

USB® Fidelity™ DNA Polymerase

- Increases amplification fidelity approximately 3-6 times over Taq DNA Polymerase.
- Allows for amplification of long PCR products.
- Generates products whose ends are compatible with either blunt-end or TA cloning procedures.

USB Fidelity DNA Polymerase

Fidelity DNA Polymerase combines high quality USB recombinant Taq DNA Polymerase with a highfidelity, proofreading polymerase. This enzyme blend has the 5'→3' exonuclease activity of Taq DNA polymerase as well as the 3'→5' exonuclease activity of the proofreading polymerase. Fidelity DNA Polymerase increases amplification fidelity approximately 3-6 times over Taq DNA Polymerase alone and allows for amplification of longer product sizes⁽¹⁻⁴⁾.

Fidelity DNA Polymerase generates PCR products whose ends are compatible with either blunt-end or TA cloning procedures⁽⁵⁾. Although a range of PCR product sizes can be amplified (Fig. 1), optimization may be necessary for targets longer than 10 kb from complex templates. For amplification of longer targets with less optimization and greater yields, use Fidelity PCR Master Mix or Fidelity PCR Master Mix Plus (PN 71182/71183).

Storage buffer:

20 mM Tris-HCl, pH 8.5, 1 mM DTT, 0.1 mM EDTA, 100 mM KCl, 50% glycerol, stabilizers.

Concentration:

5 units/μl

Tested User Friendly™ functional tests:

Tested by amplifying a 20.7 kb PCR product from lambda DNA.

Functionally Tested 10X PCR Reaction Buffer (1 ml included, PN 71165):

100 mM Tris-HCl (pH 8.6), 500 mM KCl, 15 mM MgCl₂

Functionally Tested MgCl₂ (1 ml included, PN 71167):

25 mM solution

Purity:

Free from detectable non-specific nucleases.

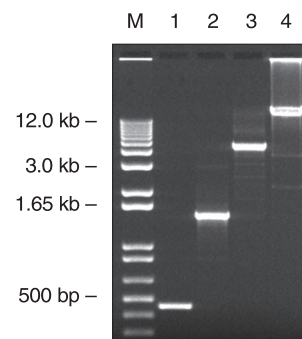
Fidelity DNA Polymerase

Product code	Pack size
71180	50 units
	250 units
	1,000 units
	5 x 250 units
	5,000 units

References:

- Barnes, W. M. (1994) *Proc. Natl. Acad. Sci. USA* **91**, 2216-2220.
- Cheng, S., Fockler, C., Barnes, W. M. and Higuchi, R. (1994) *Proc. Natl. Acad. Sci. USA* **91**, 5695-5699.
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- Cline, J., Braman, J. C. and Hogrefe, H. H. (1996) *Nucleic Acids Res.* **24**, 3546-3551.
- Magnuson, V. L., Ally, D. S., Nylund, S. J., Karanjawala, Z. E., Rayman, J. B., Knapp, J. I., Lowe, A. L., Ghosh, S. and Collins, F. S. (1996) *BioTechniques* **4**, 700-709.
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Fig. 1. Amplification of diverse targets



Target (source): Lane 1: Numb, 455 bp (10 ng human genomic DNA); Lane 2: NRAGE, 1.55 kb (10 ng human genomic DNA); Lane 3: Numb, 4.6 kb (10 ng human genomic DNA); Lane 4: Lambda target, 20.7 kb (10 ng lambda DNA). A total of 25 cycles was used for lambda target and 35 cycles for human genomic DNA targets. A final concentration of 1.5 mM MgCl₂ was used in all reactions.

Amplify

HotStart-IT® Taq DNA Polymerase [71195]

Includes 10X PCR Buffer and 25 mM MgCl₂
50 units
250 units
1,000 units
5 x 250 units
5,000 units

HotStart-IT Taq Master Mix (2X) [71196]

25 reactions
100 reactions
500 reactions

RubyTaq™ DNA Polymerase [71190]

Includes 10X PCR Buffer and 25 mM MgCl₂
50 units
250 units
1,000 units
5,000 units

RubyTaq PCR Master Mix (2X) [71191]

100 reactions (100 µl/rctn)

Taq DNA Polymerase [71160]

Includes 10X PCR Buffer and 25 mM MgCl₂
50 units
250 units
1,000 units
5,000 units

Taq PCR Kit [71161]

100 reactions (100 µl/rctn)

Taq PCR Master Mix, 2X [71162]

100 reactions (50 µl/rctn)
4 x 625 µl per pack

Taq Master Mix Plus [71163]

Contains mix, 25 mM MgCl₂ and PCR-Qualified H₂O.
100 reactions (50 µl/rctn)

PCR Nucleotide Mix, 10mM [77212]

500 µl
2 x 500 µl

PCR Nucleotide Mix, 25mM [77119]

500 µl

dNTP Set of Four (dA, dC, dG, dT) 100 mM solutions [77100]

4 x 25 µmol (250 µl)
4 dNTPs per pack

Betaine, 5 M Solution [77507]

1.5 ml
5 x 1.5 ml
10 ml

Magnesium Chloride, 1 M Solution [78641]

10 x 1 ml
100 ml

Mineral Oil [71600]

10 ml
25 ml
1 L

Purify

ExoSAP-IT® PCR Product Cleanup

[78250] 20 reactions
[78200] 100 reactions
[78201] 500 reactions
[78202] 2,000 reactions
[78205] 5,000 reactions

HT ExoSAP-IT® High-Throughput PCR Product Cleanup [78395]

480 reactions x 8-tube strip
5,760 reactions x 1 plate
23,040 reactions – 4 plates
1,000 reactions
5,000 reactions

Related Products

Agarose - Low Melt, Separation, ≤1,000 bp [32829]

Genetic Performance Certified™
25 gm
100 gm

Agarose - Separation ≥ 500 bp [75817]

Genetic Performance Certified
25 gm
100 gm
250 gm
500 gm

Agarose - LE [32802]

25 gm
100 gm
250 gm
500 gm
1 kg

TBE Buffer, 5X Solution [75891]

1 L
5 L

TE Buffer, 1X Solution [75893]

10 x 1 ml
100 ml
500 ml

Water, Nuclease-Free [71786]

10 x 1 ml
100 ml
500 ml
1 L
5 L

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