FastGene® HiFi DNA Polymerase

Deal with the most challenging PCRs

New

- **Extremely accurate and fast**
- **For challenging GC or AT rich sequences**
- **Generates high yields with blunt ends**
- **Amplifies up to 17.5 kb**
- **Master Mix with advanced buffer system**

Perfect for challenging PCRs

The FastGene® HiFi Polymerase is the high fidelity enzyme for precise PCR amplifications. The enzyme was engineered in a way that it can amplify particularly long templates (up to 17.5 kb) with a high sequence accuracy. Furthermore, it shows a significant improvement in extension times (10-30 sec per kb), while generating high yields, even with difficult templates.

Save time with the master mix

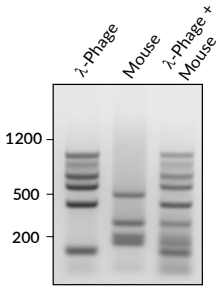
The FastGene® HiFi Polymerase is provided in a 2x Master Mix, which significantly speeds up the preparation of a PCR. It contains an advanced buffering system with dNTPs, Mg2+, reaction enhancers and the polymerase enzyme.

High fidelity is key

The high fidelity of the FastGene® HiFi polymerase is based on the improved 3`-5` exonuclease activity, which significantly reduces the error rate of the enzyme and makes it around 100 times more accurate than a Taq DNA polymerase.

Made for precise applications

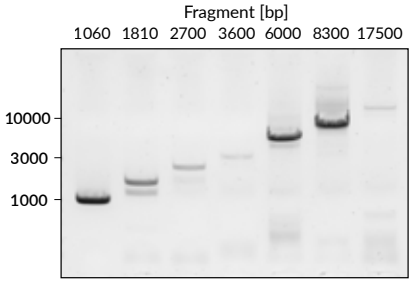
The FastGene® HiFi polymerase is working extremely accurate and fast. This is ideal for applications where high fidelity is essential, such as sequencing, cloning and site-directed mutagenesis.



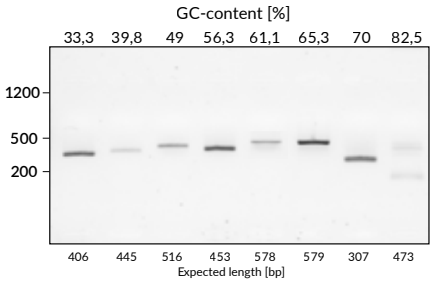
The FastGene® HiFi Polymerase Mix can be used for multiplexing PCR. In this experiment, 6 phage DNA fragments, 4 mouse DNA fragments and a combination of both were successfully amplified in a single reaction mix.

FastGene® HiFi DNA Polymerase

Deal with the most challenging PCRs



The FastGene® HiFi Polymerase Mix is capable of amplifying a long range of fragments, even up to 17,500 bp.

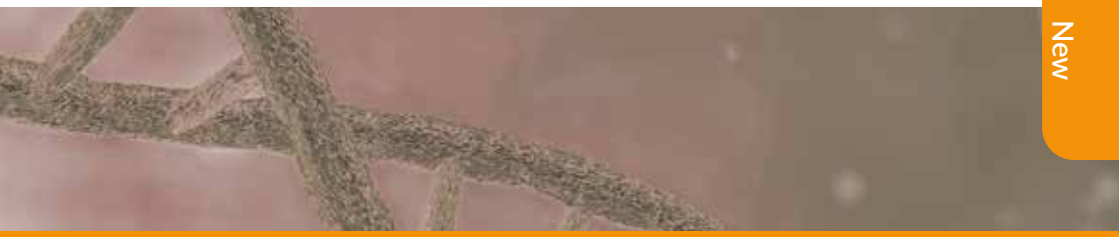


Templates with varying GC-contect, ranging from ~30 % to ~80 % can be successfully amplified with the FastGene® HiFi Polymerase Mix.

Ordering information

Cat. No.	Product	Content
LS36	FastGene® HiFi 2x HS Master Mix	100 rxn

New



Enhance your PCR with HiFi

You would like to test our DNA polymerase? No problem! Just give us a call or write us an email and get your free sample very soon.

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info@nippongenetics.de

www.nippongenetics.eu

FastGene® Optima HotStart ReadyMix

- **Proofreading DNA polymerase**
- **ReadyMix - Just add your template and primer**
- **For complex templates**
- **HotStart enzyme for highest specificity**
- **Problem solver**

Processivity, fidelity and big fragments

The FastGene® Optima polymerase is a mixture of two different types of PCR enzymes – a Taq polymerase and a modified type-B polymerase with excellent proof-reading abilities. Each enzyme is purified using three different chromatography technologies. This results in very high enzyme purity and activity. Optima is extremely robust, making it ideal for a broad range of PCR applications. Standard PCR, challenging PCR, and very long amplicons (over 7.5 kb) are easily handled by this enzyme mixture.

Optimal efficiency for GC-rich templates

Most polymerases have a low amplification efficiency, if the template DNA is GC-rich. As seen in Fig. 2, the FastGene® Optima has an excellent amplification efficiency even with GC rich templates. The efficiency of the FastGene® Optima is even higher than the efficiency of polymerases specially designed for GC-rich templates (Fig. 2).

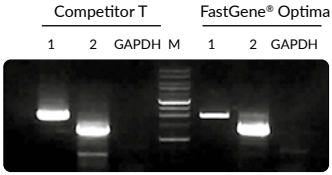


Fig. 2: Comparing the ability of Competitor T and FastGene® Optima polymerase mixture to amplify GC-rich DNA fragments. Two fragments with 60.7% GC and 64.3% GC were amplified, resulting in two products of 1839 bp and 1260 bp, respectively. FastGene® Optima had a higher efficiency compared to Competitor T's polymerase mixture.

Optimal robustness for very complex samples

The FastGene® Optima can easily handle very complicated templates. The highly purified Taq polymerase gives great efficiency while the proof-reading polymerase guarantees the fidelity. The robustness of both enzymes makes the amplification of complex tissue, such as liver tissue (Fig. 1), possible.

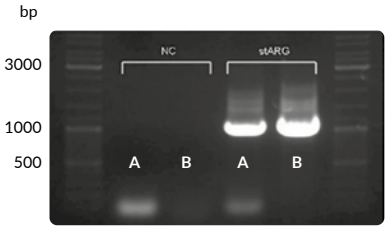


Fig. 1: The comparison between (A) the "best-selling" blended Taq mix and (B) FastGene® Optima polymerase mixture uses with catshark liver DNA (hard to amplify) as a template. The PCR product with a size of 1030 bp was separated on a 1.2% agarose gel. The FastGene® Optima produces less primer dimers and has a higher amplification efficiency.

Robustness "of a Rhino" is the key advantage of the Optima DNA polymerase. Do you have any problems with your PCR? Just try the Optima - you will get reliable and reproducible results. Anytime!

Ordering information

Cat. No.	Product	Content
LS29	FastGene® Optima HotStart ReadyMix	500 x 25 µl reactions (6.25 ml total volume)

FastGene® Optima HotStart ReadyMix

Optimal for SNP-typing

The detection of single nucleotide polymorphism (SNP) requires extreme fidelity, which is guaranteed by the proof-reading activity of the FastGene® Optima (Fig. 3).

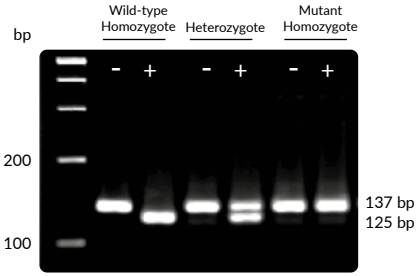


Fig. 3: SNP typing of the ALDH gene using FastGene® Optima polymerase. The ALDH gene, classified as human sensitivity to alcohol, was analysed for presence of SNP by digesting the amplification of homo- and heterozygotes using MboII.

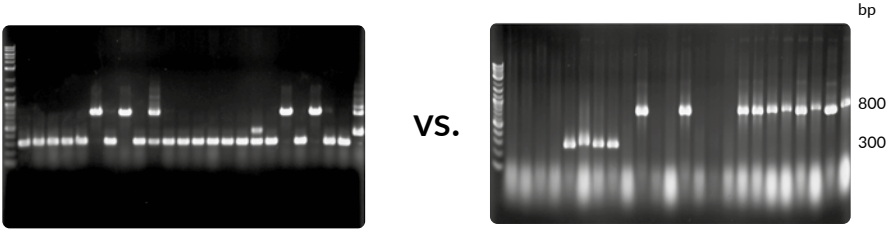
HotStart - It is your decision when to start

For labs preferring low primer-dimers and an easy room temperature set-up, the HotStart-version of the FastGene® Optima is the best choice. Designed as a master mix, the Optima HotStart ReadyMix combines the superb efficiency and robustness of the Optima enzyme mix with a proprietary antibody that inhibits a preliminary unspecific reaction. This antibody is permanently denatured during the primary PCR activation step. The HotStart ReadyMix comes with all the necessary ingredients for an optimal PCR. Just add your template and primers. Additionally, the ReadyMix includes a loading dye, so that the PCR sample can be directly loaded onto an agarose gel.

Applications

- RT-PCR
- Very complex templates
- GC-rich templates
- SNP Analysis
- Multiplex PCR
- Any standard PCR application

Direct PCR from E. coli colonies



Direct PCR from E. coli colonies using FastGene® Optima HotStart ReadyMix (left gel) or "best-selling" blended Taq mix (right gel). The ReadyMixes were used to determine the presence or absence of inserts. The Optima HotStart ReadyMix yielded a clear electrophoretic pattern without smearing. In addition, Optima was able to amplify clean product from EVERY colony. The competitor was not able to amplify 10 colonies.

Customer Testimonial

"We tested very successfully the HotStart ReadyMix for duplex-PCR of cDNAs from our knock-down mutants. The PCR reactions show no unspecific products. Additionally this product has an excellent price performance ratio"

Dr. Matthias Schmidt
Institute for Molecular Life Science
Goethe University, Frankfurt, Germany

★★★★★

FastGene® BAC-free Taq

- **DNA polymerase with no bacterial contamination**
- **Prevents false positive PCR results from bacterial DNA**
- **Perfect for bacterial genome analysis**

Free of any bacterial contamination

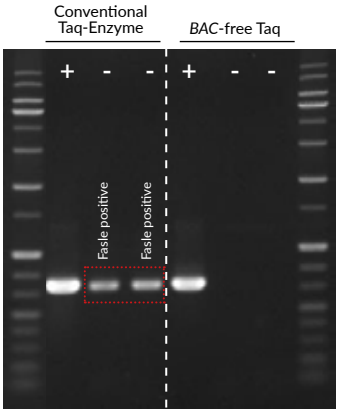
The FastGene® BAC-free HotStart Taq DNA polymerase is based on the single-subunit, wild-type Taq DNA polymerase of the thermophilic bacterium Thermus aquaticus, but is purified from an eukaryotic recombinant expression system. Contaminating DNA, present in most other polymerase preparations, often precludes the accurate interpretation of results, especially when targeting conserved sequences (e.g. the bacterial 16S rRNA region).

Eukaryotic expression system - No more false positive

Performing PCR with bacterial templates could lead to a false positive result, when using Taq enzymes purified from E. coli expression systems due to a contamination of the Taq enzyme with prokaryotic genomes. The FastGene® BAC free HotStart Taq DNA Polymerase is produced using eukaryotic cells. Hence, no bacterial genome is present.

Applications

- Bacterial genome analysis
- Pathogen detection
- Amplification of low copy DNA templates
- Multiplex PCR
- Specific amplification of complex templates
- RT-PCR



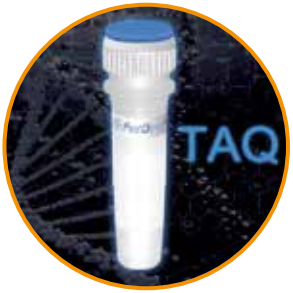
Amplification of a non-ribosomal gene using E. coli DNA (+) or no template control. The no template control (-) was amplified with standard Taq and FastGene® BAC-free HS Taq. The conventional Taq produced a PCR-product despite no tempate being present, while no product was detected using the FastGene® BAC-free HS Taq. This indicates a bacterial genomic DNA contamination of the conventional Taq polymerase.

Best choice for 16S/23S microbial screening, E. coli contamination and forensic studies.

Ordering information

Cat. No.	Product	Content
LS33	FastGene® BAC-free HotStart Taq Polymerase	500 Units

FastGene® Taq DNA Polymerase



Taq polymerase with a high purity

The FastGene® DNA Polymerase is based on the single subunit, wild-type Taq DNA polymerase of the thermophilic bacterium Thermus aquaticus. The enzyme is purified using three different chromatography technologies and results in a very high purity and activity.

Two different reaction buffers

The enzyme comes with 2 different reaction buffers. Buffer A is a "high yield" buffer, for most amplicons. Buffer B is a standard KCl-based Taq buffer with a higher sensitivity.

Customer Testimonial

"We are happily using the FastGene® Taq DNA polymerase for over 12 months for routine SNP-analysis. We have chosen FastGene® Taq DNA polymerase since we needed a robust and reliable polymerase. We are very happy with it and the price-performance ratio is excellent!"

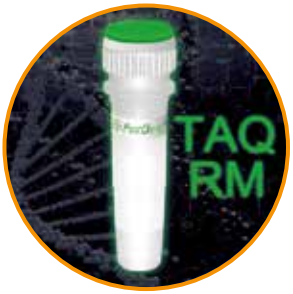
Dr. J. Wagner
PlantaLyt GmbH, Hannover, Germany

★★★★★

Ordering information

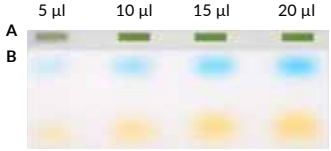
Cat. No.	Product	Content
LS21	FastGene® TAQ DNA polymerase	500 Units
LS22	FastGene® TAQ DNA polymerase	2000 Units

FastGene® Taq Ready Mix



Everything you need for your PCR

The FastGene® Taq ReadyMix (2X) is a ready-to-use cocktail with two inert tracking dyes and containing all components for PCR, except for primers and template. The 2X ReadyMix contains FastGene® Taq DNA polymerase, Taq buffer, dNTPs, $MgCl_2$ and stabilizers.



FastGene® Taq reactions with 1X loading dye reaction buffer. (A) Volumes above wells indicate the volume of the PCR reaction loaded on the gel. (B) On a 1% agarose gel, the blue dye migration corresponds to a 5 kb DNA fragment, and the yellow dye migrates at 75 bp.

Ordering information

Cat. No.	Product	Content
LS26	FastGene® Taq Ready Mix PCR Kit	50 x 50 µl reactions
LS27	FastGene® Taq Ready Mix PCR Kit	250 x 50 µl reactions

DNAreleasy Advance

- **PCR done the easy way**
- **Successful lysis of different biological material**
- **Very easy-to-use**

From cells to PCR in 15 minutes

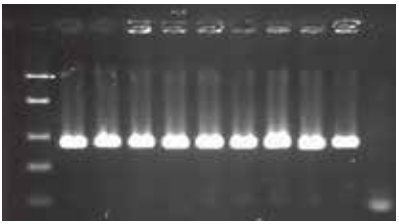
Are you tired of the time-consuming extraction processes and costly spin columns that you've been using to prepare samples for DNA amplification? With the DNAreleasy Advance Direct Lysis Kit, we now offer a better solution. The new cell lysing reagent only requires a 15 minutes incubation in a thermal cycler before the DNA is ready-to-use directly for your PCR – without any further sample processing!

Successfully used samples

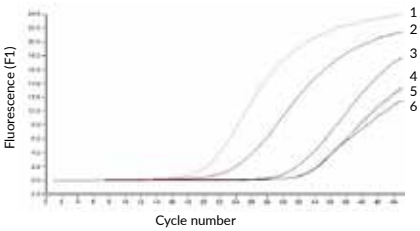
- Saliva
- Hair roots
- Animal tissue (horse, pig liver, etc.)
- Mouse tails and ears
- Plants (leaf, blossom, pollem): Cabbage, maize, canola, soy, sugar beet, etc.
- Drosophila
- Yeast
- Mollusca

Easy procedure

Using DNAreleasy Advance is really easy. Just mix cells with 20 µl of the reagent, place in a a thermal cycler or incubator and heat at 65°C for 5 minutes, followed by 96°C for 5 minutes before holding at 20 °C for 5 minutes. After the lysis, a part or all of the lysate can be added directly to your PCR mix or it can be stored at -20 °C for future use.



Genomic DNA from scallops was isolated with DNAreleasy Advance, and a part of the supernatant was directly added to the PCR reaction. The agarose gel shows the high yield obtained.



Genomic DNA was isolated using DNAreleasy Advance and analyzed by qPCR: (1) positive control human DNA, (2) saliva, (3) hair root, (4) pig liver, (5) drosophila melanogaster, (6) horse meat.

Ordering information

Cat. No.	Product	Content
LS05	DNAreleasy Advance	300 µl, 10 reactions
LS06	DNAreleasy Advance	1.5 ml, 50 reactions