96-Well Reaction Plate with Barcode and Optical Caps - 20 plates	403012		x			x		x				x	x			x			
MicroAmp® Optical 96-Well Reaction Plate with Barcode and Optical Adhesive Films - 100 plates	4314320		x					x				x	x			x			
<b>384-Well Plates</b>																			
MicroAmp® Optical 384-Well Reaction Plate with Barcode - 50 plates	4309849			x															x
MicroAmp® Optical 384-Well Reaction Plate with Barcode - 500 plates	4326270			x															x
MicroAmp® Optical 384-Well Reaction Plate with Barcode - 1,000 plates	4343814			x															x
MicroAmp® Optical 384-Well Reaction Plate - 1,000 plates	4343370			x															x
<b>48-Well Plates</b>																			
MicroAmp® Fast Optical 48-Well Reaction Plate - 20 plates	4375816	x																	
<b>Single Tubes</b>																			
MicroAmp® Fast Reaction Tube with Cap (0.1 mL) - 1,000 tubes	4358297	x								x									
MicroAmp® Reaction Tube with Cap (0.2 mL) - 1,000 tubes	N8010540		x			x		x											
MicroAmp® Reaction Tube with Cap (0.2 mL) - 10,000 tubes	N8011540		x			x		x											
MicroAmp® Reaction Tube with Cap, Assorted Colors (0.2 mL) - 1,000 tubes	N8010840		x			x		x											
MicroAmp® Reaction Tube with Cap, Autoclaved (0.2 mL) - 1,000 tubes	N8010612		x			x		x											
MicroAmp® Reaction Tube without Cap (0.2 mL) - 2,000 tubes	N8010533		x			x		x											
MicroAmp® Reaction Tube without Cap (0.2 mL) - 10,000 tubes	N8011533		x			x		x											
MicroAmp® Reaction Tube without Cap, Assorted Colors (0.2 mL) - 1,000 tubes	N8010833		x			x		x											
MicroAmp® Optical Tube without Cap (0.2 mL) - 2,000 tubes	N8010933		x			x		x				x	x						
GeneAmp® Thin-Walled Reaction Tube with Flat Cap (0.5 mL) - 1,000 tubes	N8010737					x													
GeneAmp® Thin-Walled Reaction Tube with Domed Cap (0.5 mL) - 2,000 tubes	N8010537					x													
GeneAmp® Thin-Walled Reaction Tube with Domed Cap, Autoclaved (0.5 mL) - 1,000 tubes	N8010611					x													
MicroAmp® 96-Well Reaction Tube/Tray/Retainer Set (0.2 mL) - 20 trays	403083							x											
MicroAmp® 96-Well Reaction Tube/Tray/Retainer Set (0.2 mL) - 100 trays	403086							x											
<b>Strip Tubes and Caps</b>																			
MicroAmp® 12-Cap Strip - 200 strips	N8010534	x	x			x		x											
MicroAmp® 12-Cap Strip - 1,000 strips	N8011534	x	x			x		x											
MicroAmp® 12-Cap Strip, Assorted Colors - 200 strips	N8010834	x	x			x		x		x									
MicroAmp® Fast 8-Tube Strip (0.1 mL) - 125 strips	4358293	x								x				x					x
MicroAmp® 8-Tube Strip (0.2 mL) - 125 strips	N8010580		x			x		x											x
MicroAmp® 8-Tube Strip, Assorted Colors (0.2 mL) - 120 strips	N8010838		x			x		x		x									x
MicroAmp® Optical 8-Tube Strip (0.2 mL) - 125 strips	4316567		x			x		x		x			x	x		x			
MicroAmp® 8-Cap Strip - 300 strips	N8010535	x	x			x		x											
MicroAmp® 8-Cap Strip - 1,500 strips	N8011535	x	x			x		x											
MicroAmp® 8-Cap Strip, Assorted Colors - 300 strips	N8010835	x	x			x		x											
MicroAmp® Optical 8-Cap Strip - 300 strips	4323032	x	x			x		x		x		x	x	x	x			x	
<b>Seals &amp; Covers</b>																			
MicroAmp® Clear Adhesive Film - 100 films	4306311	x	x	x															
MicroAmp® Optical Adhesive Film - 25 films	4360954	x	x	x															
MicroAmp® Optical Adhesive Film - 100 films	4311971	x	x	x															
MicroAmp® 48-Well Optical Adhesive Film - 100 films	4375323	x								x									
MicroAmp® 48-Well Optical Adhesive Film - 25 films	4375928	x								x									
MicroAmp® Optical Adhesive Film Kit - 20 kits	4313663												x			x			
MicroAmp® 96-Well Full Plate Cover - 5 covers	N8010550																		
<b>Reaction Trays</b>																			
MicroAmp® 96-Well Tray/Retainer Set - 10 trays	403081							x					x						
MicroAmp® 96-Well Tray - 10 trays	N8010541							x											
MicroAmp® 96-Well Tray for VeriFlex™ Blocks - 10 trays	4379983	x	x																
MicroAmp® 96-Well Tray/Retainer Set for Veriti® Systems - 10 trays	4381850		x																
MicroAmp® Fast 48-Well Tray - 10 trays	4375282									x									
<b>Compression Pads</b>																			
MicroAmp® Optical Film Compression Pad - 5 pads	4312639												x						x
MicroAmp® Snap-On Optical Film Compression Pad - 9 pads	4333292																		x

\*Requires the use of proper adapters.

## Ordering information

Description	Quantity	P/N
<b>Applied Biosystems® Thermal Cyclers</b>		
Applied Biosystems® Veriti® 96-Well Fast Thermal Cyclers, 0.1 mL	1 instrument	4375305
Applied Biosystems® Veriti® 96-Well Thermal Cyclers, 0.2 mL	1 instrument	4375786
Applied Biosystems® Veriti® 384-Well Thermal Cyclers, 0.02 mL	1 instrument	4388444
Applied Biosystems® Veriti® 60-Well Thermal Cyclers, 0.5 mL	1 instrument	4384638
VeritiLink™ Remote Management Software	1 disc	4393565
Gold 96-Well GeneAmp® PCR System 9700	Base module + sample block	4314878
Silver 96-Well GeneAmp® PCR System 9700	Base module + sample block	N8050001
Aluminum 96-Well GeneAmp® PCR System 9700	Base module + sample block	4314879
Dual 96-Well GeneAmp® PCR System 9700	Base module + sample block	4343176
Dual 384-Well GeneAmp® PCR System 9700	Base module + sample block	N8050002
Auto-Lid Dual 384-Well GeneAmp® PCR System 9700	Base module + sample block	4314487
Applied Biosystems® 2720 Thermal Cyclers	1 instrument	4359659
<b>PCR Enzymes</b>		
AmpliTaq Gold® 360 Master Mix	1 mL/5 mL	4398876/4398881
AmpliTaq Gold® 360 DNA Polymerase	100 units/250 units	4398813/4398823
AmpliTaq® 360 DNA Polymerase	100 units/250 units	4398808/4398818
AmpliTaq Gold® Fast PCR Master Mix, UP	250 reactions/2,500 reactions	4390939/4390941
GeneAmp® Fast PCR Master Mix (2X) with Protocol	2 x 1.25 mL	4362070
AccuPrime™ Taq DNA Polymerase High Fidelity	200 reactions	12346-086
AccuPrime™ Taq DNA Polymerase High Fidelity	1,000 reactions	12346-094
AccuPrime™ Pfx DNA Polymerase	200 reactions	12344-024
AccuPrime™ Pfx DNA Polymerase	1,000 reactions	12344-032
Platinum® PCR SuperMix	100 reactions	11306-016
Platinum® Blue PCR SuperMix	100 reactions	12580-015
Platinum® Blue PCR SuperMix	1,000 reactions	12580-023
Platinum® Taq DNA Polymerase	250 reactions	10966-026
Platinum® Taq DNA Polymerase	500 reactions	10966-034
Platinum® PCR SuperMix High Fidelity	100 reactions	12532-016
Platinum® Taq DNA Polymerase High Fidelity	500 reactions	11304-029
Platinum® Taq DNA Polymerase High Fidelity	5,000 reactions	11304-102
<b>Plastics for Veriti® 96-Well (0.2 mL), 9700, and 2720 Thermal Cyclers</b>		
MicroAmp® Optical 96-Well Reaction Plate with Barcode	20 plates	4306737
MicroAmp® 8-Tube Strip (0.2 mL)	125 strips	N8010580
MicroAmp® Reaction Tube with Cap (0.2 mL)	1,000 tubes	N8010540
MicroAmp® Clear Adhesive Film	100 films	4306311
MicroAmp® 12-Cap Strip	200 strips	N8010534
MicroAmp® 8-Cap Strip	300 strips	N8010535
MicroAmp® 96-Well Tray for VeriFlex™ Blocks*	10 trays	4379983
MicroAmp® 96-Well Tray/Retainer Set for Veriti® Systems*	10 trays	4381850
MicroAmp® 96-Well Tray/Retainer Set	10 trays	403081
<b>Plastics for Veriti® 96-Well (0.1 mL) Thermal Cyclers</b>		
MicroAmp® Fast Optical 96-Well Reaction Plate with Barcode (0.1 mL)	20 plates	4346906
MicroAmp® Fast 8-Tube Strip (0.1 mL)	125 strips	4358293
MicroAmp® Fast Reaction Tube with Cap (0.1 mL)	1,000 tubes	4358297
MicroAmp® Clear Adhesive Film	100 films	4306311
MicroAmp® 12-Cap Strip	200 strips	N8010534
MicroAmp® 8-Cap Strip	300 strips	N8010535
MicroAmp® 96-Well Tray for VeriFlex™ Blocks*	10 trays	4379983
<b>Plastics for Veriti® and 9700 384-Well Thermal Cyclers and Veriti® and 9700 60-Well Thermal Cyclers</b>		
MicroAmp® Optical 384-Well Reaction Plate with Barcode	50 plates	4309849
GeneAmp® Thin-Walled Reaction Tube with Flat Cap (0.5 mL)	1,000 tubes	N8010737
GeneAmp® Thin-Walled Reaction Tube with Domed Cap (0.5 mL)	2,000 tubes	N8010537

\*For Veriti® 96-Well Thermal Cyclers VeriFlex™ Blocks only

For complete lists, visit [www.invitrogen.com/pcr](http://www.invitrogen.com/pcr).



[www.invitrogen.com](http://www.invitrogen.com)

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