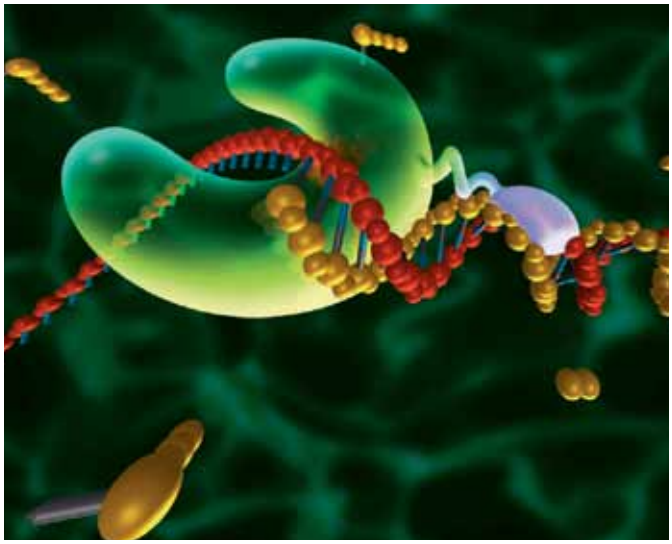
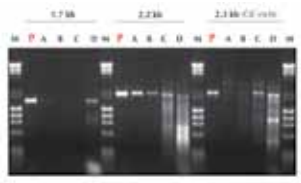
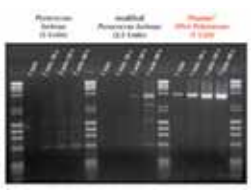


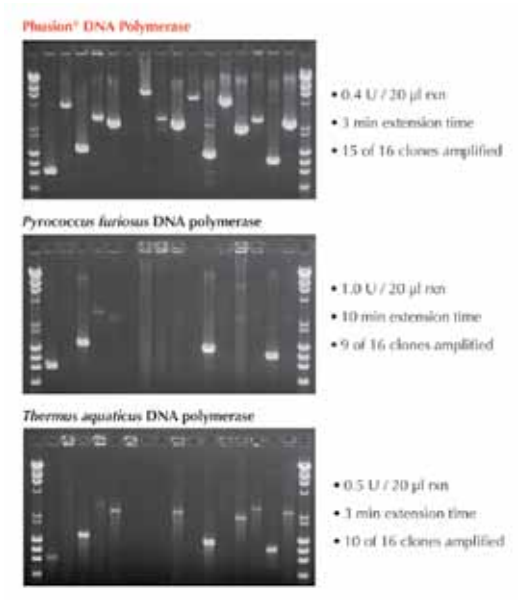
The schematic structure of Phusion® high-fidelity DNA polymerase. The double strand DNA binding domain (purple) is fused to a novel *Pyrococcus*-like proofreading enzyme (green) forming a unique high performance polymerase - Phusion DNA polymerase.



Phusion Hot Start II DNA polymerase provides extreme specificity and abundant yields. Five proofreading DNA polymerases from major suppliers were used to amplify 1.7kb to 2.3kb amplicons from human genomic DNA. All amplifications were performed in accordance with the manufacturers' instructions. Phusion Hot Start II DNA polymerase provided high yields of specific products whereas all other enzymes delivered zero or low yields, with some also amplifying non-specific products.



A 3.8kb fragment from human beta globin gene was amplified with three different DNA polymerases according to suppliers' recommendations using varying extension times. Phusion DNA polymerase was able to amplify the 3.8kb genomic fragment with a combined annealing and extension step of only 1 minute, thus being significantly faster than the two other polymerases tested. A single unit of Phusion DNA polymerase produced higher yields than 2.5 or 5 units of the *Pyrococcus furiosus* DNA polymerases.



A random set of 16 clones from a *Thermus sp.* genomic library was amplified from bacterial colonies. The amplicon size varied between 1kb to 10kb. Amplifications were done according to suppliers' instructions using same reaction conditions for all 16 amplicons.

DNA polymerases, high-fidelity, Thermo Scientific Finnzymes Phusion®

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87

High fidelity PCR* suitable for cloning, routine PCR and demanding PCR applications.

- Accuracy - The highest fidelity of any available thermostable polymerase
- Speed - Increased processivity allows shorter reaction times (extension 15s/kb to 30s/kb)
- Robustness - Fewer reaction failures and minimal optimisation
- High yields - Increase product yields with minimal enzyme amounts
- Specificity - Hot start modification reduces non-specific amplification and primer degradation

In Phusion® high-fidelity DNA polymerases, a unique dsDNA-binding domain is fused to a *Pyrococcus*-like proofreading polymerase. Due to the novel fusion technique, Phusion DNA polymerases generate PCR products with accuracy and speed previously unattainable with a single enzyme, even on your most difficult templates. In addition, Phusion DNA polymerases are capable of amplifying long amplicons (e.g., the 7.5kb human genomic and 20kb λ DNA used in Finnzymes' quality control assays). Phusion Hot Start DNA polymerase does not require a separate activation step in the PCR protocol.

The processivity of Phusion DNA polymerases is approximately 10-fold greater than that of *Pyrococcus furiosus* DNA polymerase and twice that of *Thermus aquaticus* DNA polymerase. The error rate, determined by a modified *lac*I-based method1, is 4.4 x 10^{-7} in HF Buffer. It is approximately 50-fold lower than that of *Thermus aquaticus* DNA polymerase and 6-fold lower than that of *Pyrococcus furiosus* DNA polymerase.The Affibody®-based inactivation method of Phusion Hot Start II DNA polymerase increases the specificity of PCR amplification. Both the DNA polymerase and the proofreading activities of Phusion Hot Start II DNA polymerase are inactivated at room temperature. This prevents non-specific extension of the DNA template as well as degradation of the PCR primers during reaction setup.
Phusion DNA polymerases incorporate more nucleotides per binding event as compared to other polymerases. Shortest protocol times can be achieved with Phusion® Flash high-fidelity PCR Master Mix, a product developed especially for fast PCR. When compared to conventional polymerases, significantly fewer units of the enzyme are required for any PCR reaction.

Catalogue No	Description	Quantity
FZF-548S	Phusion® Flash high-fidelity PCR Master Mix	100 reactions in 20µL volume
FZF-548L	Phusion® Flash high-fidelity PCR Master Mix	500 reactions in 20µL volume
FZF-531S	Phusion® high-fidelity PCR Master Mix with HF buffer	100 reactions in 50µL volume
FZF-531L	Phusion® high-fidelity PCR Master Mix with HF buffer	500 reactions in 50µL volume
FZF-532S	Phusion® high-fidelity PCR Master Mix with GC buffer	100 reactions in 50µL volume
FZF-532L	Phusion® high-fidelity PCR Master Mix with GC buffer	500 reactions in 50µL volume
FZF-549S	Phusion® Hot Start II high-fidelity DNA polymerase	100 units (2 units/µL)
FZF-549L	Phusion® Hot Start II high-fidelity DNA polymerase	500 units (2 units/µL)
FZF-530S	Phusion® high-fidelity DNA polymerase	100 units (2 units/µL)
FZF-530L	Phusion® high-fidelity DNA polymerase	500 units (2 units/µL)
FZF-520S	Detergent-free Phusion® HF buffer pack	3mL

*Polymerase Chain Reaction (PCR) is a process covered by patents owned by Hoffman-La Roche