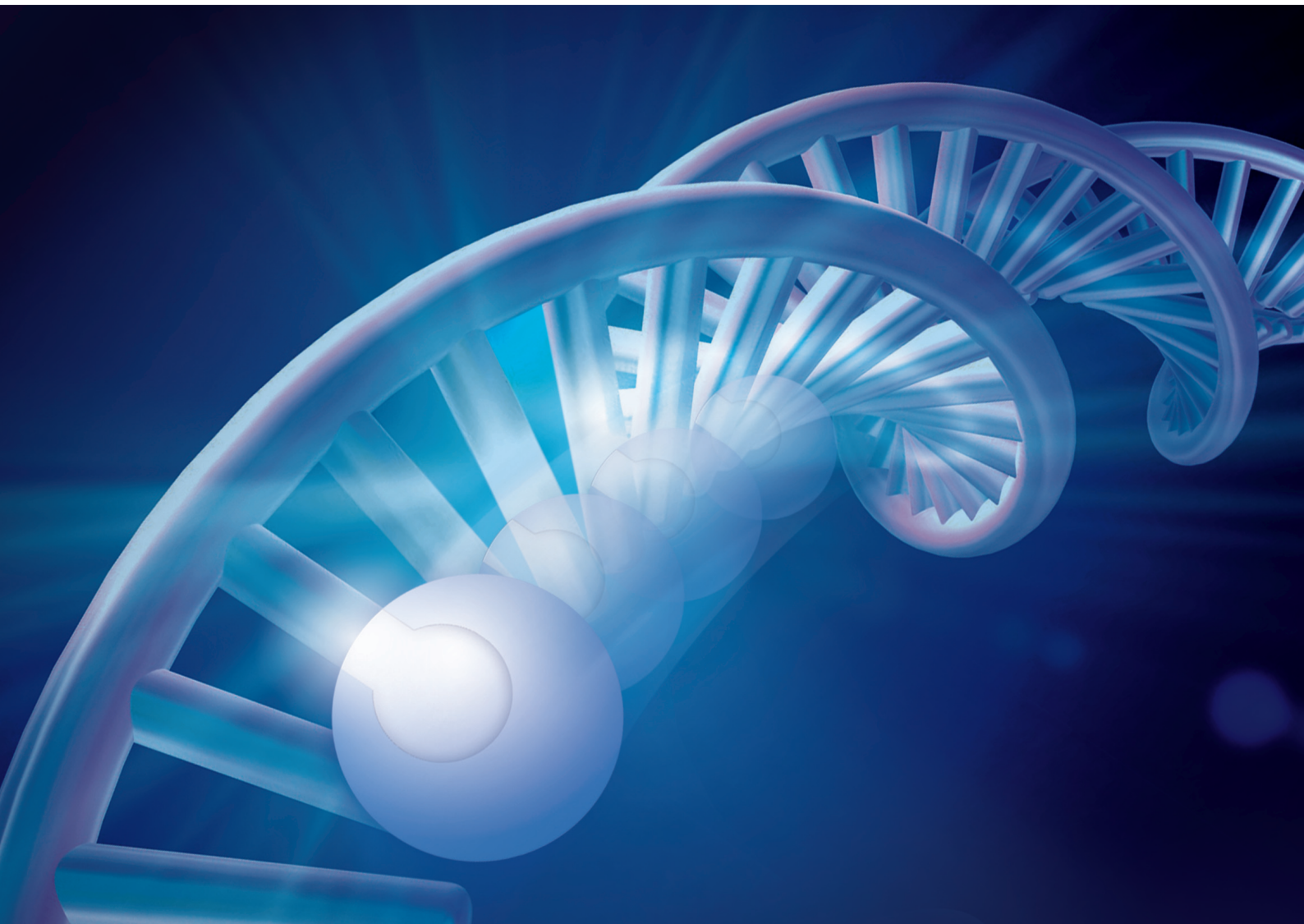
Reagents for PCR

Expertise in Amplification



Selection Guide

		Hot Start			Enzymes for Specific Requirements			
PCR Application:	Routine PCR	Fast PCR	Hot Start	Multiplex/ Sequencing	Wide Variety/ Easy Access	High Fidelity	Difficult Templates	Long Range
Your Enzyme of Choice:	**Taq DNA Polymerase**	**AptaTaq Fast DNA Polymerase**	**FastStart Taq DNA Polymerase**	**FastStart High Fidelity PCR System**	**Expand High Fidelity PCR System**	**Pwo SuperYield DNA Polymerase**	**GC-RICH PCR System**	**Expand Long Range**
Experience	**Consistency**	**Speed**	**Specificity**	**Accuracy**	**Robustness**	**Fidelity**	**Reliability**	**Safety**
Amplicon Size	up to 3 kb	up to 500 bp	up to 3 kb	up to 5 kb	up to 5 kb	up to 3 kb	up to 5 kb	5 to 25 kb**
Specificity	■ ■ □ □	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ □	■ ■ □ □	■ ■ ■ □	■ ■ ■ □
Sensitivity	■ ■ □ □	■ ■ □ □	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ □	■ ■ □ □	■ ■ ■ □	■ ■ □ □
Robustness	■ ■ □ □	■ ■ ■ ■	■ ■ ■ □	■ ■ ■ □	■ ■ ■ ■	■ ■ □ □	■ ■ ■ □	■ ■ ■ □
Accuracy vs. Taq	1x	1x	1x	6x	3x	18x	3x	3x
Carryover Prevention	yes	yes	yes	yes	no*	no	no	no
Units/50 µl	1.25	2/20 µl	2	2.5	2.6	2.5	2	3.5
Molecular Cloning	TA cloning	TA cloning	TA cloning	TA cloning	TA cloning	Blunt end cloning	TA cloning preferred over blunt end cloning	TA cloning
Enzyme	✔	✔	✔	✔	✔	✔	✔	
Enzyme, GMP Grade	✔							
dNTPack	✔		✔	✔	✔	✔	✔	✔
Master Mix	✔	✔	✔		✔	✔		
	▸▸ p. 4	▸▸ p. 5	▸▸ p. 6	▸▸ p. 7	▸▸ p. 8	▸▸ p. 9	▸▸ p. 10	▸▸ p. 11

* Requiring carryover prevention and 6x higher fidelity? Choose Expand High Fidelity^{PLUS} PCR System. ** For amplicon sizes of 20-35 kb: choose Expand 20 kb^{PLUS} PCR System.

Choose from a variety of formulations, tailored to your needs. Available as a standard enzyme, enzyme blends (enzyme and buffer), dNTPacks (enzyme, buffer, dNTP set), or as a convenient Master Mix (ready-to-use preparation of enzyme, buffer, dNTPs).

Use this brochure to select the right Roche polymerase for your PCR.

For life science research only. Not for use in diagnostic procedures.

Reagents for PCR

Select the Best Roche Product for Your PCR Application

Cutting-edge science shouldn't have to compromise for the sake of economy. Since the introduction of PCR technology, Roche has provided the gold standard in PCR reagents. Our advanced isolation, purification, and manufacturing techniques ensure that you receive not only the clearest, most reliable results, but also convenience and affordability to fit any laboratory budget.

- **Reliability** – Achieve the results you deserve, from lot to lot, tube to tube, and experiment to experiment.
- **Performance** – Combine premium enzymes plus PCR-Grade Nucleotides in convenient dNTPacks for enhanced sensitivity and yield.
- **Consistency** – Maximize experimental performance using master mixes that only require the addition of primers and template.

PCR-Grade Nucleotides ensure optimal performance

PCR success is highly dependent on your selection of both enzymes and nucleotides. Roche PCR enzymes are available in convenient dNTPacks, which include premixed solutions of additive-free sodium salt nucleotides. These function tested PCR-Grade Nucleotides are manufactured by enzymatic synthesis and purified by a unique process, and are an ideal contributor to the quality of your PCR results.

- **Purity** – Choose nucleotides free of modified bases, tetraphosphates, or pyrophosphate contaminants according to current quality procedures typical to chemically synthesized nucleotide preparations to improve your PCR's sensitivity.
- **Stability** – Lengthen shelf life and improve reaction stability using dNTPs supplied at an optimal pH to maximize yield.

Taq DNA Polymerase

Experience Consistency

Amplicon Size	up to 3 kb
Specificity	■ ■ □ □
Sensitivity	■ ■ □ □
Robustness	■ ■ □ □
Accuracy vs. Taq	1x
Carryover Prevention	yes
Units/50 µl	1.25
Molecular Cloning	TA cloning

Your Application: Routine PCR
Simple, affordable PCR characterized by robust amplification with minimal template requirements.

Roche Taq DNA Polymerase is produced under GMP conditions. This highly purified enzyme passes several stringent tests for functionality and purity, ensuring reliable, consistent results with every lot.

- **Obtain reliable, reproducible results** with high lot-to-lot consistency.
- **Eliminate testing of each new lot**, we do it for you.
- **Prevent PCR carryover.** Combine dUTP incorporation with Uracil-DNA Glycosylase to prevent PCR cross-contamination.

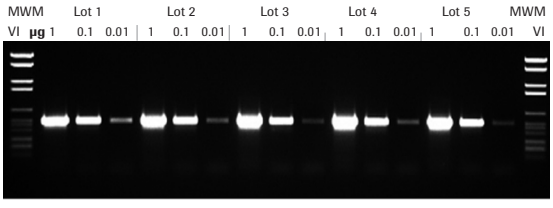


Figure 1. Lot-to-lot consistency ensures reproducible results. Five different lots of Taq DNA Polymerase were tested for the ability to amplify a 0.5 kb fragment of lambda DNA.
Result: Reliable, consistent results are obtained with every lot of Roche Taq DNA Polymerase that was tested.

The Taq DNA Polymerase, GMP Grade belongs to the family of high-performance, validated amplification enzymes and is manufactured using evaluated production, quality control, and filling procedures.

Taq DNA Polymerase | Enzyme + Buffer

	Catalog Number	Pack Size
GMP Grade, 5 U/µl	03 734 927 001	1,000 U for up to 2,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
5 U/µl	11 146 173 001	500 U for up to 1,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	11 418 432 001	1,000 U (4 × 250 U) for up to 2,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	11 596 594 001	2,500 U (10 × 250 U) for up to 5,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	11 435 094 001	5,000 U (20 × 250 U) for up to 10,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
1 U/µl	11 647 687 001	1,000 U (4 × 250 U) for up to 2,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase

Taq DNA Polymerase, dNTPack | Enzyme + Buffer + dNTP Set

5 U/µl	04 728 866 001	100 U for up to 200 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	04 728 874 001	500 U (2 × 250 U) for up to 1,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	04 728 882 001	1,000 U (4 × 250 U) for up to 2,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	04 728 904 001	2,500 U (10 × 250 U) for up to 5,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	04 728 858 001	5,000 U (20 × 250 U) for up to 10,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
1 U/µl	04 738 225 001	250 U for up to 500 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase
	04 738 241 001	1,000 U (4 × 250 U) for up to 2,000 reactions of 20 µl final volume, each containing 0.5 U Taq DNA Polymerase

PCR Master | Ready-to-use Formulation; Enzyme, Buffer, dNTPs

	11 636 103 001	1 kit for up to 200 PCR reactions of 50 µl final reaction volume, each containing 2.5 U Taq DNA Polymerase

AptaTaq Fast DNA Polymerase

Experience Speed

Your Application: Fast PCR
Speed up your PCR, improve performance, and achieve results comparable to standard reactions in a fraction of the time.

AptaTaq Fast PCR Master and AptaTaq Fast DNA Polymerase are ready-to-use products for fast PCR block cycling. Obtain high specificity and unmatched speed with AptaTaq Polymerase's immediate enzyme activation right from the cycling start. The product is function tested using block cycler and qPCR.

- **Save Time.** Complete end-point PCR reactions faster with a highly processive enzyme requiring only 4 minutes of extension time and without assay optimization.
- **Choose easy PCR setup.** Set up PCR reaction at room temperature, not on ice.
- **Redefine Fast PCR.** Successfully amplify a large variety of templates with different GC-content using only one protocol.

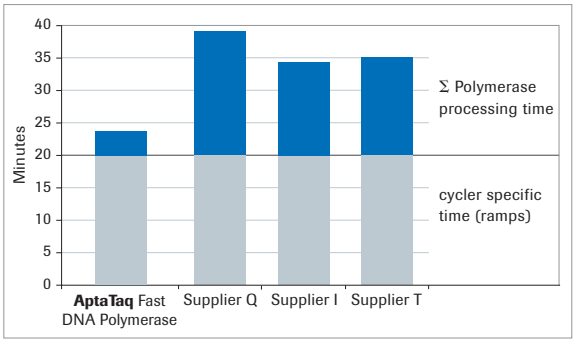
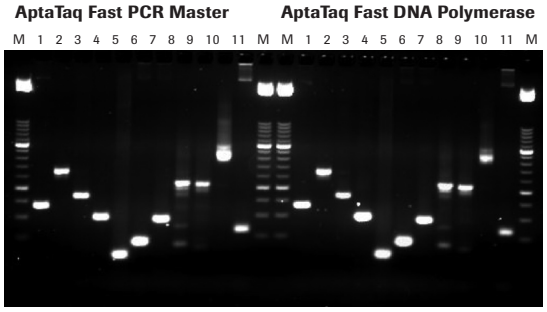


Figure 2. Perform PCR faster than with other suppliers' "fast" PCR enzymes. The AptaTaq enzyme amplifies a 195 bp fragment from the human erythropoietin gene 18 – 36% faster, with only 4 minutes of total extension time through 35 cycles.



1: Epo/gen. DNA, 54% GC
2: tPA/gen. DNA, 55%
3: β2m/cDNA
4: PBGD/cDNA
5: GAPDH/cDNA
6: p53 GC-medium/gen. DNA, 44% GC
7: p53 GC-rich/gen. DNA, 62% GC
8: ApoE (a) GC-rich/gen. DNA 64% GC
9: ApoE (b) GC rich/gen. DNA, 66% GC
10: CycA/gen. DNA, 44% GC
11: Beta-globin/gen. DNA, 32% GC

Figure 3. Amplification of a broad range of fragments, even those with up to 66% GC content. Gel photo shows amplification on one PCR Multiwell Plate within one block cycler instrument.

Amplicon Size	up to 500 bp
Specificity	■ ■ ■ ■
Sensitivity	■ ■ □ □
Robustness	■ ■ ■ ■
Accuracy vs. Taq	1x
Carryover Prevention	yes
Units/20 µl	2 µl
Molecular Cloning	TA cloning

AptaTaq Fast DNA Polymerase | Enzyme + Buffer		
	Catalog Number	Pack Size
1 U/µl	06 879 110 001	100 units
	06 879 128 001	1000 unit
AptaTaq Fast PCR Master | Ready-to-use Formulation; Enzyme, Buffer, dNTPs		
	06 879 080 001	1 × 400 µl for up to 100 reactions of 20 µl final reaction volume
	06 879 101 001	10 × 400 µl for up to 1000 reactions of 20 µl final reaction volume

FastStart Taq DNA Polymerase

Experience Specificity

Amplicon Size	up to 3 kb
Specificity	■ ■ ■ ■
Sensitivity	■ ■ ■ ■
Robustness	■ ■ ■ □
Accuracy vs. Taq	1x
Carryover Prevention	yes
Units/50 µl	2
Molecular Cloning	TA cloning

Your Application: Hot Start PCR
Hot Start is FastStart Polymerase. Choose the polymerase researchers trust, as with qPCR and the LightCycler® Systems.

FastStart Taq DNA Polymerase is a thermostable, chemically modified form of recombinant Taq DNA Polymerase. Due to its modification, FastStart Taq DNA Polymerase is the ideal enzyme when your assay's amplification is delayed. The enzyme is active only at high temperatures where primers no longer bind nonspecifically.

- **Obtain higher specificity, sensitivity, and yield.** Hot start PCR improves PCR performance, making PCR setup even easier.
- **Use convenient robotic setup.** The complete reaction mix is stable for 24 hours at room temperature.
- **Prevent PCR carryover.** Combine dUTP incorporation with Uracil-DNA Glycosylase to prevent PCR cross-contamination.

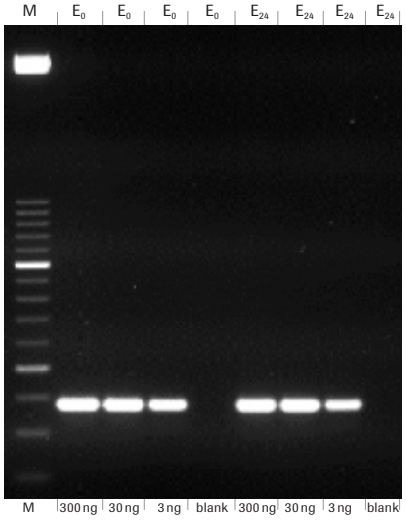


Figure 4. Extended bench times. Amplification of the human erythropoietin gene from 300-3 ng cDNA after immediate (E0) and 24 hours at room temperature (E24).
Result: Even after 24 hours at room temperature the PCR performs with no difference.

FastStart Taq DNA Polymerase | Enzyme + Buffer		
	Catalog Number	Pack Size
5 U/µl	12 032 929 001	500 U (2 × 250 U) for up to 250 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	12 032 937 001	1,000 U (4 × 250 U) for up to 500 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	12 032 945 001	2,500 U (10 × 250 U) for up to 1,250 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	12 032 953 001	5,000 U (20 × 250 U) for up to 2,500 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
FastStart Taq DNA Polymerase, dNTPack | Enzyme + Buffer + dNTP Set		
5 U/µl	04 738 314 001	100 U for up to 50 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	04 738 357 001	500 U (2 × 250 U) for up to 250 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	04 738 381 001	1,000 U (4 × 250 U) for up to 500 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	04 738 403 001	2,500 U (10 × 250 U) for up to 1,250 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
	04 738 420 001	5,000 U (20 × 250 U) for up to 2,500 reactions of 50 µl final volume, each containing 2 U FastStart Taq DNA Polymerase
FastStart PCR Master | Ready-to-use Formulation; Enzyme, Buffer, dNTPs		
	04 710 436 001	2 × 1.25 ml for up to 250 reactions of 20 µl final reaction volume
	04 710 444 001	8 × 1.25 ml for up to 1,000 reactions of 20 µl final reaction volume
	04 710 452 001	10 × 5 ml for up to 5,000 reactions of 20 µl final reaction volume

FastStart High Fidelity PCR System

Experience Accuracy

Your Application: Multiplexing and Sequencing
Stringent hot start and improved fidelity is key in complex endpoint PCR applications such as multiplexing or sequencing.

Choose FastStart High Fidelity PCR System for complex hot start PCR up to 5 kb with higher fidelity, as required for multiplexing and sequencing.
It is sixfold more accurate compared to both standard Taq DNA Polymerase and FastStart Taq DNA Polymerase.

- **Achieve excellent multiplex performance.** For fast high quality results, use the Roche PCR Optimization Kit Catalog Number 11 636 138 001.
- **Increase fidelity.** Achieve sixfold higher fidelity compared to Taq and FastStart Taq DNA Polymerase.
- **Amplify challenging DNA.** Use the supplied PCR additive (DMSO) when amplifying difficult templates.

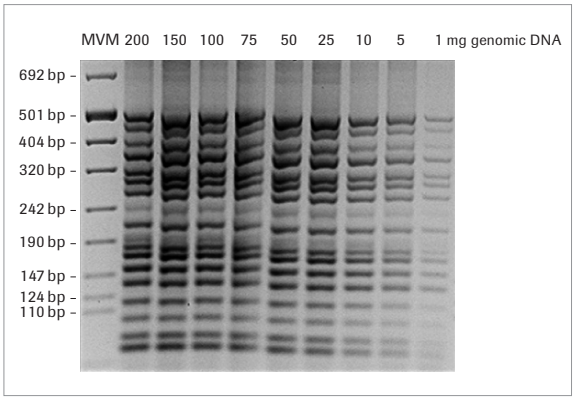


Figure 5. Sensitivity test in 18-plex (74 bp – 470 bp) PCR.
Set of 18 multiplexed primers was applied to various concentrations of human genomic DNA.
Result: Even from 1 ng of template, all PCR assays could be detected.

FastStart High Fidelity PCR System | Enzyme + Buffer	
Catalog Number	Pack Size
03 553 400 001	500 U (2 x 250 U) for up to 200 reactions of 50 µl final volume, each containing 2.5 U FastStart Taq DNA Polymerase
03 553 361 001	2,500 U (10 x 250 U) for up to 1,000 reactions of 50 µl final volume, each containing 2.5 U FastStart Taq DNA Polymerase
FastStart High Fidelity PCR System, dNTPack | Ready-to-use Formulation; Enzyme, Buffer, dNTPs	
04 738 284 001	125 U for up to 50 reactions of 50 µl final volume, each containing 2.5 U FastStart Taq DNA Polymerase
04 738 292 001	500 U (2 x 250 U) for up to 200 reactions of 50 µl final volume, each containing 2.5 U FastStart Taq DNA Polymerase

Amplicon Size	up to 5 kb
Specificity	■ ■ ■ ■
Sensitivity	■ ■ ■ ■
Robustness	■ ■ ■ □
Accuracy vs. Taq	6x
Carryover Prevention	yes
Units/50 µl	2.5
Molecular Cloning	TA cloning

Expand High Fidelity PCR System and Expand High Fidelity^{PLUS} PCR System

Experience Robustness

Amplicon Size	up to 5 kb
Specificity	■ ■ ■ □
Sensitivity	■ ■ ■ □
Robustness	■ ■ ■ ■
Accuracy vs. Taq	3x
Carryover Prevention	no*
Units/50 µl	2.6
Molecular Cloning	TA cloning

Your Application: Easy Access into Multiple Applications. You need an enzyme to do it all? This is for robust amplification across a broad range of assay and amplicon types, without hot start.

The Expand High Fidelity PCR System consists of an enzyme blend containing Taq DNA Polymerase and a polymerase with proofreading activity for robust PCR. Choose the Expand High Fidelity^{PLUS} PCR System for robust PCR up to 5 kb with PCR carryover prevention.

- **Use one enzyme for all applications.** The Expand High Fidelity PCR System robustly amplifies a wide variety of templates ensuring high yield, fidelity, and flexibility.
- **Detect amplification products** that were previously undetectable and avoid false negatives.
- **Achieve successful PCR results** from small quantities of template DNA.

The Expand High Fidelity^{PLUS} PCR System is ideal for robust high-fidelity applications, such as cloning and labeling of DNA fragments with radioactively or nonradioactively modified nucleotides. In addition, Combine dUTP incorporation with Uracil-DNA Glycosylase to prevent PCR cross-contamination.

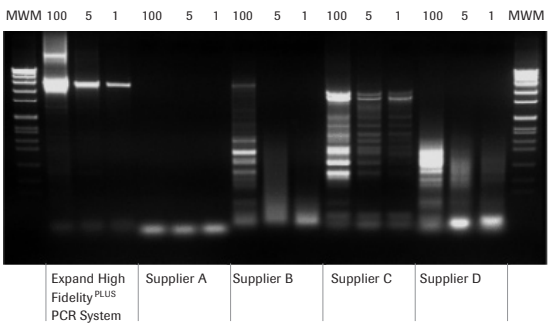


Figure 6. Comparison of Expand High Fidelity^{PLUS} PCR System with four commercially available polymerase mixes. Various amounts (ng) of human genomic DNA were used to amplify a 4.8 kb fragment from the tissue plasminogen activator (tPA) gene, in accordance with each manufacturer's recommended conditions. **Supplier A:** Mixture of Taq DNA polymerase (deleted at N-terminus), aproofreading polymerase, and a hot start antibody. **Supplier B and D:** Mixture of Taq DNA polymerase and a proofreading polymerase. **Supplier C:** Mixture of Taq DNA polymerase, a proofreading polymerase, and an enhancing factor. **Result:** Expand High Fidelity^{PLUS} PCR System produces the best specificity, sensitivity, and yield, even from as little as 1 ng human genomic DNA.

Expand High Fidelity PCR System | Enzyme + Buffer

Catalog Number	Pack Size
11 732 641 001	100 U for up to 40 reactions of 50 µl final volume, each containing 2.6 U enzyme blend
11 732 650 001	500 U (2 × 250 U) for up to 200 reactions of 50 µl final volume, each containing 2.6 U enzyme blend
11 759 078 001	2,500 U (10 × 250 U) for up to 1,000 reactions of 50 µl final volume, each containing 2.6 U enzyme blend

Expand High Fidelity PCR, dNTPack | Enzyme + Buffer + dNTP Set

04 738 250 001	100 U for up to 40 reactions of 50 µl final volume, each containing 2.6 U enzyme blend
04 738 268 001	500 U (2 × 250 U) for up to 200 reactions of 50 µl final volume, each containing 2.6 U enzyme blend
04 738 276 001	2,500 U (10 × 250 U) for up to 1,000 reactions of 50 µl final volume, each containing 2.6 U enzyme blend

High Fidelity PCR Master | Ready-to-use Formulation; Enzyme, Buffer, dNTPs

12 140 314 001	1 kit for up to 500 reactions of 20 µl final reaction volume

* Requiring carryover prevention and 6x higher fidelity? Choose Expand High Fidelity^{PLUS} PCR System.

Expand High Fidelity^{PLUS} PCR System | Enzyme + Buffer

Catalog Number	Pack Size
03 300 226 001	500 U (2 × 250 U) for up to 500 reactions of 20 µl final volume, each containing 1 U enzyme blend
03 300 234 001	2,500 U (10 × 250 U) for up to 2,500 reactions of 20 µl final volume, each containing 1 U enzyme blend

Expand High Fidelity^{PLUS} PCR System, dNTPack | Enzyme + Buffer + dNTP Set

04 743 725 001	125 U for up to 125 reactions of 20 µl final volume, each containing 1 U enzyme blend
04 743 733 001	500 U (2 × 250 U) for up to 500 reactions of 20 µl final volume, each containing 1 U enzyme blend

Pwo SuperYield DNA Polymerase

Experience Fidelity

Your Application: High Fidelity PCR
Don't sacrifice yield for low error rates during amplification. High fidelity PCR is required in applications where sequence accuracy is crucial.

Use Pwo SuperYield DNA Polymerase to obtain high yields of PCR product with consistent high fidelity. Choose maximum fidelity and avoid sequence errors, base exchanges, and frame shifts when combined with a proofreading reverse transcriptase, such as in the Transcriptor High Fidelity cDNA Synthesis Kit. The combination is ideal for applications such as cloning, site-directed mutagenesis, and gene expression analysis.

- **Achieve excellent fidelity and high yields.** 18-fold higher fidelity compared to Taq DNA Polymerase, without optimization.
- **Obtain high performance with difficult templates.** The GC-RICH Solution enables amplification of GC-rich DNA.
- **Reduce working steps in cloning.** Perform enzyme digests directly in Pwo SuperYield PCR mix.

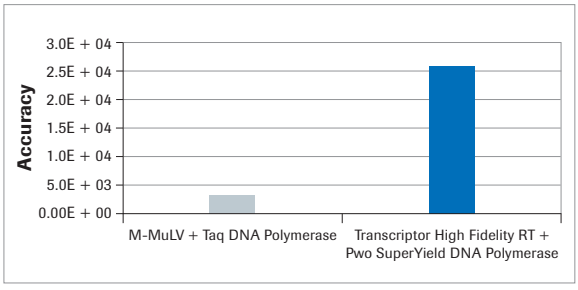


Figure 7. Improved accuracy in RT-PCR. Combination of the proofreading reverse transcriptase, Transcriptor High Fidelity Reverse Transcriptase (Roche), and a proofreading polymerase, Pwo SuperYield DNA Polymerase (Roche) for amplification. Data compared to a commonly used M-MuLV reverse transcriptase and Taq DNA polymerase. Error rate was determined after reverse transcription and 25 PCR cycles using the 454 Sequencing System. The error rates for the Roche enzymes was the mean value of four independent experiments in which at least 3.1×10^6 bases were sequenced. For M-MuLV reverse transcriptase and Taq DNA Polymerase, 4.5×10^6 bases were sequenced. The accuracy is represented as error rate -1.

Pwo Super Yield DNA Polymerase | Enzyme + Buffer	
Catalog Number	Pack Size
04 340 850 001	500 U (2 × 250 U) for up to 200 reactions of 50 µl final volume, each containing 2.5 U Pwo SuperYield DNA Polymerase
Pwo Super Yield DNA Polymerase, dNTPack | Enzyme + Buffer + dNTP Set	
04 743 750 001	100 U for up to 40 reactions of 50 µl final volume, each containing 2.5 U Pwo SuperYield DNA Polymerase
Pwo Master | Ready-to-use Formulation; Enzyme, Buffer, dNTPs	
03 789 403 001	2.5 ml (10 × 250 µl) for up to 100 reactions of 50 µl final reaction volume, each containing 2.5 U Pwo SuperYield DNA Polymerase

Amplicon Size	up to 3 kb
Specificity	■ ■ □ □
Sensitivity	■ ■ □ □
Robustness	■ ■ □ □
Accuracy vs. Taq	18x
Carryover Prevention	no
Units/50 µl	2.5
Molecular Cloning	Blunt end cloning

GC-RICH PCR System

Experience Reliability

Amplicon Size	up to 5 kb
Specificity	■ ■ ■ □
Sensitivity	■ ■ ■ □
Robustness	■ ■ ■ □
Accuracy vs. Taq	3x
Carryover Prevention	no
Units/50 µl	2
Molecular Cloning	TA cloning preferred over blunt end cloning

Your Application: Difficult Template PCR
Achieve successful PCR, regardless of the template.

Choose the GC-RICH PCR System, a blend of a proofreading polymerase and Taq DNA Polymerase to power through templates that are difficult or impossible to amplify with other polymerases or other blends of polymerases and additives. The enhanced processivity of the blend and the unique GC-RICH Resolution Solution are combined to deliver superior performance.

- **Amplify difficult templates,** including GC-rich targets and repetitive sequences.
- **Use the supplied PCR Grade Water and optimized reagents,** including the GC-RICH Resolution Solution.
- **Amplify DNA fragments up to 5 kb.**

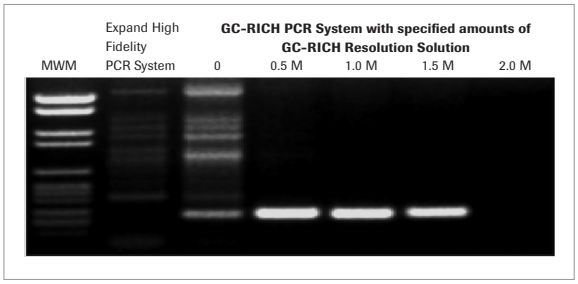


Figure 8. Successfully amplify GC-rich templates with the GC-RICH PCR System. Amplification of a 264 bp template (74% GC content) within the human ApoE gene using the GC-RICH PCR System or the Expand High Fidelity PCR System.
Result: The GC-RICH PCR System amplifies the GC-rich fragment with high specificity and yield using GC-RICH Resolution Solution.

GC-RICH PCR System | Enzyme + Buffer	
Catalog Number	Pack Size
12 140 306 001	100 U for up to 50 reactions of 50 µl final volume, each containing 2 U enzyme blend
GC-RICH PCR System, dNTPack | Enzyme + Buffer + dNTP Set	
04 743 784 001	100 U for up to 50 reactions of 50 µl final volume, each containing 2 U enzyme blend

Expand Long Range, dNTPack

Experience Safety

Your Application: Long Range PCR
Specific applications require specific enzymes. For templates longer than the average size, a standard DNA polymerase will simply not do the job. Choose Roche products that are optimized for long and extra-long PCR.

Rely on this next-generation system from the company that pioneered long-template PCR. Choose **Expand Long Range dNTPack** for consistent amplification of PCR products of 5 to 25 kb from genomic DNA. When amplifying fragments longer than 20 kb, use **Expand 20 kb^{PLUS} PCR System.**

- **Consistently amplify long templates** up to 25 kb with high specificity, yield, and increased fidelity.
- **Save time and resources with a convenient and flexible kit.** Use one buffer for all fragment sizes, and use the supplied DMSO and $MgCl_2$ solution to fine-tune your reaction.
- **Use for all long-template applications,** obtaining high yields of only the desired fragment.
- **Order the cost-effective dNTPack** which also includes premixed PCR-Grade nucleotides.

Amplify DNA fragments greater than 20 kb using **Expand 20 kb^{PLUS} PCR System**. This unique system features an optimized buffer and enzyme-blend mixture.

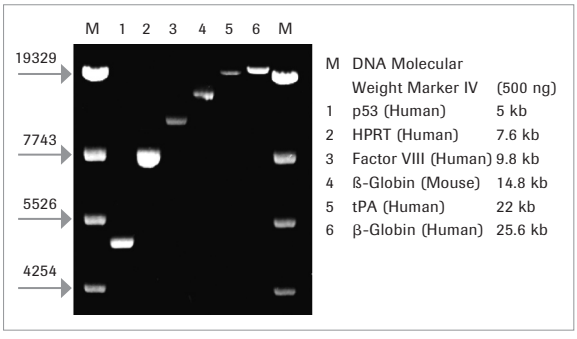


Figure 9. Amplification of various genomic templates using Expand Long Range, dNTPack.

Expand Long Range, dNTPack | Enzyme + Buffer + dNTP Set	
Catalog Number	Pack Size
04 829 034 001	175 U for up to 125 reactions of 20 µl final volume, each containing 1.4 U enzyme blend
04 829 042 001	700 U for up to 500 reactions of 20 µl final volume, each containing 1.4 U enzyme blend
04 829 069 001	3,500 U (5 × 700 U) for up to 2,500 reactions of 20 µl final volume, each containing 1.4 U enzyme blend

* For amplicon sizes of 20-35 kb: choose Expand 20 kb^{PLUS} PCR System.

Expand 20 kb^{PLUS} PCR System | Enzyme + Buffer	
Catalog Number	Pack Size
11 811 002 001	200 U for up to 40 reactions of 50 µl final volume, each containing 5 U enzyme blend

Amplicon Size	5 to 25 kb*
Specificity	■ ■ ■ □
Sensitivity	■ ■ □ □
Robustness	■ ■ ■ □
Accuracy vs. Taq	3x
Carryover Prevention	no
Units/50 µl	3.5
Molecular Cloning	TA cloning

Products for PCR Optimization

	Catalog Number	Pack Size
PCR Optimization Kit	11 636 138 001	1 kit for up to 100 one-step or up to 50 two-step optimization assays of 100 µl final reaction volume
Uracil-DNA Glycosylase	11 444 646 001	100 U
Uracil-DNA Glycosylase, heat-labile	11 775 367 001	100 U
	11 775 375 001	500 U
T4 Gene 32 Protein	10 972 983 001	100 µg
	10 972 991 001	500 µg
PCR Buffer Set	11 699 121 001	2 x 2 ml (2 × 1 ml of each solution)
PCR Buffer without $MgCl_2$ 10x conc	11 699 105 001	3 × 1 ml
$MgCl_2$ Stock Solution	11 699 113 001	3 × 1 ml
Water, PCR Grade	03 315 843 001	100 ml (4 vials of 25 ml)
	03 315 932 001	25 ml (25 vials of 1 ml)
	03 315 959 001	25 ml (1 vial of 25 ml)
Strip PCR Tubes and Caps	11 667 009 001	125 strips (8 tubes/strip)

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