NEW

FastGene® Optima

The perfect polymerase mixture

FastGene® Taq Optima combines the advantages of the regular Taq with the proof-reading ability of Type B Polymerases. The product are A-tailed therefore compatible with TA cloning systems.

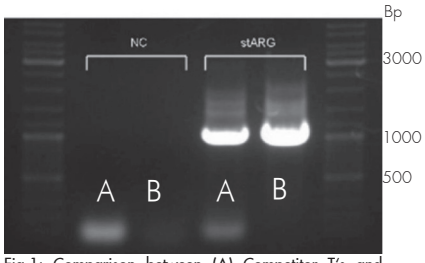

Fig.1: Comparison between (A) Competitor T's and (B) FastGene® Optima polymerase mixture using the hard to amplify catshark liver DNA as template. The PCR product has a size of 1030 bp and separated onto an 1.2% agarose gel. The FastGene® Optima produces much less primer dimers and has a higher amplification efficiency.

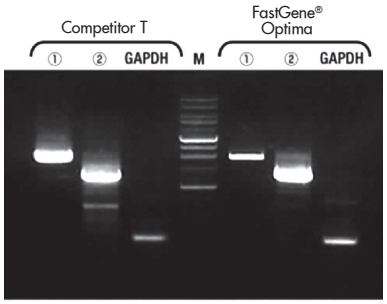

Fig. 2: Comparing the ability of Competitor T's and FastGene® Optima polymerase mixture to amplify GC-Rich DNA fragments. Two fragments of 60.7 % and 64.3% were amplified resulting in two products of 1839 bp and 1260 bp, repectively. FastGene® Optima had a higher efficiency compared to Competitor T's polymerase mixture.
Data was kindly provided by Ms. Ryoko Nakayama, Department of Pathology, Tsurumi University, Japan.

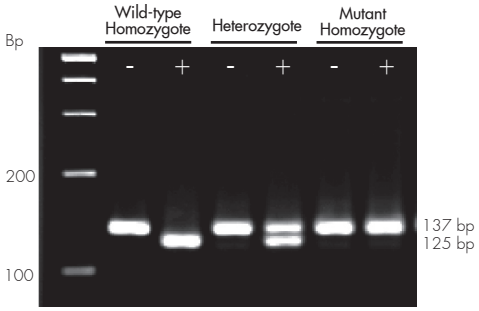

Fig. 3: SNP typing of the ALDH gene using FastGene® Optima polymerase. The ALDH classified as human sensitivity to alcohol gene was analysed for presence of a SNP by digesting the amplification of homo- and heterozygotes using *Mbo*II. *Data was kindly provided by Dr. Che Xiano-Fang, Department of Biochemistry, Tokyo Medical University, Japan.*

Optima - the optimum of both polymerase families

The FastGene® Optima is a mixture of a highly purified Taq Polymerase and a modified type-B polymerase with proof-reading abilities. The enzymes are purified using three different chromatography technologies and result in a very high purity and very high activity. The FastGene® Optima is extremly robust and was developed for the standard, difficult PCR as well as very long amplicons of over 7.5 kBp.

Applications

- Standard PCR
- RT-PCR
- Very complex templates
- GC-rich templates
- SNP-typing
- Multiplex PCR
- many others…

Optima(l) robustness for very complex samples

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

Optima(l) efficiency for GC-rich templates

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

Optima(l) for SNP-typing

The detection of single nucleotide polymorphism (SNP) requires extreme fidelity. The proof-reading activity guarantees this needed fidelity (see Fig.3).

Ordering Information

Cat. No.	*Product*	*Content*
LS28	FastGene® Optima PCR kit	250 Units
LS29	FastGene® Optima HotStart ReadyMix	500 x 25 µl rxns

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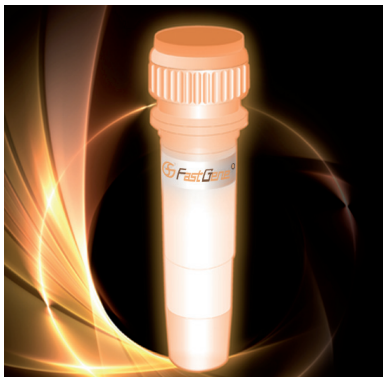
Web: www.geneflow.co.uk

FastGene® Optima HotStart ReadyMix

Get the best results, now even more convenient

HotStart - It is your decision when to start

The FastGene® Optima HotStart ReadyMix combines the superb efficiency and robustness of the FastGene® Optima with a proprietary antibody that inhibits preliminary unspecific reaction. This antibody is destroyed during the primary activation step.



FastGene® Optima combines the advantages of the regular Taq with the proof-reading ability of Type B Polymerases. The product are A-tailed therefore compatible with TA cloning systems.

ReadyMix - Just add template and primers

The ReadyMix version of the FastGene® Optima HotStart is the easiest way to get all of these advantages. It comes with all the necessary ingredients for an optimal PCR, just add a template and primers. Additionally, the ReadyMix comes with a loading dye, meaning that the PCR sample can be directly loaded onto an agarose gel, saving your precious time for what really matters.

Customer Testemonial

1. <u>Direct PCR from E. coli colonies:</u> With the FastGene® Optima Hot-Start ReadyMix with Dye we could clearly distinguish between samples with inserts (800 bp) and those without inserts (300 bp):

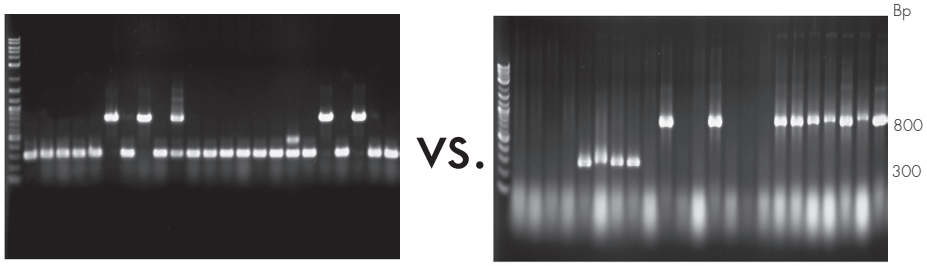


Fig. 2: Direct PCR from ***Eschrichia coli*** colonies using FastGene® Optima HotStart ReadyMix or Competitor T. The ReadyMixes were used to determine the presence or absence of inserts.The FastGene® Optima HotStart ReadyMix yielded a clearer electrophoresis pattern without smearing and delivered a result for all colonies. The competitor T was not able to amplify 10 colonies.
Data was provided by a customer

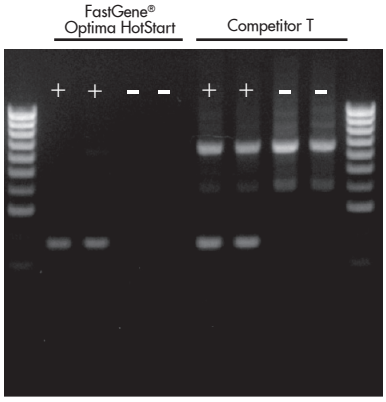


Fig. 1: Genotyping of knock-out mice using mouse-tail DNA and FastGene® Optima HotStart or Competitor T. (+) Wild-type, (-) knock-out. Both polymerase mixtures demonastrated the knockout of the gene. Nonetheless, the FastGene® Optima did only amplify the expected and specific products while the competitor also amplified large unspecific bands.
Data was kindly provided by Dr. Mamoru Aoto, Department of Circulatory Physiology, Ehime University, Japan.

2. <u>Genotyping using mouse-tail tissue:</u> Analysis of the experiment was very easy because it already contains the loading dye, meaning that we could apply the reaction directly onto an agarose gel. Additionally, the PCR efficiency was higher when compared to the competitor's ready-mix without loading dye:

Fig. 3: Genotyping of using FastGene® Optima HotStart ReadyMix or a competitor. The two ReadyMixes delivered the same genotyping results. The FastGene® Optima HotStart ReadyMix had a higher efficiency shown by the bigger bands. The FastGene® Optima HotStart ReadyMix is easier to use since it contains the loading dye meaning that the PCR product can be directly added to the gel.
Data was kindly provided by a customer, Department of Molecular Medicine for Pathogenesis, Ehime University, Japan.

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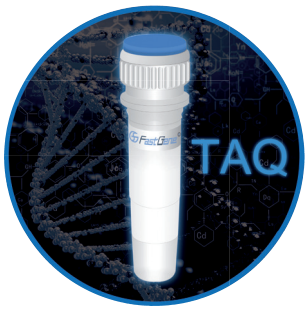
FastGene® DNA Polymerase



PCR products generated with FastGene® DNA Polymerase are A-tailed and therefore compatible with TA cloning systems.

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 result in a very high purity and activity. 5 U/uL FastGene® DNA Polymerase contains 150 ng/uL (+/- 10%) protein of >98% purity.

Applications

- High throughput PCR
- Amplification of low copy DNA templates
- Multiplex PCR
- Specific amplification of complex templates
- RT-PCR

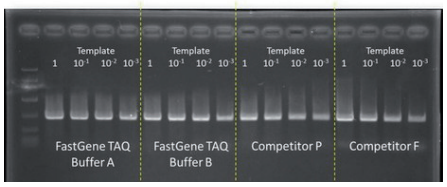


Fig.:1 Reactions (25 µl) were set up according to manufacturer's instructions, amplified fragment is 815 bp. Numbers of cycles were reduced to 25 cycles in order to challenge the PCR enzymes. 10 µl was loaded onto an 1% agarose gel.

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 which a higher sensitivity has be seen.

„We are happily using the FastGene® Taq DNA Polymerase for the last 12 months for routine SNP-analysis. We have chosen the 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"

FastGene® TAQ Ready Mix

with loading dye

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 (1 U per 50 µl reaction), FastGene® Taq Buffer (1X), dNTPs (0.2 mM of each dNTP at 1X), $MgCl_2$ (1.5 mM at 1X) and stabilizers.

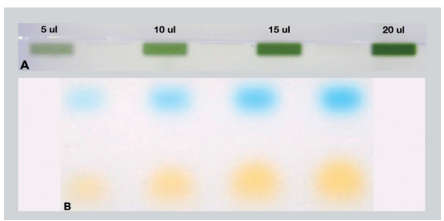


Fig. 2: FastGene® Taq reactions with 1X Loading Dye Reaction Buffer A.Volumes above wells indicate the volume of the PCR reaction loaded on the gel. B.On a 1% agarose gel, the blue dye migration corresponds to a 5 kb DNA fragment, and the yellow dye migrates at 75 bp.

Applications

- Routine PCR (for products <5 kb of less complex targets)
- PCR of complex targets (up to 3.5kb)
- DNA labelling
- For agarose gel electrophoresis.
- Amplification of DNA for Sanger sequencing
- Any standard PCR application for which a high-quality thermostable DNA polymerase is required.

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FastGene® DNA HotStart Polymerase

The FastGene® HotStart Polymerase is combined with a proprietary antibody that inactivates the enzyme until the first denaturation step. This eliminates spurious amplification products resulting from non-specific priming events during reaction setup and initiation, and increases overall reaction efficiency and sensitivity. The reaction buffer does not include $MgCl_2$. It is included in the kit as a separate vial.

Applications

- High throughput PCR
- Amplification of low copy DNA templates
- Multiplex PCR
- Specific amplification of complex templates
- RT-PCR
- CF-PCR (chromosome-specific DNA sequences known as genetic markers or small tandem repeats (STRs)).

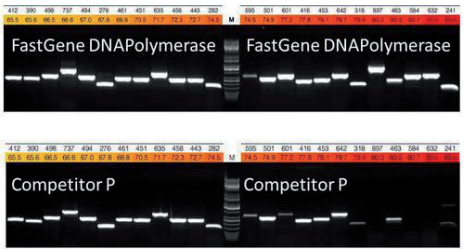

Fig. 3: Reactions (25 µl) were set up according to manufacturer's instructions, with 20 ng of hgDNA as template, and 0.5 µM of each primer. DMSO was included at a final concentration of 5%. PCR was performed for a total of 35 cycles.

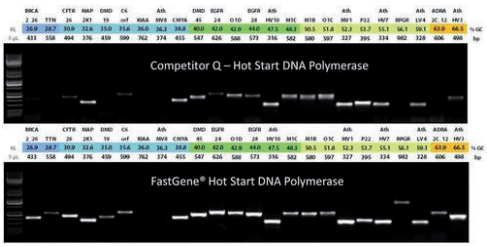

Fig. 4: Reactions (25 µl) were set up according to manufacturer's instructions, with 25 ng of hgDNA as template, and 0.5 µM of each primer. Qiagen Q-solution was included at a final concentration of 1X. PCR was performed for a total of 35 cycles.

Ordering Information

Cat. No.	*Product*	*Content*
LS21	FastGene® TAQ DNA polymerase	100 Units
LS22	FastGene® TAQ DNA polymerase	500 Units
LS23	FastGene® TAQ DNA polymerase	2000 Units
LS24	FastGene® HotStart TAQ DNA polymerase	100 Units
LS25	FastGene® HotStart TAQ DNA polymerase	250 Units
LS26	FastGene® HotStart TAQ DNA polymerase	1000 Units
LS27	FastGene® TAQ Ready Mix PCR Kit	50 x 50µl rxns
LS28	FastGene® TAQ Ready Mix PCR Kit	250 x 50µl rxns

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