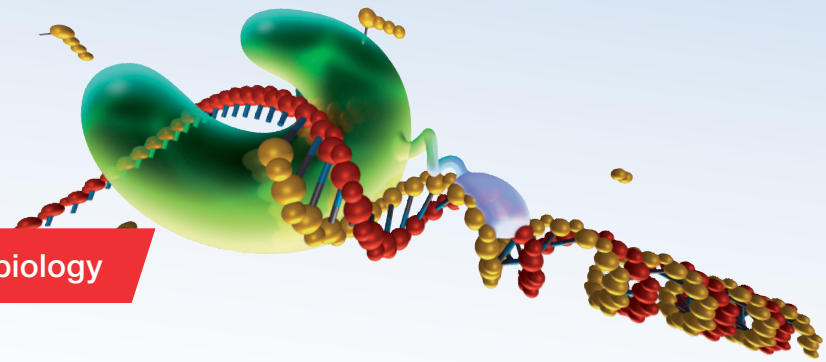
Molecular biology



Phusion polymerase history—the power of innovation

Thermo Scientific™ Phusion™ High-Fidelity DNA Polymerase enabled high-performance PCR. Since its introduction, Thermo Scientific™ Phusion™ products have been continuously improved to address more applications and challenges. The latest addition—Thermo Scientific™ Phusion™ Plus DNA Polymerase—is suitable for many applications due to its high fidelity, robustness, inhibitor tolerance, and universal primer annealing.

2003
High-Fidelity DNA Polymerase
Phusion DNA polymerase was created by fusing a dsDNA-binding protein to a *Pyrococcus*-like proofreading polymerase; due to this unique technology, Phusion High-Fidelity DNA Polymerase generates PCR products with accuracy and speed unattainable with a single enzyme, even on the most difficult templates.

2004
Thermo Scientific™ Phusion™ high-fidelity PCR master mixes
Master mixes with two different buffers optimized for very high-fidelity PCR or amplification of GC-rich templates

2006
Thermo Scientific™ Phusion™ Hot Start DNA Polymerase
Phusion DNA polymerase inhibited at room temperatures for improved PCR sensitivity and specificity

2006
Thermo Scientific™ Phusion™ Site-Directed Mutagenesis Kit
Kit for introducing point mutations, insertions, or deletions in any type of plasmid DNA

2007
Thermo Scientific™ Phusion™ Flash High-Fidelity PCR master mix
Master mix enabling the use of extremely short PCR protocols

2008
Thermo Scientific™ Phusion™ Direct PCR Kits
Kits enabling PCR on crude tissue samples without any DNA purification steps

2009
Thermo Scientific™ Phusion™ Hot Start II DNA Polymerase
Phusion DNA polymerase with improved hot-start technology for exceptional PCR sensitivity and specificity

2013
Thermo Scientific™ Phusion™ Green high-fidelity DNA polymerases
Phusion DNA polymerases supplied with the green buffer that enables direct loading of PCR products on gels for simplified PCR workflows

2013
Thermo Scientific™ Phusion™ U Hot Start DNA Polymerase
Phusion DNA polymerase with a mutation in the dUTP-binding pocket, which allows dUTP-containing template amplification and dUTP incorporation

2014
Thermo Scientific™ Phusion™ Hot Start II master mixes
Master mixes for extreme specificity, improved performance, and straight-forward reaction setup

2014
Thermo Scientific™ Phusion™ U multiplex PCR master mixes
Master mixes for simultaneous amplification of multiple DNA targets up to 2.5 kb with extreme specificity and sensitivity

2021
Phusion Plus DNA Polymerase
Improved Phusion DNA polymerase for more convenience and success; with increased fidelity (>100x *Taq* fidelity), universal primer annealing, and better performance with challenging DNA templates

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Phusion DNA Polymerase products

Phusion Plus and Phusion high-fidelity DNA polymerases, master mixes, and kits

Product	Size	Cat. No.
Phusion Plus DNA Polymerase	100 × 50 µL rxns	F630S
	500 × 50 µL rxns	F630L
	2,000 × 50 µL rxns	F630XL
Phusion Plus Master Mix	100 × 50 µL rxns	F631S
	500 × 50 µL rxns	F631L
	2,000 × 50 µL rxns	F631XL
Phusion Plus Green PCR Master Mix	100 × 50 µL rxns	F632S
	500 × 50 µL rxns	F632L
	2,000 × 50 µL rxns	F632XL
Phusion High-FidelityDNA Polymerase	100 U	F530S
	500 U	F530L
Phusion Green High-Fidelity DNA Polymerase	100 U	F534S
	500 U	F534L
Phusion Flash High-Fidelity PCR Master Mix	100 × 20 µL rxns	F548S
	500 × 20 µL rxns	F548L
Phusion High-Fidelity PCR Kit	50 rxns	F553S
	200 rxns	F553L
Phusion Hot Start II High-Fidelity DNA Polymerase	100 U	F549S
	500 U	F549L
Phusion Green Hot Start II High-Fidelity DNA Polymerase	100 U	F537S
	500 U	F537L
Phusion Hot Start II High-Fidelity PCR Master Mix	100 rxns	F565S
	500 rxns	F565L
Phusion Green Hot Start II High-Fidelity PCR Master Mix	100 rxns	F566S
	500 rxns	F566L
Phusion Site-Directed Mutagenesis Kit	20 rxns	F541

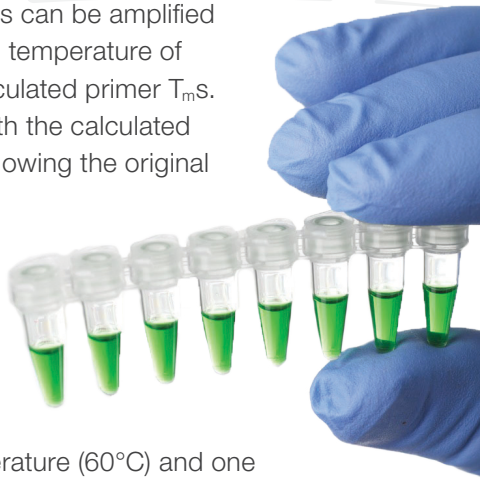
Phusion U Hot Start DNA Polymerases and master mix

Product	Size	Cat. No.
Phusion U Hot Start DNA Polymerase	100 U	F555S
	500 U	F555L
Phusion U Green Hot Start DNA Polymerase	100 U	F556S
	500 U	F556L
Phusion U Hot Start PCR Master Mix	100 rxns	F533S
	500 rxns	F533L

Phusion multiplex PCR master mixes

Product	Size	Cat. No.
Phusion U Multiplex PCR Master Mix	100 rxns	F562S
	500 rxns	F562L
Phusion U Green Multiplex PCR Master Mix	100 rxns	F564S
	500 rxns	F564L

Phusion Plus DNA Polymerase is a hot-start, proofreading PCR enzyme, with a unique buffer that enables universal primer annealing. All targets can be amplified using a universal annealing temperature of 60°C regardless of the calculated primer T_ms. The enzyme also works with the calculated annealing temperatures following the original Phusion protocol.



The universal annealing feature of Phusion Plus DNA Polymerase also allows a universal cycling protocol, helping to save time. One annealing temperature (60°C) and one extension time based on the longest amplicon can be used for targets of different lengths—i.e., co-cycling different targets on the same block—without compromising PCR yields and specificity.

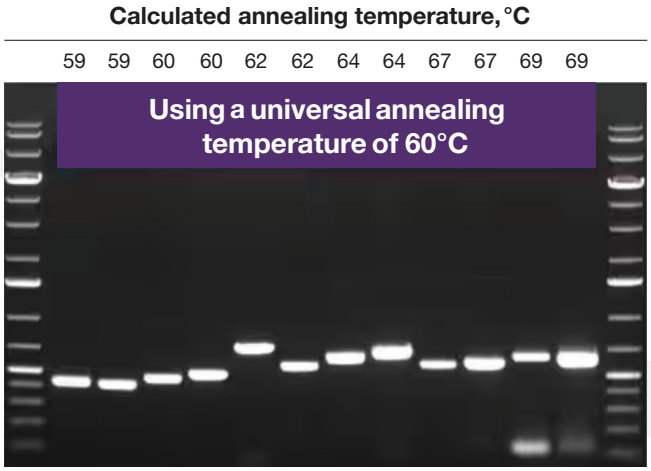


Figure 1. PCR cycling under universal annealing conditions. 12 targets with varying calculated annealing temperatures (indicated above each lane) were amplified using Phusion Plus DNA Polymerase from 50 ng of human genomic DNA, following a universal annealing temperature of 60°C. The molecular weight marker is Thermo Scientific ZipRuler Express Ladder DNA 2.

Learn more at thermofisher.com/phusionplus

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