NIPPON Genetics EUROPE
INNOVATION FOR YOU

CATALOG

15th Edition

DNA Electrophoresis

Protein Electrophoresis

Gel Documentation

Lab Instruments

Lab Devices

Lab Plastic

NAP Kits

Cloning Enzymes

(q)PCR Enzymes

Cell Biology

CONTENT

COMPANY PROFILE

NIPPON Genetics EUROPE GmbH

NIPPON Genetics EUROPE - Our Company

NIPPON Genetics is a Japanese Life-Tech company, focused on cutting edge products for molecular and cell biology laboratories. We have been working to help researchers in making the bright future they envision a reality.

NIPPON Genetics EUROPE GmbH was founded in 2004. We are a growing group of highly motivated people with a strong background in life-science research. In the past few years, we have become a team that can support you not only with innovative products but also with advice on applications. This background also allows us to understand the needs of the scientific community and to develop new and exciting products for you.

We provide a wide variety of products, including gel documentation systems without UV light, safe DNA-stains, cell freezing media, RT- (q) PCR enzymes, lab plastics and many more. We deliver these products to researchers around the globe working at universities, research institutes, pharmaceutical and biotech companies and/or clinical laboratories. Continuously growing our portfolio and expanding the cooperation with companies and scientists across the world, NIPPON Genetics EUROPE wants to provide the best service and solution for your research requirements.

1988	2005	2006	2008	2010
Foundation of NIPPON Genetics Co. Ltd in Japan	Foundation of NIPPON Genetics EUROPE GmbH in Germany	Introduction of our FastGene® brand	Introduction of the MIDORI^{Green} Dyes	Establishment of a German Sales Team

COMPANY PROFILE

NIPPON Genetics EUROPE GmbH

Our Philosophy

The foundation of our business is contribution.

Things that researchers need for their research, things that help them, solutions for problems. We devote ourselves to providing researchers with these things, and this forms the foundation of our company.

As for the employees who support this foundation, we look for people with the human power required to make a positive contribution. Putting in the right kind of effort so that we can grow and help our customers make the important decisions when it matters. That's the kind of organization we are building.

Kazuo Yamazaki
CEO of NIPPON Genetics Co. Ltd in Japan

2011
Introduction of the Cell Freezing Media Bambanker

2014
Introduction of the unique Blue/Green LED Excitation Light

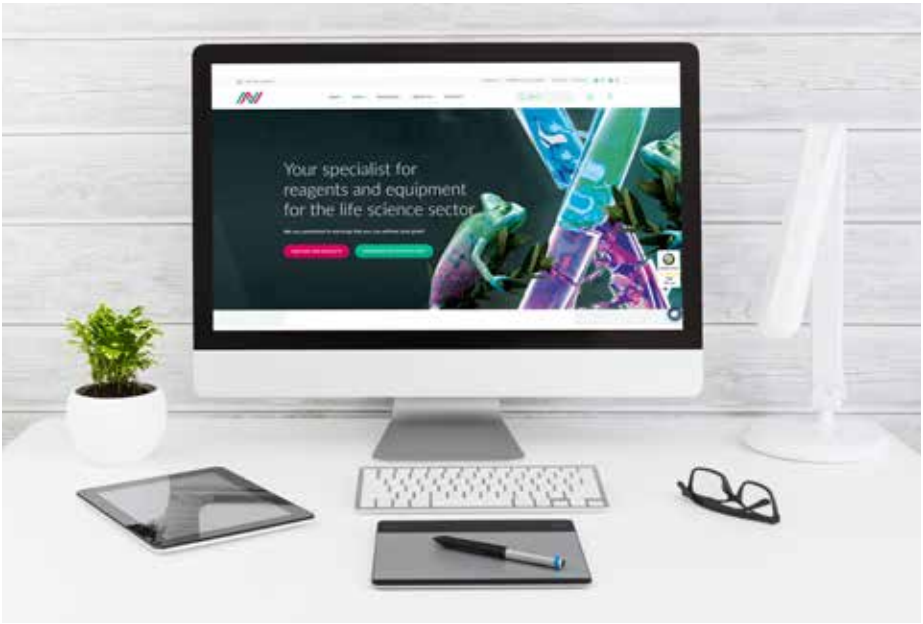
2016
Introduction of the RNA-Purification Kits

2018
ISO 9001:2015 Certification for Quality Management

2020
New Office Building with increase in Warehouse size

Website

www.nippongenetics.eu



Our Website

Our website is the central information source for you! Here you can find all the information you need about our products. Whether you need a manual, MSDS, safety report or other material, just visit our website and download everything you need. We are always happy to receive your feedback about our service and products.

You can also find Technical Notes about many of our products, which we create with scientific enthusiasm in our laboratory. Furthermore, we get great feedback from the scientifc society, which leads to the creation of various Application Notes.

Customers from Germany, Austria and the Netherlands can directly order products in our webshop. Every product page is available in English or alternatively in German or French.

www.nippongenetics.eu

Quality Management

ISO 9001:2015 certified

ISO 9001:2015 certification

NIPPON Genetics EUROPE not only stands for high product quality but also for high quality of service. To maintain and further develop our quality-driven values, we have certified our quality management system according to ISO 9001:2015. Our idea of analyzing, reflecting and improving is key to maintain our high-standard.

We see the quality management certification as a central tool to improve our quality continuously. Therefore, we are performing audits on a regular basis to ensure the ISO 9001:2015 standards.

NIPPON Genetics EUROPE is certified for applying a management system in the fields of trade, manufacturing and service, in accordance with the standard DIN EN ISO 9001: 2015 (Management System)

Management Team

NIPPON Genetics EUROPE GmbH

NIPPON Genetics EUROPE
INNOVATION FOR YOU

Management Team

Dr. Jürgen Lünzer founded the company in 2004, with the support of our Japanese colleagues, mainly focused on international sales. In the beginning, the main objective was to start cooperations with other brands and distributors.

In the year 2010, Jürgen invited his long-term colleague Dr. Oliver Schwarz to join the company. Similar to Jürgen, Oliver had acquired deep knowledge about Life-Science industries. After leading the German Sales Team for several years, he is now the vice president of the company.

International Sales & Marketing Team

NIPPON Genetics EUROPE GmbH

International Sales and Marketing Team

We at NIPPON Genetics EUROPE see us a science-driven, technology-loving and innovation-seeking team still continuously looking for new opportunities to keep this success story going.

Dr. Marcelo Lanz
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Head of Product Management
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Research & Development

NIPPON Genetics EUROPE GmbH

Kerstin Rahn
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Carlos Estellés Díaz
Research & Development
Research Assistant/Project Manager
cestelles@nippongenetics.de

Research & Development Team

We care about developing new products for our customers and commit to listening to their needs and requirements in the lab. Specified new products are tested, developed and continuously improved in our own Biosafety Level 1 laboratory. Furthermore, we repair our instruments in our workshop, in the rare cases of defects, by ourselves.

Mahdi Tehrani
Research & Development
Electrical Engineer
mtehrani@nippongenetics.de

NGE Workshop
Development, assembling & repairing of our products

Inside Sales, Office & Logistic Management

NIPPON Genetics EUROPE GmbH

Claudia Bachem
Executive Assistance

Christoph Michaely
Inside Sales Specialist

Ina Dutzi
Inside Sales Specialist

Jannik Wachhelder
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Annette Lünzer
Logistics Management
Office Management
info@nippongenetics.de

Thomas Enns
Warehouse Logistics Specialist

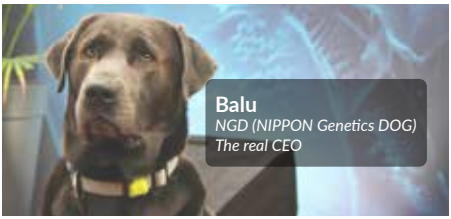
Adem Kömür
Trainee

Nils Meyer
Trainee

Inside Sales, Office & Logistic Management

Our dedicated logistic team will prepare your shipment very carefully and fast to guarantee short delivery times. We deliver our products worldwide from our warehouse in Düren, Germany.

We educate young people to work with us and help our customers all over the world, as we believe that a central objective of a company is to transfer established knowledge to the next generation.



Balu
NGD (NIPPON Genetics DOG)
The real CEO

National Sales Team

NIPPON Genetics EUROPE GmbH

Postcode area	Supervisor	Contact information
20000-31999, 34000-34999, 37000-38999	Nenad Marić	nmaric@nippongenetics.de +49 (0)170 3422593
00000-19999, 39000-39999, 98000-99999	Jana Selke	jselke@nippongenetics.de +49 (0)151 68835943
32000-33999, 40000-54999, 57000-59999 (35000 - 36999, 55000 - 56999, 60000 - 79999, 88000 - 89999)	Dr. Ramona Schuster	rschuster@nippongenetics.de +49 (0)1712012220
80000-87999, 90000-97999, Österreich	Björn Krietemeyer	bkrietemeyer@nippongenetics.de +49 (0)15142116899

We care about you personally

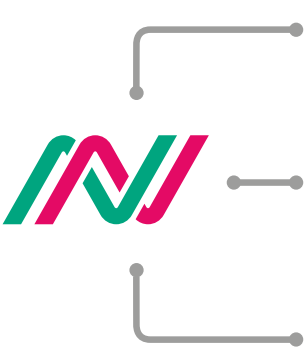
We would be pleased to advise you personally on site and demonstrate to you the products in which you are interested. For Germany, Austria and the Netherlands, we offer our products directly to our customers. Just contact your personal product specialist of our national sales team and make an appointment for a product demonstration.

Our brands

NIPPON Genetics EUROPE GmbH

NGE in-house brands

We are determined to use our technical expertise and many years of experience in the life science market to offer specially developed and optimized products. Always dedicated to adapt our innovation-driven technologies to the special needs of our customers. Our in-house product brands stand for highest quality standards, the best customer benefit and great reliability. All that for a very fair price.



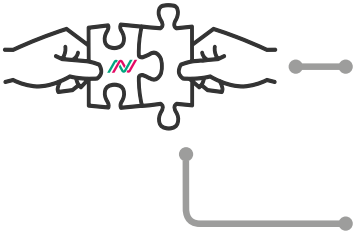
FastGene®
Reagents, Enzmyes, Lab equipment

MIDORI Green
Safe DNA stains

FAS
(Fluorescence Analysis System)
Gel Documentation Systems with BG LED

Our selected manufacturers

To offer our customers the entire life science portfolio, we collaborate with companies that meet our high quality standards and provide us with carefully selected product lines. We rely on renowned Japanese manufacturers, who also set customer satisfaction, innovative technologies and best product quality as their highest priority.



Mupid®-One
DNA gel electrophoresis system
(Takara, Japan)

StemFit®
Stem cell growth media
(Ajinomoto, Japan)

Bambanker™
Cell cryopreservation media
(GC Lymphotec Inc., Japan)

New

MIDORI[Green] Easy

MIDORI[Green] Easy is our latest safe dna dye development with exactly the same dye concentration and tube volume as SYBR® Safe, enabling an effortless switch. It performs with the same excellent signal quality and low background as MIDORI[Green] Xtra.

DNA ELECTROPHORESIS **Page: 21**

FastGene® PAGE Protein System

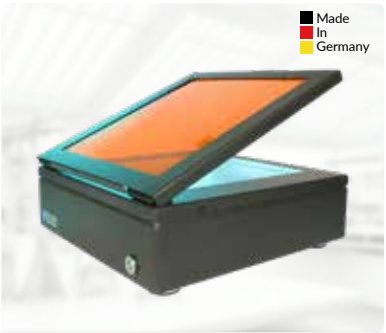
The FastGene® PAGE Protein System contains all the necessary components for PAGE protein analysis and includes a hand-cast set for gel casting. The system is also compatible with a wide range of pre-cast gels.

PROTEIN ELECTROPHORESIS **Page: 38**

FastGene® FAS-X Gel Documentation System

The FAS-X is the latest addition to our gel documentation systems. The "Made in Germany" stand-alone device with a completely new design has a large touch monitor, combined with a user-friendly software and safe Blue/Green LED light.

GEL DOCUMENTATION **Page: 56**



FastGene® Blue/Green LED Transilluminator DE

The Blue/Green LED Transilluminator DE enables safe detection of DNA and RNA with a large LED illumination area. The light is completely safe to use and effectively excites all common green and red DNA dyes. The large amber filter shield allows you to easily cut out DNA bands.

GEL DOCUMENTATION **Page: 70**

FastGene® qFYR Real-Time PCR System

The FastGene® qFYR is an outstanding 96-well qPCR cycler with powerful features. It combines a superior quality thermal cycler with four high performance LEDs and superior optics. The operating software impresses with its simple and intuitive operation menu.

LAB INSTRUMENTS **Page: 78**

FastGene® Centrifuge Tubes

The centrifuge tubes are available in two tube sizes (15 mL and 50 mL). Both come in a mix of five different colours, making it easy to distinguish samples at a glance. The tubes are made from highly durable polypropylene, are sterile and free from DNase, RNase, ATP and DNA.

LAB PLASTIC **Page: 116**

New

Coming soon

FastGene® Blood & Tissue gDNA Extraction Kit

The FastGene® Blood & Tissue gDNA Extraction Kit purifies genomic DNA from mammalian blood, tissue and cultured cells using a simple extraction protocol. The isolated DNA can be used directly for a variety of downstream applications.

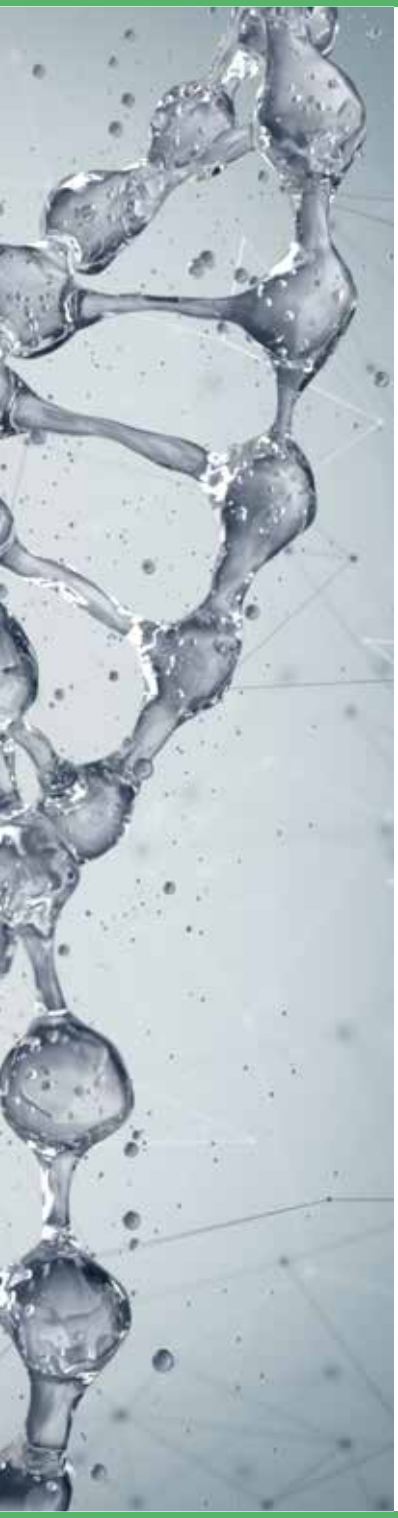
NUCLEIC ACID PURIFICATION **Page: 143**

FastGene® HiFi DNA Polymerase

Our HiFi DNA Polymerase is provided in a 2x Master Mix and is working extremely accurate and fast. This is ideal for applications where high fidelity is essential, such as sequencing, cloning and site-directed mutagenesis.

(q)PCR ENZYMES **Page: 160**

DNA ELECTROPHORESIS



MIDORI[Green] Xtra

Safe DNA stain with incredible signal

- **Staining of DNA/RNA in agarose gels**
- **Ultra-sensitive**
- **Safe DNA dye**
- **Optimal for Blue/Green LED and Blue LED light**
- **Almost no background**

Simply the best combination

MIDORI[Green] Xtra leads to unbeatable fluorescence signals of nucleic acids. The combination of MIDORI[Green] Xtra with Blue/Green LED light reaches an incredible level of sensitivity and sets the new gold standard for DNA detection. Even smallest quantities of DNA or RNA are detectable.

BG BLUE GREEN LED + 

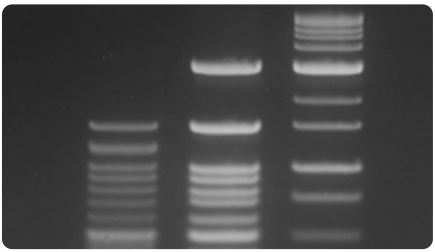
Read more about Blue/Green LEDs on PAGE 50

No changes in electrophoresis mobility

Some in-gel agarose staining dyes may cause a distortion of DNA bands, which can result in a change of the migration pattern. By using MIDORI[Green] Xtra the problem of distorted DNA bands is completely avoided and always the same migration pattern is observed, even at different DNA concentrations. Have a look at the Technical Note of the MIDORI[Green] Xtra migration pattern on page 23.

MIDORI[Green] Xtra: The revolution

MIDORI[Green] Xtra is a new highly sensitive green fluorescent stain for a safe visualisation of DNA and RNA in agarose gels. This DNA stain is a safe and better alternative to the traditional nucleic acid stain ethidium bromide (EtBr). Remarkably, agarose gels stained with MIDORI[Green] Xtra have a very low background fluorescence, which makes the identification of low amounts of DNA very easy.



Ultra-high sensitivity of DNA bands detected with MIDORI[Green] Xtra (dilution factor 1:25000) using Blue/Green LED light.

Optimal for Blue/Green LED technology

Agarose staining with MIDORI[Green] Xtra leads to an excellent signal-to-noise ratio. It is optimized for Blue/Green and Blue LED light, leading to unbeatable fluorescence signals of DNA and RNA in agarose gels. UV light is also suitable for the detection of MIDORI[Green] Xtra, but less efficient than safe visible light.

Proven safety

MIDORI[Green] Xtra delivers perfect DNA/RNA signals while it is completely safe to use. Unlike ethidium bromide, the DNA-stain is non-carcinogenic, non-mutagenic and non-toxic and therefore not harmful for the user. The safety was confirmed by independent laboratories.

Convince yourself of the safety of our DNA dyes with the safety reports - available on our website

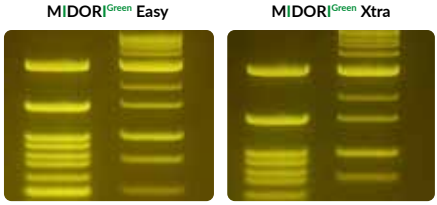
- **Ames-Test**
- **Cytotoxicity Test**

Ordering information

Cat. No.	Product	Content
MG10	MIDORI[Green] Xtra	1 ml (25,000x - for staining 25 l of agarose)

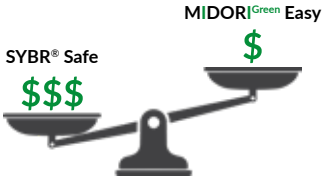
MIDORI[Green] Easy

Our latest MIDORI[Green] development



MIDORI[Green] Easy shows the same ultra-sensitive and sharp DNA bands as MIDORI[Green] Xtra when using Blue/Green LED excitation light.

- **Excellent signal quality**
- **Safe DNA dye**
- **Optimal for Blue/Green LED and Blue LED light**
- **Identical protocol to SYBR® Safe**
- **Unbeatable price**



Less than half the price for a tube of MIDORI[Green] Easy compared to SYBR® Safe

New

Easy switch from SYBR® Safe

MIDORI[Green] Easy enables an effortless switch from using SYBR® Safe to stain agarose gels. No changes are needed in the staining protocol. MIDORI[Green] Easy has exactly the same dye concentration and tube volume as SYBR® Safe - for less than half the price.

Excellent signal quality

We developed Midori[Green] Easy to have the same excellent signal quality and low background as Midori[Green] Xtra. It is also unbeatable with visible excitation light and shows the best results with our Blue/Green LED technology. The bands show outstanding sharpness and sensitivity. Midori[Green] Easy was designed to make the switch from SYBR® Safe as convenient as possible for you and get your DNA signals to the next level.

Ordering information

Cat. No.	Product	Content
MG12	MIDORI[Green] Easy	0.4 ml (10,000 x - for staining 4 l of agarose)

Convince yourself of our dye quality!

Would you like to test Midori[Green] Easy or Midori[Green] Xtra, or one of our other safe DNA dyes? Just give us a call, write us an email or fill in a form on our website. Get your free sample very soon!

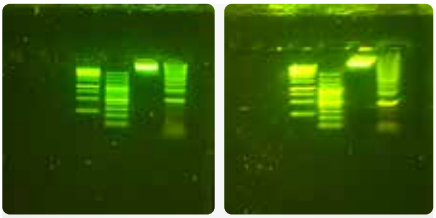
+49 2421 554960
info@nippongenetics.de
www.nippongenetics.eu

Satisfied customers

MIDORI[Green] dyes are safe stains for the detection of nucleic acids in agarose gels. They have been used very successfully by several laboratories with great results and positive feedback. Especially MIDORI[Green] Xtra, used with Blue/Green LED leads to fantastic results:

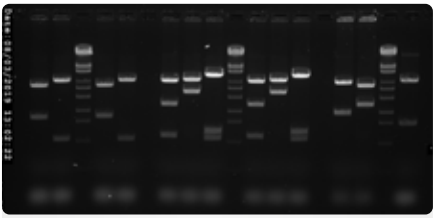
MIDORI[Green] Xtra
(4 µl, 100 ml agarose gel)

SYBR® Safe
(7 µl, 100 ml agarose gel)



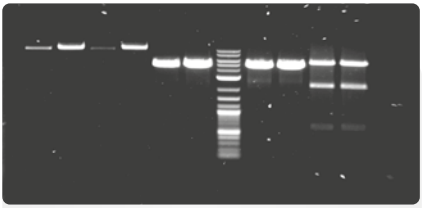
German Researcher
University of Göttingen

Images were taken with a phone on a Blue/Green LED Transilluminator (FG-09).



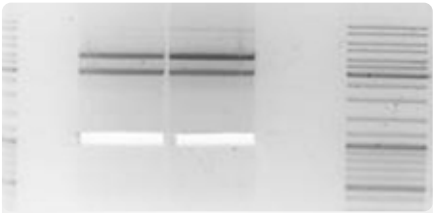
Sandra Gebauer
University Medical Center Göttingen

Images were taken with the FAS-V gel doc system. 2 µl MIDORI[Green] Xtra in 150 ml TAE buffer (1% gel).



German Researcher
University of Hannover

Images were taken with a Blue/Green LED gel doc system. 2 µl MIDORI[Green] Xtra in 100 ml liquid 1% agarose.



Adivo GmbH
Martinsried, Germany

Images were taken with the FAS Digi. 4 µl MIDORI[Green] Xtra in 100 ml 1% agarose.

Customer Testimonial

"Overwhelming results with Blue LED light. Much better than Ethidium bromide!"

Japanese Researcher
Jichi Medical University
Department of Regenerative Medicine, Shimotsuke, Japan

★★★★★

Technical Data

Product evaluation of MIDORI^{Green} Xtra in DNA staining

Purpose

Evaluate the performance of the new staining reagent MIDORI^{Green} Xtra by using the in-gel staining method.

Background

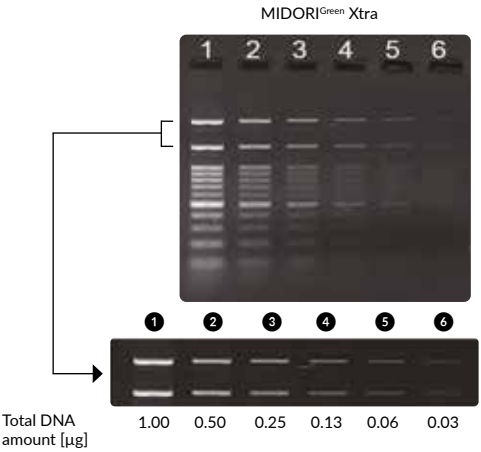
One method of staining DNA separated by gel electrophoresis is the “in-gel” staining method. For in-gel staining, electrophoresis is carried out using a gel containing nucleic acid staining reagent. Therefore, it is possible to observe the electrophoresis result without requiring DNA staining process. However, it can come to a distortion of the bands and there is a risk of causing a change in migration pattern, which should be molecular weight dependent. For this reason, in addition of being able to detect the band with high sensitivity, the reagent used for in-gel staining should precisely separate the DNA by size.

Experimental procedure

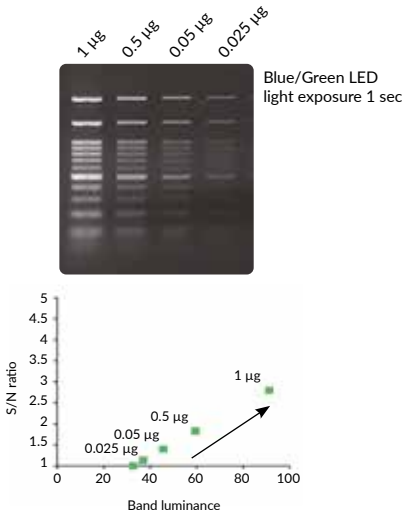
1) Gel preparation 2.0% TAE agarose gel with MIDORI^{Green} Xtra (4 µl for a 100 ml gel)
2) DNA sample: 100 bp DNA ladder, 0.1 µg/µl (FastGene® MWD100)
3) Agarose gel electrophoresis: 100 V, 30 min
4) Gel doc system: FAS-Digi (GP-05LED) with Blue/Green LED light
5) Images were analyzed with Image J and the band luminance and S/N ratio were calculated for the 100 bp band

Result

① Influence on band formation



② Band luminance and S/N ration



Summary

- MIDORI^{Green} Xtra is a reagent with no changes in electrophoretic mobility or band distortion.
- MIDORI^{Green} Xtra is a DNA staining reagent that enables lower background and higher signal-to-noise ratio.

→ MIDORI^{Green} Xtra has the ideal properties for the in-gel staining method with Blue/Green LEDs.

MIDORI[Green] Advance

The safe stain for best results with UV light

- **Perfect staining of DNA/RNA in agarose gels**
- **Non-toxic, non-carcinogenic**
- **Safe alternative to ethidium bromide**
- **High fluorescence**
- **Optimal for UV light**

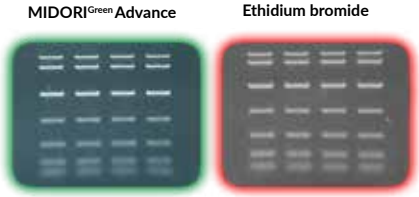
- Ames-Test
- Acute Oral Toxicity Test
- Chromosome Aberration Test
- Mouse Bone Marrow Micronucleus Test
- Latex and Nitrile Gloves Penetration Test

The perfect dye for UV light

MIDORI[Green] Advance is a safe alternative to the traditional nucleic acid stain ethidium bromide. It is a non-carcinogenic, non-mutagenic and non-toxic dye for detecting dsDNA, ssDNA and RNA in agarose gels with a very high sensitivity. MIDORI[Green] Advance gives the best signal results with UV light transilluminators.

Highly concentrated DNA dye

MIDORI[Green] Advance is highly concentrated (25,000 x), so one tube of MIDORI[Green] Advance can stain up to 25 l of agarose. It shows a very high sensitivity even for small DNA fragments and has an excellent signal-to-noise ratio.



Comparison of sensitivity between MIDORI[Green] Advance and ethidium bromide using a UV transilluminator.

Proven Safety

Delivering strong signals is very important for a good replacement of the mutagenic DNA stain ethidium bromide. MIDORI[Green] Advance delivers signals with comparable intensity while it is absolutely save to use. Several tests have been performed on MIDORI[Green] Advance proving that this dye can be used without concerns.

Staining RNA with MIDORI[Green] Advance

Method:
RNA samples were separated on a 1% agarose gel stained with MIDORI[Green] Advance (Fig. 1) or with ethidium bromide (Fig. 2). Lane 1 and 2: 0.5 µg of RNA. Lane 3: 0.3 µg of RNA. Lane 4: 0.7 µg of RNA. The separation of the RNA was performed using a 1x TBE Buffer and 100 V for 1 hour.

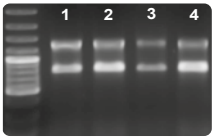


Fig. 1: RNA stained using MIDORI[Green] Advance. The two bands represent the major rRNA of 28S and 18S.

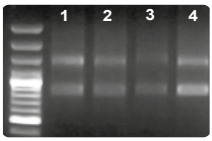


Fig. 2. RNA stained using ethidium bromide. The two bands represent the major rRNA of 28S and 18S.

Results/Conclusion:
MIDORI[Green] Advance delivered superior image quality and very distinctive bands indicating the presence of the expected 28S and 18S rRNA bands. Bands intensity correspond to the amount of RNA and the predicted bands were visible and distinctive.

Data kindly provided by Ms Kirstin Linsmeier, University of Heidelberg, Germany

Ordering information

Cat. No.	Product	Content
MG04	MIDORI[Green] Advance	1 ml (25,000x - for staining 25 l of agarose)

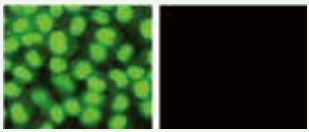
MIDORI[Green] Direct

Direct sample staining

- **Direct staining of DNA/RNA**
- **Non-toxic, non-carcinogenic**
- **Safe alternative to ethidium bromide**
- **Loading dye is included**
- **Very low background**

Safety first

MIDORI[Green] Direct is non-carcinogenic and non-mutagenic, unlike ethidium bromide. Furthermore, MIDORI[Green] Direct is impenetrable to latex gloves and cell membranes (Fig 1.). It is classified as non-hazardous to aquatic life, and small amounts of MIDORI[Green] Direct stain can be safely released into the environment.



HeLa cells were incubated at 37 °C with SYBR® Green I and MIDORI[Green] Direct. Images were taken following incubation for 30 min. SYBR® Green I entered into cells rapidly, as evident from the bright green nuclear staining. MIDORI[Green] Direct was unable to cross cell membranes, as shown by the lack of fluorescence staining.

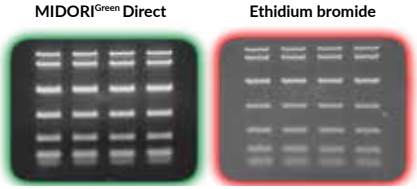
- **Ames-Test**
- **Cytotoxicity Test**
- **Cell Membrane Permeability**
- **Hazardous Waste Screening**
- **Latex Gloves Penetration Test**

In-sample staining for the strongest signal

MIDORI[Green] Direct stain is a safe nucleic acid stain for visualisation of double-stranded DNA, single-stranded DNA and RNA in agarose gels. In contrast to our other safe DNA dyes, MIDORI[Green] Direct is added straight to your samples.

Low background and high contrast signals

The direct staining of DNA in the sample eliminates background staining of the agarose, providing a very high contrast between the signal and the background. MIDORI[Green] Direct was developed for visible light transilluminators and the best signal quality can be achieved with our Blue/Green LED technology.



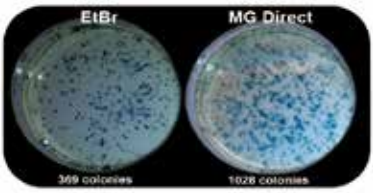
MIDORI[Green] Direct detected by Blue/Green LED light vs. ethidium bromide detected using UV light.

No extra step

MIDORI[Green] Direct is provided with a 10X sample loading buffer and is added directly to your samples and markers. No other dyes need to be added to the agarose gel matrix or running buffer.

Better results for downstream applications

DNA isolation from agarose gels for further applications is a standard procedure in biological laboratories. Intercalating dyes such as ethidium bromide or GelRed® can inhibit cloning processes due to their enzyme inhibiting effect. MIDORI[Green] dyes bind to the DNA backbone. This results in a much higher efficiency for downstream applications after gel extraction such as cloning, sequencing or PCR.



DNA was isolated from agarose gels stained with ethidium bromide (EtBr) or from agarose, where MIDORI[Green] Direct was used. The isolated DNA was transformed into E. coli. The transformed bacteria were plated on selective media and incubated for 16 hours at 37 °C.

Ordering information

Cat. No.	Product	Content
MG06	MIDORI[Green] Direct (with loading dye)	1 ml

Technical Data

MIDORI[Green] Advance: Long term storage test (3 months) of prestained gels

Purpose

MIDORI[Green] Advance was used to prepare a prestained gel. One was used "on the day of making", another one was used "after 3 months". Each gel was subjected to electrophoresis. Gel images were taken under the same conditions and were compared afterwards.

Method

1. A prestained gel was prepared:
   1.5% TAE agarose gel | 12.5 ml mini gel | 0.5 µl MIDORI[Green] Advance

2. The prestained gel was used for electrophoresis:
   Condition 1: Used for electrophoresis on the day of creation
   Condition 2: Store at 4°C, after 3 months the gel was used for electrophoresis

3. Electrophoresis and gel imaging conditions:
   - DNA sample: Bioline Easy ladder I (Bio-33045) 5 µl / lane Conc. (250 ng / 5 µl)
   - Electrophoresis: SafeBlue Electrophoresis system (MBE-150 Plus) 100V 30min
   - Gel imaging: FAS-Digi (Pentax MX-1) Blue/Green LED transilluminator

Prestained gel storage method

Usually, when an agarose gel is refrigerated and stored at 4 °C, it is ideal to store it in a container containing "the same buffer solution used for gel preparation" in order to prevent drying. However, in the case of a prestained gel, in order to prevent dilution of the staining reagent, it is necessary to add the same concentration of the staining reagent to the storage buffer. Therefore, we did not use buffer for storage this time. We wrapped the gel as it was, shielded with aluminium foil, to avoid light exposure and tried a method to store it with a plastic bag with zipper.

1. Each gel is wrapped together with tray.

2. All gels are covered with aluminium foil.

3. All gels are packed in a sealable plastic bag and stored at 4 °C.

Result

On the day of creation

After 3 months of storage

Summary

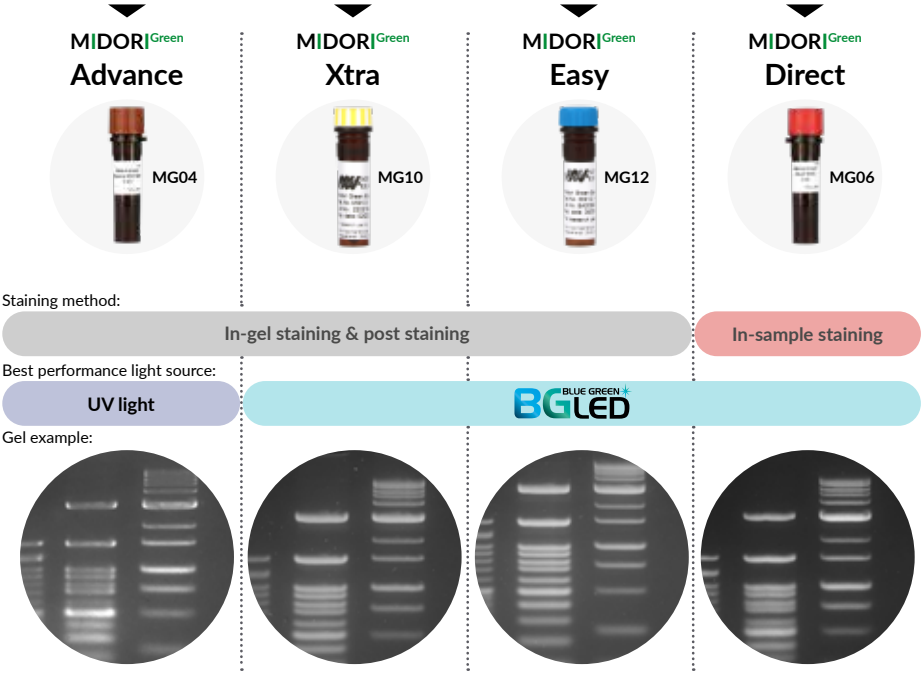
The result of this study shows, that even after refrigerating a gel which was stained with MIDORI[Green] Advance for 3 months at 4 °C there was no difference in the detection of sensitivity observed, and it was possible to use it for electrophoresis without problems.

MIDORI[Green] Dyes

Dye overview

Flexible solution for all light sources

Our set of MIDORI[Green] dyes offers a perfect solution for different staining preparation or gel documentation conditions. MIDORI[Green] Advance, MIDORI[Green] Xtra and MIDORI[Green] Easy are added to the melted agarose for gel staining. If direct addition of the dye to the samples is preferred, MIDORI[Green] Direct is the stain of choice. While MIDORI[Green] Advance shows the strongest DNA signals with UV light, MIDORI[Green] Xtra, MIDORI[Green] Easy and MIDORI[Green] Direct perform best with visible light and especially our Blue/Green LED light technology. No matter which MIDORI[Green] dye you use for your applications, all give excellent DNA signals and are completely safe to use, as certified by external safety labs.



Ordering information

Cat. No.	Product	Content
MG04	MIDORI[Green] Advance	1 ml (25.000x - for staining 25 l of agarose)
MG10	MIDORI[Green] Xtra	1 ml (25.000x - for staining 25 l of agarose)
MG12	MIDORI[Green] Easy	0.4 ml (10.000x - for staining 4 l of agarose)
MG06	MIDORI[Green] Direct (with loading dye)	1 ml (10x conc. for direct use in sample)

FastGene® MIDORI[Green] Agarose Tablets

- **Simple and safe gel pouring**
- **DNA dye is already in the tablet (MIDORI[Green] Xtra or Advance)**
- **High fluorescence**
- **Only water or buffer needed**
- **Increase your reproducibility and safe time**

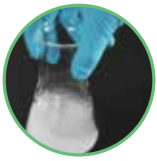
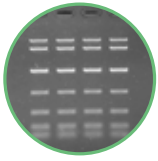
Save time preparing gels

MIDORI[Green] Agarose Tablets are a fast, clean solution for preparing agarose gels without any additional time-consuming steps, such as weighing or adding different components. Just add the tablet to pure cold water or buffer, heat, and pour. Once the gel hardens, it's ready for loading. Each tablet contains the perfect amount of MIDORI[Green] Xtra or Advance.

If you're tired of preparing agarose gels for your lab, this is the quickest and easiest solution to reduce effort and improve the quality of your gels.

Easy workflow

The fastest workflow to make agarose gels: 1. Add the tablet to pure cold water (when using the tablets with TBE or TAE) or in cold buffer (when using the tablets without buffer); 2. Dissolve the tablet by shaking your solution; 3. Heat the solution until it is clear; 4. Add the solution to your gel tray; 5. Run the gel and detect your DNA bands.

Add tablet	Shake it	Heat it up	Pour in gel tray	Run the gel
				

FastGene® MIDORI Green Agarose Tablets

Get the right gel concentration

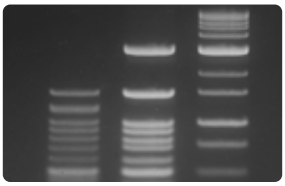
The manual of the MIDORI Green Agarose Tablets (Xtra or Advance) contains precise instructions to obtain the desired gel concentration. Simply dissolve the tablets in the specified amount of water or buffer.

Choose your tablet

Depending on your preferences, NIPPON Genetics EUROPE provides MIDORI Green Agarose Tablets with different dyes and buffers. We offer tablets with MIDORI Green Xtra or MIDORI Green Advance, each either together with a buffer (TBE (MIDORI Green Advance) or TAE) or without any buffer additives. The tablets with buffer need to be dissolved in water, while the tablets without buffer can be dissolved in a running buffer of choice.

MIDORI Green Xtra Agarose Tablets

MIDORI Green Xtra Agarose Tablets **(without buffer)** 100 tablets
Cat. No.: AG12



Get the same excellent DNA signals as with the tablets as with the dyes, just with less effort and preparation time.

MIDORI Green Xtra **TAE** Agarose Tablets 100 tablets
Cat. No.: AG13

MIDORI Green Advance Agarose Tablets

MIDORI Green Advance Agarose Tablets **(without buffer)** 100 tablets
Cat. No.: AG11

MIDORI Green Advance **TAE** Agarose Tablets 75 tablets
Cat. No.: AG10

MIDORI Green Advance **TBE** Agarose Tablets 75 tablets
Cat. No.: AG09

Ordering information

Cat. No.	Product	Content
AG09	MIDORI Green Advance TBE Agarose Tablets	75 Tablets
AG10	MIDORI Green Advance TAE Agarose Tablets	75 Tablets
AG11	MIDORI Green Advance Agarose Tablets (without buffer)	100 Tablets
AG12	MIDORI Green Xtra Agarose Tablets (without buffer)	100 Tablets
AG13	MIDORI Green Xtra TAE Agarose Tablets	100 Tablets

FastGene® Agarose

Molecular grade agarose

The FastGene® Agarose was developed for an accurate separation of DNA fragments, such as PCR products and plasmid DNA, as well as RNA. The very high quality allows all experiments for molecular biology. The purity of the agarose leads to an excellent transparency and a low background. This is especially important to obtain sharp and well-defined DNA and/or RNA bands with the highest sensitivity in the low molecular weight range.

- **Molecular grade agarose**
- **Perfect separation of DNA/RNA**
- **Sharp and well-defined DNA bands**
- **Electroendosmosis (EEO): 0.14-0.16**
- **Concentrations from 0.75 - 2%**

Reliable detection of small products

The detection of small bands is only possible with high quality agarose. Two gels were prepared using the FastGene® Agarose and a low quality agarose from competitor C. The ladder was stained with MIDORI^{Green} Direct and separation of the bands was done using the Mupid™-ONE electrophoresis system (MU2, next page). The comparison shows that the use of high quality agarose (FastGene®) can have a drastic impact on DNA signal quality.

Detection of small bands using high quality FastGene® Agarose and Competitor C's agarose. All seven bands from the ladder are visible when using FastGene® Agarose. When comparing the green box to the red box, Competitor C's agarose does not show the lowest three bands.

Best quality agarose

Every batch of our agarose is tested with different-sized DNA fragments, and the background fluorescence is measured with ethidium bromide or non-toxic stains to assure the cleanest signals.

Agarose tablets - no weighing required

With the FastGene® Agarose Tablets, you can create agarose gels without time-consuming weighing. Just add one tablet to 50 ml of gel running buffer and heat – the result is a 1% agarose gel. It's that simple.

The tablets can be dissolved in your running buffer of choice.

Ordering information

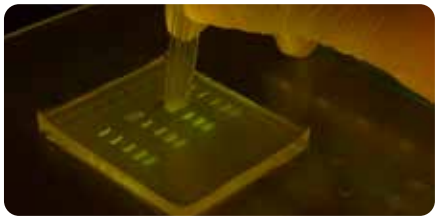
Cat. No.	Product	Content
AG01	FastGene® Agarose	100 g
AG02	FastGene® Agarose	500 g
AG05-100	FastGene® Agarose Tablets	100 Tablets (0.5 g Agarose per tablet)

FastGene® Agarose Gel Band Cutter

Save time cutting DNA bands

The FastGene® Agarose Gel Band Cutter is a simple tool that makes your daily laboratory work easier. You can use it to quickly cut out DNA bands without risking contamination or scratching the transilluminator surface. It simplifies the cleaning of fragments and eliminates the need to use sharp razor blades. The size of the gel band cut out is always 6 mm x 3 mm, and you can stack multiple bands in a single FastGene® Cutter. This makes even large DNA purifications effortless.

- **No scratches on glass surface**
- **Easily excise DNA bands**
- **No razor blades necessary**
- **Stack multiple DNA bands**



Using a FastGene® Agarose Gel Band Cutter is the best way to excise DNA bands from an agarose gel.

Ordering information

Cat. No.	Product	Content
FG-830	FastGene® Agarose Gel Band Cutter	50 Units

Customer Testimonial

"We are very happy using the FastGene® Gel Band Cutter and have successfully implemented it in our practical course. In the past, our students had issues cutting out the correct band without adding too much unnecessary agarose when using a scalpel and a tweezer. This is important since during the next step the same amount of extraction buffer has to be added to the agarose material. This problem was solved by using this product. We have tested similar products but they could not convince us."

Zeynep Weninger
Laboratory Biochemistry - Faculty of applied chemistry
Nürnberg Institute of Technology Georg Simon Ohm, Germany

★★★★★

Electrophoresis buffers

Solutions that are always needed

Ready solutions of TAE (50x) and TBE (10x) used as running buffers for gel electrophoresis. The concentrated solutions ensure a fast preparation and steady buffer concentrations, without fluctuations. The 6x NA Loading Buffer is added to the nucleic acid sample before it is applied to the agarose gel in order to allow the sample to sink into the gel pockets.

Ordering information

Cat. No.	Product	Content
ID1521	50x TAE Buffer	500 ml
ID1531	10x TBE Buffer	500 ml
ID1654	6x Nucleic Acid Loading Buffer	10 ml

TAE Buffer

TBE Buffer

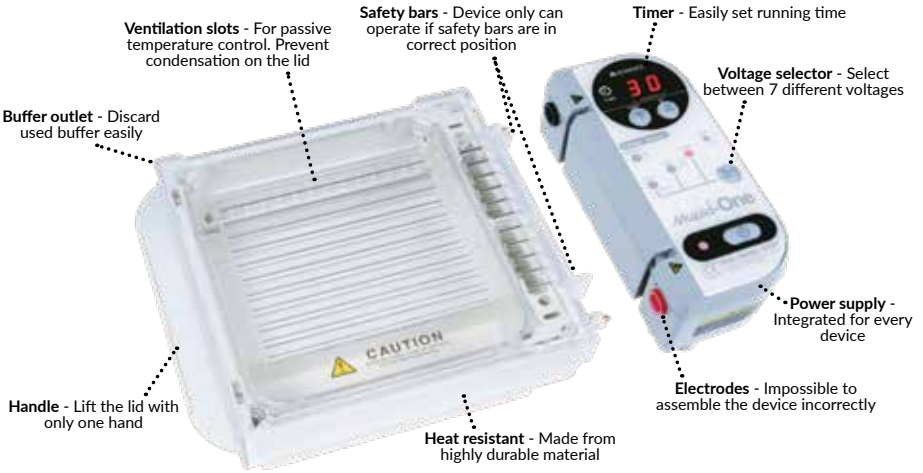
6x NA Loading Buffer

Mupid™-ONE Electrophoresis System

- **Smart power supply**
- **Heat resistant material**
- **Multichannel pipette compatible**
- **Memory function**
- **Gel casting set included**

Smart and safe DNA separation

The Mupid™-One Electrophoresis system is one of the most convenient DNA separation systems on the market. It has a integrated power supply, a simple buffer drainage system, support for multichannel pipettes, and seven output voltage settings (18, 25, 35, 50, 70, 100 and 135 V). The timer with alarm function allows to easily set the desired running time. All parameters of the last run are memorised and automatically saved. Safety bars in the lid ensure that the device can only be operated if the lid is in the correct position. The electrophoresis run cannot be started without it.



Mupid™-ONE Electrophoresis System

Everything you need for a perfect gel

The Mupid™-One package inclues the "Gel casting set standard" (ON-MS). This set comes with 4 combs, which can be used from both sides (13 wells or 26 wells) and two kinds of gel trays: 2x gel trays small (S) for preparation of mini gels and 1x gel tray large (L) for preparation of larger gels. The optional "Gel casting set large" GM-HR is additionally available and consists of two large combs and two different gel trays: 4x gel trays small (S) and 2x gel trays large (L).

All accessories are included in the package

Gel casting set standard (ON-MS), included with the Mupid™-One.

SPECIFICATIONS		
Compact design	✔	Overall dimensions (H x D x W): 5.9 cm x 16.2 cm x 18.3 cm Bath volume: 270 - 320 ml
Integrated power supply	✔	Input voltage: AC100 V - 240 V, 50-60 Hz Output voltage: 8 V, 25 V, 35 V, 50 V, 70 V, 100 V and 135 V
Memory function	✔	Automatic memory function from the last use
Safety lid	✔	Without the lid, main power can not be operated
Multi-channel pipette compatible	✔	The included combs are multichannel pipette compatible
Optimal gel tray size	✔	Small gel tray: 130 mm (B) x 16.5 mm (H) x 59.5 mm (L) Large gel tray: 130 mm (B) x 24 mm (H) x 122 mm (L)
Optimal comb size	✔	Number of wells: 13 or 26 Spacing size: 9 mm (13 wells)

Ordering information

Cat. No.	Product	Content
MU2	Mupid™-One	Mupid™-One electrophoresis system with 1x gel chamber, 1x power controller, 1x gel casting set, 4x combs, 2x gel trays S, 1x gel tray L

Accessories for the Mupid™-One

Cat. No.	Product	Content
ON-MS	Gel casting set standard	1x Mupid™-One gel casting set, 4x combs, 2x gel trays S, 1x gel tray L
GM-HR	Gel casting set large	1x Mupid™-One gel casting set large, 2x large combs, 4x gel trays S, 2x gel trays L
ON-GL	Large gel trays	2 gel trays L
ON-GS	Small gel trays	4 gel trays S
ON-SD	Gel casting stand standard	1 gel casting stand standard
AC-C1	Gel combs	2 combs for the Mupid™-One electrophoresis system

Mupid™-ONE LED Illuminator

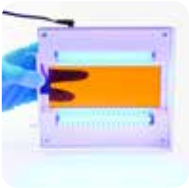
Visualize DNA during the run

The MUPID™-One LED Illuminator allows the visualisation and detection of DNA fragments during the run. The illuminator substitutes the MUPID™-One lid and includes an orange coloured filter to allow you to easily check the results without wearing goggles.

Blue LED light for a safe detection of DNA

The MUPID™-One LED Illuminator produces safe blue light with an emission peak at 470 nm, effective for the excitation of safe nucleic acid stains such as MIDORI^{Green} Xtra and SYBR® Safe. Since the illuminator does not emit UV radiation, it is completely safe to use and does not damage the DNA samples.

- **Follow the electrophoresis run live**
- **Safe Blue LED light**
- **Add-on for the Mupid™-One electrophoresis chamber**



SPECIFICATIONS		
Safe Blue LED light	✓	Blue LED light for the safe detection of green DNA dyes (wavelength of 470 nm)
Compact design	✓	Dimensions (H x D x W): 5.1 cm x 16.6 cm x 17 cm Viewing area: 15 cm x 6 cm
Compatible	✓	MUPID™-One, Mupid™ exU and Mupid™ ACE

Ordering information

Cat. No.	Product	Content
MU4	Mupid™-One LED Illuminator	Mupid™-One LED Illuminator with black gel trays

FastGene® DNA Markers

The right marker for each application

The FastGene® DNA Markers were developed for different applications: MWD50 is suitable for accurate size estimation of small PCR products, from 50 bp up to 1,500 bp. MWD100 contains 12 fragments from 100 bp up to 3,000 bp, for size determination of small plasmids and larger PCR products. MWD1P was developed for very large fragments and plasmids, starting from 100 bp and going up to 10,000 bp.

- **Molecular weight markers for each application**
- **Sharp and well defined DNA bands**
- **Loading dye is included**

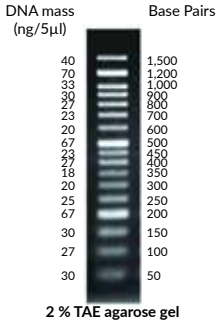
High stability at room temperature

FastGene® DNA Markers MWD100 and MWD1P are extremely stable. Stability tests show that the DNA ladders can be used for at least 12 months at 25 °C. For long term storage, the markers can be stored at 4 °C or -20 °C.

Easy electrophoresis tracking

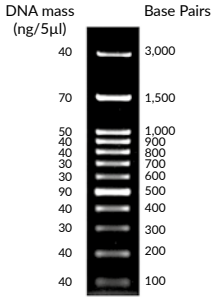
The DNA markers include a loading dye for easy application on the agarose gel, as well as a tracking dye. With the tracking dye, the movement of the DNA can be visualized and the optimal electrophoresis stopping point can be determined.

MWD50



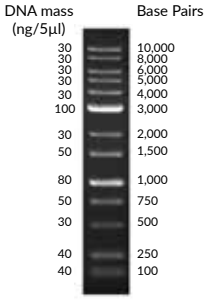
2 % TAE agarose gel

MWD100



1.5 % TAE agarose gel

MWD1P



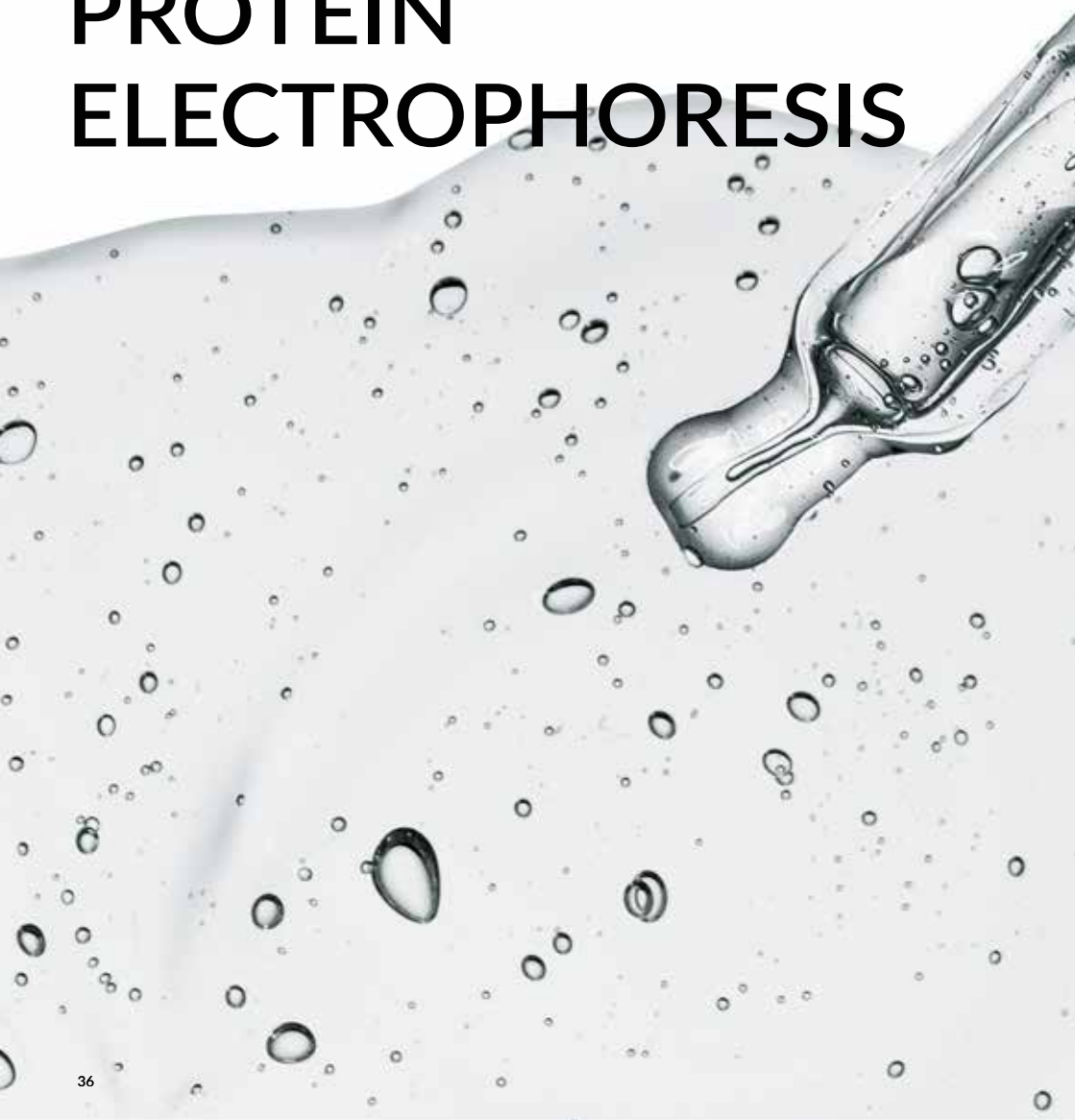
1 % TAE agarose gel

SPECIFICATIONS			
Cat. No.	**MWD50**	**MWD100**	**MWD1P**
Description	50 bp Ladder	100 bp Ladder	1 kb Ladder
Range / bp	50 - 1,500	100 - 3,000	100 - 10,000
Number of bands	17	12	13
Reference bands	3 (200, 500, 1,200)	2 (500 & 1,500)	2 (1,000 & 3,000)
Loading dye	Orange G	Orange G & Xylene cyanol FF	Bromphenol blue
Content	56 µg in 500 µl	50 µg in 500 µl	50 µg in 500 µl
Recommended load	5 µl	5 µl	5 µl

Ordering information

Cat. No.	Product	Content
MWD50	FastGene® 50 bp Standard DNA Marker	500 µl
MWD100	FastGene® 100 bp Standard DNA Marker	500 µl
MWD1P	FastGene® 1 kb Standard DNA Marker Plus	500 µl

PROTEIN ELECTROPHORESIS



FastGene® PAGE Protein System

All you need for PAGE protein analysis

New

- **Innovative locking system**
- **Hand-cast gel set included (1 mm gels)**
- **Compatible with different pre-cast gels**
- **Includes glass plate holder and tube holder**
- **comes with convenient accesories**

Powerful protein analysis via PAGE

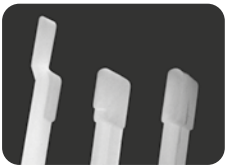
PAGE stands for Polyacrylamide Gel Electrophoresis and describes an analytical method in biochemistry for the separation of differently sized protein mixtures in an electric field. During PAGE, proteins migrate through a gel matrix in response to an applied electric field. Smaller proteins travel faster through the gel than larger proteins, leading to a size dependent separation.

All you need for PAGE protein separation

The FastGene® PAGE Protein System contains all the necessary components you need for PAGE protein analysis. The electrophoresis tank can hold a maximum of 4 gels simultanously. The hand-casting set comes with everything needed for successful gel casting, and glass plate holder and tube holder are also included as practical accessories.

Broad gel compatibility

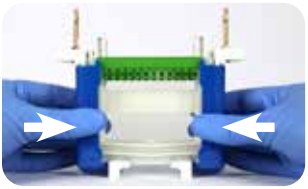
The FastGene® PAGE Protein System is compatible with a wide range of pre-cast gels (e.g. FastGene® gels, Bio-Rad TGX™ gels or ThermoFisher mini gels).



Three types of sealing strips are included in the set, allowing compatibility with different gel types and gel sizes.

Innovative locking system prevents leakage

The components of the FastGene® PAGE Protein System are equipped with innovative locking mechanisms. The closures are very robust and ensure extremely secure sealing of precast PAGE gels or glass plates. This means that you are safely protected against leakage of buffer or gel liquid.



Avoid buffer leakage with the robust, simple and secure closing mechanism for all PAGE and gel hand-casting components.

FastGene® PAGE Protein System

All you need for PAGE protein analysis

PAGE Protein System (PG01) content

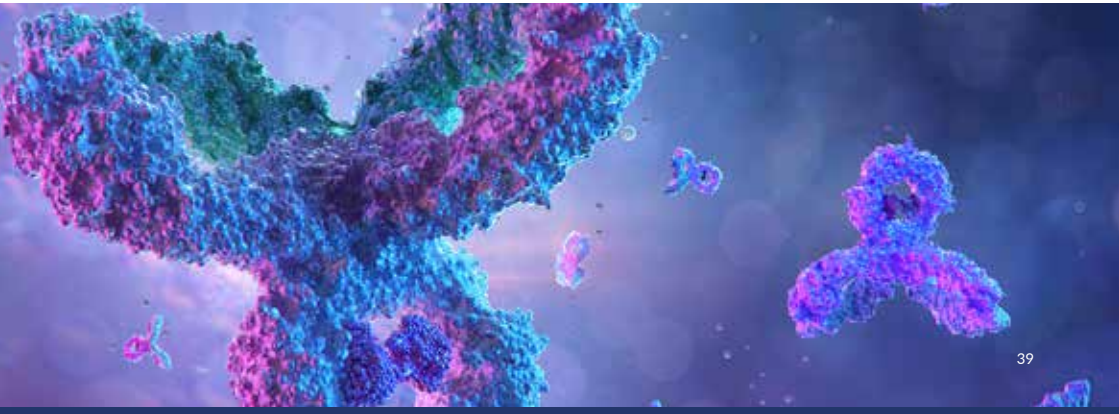
FastGene® PAGE Protein System (PG01)	Qty
PAGE components	
Inner electrophoresis chamber with electrodes	1
Inner electrophoresis chamber without electrodes	1
U sealing strip long (10 cm x 10 cm) (e.g. ThermoFisher™ mini gels)	4
U sealing strip short for Bio-Rad TGX™ gels (10 cm x 8 cm)	4
U sealing strip FastGene® (10 cm x 8 cm)	4
Plastic dummy cassette short (10 cm x 8 cm)	1
Plastic dummy cassette long (10 cm x 10 cm)	1
Gel/Blot chamber lid with electrodes and power cable	1
Gel/Blot chamber tank	1
Gel shovels	5
Gel hand-casting components (1 mm gel)	
Comb 1 mm 10 wells	5
Comb 1 mm 15 wells	5
Glass spacer long 1 mm	5
Glass plates short	10
Gel casting base	4
Gel casting clip	4
Sealing gaskets	5
Accesories	
Glass plate holder	1
Tube holder	1

The PAGE components of the FastGene® PAGE Protein System contain all necessary parts to carry out protein electrophoresis in a convenient way. Three sealing strip types ensure wide compatibility with different precast gel manufacturers.

The gel hand-casting components of the FastGene® PAGE Protein System impresses with highly robust individual parts and easy handling. Up to 4 gels can be poured at the same time.

Simplify your daily work with the PAGE system with the glass plate holder and tube holder accessories.

New



FastGene® PAGE Protein System - Sets and single parts

The FastGene® PAGE protein system can be ordered as a complete set with all PAGE components, gel-hand casting components and accessories (PG01). In addition, there are further comb and plate sets for casting gels with different gel thicknesses (0.75 mm, 1 mm or 1.5 mm), as well as a matching gel casting set with all important components for casting gels. All individual single parts of the PAGE system can also be purchased seperately.

Ordering information

Cat. No.	Product	Content (quantity)
Complete System		
PG01	FastGene® PAGE Protein System	Complete protein PAGE system (see table on previous page for content and quantity)
Sets		
PG02	FastGene® Comb Set 075	Comb 0,75 mm 10 wells (5); Comb 0,75 mm 15 wells (5); Glass spacer long 0,75 mm (5); Glass spacer short (10)
PG03	FastGene® Comb Set 150	Comb 1,5 mm 10 wells (5); Comb 1,5 mm 15 wells (5); Glass spacer long 1,5 mm (5); Glass spacer short (10)
PG10	FastGene® Comb Set 100	Comb 1 mm 10 wells (5); Comb 1 mm 15 wells (5); Glass spacer long 1 mm (5); Glass spacer short (10)
PG06	FastGene® Casting stand set	Gel casting base (2); Gel casting clip (2); Sealing gaskets (5); Gel shovels (5)
Single Parts		
PG11	Inner electrophoresis chamber with electrodes (1)	
PG12	Inner electrophoresis chamber without electrodes (1)	
PG20	U sealing strip long (10 cm x 10 cm) (e.g. ThermoFisher™ mini gels) (4)	
PG18	U sealing strip short (for Bio-Rad TGX™ gels, 10 cm x 8 cm) (4)	
PG19	U sealing strip (for FastGene® Precast PAGE gels, 10 cm x 8 cm) (4)	
PG23	Plastic dummy cassette short (10 cm x 10 cm) (1)	
PG13	Plastic dummy cassette long (10 cm x 10 cm) (1)	
PG14	Gel/Blot chamber lid with electrodes and power cable (1)	
PG05	Gel/Blot chamber tank (1)	
PG17	Gel shovels (5)	
PG04	Short flat glass plates for hand-cast gels (10)	
PG21	Gel casting base (1)	
PG22	Gel casting clip (1)	
PG07	Sealing gaskets for gel casting (5)	
PG24	Glass plate holder (1)	
PG25	Tube holder (1)	

New

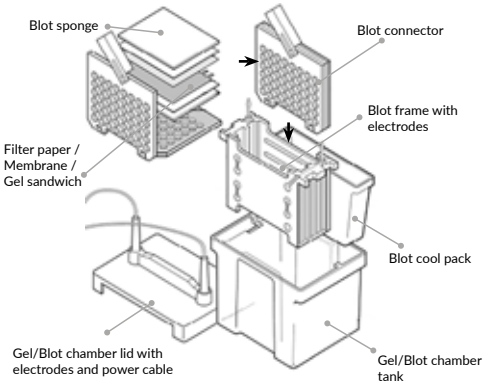
FastGene® Western Blot System

Efficient wet-transfer device

Biochemical protein analysis via blotting

Blotting of proteins is a powerful biochemical method for the detection of proteins. Protein bands that were separated by size after PAGE are transferred and immobilized on a carrier membrane. The firm binding of the proteins to the membrane allows a subsequent protein detection by choosing from a variety of staining or immunological methods.

- **Efficient and reliable protein transfer**
- **Cooling pack absorbs transfer heat**
- **Can run two blots simultanously**



Wet-transfer Western Blot system

The FastGene® Western Blot System is an efficient device to perform protein transfer step from gel to membrane via the wet transfer technique. The Western Blot Systems contains all the necessary components and comes with detailed guidelines to successfully perform transfer and Western Blot analysis. The system includes a cool pack, which is installed during the run. The cool pack absorbs generated running heat, avoiding the possibility of power loss. Gel and membrane can be easily sandwiched in the blot connector, which is assembled via an easy-to-use lock mechanism.

New

Do you have a FastGene® PAGE Protein System already?

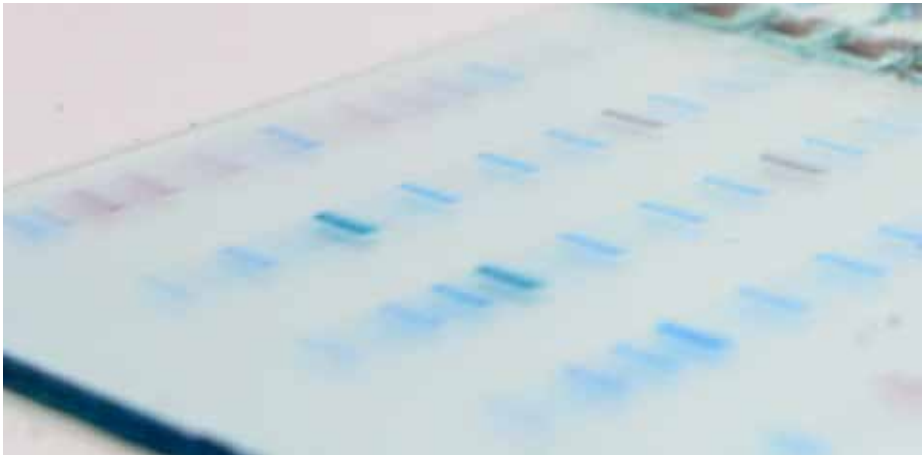
Gear it up to a Western Blot System with the PG09 set!

Ordering information

Cat. No.	Product	Content (quantity)
Complete System		
PG08	FastGene® Western Blot System	Blot frame with electrodes (1); Blot connector (2); Blot Sponge (5); Blot cool Pack (2); Gel/Blot chamber lid with electrodes and power cable (1); Gel/Blot chamber tank (1)
Sets		
PG09	FastGene® Western Blot Components	Blot frame with electrodes (1); Blot connector (2); Blot Sponge (5); Blot cool Pack (2)
Single Parts		
PG15	Blot connector (2)	
PG16	Blot sponge (5)	
PG14	Gel/Blot chamber lid with electrodes and power cable (1)	
PG05	Gel/Blot chamber tank (1)	

FastGene® Precast PAGE Gels

Get the best separation



- **8 cm x 10 cm PAGE Gels**
- **Homogenous and gradient gels**
- **No special buffers required**
- **Superior protein band resolution and stability**
- **Long shelf live**

Each box of our FastGene® Precast Protein Gels comes with 10 gels, a cassette opener and spacers. The gels are perfecly compatible with our MOPS buffer packs.

Get the best PAGE separation

Casting hand-cast gels for protein separation can be time-consuming and error-prone. FastGene® Precast PAGE Gels are the perfect replacement and make laboratory work a lot easier. Due to the very consistent gel casting process, the FastGene® PAGE Gels have a very high reproducibility.

Load up to 60 µl sample on each lane

Homogenous or gradient PAGE gels

FastGene® Precast Protein Gels are available in a variety of homogenous and gradient gels. They can be used for denaturing SDS-PAGE as well as native gel electrophoresis, depending on the used running buffer. Our gels are compatible with MOPS or MES buffers.

Superior running performance

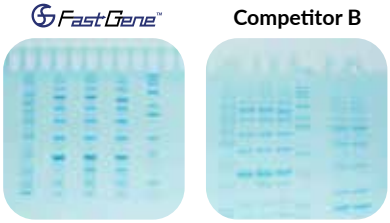
FastGene® Precast PAGE Gels are cast at a neutral pH. The hydrolysis of polyacrylamide is reduced, resulting in an increased gel stability and superior band resolution. Further advantages are optimised running performance and a larger loading volume (up to 60 µl). The extra large wells also prevent a lane-to-lane overflow and ensure a higher transfer efficiency.

FastGene® Precast PAGE Gels

Get the best separation

New quality standards

The FastGene® Precast PAGE Gels have a revolutionary high performance. The unique buffer formulation that maintains a low operating pH during the electrophoresis eliminates the "smilies" and poor resolution of self-made gels and many competitor precast gels.



Direct comparison of a FastGene® Precast Protein Gel (12%) with a common competitor gel manufacturer.

Get a sample for free

You would like to test our Precast PAGE Gels? All gels are available as a sample with all necessary components for protein electrophoresis, including MOPS buffer. Just contact us, and get a free sample.

Would you like to test our gels?

Compatibility

The gels are compatible with the FastGene® PAGE Protein System as well as electrophoresis gel tanks from other manufacturers like Bio-Rad™.

Manufacturer	Electrophoresis system (8 cm x 10 cm)
NGE	FastGene® PAGE Protein System
BioRad™	Mini PROTEAN II & 3 Mini PROTEAN Tetra System
Hoefer	SE 250 Mighty Small II SE260 Mighty Small II Deluxe

Ordering information

Cat. No.	Product	Content
PG-S012	FastGene® PAGE Gel 8 cm x 10 cm - 12%	10 gels
PG-S412	FastGene® PAGE Gel 8 cm x 10 cm - 4-12%	10 gels
PG-S420	FastGene® PAGE Gel 8 cm x 10 cm - 4-20%	10 gels
PG-S816	FastGene® PAGE Gel 8 cm x 10 cm - 8-16%	10 gels

PAGE Running Buffers

All you need for perfect PAGE

The running buffer is available as a 10x ready solution or as a measured powder for making 1 L of buffer. This eliminates the tedious weighing of SDS and other buffer components. FastGene® MOPS Buffer Pouches are compatible with our FastGene® Precast PAGE Gels.

PG-MOPS10

ID1501

Ordering information

Cat. No.	Product	Content
PG-MOPS10	FastGene® MOPS Buffer Pouches	10 pouches for 1 L each
ID1501	Running Buffer Tris-Glycine-SDS	10x 500 ml

FastGene® Q-Stain Protein Stain

Like Coomassie Blue, but easier

The FastGene® Q-Stain is a single-step, modified Coomassie Blue protein gel stain for polyacrylamide gels. This protein staining solution eliminates the need to fix, wash or destain your protein gel. Just run your protein gel, add the FastGene® Q-Stain, and watch your bands appear in several seconds. The FastGene® Q-Stain does not stain the polyacrylamide gel. The result is a crystal-clear background with clearly visible protein bands. Unlike many other stains, the FastGene® Q-Stain is a water-based product, free of methanol and acetic acid.

- **Protein staining in 10 minutes**
- **No washing, fixing or destaining**
- **High sensitivity - 10 ng bands detectable**
- **Free of methanol and acetic acid**
- **No oversaturation**

One-step protein staining in 10 minutes

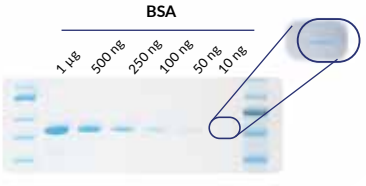
The special formulation of the FastGene® Q-Stain enables a very quick staining procedure of protein gels. The protein bands will be visible in less than 10 minutes. Very low amounts of proteins (down to 10 ng) can be detected by longer staining. It is impossible to over-saturate proteins with the FastGene® Q-Stain, so longer incubation times have no negative effects. Save time by using Q-Stain for a safe and efficient detection of proteins in polyacrylamide gels.

Ideal for mass spectrometry

The FastGene® Q-Stain Protein Stain is 100% compatible with mass spectrometry. Follow the procedure below to analyse your protein:

1. Incubate the excised protein band in 1 ml 30% EtOH or 30% acetone for 30 min at room temperature
2. Repeat step 1 until the stain is removed
3. Continue with a typical mass spectrometry protocol

Never Wash or Destain again!



Detection of 10 ng of protein after 30 minutes incubation. For a better visualisation, the 10 ng protein band is shown with a stronger contrast.

Staining a protein gel was never so easy

The entire staining procedure can be completed in about 10 minutes (for typical protein amounts). Just remove the gel after the electrophoresis, add the stain, wait for 10 minutes and watch your protein bands become visible.

Ordering information

Cat. No.	Product	Content
FG-QS1	FastGene® Q-Stain	1 liter

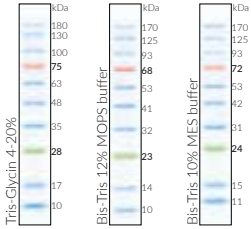
FastGene® Protein Marker

- Huge size range (6.5 - 270 kDa)
- Ready-to-use with loading buffer
- Sharp bands
- Reference bands
- Quality tested

Excellent accuracy

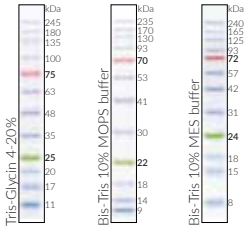
Choose between three different protein markers with different colours and distinct size ranges. All of our Protein Markers are supplied in a loading buffer for a direct loading on gels. The FastGene® Protein Markers have sharp bands with an excellent accuracy. They are designed for monitoring protein separation during SDS-polyacrylamide gel electrophoresis, verification of Western transfer efficiencies (PVDF, nylon, or nitrocellulose membranes) and for approximating the size of proteins.

BlueStar (MWP03)



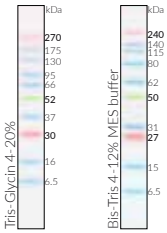
The BlueStar Prestained Protein Marker is a three colour protein standard with 10 prestained proteins covering a wide range of molecular weights from 10 to 180 kDa.

BlueStar PLUS (MWP04)



The BlueStar PLUS is a three colour protein standard with 12 prestained proteins covering a wide range of molecular weights from 10 to 245 kDa.

BlueEasy (MWP06)



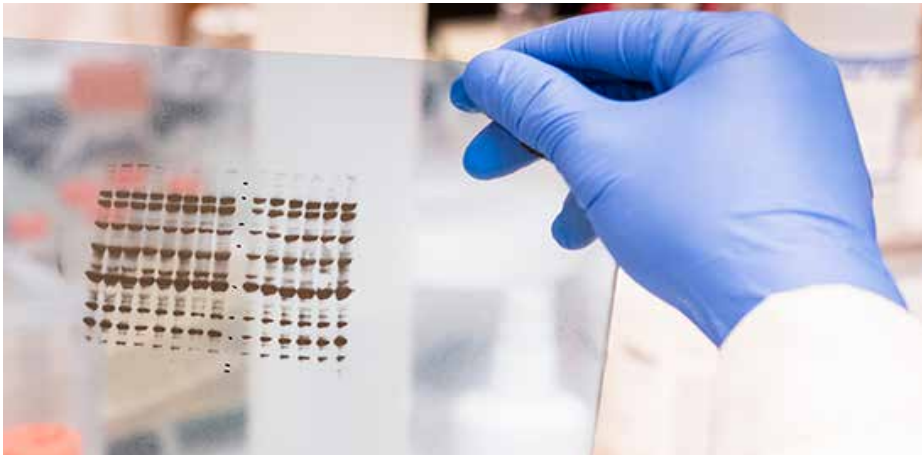
The BlueEasy Prestained Protein Marker is a three colour protein standard with 10 prestained proteins. It has the largest range of molecular weights from 6.5 to 270 kDa.

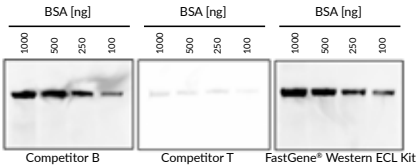
10

Ordering information

Cat. No.	Product	Content
MWP03	BlueStar Prestained Protein Marker (500 µl)	Sufficient for 100 mini gels or 50 large gels
MWP04	BlueStar PLUS Prestained Protein Marker (500 µl)	Sufficient for 100 mini gels or 50 large gels
MWP06	BlueEasy Prestained Protein Marker (500 µl)	Sufficient for 100 mini gels or 50 large gels

FastGene® Western ECL Kit

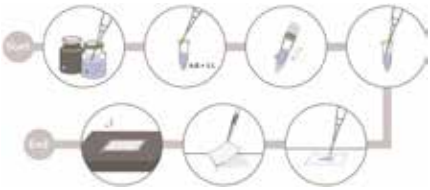




Comparison between the FastGene® Western ECL Kit and 2 competitor products. All kits were used under the same experimental workflow. 1000 - 100 ng BSA were separated in a 4-20% SDS-PAGE (FastGene® Precast Gel). The exposure time was set to 10 sec.

Chemiluminescent western blot detection

The FastGene® Western ECL Kit is a luminol based enhanced chemiluminescent substrate and sensitive with conducting immunoblots with horseradish peroxidase (HRP) conjugated secondary antibodies. Due to the excellent substrate sensitivity and long signal duration, the FastGene® Western ECL Kit enables the detection of antigens with a very low concentration. Furthermore, its long chemiluminescent signal duration makes both digital and film-based imaging possible without any loss of signal.

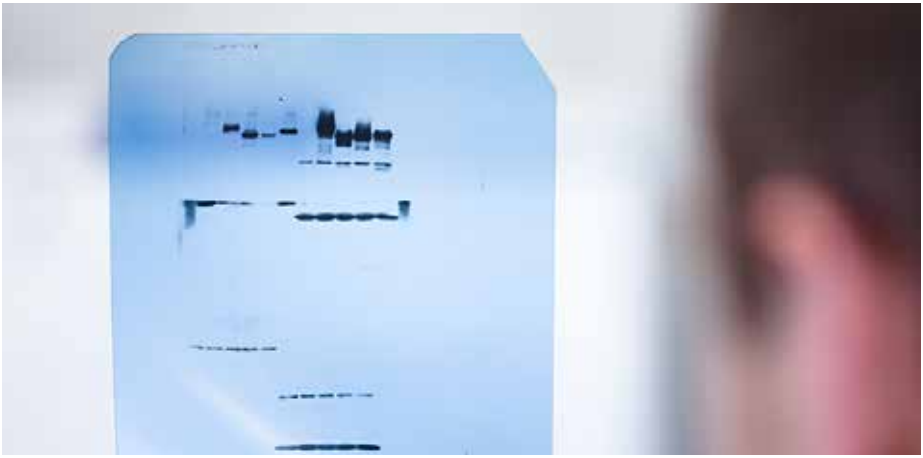


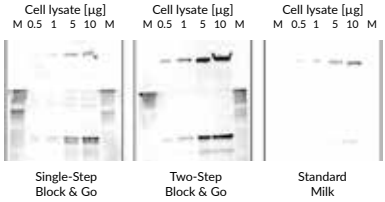
Workflow using the FastGene® Western ECL Kit: Mix the luminol solution and peroxide solution in a 1:1 ratio, and thoroughly agitate the chemiluminescent substrate solution for preparing the 0.1 ml of solution per cm^2 of membrane. Place the membrane with the protein side up and remove the membrane from the chemiluminescent substrate solution. Take an image of the membrane with a chemiluminescence detector.

Ordering information

Cat. No.	Product	Content
FG-CH01	FastGene® Western ECL Kit	50 ml Solution A, 50 ml Solution B

FastGene® Block & Go





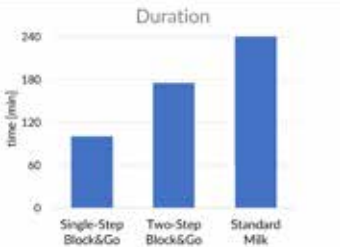
Western blots with 2 min exposure time comparing two FastGene® Block & Go protocols and the conventional standard method using dried milk. FastGene® Block & Go provides a sensitive method for detection of specific protein expression using as low as 0.5 µg whole-cell lysate.

Boost your western blot

The FastGene® Block & Go is a protein-free blocking solution for Western blot analysis, additionally enhancing band intensity when developed with HRP (horseradish peroxidase) or AP (alkaline phosphatase) substrates. It provides a sensitive method to detect specific protein bands in as low as 0.5 µg of whole-cell protein lysate.

Save time and sample

With FastGene® Block & Go, western blot development is performed in a much quicker fashion. The solution can be used in a single-step or two-step protocol. The single-step protocol combines membrane blocking, primary antibody and secondary antibody incubation all in one step, saving more than half the time compared to conventional western blot development protocols.



The use of FastGene® Block & Go can save up to 2:20 h (single-step protocol) and a minimum of 1 h (two-step protocol) compared to the standard blocking procedure with dried milk.

Ordering information

Cat. No.	Product	Content
FG-CH05	FastGene® Block & Go	500 ml solution

GEL DOCUMENTATION

The Blue/Green LED Technology

The danger of UV light

Detection of nucleic acids is mainly performed using light in the UV range. However, DNA is able to absorb light in the UV spectrum. This property leads to DNA modifications and DNA degradation when exposed to UV light. It damages sample DNA and is also dangerous for the user.

Blue/Green LED - The revolution

Instead of using a single wavelength, the Blue/Green LED technology uses a combination of wavelengths in a spectrum of light from 470 nm to 520 nm. This Blue/Green light is able to excite all common **red and green DNA dyes** with a very high intensity. This intensity can be achieved by the accumulated energy absorption of the dyes.

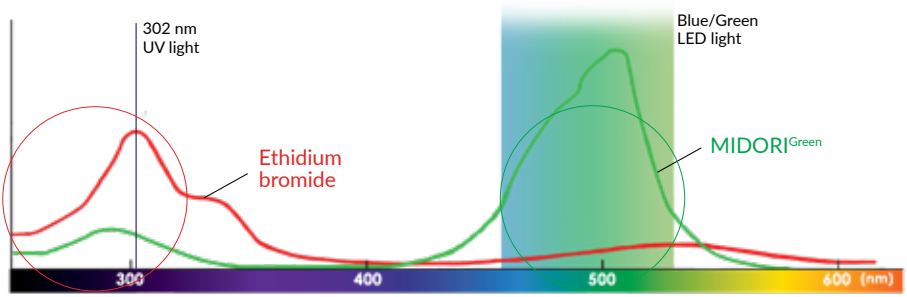
Comparing the influence of UV light to Blue/Green LED light on the cloning efficiency

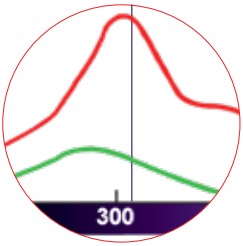
Cloning efficiency of DNA treated with **UV light**

Cloning efficiency of DNA treated with **Blue/Green LED light**

No DNA damage - Better cloning efficiency!

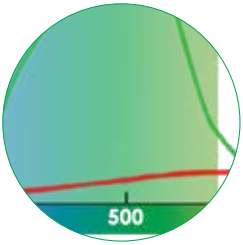
The Revolution





UV light: Good detection, insecure signal

UV light transilluminators use just a single wavelength for the visualisation of DNA. Red and green DNA dyes, like ethidium bromide or the MIDORI Green dyes usually have a good absorption in the UV light spectrum. This results in DNA bands with a sufficient intensity. However, UV light is dangerous for the user and for the sample DNA. Just 30 sec of UV light exposure significantly reduces the cloning efficiency and has consequences for further downstream applications. For this reason, the visualisation of DNA with UV light is not the state-of-the-art method anymore.



Blue/Green light: Safe detection of all red and green DNA dyes

In contrast to UV light, Blue/Green LED technology uses a spectrum of light between 470 nm and 520 nm. This light is not harmful for the DNA or for the user. Even ethidium bromide or other red DNA dyes with a low absorption in this spectral area show DNA band intensity comparable to UV light. The reason for that is the accumulated energy absorption of the DNA in the Blue/Green spectrum. Green DNA dyes show very high absorption intensity in the Blue/Green light spectrum, leading to DNA bands with superb intensity.

Try Blue/Green light - Your Benefits:

#1: Better cloning efficiency

#2: Fewer errors during sequencing

#3: Healthier working environment

State-of-the-Art Method

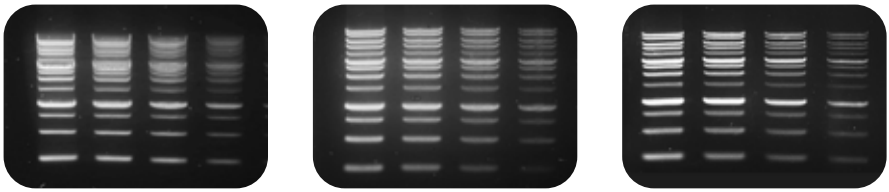
Blue/Green LED technology conquers the world

Gel documentation systems with Blue/Green LED technology are already used in more than 1000 laboratories around the world. No damage of DNA, for much better results of downstream applications (ligation, cloning, sequencing). Together with all common DNA dyes, Blue/Green LED light leads to fantastic intensities of DNA/RNA bands in agarose gels. Gel documentation with Blue/Green LED light is therefore the new state-of-the-art method for the visualisation of nucleic acids.

1000+ instruments around the world with Blue/Green LED light

Blue/Green LED Technology

GelRed® | **SYBR® Safe** | **MIDORI[Green] Xtra**



Comparison of the sensitivity between GelRed®, SYBR® Safe and MIDORI[Green] Xtra using the FAS-DIGI PRO. In combination with MIDORI[Green] Xtra, the FAS-DIGI PRO leads to an unbeatable image quality of agarose gels. Each gel was loaded with different amounts of our DNA marker MWD1P (Page 35).

FastGene® Gel Documentation Systems

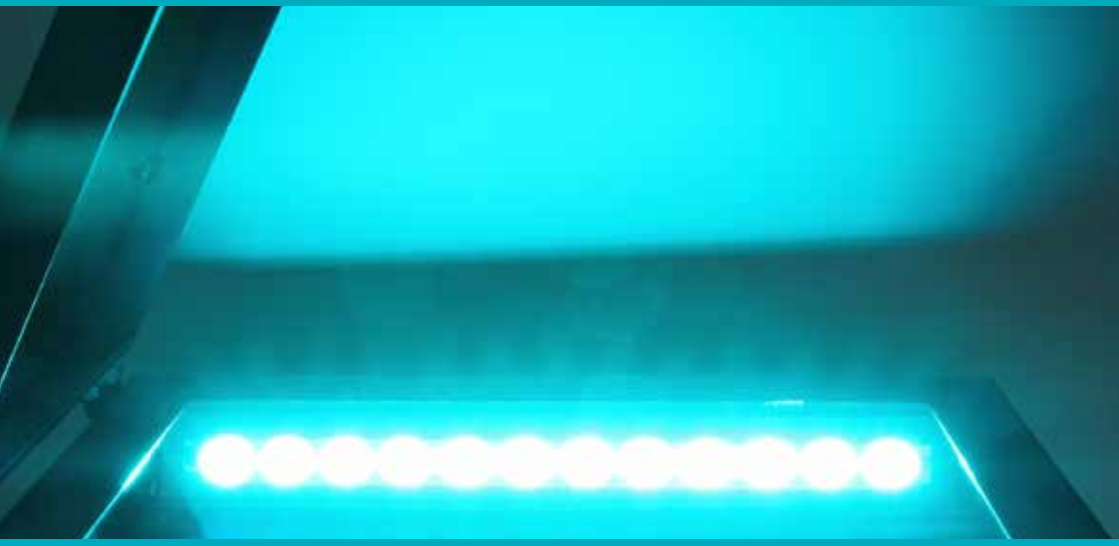
Find the right gel doc system for your needs





	FAS-X *(GP-FAS-X)*	FAS-DIGI PRO *(GP-07LED)*	FAS-DIGI Compact *(GP-08LED)*	FAS-BG LED BOX *(GP-04LED)*	FAS-Nano *(GP-06LED)*
Safe Blue/Green LED light	●	●	●	●	●
Detection of green DNA dyes	●	●	●	●	●
Detection of red DNA dyes	●	●	●	●	●
White light imaging	●	●	○	●	○
High resolution camera	●	●	●	○	○
Parfocal lens	●	○	○	○	○
Software included	●	●	○	●	○
Networkable	●	●	○	○	○
Stand-alone system	●	◐*	●	●	○
Large illuminated area	●	●	●	○	○
Quantification of DNA and RNA	●	●	○	○	○
CE certification	●	●	●	●	●

* Operation also possible without computer



Talk to the experts and get a product demonstration

Finding the right gel doc system or transilluminator can be difficult. We can help you! Just arrange an appointment with us and get a product demonstration.

+49 2421 554960
info@nippongenetics.de

www.nippongenetics.eu

DISCOVER OUR NEW

FAS-X

Made
In
Germany

New

The next generation gel documentation system with Blue/Green LED light. Technology developed in Japan, product designed and produced in Germany

FastGene® FAS-X

Made In Germany

Superior design

The exterior look of the FAS-X was completely redesigned. The high-quality white and modern surface gives it an elegant look in the laboratory. We are proud that our new stand-alone device is manufactured and assembled in Germany.

High-resolution touchscreen

The compact system is equipped with a high-resolution 13" full HD touchscreen. The device is very easy to operate via the display. The Blue/Green transilluminator is integrated in a push-to-open loading drawer to ensure absolute darkness and the best image quality without light contamination. The huge Blue/Green illumination area (21 cm x 26 cm) fits any gel size.

The FAS-X software impresses with its very simple and intuitive handling. Get perfect, publishable gel images in just a few taps on the high-resolution touchscreen.

Active cooling system

The built-in active cooling system allows to control the temperature in the FAS-X and to avoid overheating of the transilluminator. With only 7 cm, the Blue/Green transilluminator is extremely thin and weighs less than in previous models.

The software makes it easy for you

The software has been designed to make operating the device and communicating with the camera as easy as possible. The user-friendly interface is integrated in the touchscreen and allows recording the best gel formations with a few simple clicks. The software also includes a powerful editing function.

New

SPECIFICATIONS		
High-quality material	✓	Coated aluminium metal
Screen	✓	Inbuild 13.3" touchscreen with 1920 x 1080 resolution
Software	✓	Stand-alone system with integrated FAS-X imaging software
Camera	✓	20 MPixel (5472 x 3648 resolution), colour, digital zoom and adjustable exposure time (PRO and auto mode), CMOS sensor
Safe Blue/Green LED light	✓	Blue/Green light spectrum from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Huge transilluminator	✓	View area: 26 cm x 21 cm
White light sources	✓	White LED transilluminator, EPI room light
Connectivity	✓	LAN, 3x USB 3.0 slots
Image saving format	✓	JPEG, TIFF, PNG, BMP
Compact design	✓	Dimensions (H x D x W): 53.2 cm x 44.3 cm x 37.5 cm; Weight: 20 kg

Ordering information

Cat. No.	Product	Content
GP-FAS-X	FastGene® FAS-X	FAS-X Gel Documentation System with Blue/Green LED transilluminator, touchscreen with imaging software and high-resolution camera

FastGene® FAS-DIGI PRO

Made In Germany

- **Gel documentation with safe Blue/Green LED light**
- **Scientific grade camera**
- **Image software with comprehensive features for image acquisition**
- **Fully networkable**
- **Compatible with all common DNA dyes**

Touch the revolution

The FastGene® FAS-DIGI PRO is our powerful imaging system for the detection of DNA and RNA in agarose gels. Equipped with a light-sensitive 24 MPixel camera, the FAS-DIGI PRO is controlled completely by an innovative imaging software. With the live view mode, all camera settings, the exposure time, the lens' aperture, and digital zoom are displayed in real-time. The FAS-DIGI PRO is a fully networkable gel doc system allowing simple transfer of images when connected to a PC.

Check it out on YouTube

Blue/Green LED light for a safe detection of DNA and RNA

The FastGene® FAS-DIGI PRO is composed of a strong transilluminator equipped with the unique Blue/Green LED technology. The LEDs emit light at a wavelength from 470 nm to 520 nm without damaging nucleic acids. The Blue/Green LED light enables the detection of all common green dyes, such as MIDORI^{Green} or SYBR® Green, yellow dyes e.g. SYBR® Safe and red dyes, e.g. ethidium bromide or GelRed®.

Still destroying your DNA with UV light?
Try Blue/Green LED light!

The FAS-DIGI PRO also includes an innovative imaging software. Full camera control and focus adjustment allows you to capture gel images of the highest quality.

FastGene® FAS-DIGI PRO

Made In Germany

Camera for high quality agarose gel

The documentation of agarose gels with highest image quality can be obtained using a 24 MPixel camera with an immense APS-C CMOS sensor. The sensor produces no visible noise from ISO 100 all the way up to ISO 1600. Furthermore, the 24 MPixel allows the detection of lowest light signals in agarose gels. The exposure time of the sensor can be set from 1/4000 sec up to 30 sec. The 3x zoom (focal length of 18 mm to 55 mm) allows a perfect enlargement of the area of interest.

The camera is directly connected to the power supply adapter of the FAS-DIGI PRO. Replacing batteries is not necessary.

Huge and strong transilluminator

The imaging area of the transilluminator has a size of 26 cm x 21 cm, which allows the imaging of multiple agarose gels of various sizes. Additionally, the FAS-DIGI PRO comes with an amber shield, which can be attached with magnets inside the box. This makes cutting out DNA bands very easy.

Use the included amber shield to cut out DNA bands.

SPECIFICATIONS		
Safe Blue/Green LED light	✓	Blue/Green light spectrum from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Scientific grade camera	✓	24 MPixel (Resolution: 6000 x 4000), APS-C sensor, F/4-5.6 aperture, 18-55 mm zoom lens, 0.00025 to 30 seconds exposure time
High-quality material	✓	Coated aluminium metal
White light source	✓	White LED transilluminator: Documentation of protein gels
Imaging software	✓	NIPPON Genetics Camera Studio, Windows 10, Saved image format TIFF and JPEG
Huge transilluminator	✓	Illumination area: 26 cm x 21 cm
Integrated power supply	✓	100-240 V~, 50/60 Hz
Compact design	✓	Dimensions (H x D x W): 57 cm x 35 cm x 32.5 cm; Weight: 14 kg

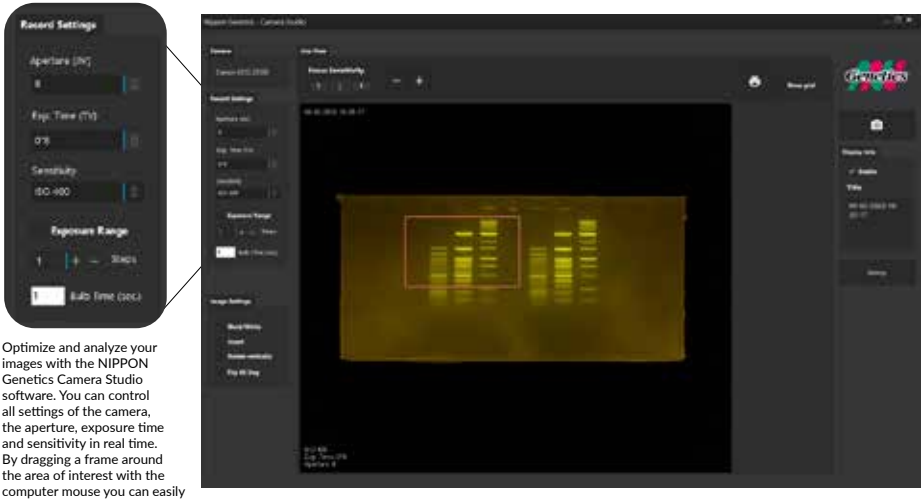
Ordering information

Cat. No.	Product	Content
GP-07LED	FastGene® FAS-DIGI PRO	LED imaging box, Blue/Green LED transilluminator, imaging software, high resolution camera, White LED transilluminator, Magnetic amber filter shield, Magnetic amber filter for the camera lens

FastGene® FAS-DIGI PRO - The Software

Easy-to-use control imaging software

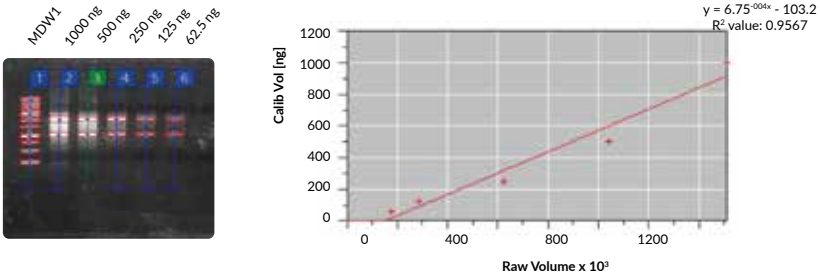
The FastGene® FAS-DIGI PRO comes with the intuitive NIPPON Genetics Camera Studio software. With this software you can control all necessary parameters of the camera to analyze and optimize any gel image. These four settings will provide the highest quality images your lab has ever seen for DNA gels: aperture, exposure time, sensitivity and focus. Mouse-driven control makes image optimization a click away! Images are saved as TIFF and JPEG format, and can be printed directly by a printer connected to your PC.



Optimize and analyze your images with the NIPPON Genetics Camera Studio software. You can control all settings of the camera, the aperture, exposure time and sensitivity in real time. By dragging a frame around the area of interest with the computer mouse you can easily zoom into your agarose gel.

Quantification of nucleic acids with the FAS-DIGI PRO

For the quantification of DNA or RNA in agarose gels, it is necessary that the light signals received by the camera are proportional to the DNA/RNA concentration. Usually, researchers are using a gel doc system with an integrated CCD camera for the quantification of their DNA/RNA signals. However, modern scientific grade CMOS cameras are so accurate that they can be used for the quantification of nucleic acids, too. The price tag of a CMOS camera is much lower than of a CCD camera. The FAS-DIGI PRO uses very modern CMOS cameras of the highest quality. Generated pictures can be quantified by using the Total LAB 1D software (not part of the NIPPON Genetics Camera Studio software).

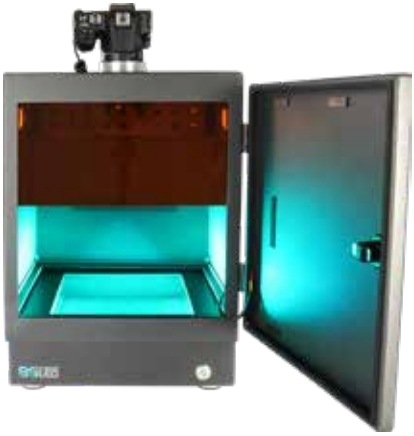


Quantification of RNA with the FAS-DIGI PRO using the Total LAB 1D software (Cat. No.: GP-QS1). A 1% agarose gel was stained with 3 µl of MIDORI^{Green} Xtra in 50 ml of agarose. The gel was loaded with MWD1P (5 µl), and human total RNA (Agilent Cat No.: 750500) in different concentrations (1000, 500, 250, 125, 62.5 ng). The CMOS sensor of the Canon scientific grade camera is able to generate pictures, which can be quantified by using the Total LAB 1D software. MIDORI^{Green} Xtra shows a low background and produces crystal clear bands. This stain is detected with a linear signal to noise ratio and is therefore suitable for quantification.

FastGene® FAS-DIGI PRO - The Accessories

Amber filter shield

The FastGene® FAS-DIGI PRO comes with an amber filter shield that can be used to excise DNA bands without having to wear amber filter goggles. The amber filter shield is positioned inside the box and held in place with magnets. When not in use, the amber filter shield can be stored on the inside of the door.



The amber filter shield enables a quick and easy excision of DNA.

Place the amber filter shield inside the door, when not in use.

The camera is also equipped with a magnetically attached amber filter to capture images of DNA bands

White light LED Illuminator

The documentation of protein gels and Petri dishes is possible with the white LED illuminator used inside the FastGene® FAS-DIGI PRO. The white light LED illuminator is powered by battery. The procedure is very simple: (1) Remove the amber filter shield, (2) remove the amber filter in front of the camera lens (3) place the illuminator in the central area and take your image.

Position the white LED illuminator in the central area and adjust the recording settings in the NIPPON Genetics Camera Studio software.

FastGene® FAS-DIGI Compact

- **Gel documentation with safe Blue/Green LED light**
- **Scientific grade camera**
- **Detection of red and green DNA dyes**
- **Large illuminated area**
- **Compact and easy to use stand alone system**

Strong Blue/Green LED transilluminator - for all common DNA dyes

The FastGene® FAS-DIGI Compact is our smaller sister model of the FAS-DIGI PRO. Its compact design is perfect for labs that need a powerful system but have limited bench-top space. The strong Blue/Green LED transilluminator was designed for ultra safe and ultra sensitive DNA/RNA detection. The FastGene® FAS-DIGI Compact can be used for all common red and green DNA dyes, without the harmful properties of UV light. You are able to excite ethidium bromide, GelRed®, MIDORI^{Green} or SYBR® Green with very high intensity. The inbuilt amber filter viewing window allows you to look at your illuminated gel and easily cut out bands for further applications.

The FAS-DIGI Compact comes with a huge Blue/ Green LED transillumianor (26 cm x 21 cm), giving you a large illuminated area for any gel size.

Ethidium bromide

MIDORI^{Green} Advance

MIDORI^{Green} Direct

FastGene® FAS-DIGI Compact

Made In Germany

The FAS-DIGI Compact is equipped with a high resolution scientific grade camera.

You can upgrade the FAS-DIGI Compact to the FAS-DIGI PRO by simply replacing the dark box.

High resolution scientific grade camera

Take gel pictures with the highest image quality using a 24 MPixel Canon EOS DSLR camera with a huge APS-C CMOS sensor. With the 3x zoom (focal length of 18 mm to 55 mm) you can easily enlarge the area of interest. The high resolution allows you to extract small gel image areas in best quality. Exposure times up to 30 sec enable you to detect even faint bands.

Simply upgrade to the PRO model

The FAS-DIGI Compact is the perfect gel documentation device for limited lab space. However, if you decide at one point to upgrade your system to the even more powerful FAS-DIGI PRO, the switch will be easily performed. All you need to do is replace the FAS-DIGI Compact dark box with the FAS-DIGI PRO dark box, that comes with an intuitive and easy to use imaging software.

SPECIFICATIONS		
Safe Blue/Green LED light	✓	Blue/Green light spectrum from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Scientific grade camera	✓	24 MPixel (Resolution: 6000 x 4000), APS-C sensor, F/4-5.6 aperture, 18-55 mm zoom lens, 0.00025 to 30 seconds exposure time
High-quality material	✓	Coated aluminium metal
Huge transilluminator	✓	Illumination area: 26 cm x 21 cm
Viewing window	✓	Amber filter window
Very compact design	✓	Dimensions (H x D x W): 50 cm x 35 cm x 32.5 cm; Weight: 7.4 kg
Upgradable	✓	Upgradable with the FAS-DIGI PRO dark box
Integrated power supply	✓	100-240 V~, 50/60 Hz

Ordering information

Cat. No.	Product	Content
GP-08LED	FastGene® FAS-DIGI Compact	LED imaging box with amber filter window, B/G transilluminator, high resolution camera

FastGene® FAS-BG LED BOX

- **Gel documentation with safe Blue/Green LED light**
- **Detection of red and green DNA dyes**
- **Stand-alone system with very compact footprint**
- **Documentation of protein gels, membranes and petri dishes**
- **High resolution camera with 8 MPixel**

One imaging system - multiple applications

The Blue/Green LED technology permits the detection of DNA with highest sensitivity and without harming your eyes, skin or your sample. With the white LED array you can image protein gels stained with coomassie or silver staining. The white LED epi-illumination allows the documentation of opaque surfaces such as petri dishes or membranes.

Two types of white light are used for documentation of protein gels, western blots or petri dishes.

Compact imaging system with Blue/Green LED

The FastGene® FAS-BG LED BOX comes with the advantages of the Blue/Green LED technology combined with a compact footprint. All red and green DNA dyes are easily detectable with this system.

The stand-alone system with a very compact footprint fits in every lab.

Ordering information

Cat. No.	Product	Content
GP-04LED	FastGene® FAS-BG LED BOX	Gel doc system, amber filter shield and black velvet sheet

FastGene® FAS-BG LED BOX

Customer Testimonial

"We use the FAS-BG LED BOX for half a year and are very satisfied. Our main application is the study of DNA in agarose gels (without ethidium bromide), which is performed very well by the box. The box is small, easy to handle and produces high quality images without using harmful UV radiation.."

C. Münch
Institute of Biochemistry II,
Goethe University Frankfurt, Germany

★★★★★

Easy connection to a monitor or PC

The FAS-BG LED BOX is equipped with a 5" touchscreen display. View your images in highest quality and navigate the system via the intuitive and easy-to-use touch interface. The FAS-BG LED BOX contains two USB-ports (one front, one back) and one HDMI-port. You can easily connect an external (touch) monitor via the HDMI-port and view your gel images on a larger screen.

The large touch screen display and inbuild software allow easy navigation and image capturing. View gel images on a larger external (touch) monitor via the HDMI-port.

Excise your DNA fragments the easy way

With the FastGene® FAS-BG LED BOX and our MIDORI[Green] dyes it is simple to excise your DNA fragments from gels. Just attach the included amber filter shield to the lid. You can also obtain perfect signals with ethidium bromide or other red DNA dyes.

It is convenient to cut out DNA bands by attaching the amber filter shield to the lid of the FAS-BG LED BOX.

SPECIFICATIONS		
Safe Blue/Green LED light	✓	Blue/Green light spectrum from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Easy image capture	✓	CMOS 8 MPixel camera | Exposure time: 21 exposure steps (0.2 - 2 sec) Image types: TIFF, JPEG and PNG | Image Storage: USB 2.0
Intuitive handling	✓	5" color LCR touch panel with inbuilt control software
2 White light sources	✓	Epi white light for petri dishes and membranes White back light for protein gels
Compact footprint	✓	Dimensions (H x D x W): 23 cm x 25.4 cm x 20.7 cm Illuminated area: 16 cm x 11.5 cm; Weight: 3.2 kg
Connectivity	✓	2x USB port (1x front, 1x back) | 1x HDMI port | Thermal printer support

FastGene® FAS-Nano

- **Gel documentation with safe Blue/Green LED light**
- **Detection of red and green DNA dyes**
- **Compact footprint and light weight**
- **Image acquisition with smart device**
- **Amber shield included**

Take gel images with your phone

The FastGene® FAS-Nano LED system is the most compact gel illumination system on the market. Ideally suited for tight spaces on a bench-top, the system operates both as an illuminator and, if equipped with a smartphone or tablet, a documentation system that captures an image of your gel.

The first portable gel imaging system!

The perfect personal illuminator

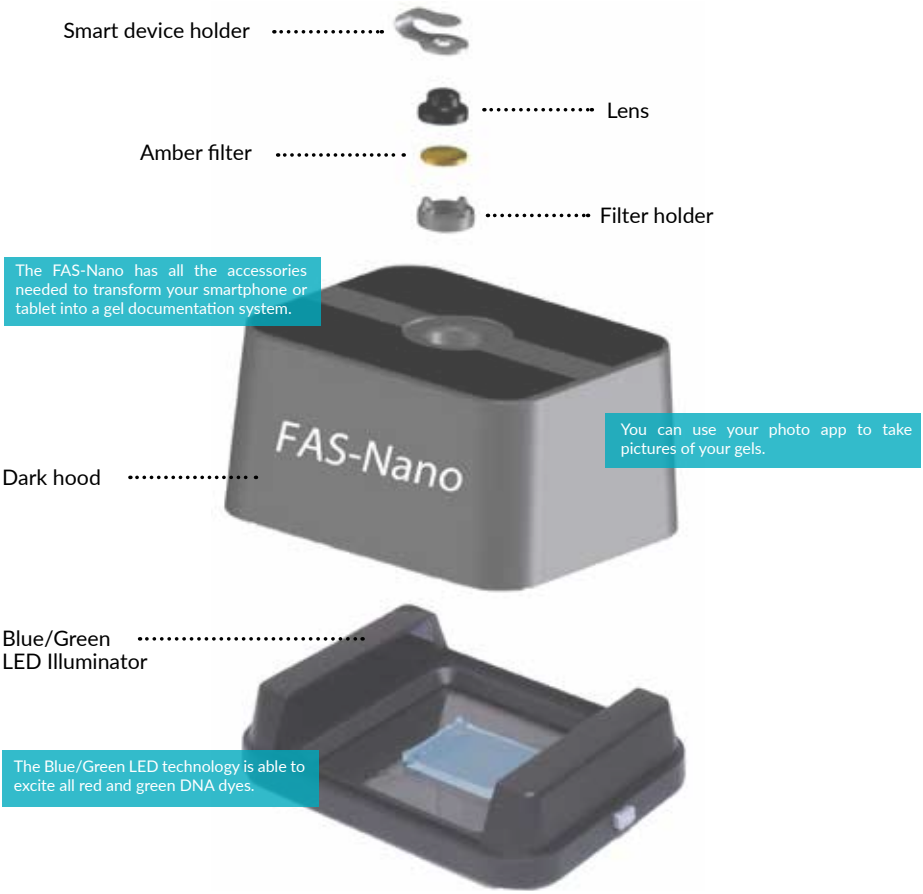
Its very small footprint and light weight make the FastGene® FAS-Nano a perfect personal illuminator. An array of Blue/Green LEDs positioned around the periphery of the glass plate provide excitation light for both red and green DNA dyes without UV light damage.

Combine your smartphone or tablet with the FastGene® FAS-Nano and turn the illuminator to a gel documentation system. The recording of the gel image is easily done by taking a picture.

Ordering information

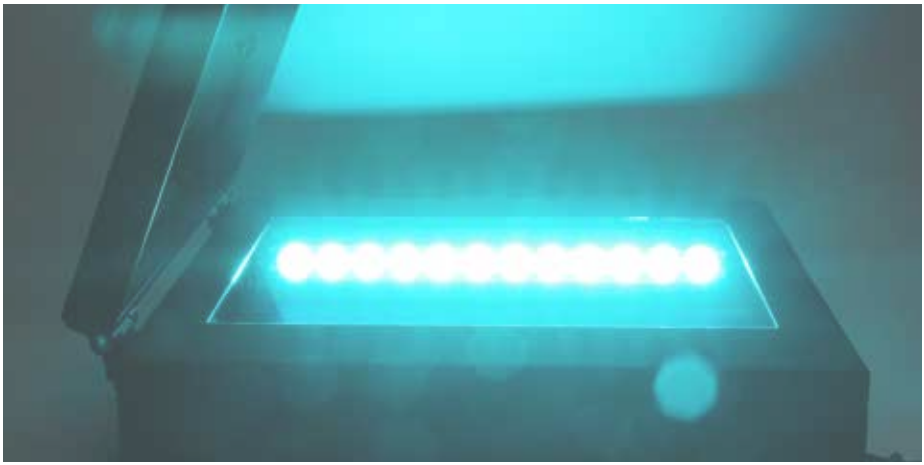
Cat. No.	Product	Content
GP-06LED	FastGene® FAS-Nano	Illuminator, amber shield, dark hood, adaptor for mobile camera

FastGene® FAS-Nano



SPECIFICATIONS		
Safe Blue/Green LED light	✔	Blue/Green light spectrum from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Smartphone lens	✔	Ultrawide angle lens
Compact footprint	✔	Dimensions (H x D x W): 12.8 cm x 21.6 cm x 16.8 cm Illuminated area: 10 cm x 10 cm; Weight: 1.2 kg
Accessory	✔	Ultrawide angle lens

FastGene® Transilluminators



- **Very high life expectancy**
- **Amber filter / UV filter included**
- **Safe Blue/Green LED or Blue LED light**
- **Compatible with MIDORI[Green] dyes**
- **Easy excision of DNA bands**

Blue/Green LED Transilluminators

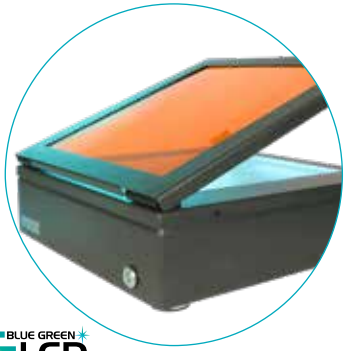
The Blue/Green LED Transilluminators enable safe detection of DNA and RNA in agarose gels. They emit light from 470 nm to 520 nm and are compatible with all common green and red DNA dyes, such as MIDORI[Green] and ethidium bromide.

Blue LED Transilluminators

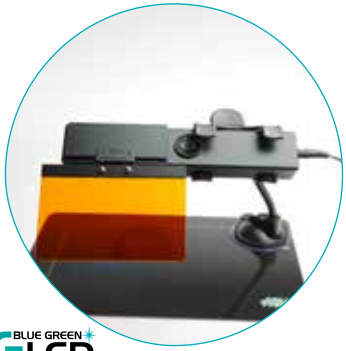
Our Blue LED Transilluminators also enable a safe and damage-free detection of nucleic acids. They produce light with a narrow emission peak at ~470 nm, effective for the visualisation of green DNA stains such as MIDORI[Green] and SYBR®. Blue LEDs are not compatible for the detection of red DNA dyes.

Cat. No.	FG-09WS	FG-11	FG-12	FG-05	FG-06	FG-300
Light source	Blue/Green LED	Blue/Green LED	Blue LED (470 nm) White light LED	Blue LED (470 nm)	Blue LED (470 nm)	UV light (302 nm)
Compatible DNA dyes	Green and red dyes	Green and red dyes	Green dyes & proteins	Green dyes	Green dyes	Red and green dyes
Imaging area	21 cm x 26 cm	n.a.	18 cm x 12 cm	12 cm x 7 cm	20 cm x 16 cm	26 cm x 21 cm
Dimensions (H x D x W)	12 cm x 32 cm x 32 cm	2.5 cm x 19 cm x 3.9 cm	30 cm x 18.5 cm x 22 cm	3 cm x 21 cm x 21 cm	8 cm x 28 cm x 34 cm	8 cm x 28 cm x 34 cm
Weight	4.2 kg	0.17 kg	2.4 kg	2.1 kg	3 kg	4.3 kg
Power	AC adapter, 2 A	AC adapter, 18 V / 1 A	AC adapter 24 V, 1 A	24 V, 1.67 A	24 V, 1.67 A	48 W
Filter	Amber filter (~520 nm)	Amber filter (~520 nm)	Amber filter (~520 nm)	Amber filter (~520 nm)	Amber filter (~520 nm)	UV blocking shield

FastGene® Transilluminators

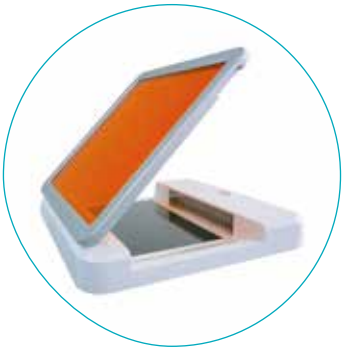


FG-09WS
FastGene® Blue/Green LED Transilluminator DE

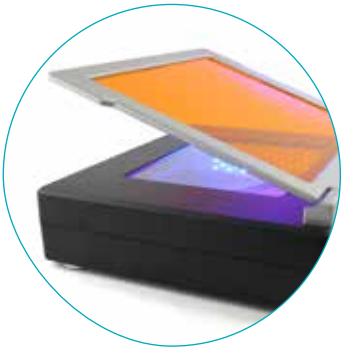


FG-11
FastGene® Blue/Green LED Flashlight

FG-12
FastGene® Blue/White LED Tab



FG-05
FastGene® Blue LED Illuminator



FG-06
FastGene® Blue LED Transilluminator

FG-300
FastGene® UV Transilluminator

FastGene® Blue/Green LED Transilluminator DE

Made
In
Germany

New

Say goodbye to UV light

The FastGene® Blue/Green LED Transilluminator DE is a Blue/Green LED-based transilluminator for a safe detection of DNA in agarose gels. The Blue/Green LEDs emit light from 470 nm to 520 nm, enabling the excitation of all common green and red DNA dyes, such as the MIDORI[Green] dyes and ethidium bromide.

- **No UV light and no DNA degradation**
- **Huge illuminated area**
- **Excitation of all common green and red DNA dyes**

Get your DNA the easy way

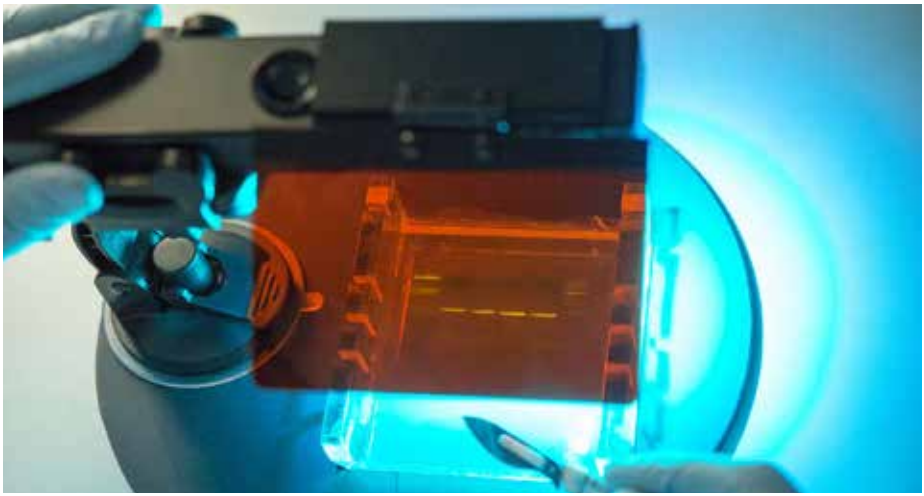
With the FastGene® Blue/Green LED Transilluminator DE it becomes extremely simple to cut your DNA fragment out of gels. You don't need to wear protective eyewear, or worry about DNA degradation.

SPECIFICATIONS		
Huge illuminated area	✓	Dimensions (H x D x W): 12 cm x 32 cm x 32 cm | Illuminated area: 26 cm x 21 cm Weight: 4.2 kg
Safe Blue/Green LED light	✓	Spectrum of light with Blue/Green light from 470 nm to 520 nm No risk of damaging DNA or harming your skin and eyes
Amber filter included	✓	Amber shield for a clear detection of DNA/RNA bands

Ordering information

Cat. No.	Product
FG-09WS	FastGene® Blue/Green LED Transilluminator DE

FastGene® Blue/Green LED Flashlight



Blue/Green LED light from the top

Visualise your gel or other fluorescent objects under the Blue/Green LED flashlight. It is equipped with a Blue/Green LED light source for safe detection of all red and green DNA dyes. The Blue/Green LED Flashlight has all the benefits you would expect from using LED light. It is harmless to your skin, eyes and DNA samples, but provides signal intensity previously only seen with research quality UV transilluminators.

- **Portable transilluminator**
- **Safe Blue/Green LED light**
- **Detection of fluorescent proteins in living organisms**

Detection of fluorescent proteins in plants and animals.

Stand and cutting board are included

The Blue/Green LED Flashlight comes with a stand, cutting board and an attached amber filter shield so you can view and cut out your DNA bands. Also, you can easily take images of your gel with a smart device. Whether you need to visualise your DNA in a gel or GFP expression post transfection, this flashlight illuminator will become an invaluable lab tool!

Detect DNA everywhere

The Blue/Green LED flashlight was originally designed to visualise DNA in agarose gels. However, the flashlight can also be used to detect fluorescent protein expression (e.g. GFP, YFP) in living plants, animals and bacteria. Furthermore, the relative expression level of fluorescent proteins can also be estimated by the brightness of the fluorescence.

Ordering Information

Cat. No.	Product
FG-11	FastGene® Blue/Green LED Flashlight (stand & cutting board are included)

FastGene® Blue/White LED Tab

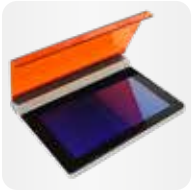
Portable DNA detection

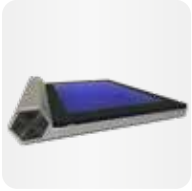
The FastGene® Blue/White LED Tab is a portable easy-to-use transilluminator in tablet format. It is equipped with Blue LEDs, which produce light with a narrow emission peak at 470 nm. This wavelength leads to an effective visualisation of green nucleic acid stains such as MIDORI^{Green} and SYBR® dyes without destroying your DNA.

Ideal for protein gels

White LEDs are also included in the FastGene® Blue/White LED Tab. This allows easy documentation of protein gels. A white plate is used to diffuse the white light, creating a homogeneous illumination. The illuminated area has the same size as the blue LED light.

- **No damage of your DNA**
- **Easy detection of green DNA stains**
- **Portable and easy handling**
- **Documentation of protein gels**





The FastGene® Blue/White LED Tab comes with a large illuminated area and contains a Blue LED and a White LED light source.

Ordering information

Cat. No.	Product
FG-12	FastGene® Blue/White LED Tab

FastGene® Blue/White LED Tab

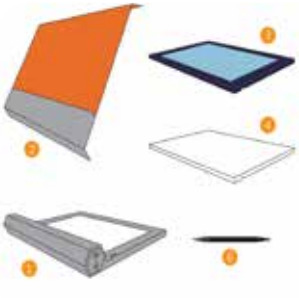
Brightness according to your needs

You can adjust the brightness of the FastGene® Blue/White LED Tab in both modes, the Blue LED mode and the White LED mode. Just press the brightness control button and choose one of the three possible brightness levels.

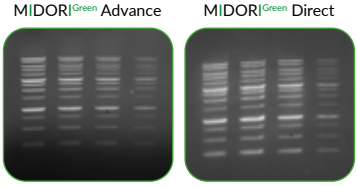
Adjust the brightness to your needs with 3 brightness levels.

Best performance with MIDORI^{Green} dyes

The FastGene® Blue/White LED Tab is ideal for the detection and documentation of green DNA dyes. Get fantastic DNA signals with the MIDORI^{Green} dyes.



1. Blue/White LED Tab
2. Amber shield
3. Blue uniform plate
4. White uniform plate
5. Power cord
6. Gel cutting knife



DNA stained with MIDORI^{Green} Advance and MIDORI^{Green} Direct detected with the Blue/White LED tab.

SPECIFICATIONS		
Tablet format	✓	Dimensions (H x D x W): 30 cm x 18.5 cm x 22 cm | Illuminated area: 18 cm x 21 cm Weight: 2.4 kg
Safe Blue LED light	✓	Blue light with a wavelength of 470 nm No risk of damaging DNA or harming your skin and eyes
White light source	✓	White LEDs for the documentation of protein gels
3 brightness levels	✓	Adjust the brightness to your needs with 3 different brightness levels

Are you looking for a transilluminator that is perfect for your application?
We can help you! Just get in touch with us!

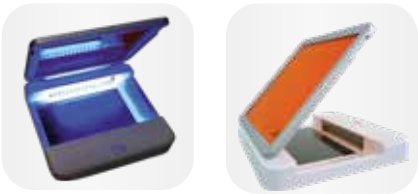
+49 2421 554960
info@nippongenetics.de

www.nippongenetics.eu

FastGene® Blue LED (Trans-)Illuminators

A better alternative to UV light

The FastGene® LED Illuminator and the FastGene® LED Transilluminator are using Blue LEDs. These LEDs produce light with a narrow emission peak centered at 470 nm, effective for the visualisation of green nucleic acid stains such as MIDORI[Green] and SYBR® dyes.

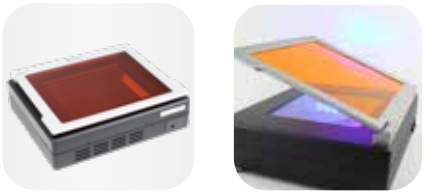


The FastGene® LED Illuminator (Cat. No. FG-05).

Safe for your DNA and your health

The biggest advantage for using these LED instruments is the fact that the light does not affect skin and eyes and most importantly, it does not damage your sample DNA. This is especially important if the excised DNA fragment will be used for cloning experiments. All instruments come with an amber filter, which allows the examination of separated DNA without any goggles.

Perfect results with MIDORI[Green] Xtra



The FastGene® Blue LED Transilluminator (Cat. No. FG-06)

Ordering Information

Cat. No.	Product
FG-05	FastGene® Blue LED Illuminator
FG-06	FastGene® Blue LED Transilluminator

FastGene® UV Transilluminator

High quality UV light table

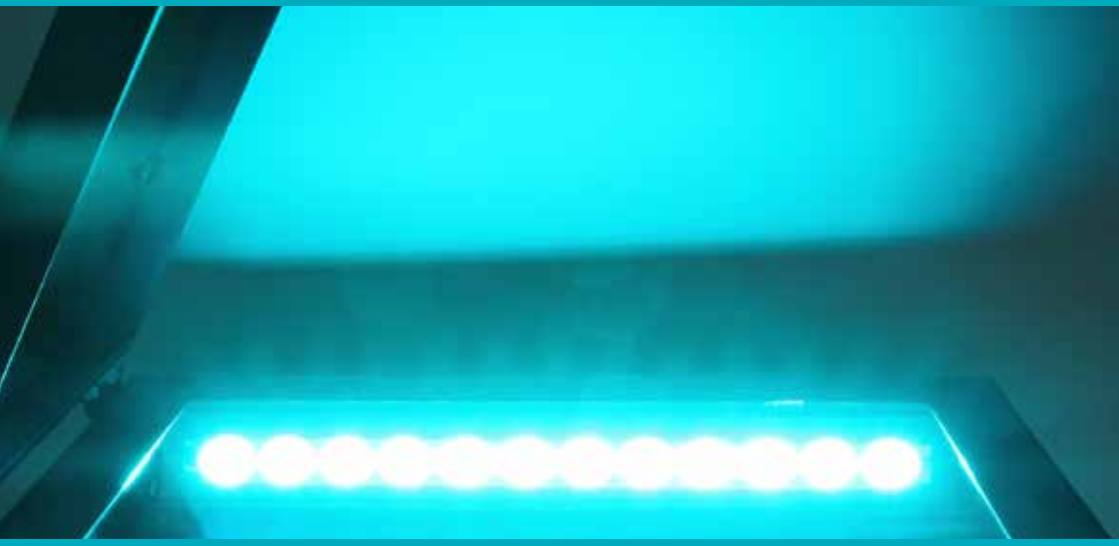
The achievable sensitivity of DNA detection, stained with ethidium bromide, is strongly dependent on the quality of the UV lamps and filter material. High quality UV tables show almost no visible light. The quality of the UV light source and of the filter can be easily tested: UV light is invisible to the human eye. If the position of the UV lamps is easily detected, then the quality of the light bulbs and filter are inferior. The FastGene® UV Transilluminator passes this test without a problem. Furthermore, the FastGene® UV Transilluminator includes a specifically manufactured filter system and shows a very effective protection against harmful UV radiation.

UV filter with 0.01% UV transmission!

The FastGene® UV Transilluminator.

Ordering Information

Cat. No.	Product
FG-300	FastGene® UV Transilluminator



Talk to the experts and get a product demonstration

Finding the right gel doc system or transilluminator can be difficult. We can help you! Simply arrange an appointment with us and enjoy a product demonstration.

+49 2421 554960
info@nippongenetics.de

www.nippongenetics.eu

LAB INSTRUMENTS

FastGene® qFYR

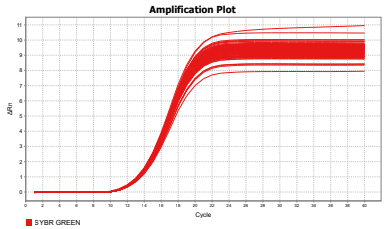
Real-Time PCR System

New

- **96 well block with gradient function**
- **Rapid heating and cooling rates**
- **Multiplex qPCR with 4 channels**
- **Excellent resolution**
- **Intuitive software including high resolution melt analysis**
- **For expression analysis, genotyping, pathogen detection and many more**

Highest precision qPCR

The FastGene® qFYR is a highest precision instrument for performing quantitative polymerase chain reaction (qPCR) experiments. qPCR is a well-established method for the sensitive detection and quantification of nucleic acids. During a measurement, the target DNA or RNA sequence is amplified in presence of an intercalating dye or fluorescent reporter and a cycle-dependent increase of a fluorescent signal is detected in real-time.



Typical real-time fluorescence based amplification plots, recorded on the FastGene® qFYR.

Ordering information

Cat. No.	Product
FG-QPTC01	FastGene® qFYR Real-Time qPCR Cycler

FastGene® qFYR

Real-Time PCR System

Superior thermal cycler

The FastGene® qFYR delivers excellent temperature control, temperature precision (± 0.2°C) and uniformity (± 0.2°C) over the entire 96-well plate. The unique hollowed out thermal block design reduces its overall weight and ensures rapid heating and cooling rates (up to 6°C per second) for fast qPCR protocols. The system also uses state-of-the-art Peltier components for highest reaction quality and performance stability.

The thermal block of the FastGene® qFYR has a unique, hollowed out structure, allowing very fast heating and cooling rates for reliable and consistent qPCR results.

Four high performance LED channels

Due to the small distance between the scanning head and the plate, the FastGene® qFYR has an outstanding level of sensitivity and virtually no cross talk between the individual wells. Four different color channels are able to excite all commonly used qPCR dyes in a single plate scan (8 sec). The double FAM/SYBR channel allows to perform melt curve and high resolution melt experiments in fast dual mode, which halves the measuring time in this channel.

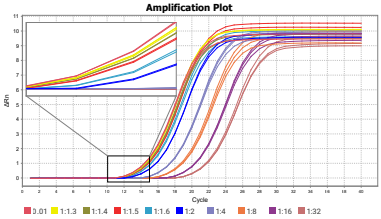
EMPTY	ROX / Texas Red Ex. 560 - 580 Em. 585 - 626	FAM /SYBR Ex. 455 - 485 Em. 510 - 530
VIC / HEX / TET / JOE Ex. 520 - 540 Em. 554 - 576	CY5 / Quasar 670 Ex. 630 - 650 Em. 665 - 715	FAM /SYBR Ex. 455 - 485 Em. 510 - 530

The scanning head of the FastGene® qFYR contains four different color channels with a double FAM/SYBR channel.

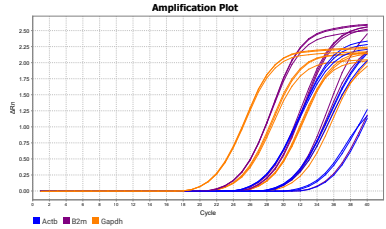
New

Outstanding performance for high quality results

No matter how many samples are used with the FastGene® qFYR, it delivers reliable and consistent results over the entire 96-well area. The installed superior quality optics and precise scanning heads eliminate cross-talk between wells and allow time-resolved signal detection of various fluorescent channels in a single well.



The high sensitivity of the FastGene® qFYR allows to discriminate concentration differences down to 1:1.3-fold dilutions.



With the multiplex function, the FastGene® qFYR can discriminate up to four different targets in a single reaction well.

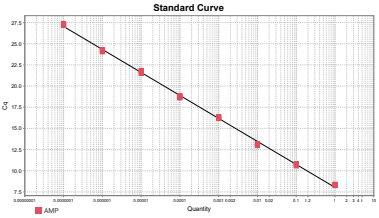
FastGene® qFYR

Real-Time PCR System

Many powerful real-time applications fit into the compact device (H x D x W: 37 cm x 52 cm x 35 cm). The clean and timeless black & white design of the FastGene® qFYR enriches every laboratory.

The software has it all

The operating software impresses with its particularly simple and intuitive operation. The menu is clearly structured and intuitively arranged. It responds to the needs of the user for different experimental setups and personalized settings can be easily adjusted. Integrated analysis algorithms allow many steps, such as baseline subtraction or Cq value threshold calculation to be performed automatically. Absolute and relative quantification of nucleic acids can also be automated.



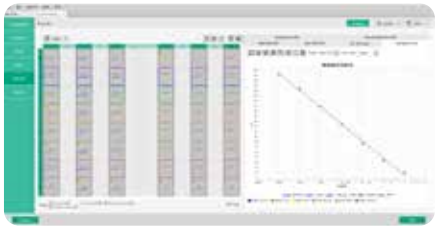
Plasmid DNA amplification shows an optimal linearity over 8 orders of magnitude in a 10-fold dilution series from 1 ng to 1x10^{-6} ng, demonstrating the high dynamic range of the system.

The FastGene® qFYR is compatible with various white and clear low-profile (0.1 ml) tubes and plates.

The device for multiple applications

The FastGene® qFYR was developed to meet highest laboratory standards and deliver reliable performances for various real-time qPCR applications:

- Gene expression analysis
- Absolute and relative quantification
- Endpoint qualitative analysis
- Genotyping
- Gene mutation analysis
- Pathogen detection
- GMO detection
- Protein stability screening
- miRNA analysis
- Melting curve analysis



Screenshot FastGene® qFYR software: The software shines with a clear user interface combined with highly customizable settings.

Get the right consumables for qFYR

The FastGene® qFYR is compatible with low-profile (0.1 ml) PCR tubes/8-well PCR tube strips with transparent, flat tops as well as non-skirted or half-skirted low profile 96 well PCR reaction plates:

- low-profile (0.1 ml) clear/white PCR thin-walled single tube, flat-topped transparent optical tube cover.
- low-profile (0.1 ml) clear/white PCR thin-walled 8-tube, flat-top transparent optical tube cover.
- low-profile (0.1 ml) clear/white PCR thin-walled 96-well plate with no hemline or hemline.

It is not compatible with high-profile (0.2 ml) PCR reaction tube and convex tube covers.

The FastGene® qFYR is an open platform device and works with dyes from different manufacturers. But, we recommend our FastGene® IC Green and Probe mixes as the ideal reagents for the FastGene® qFYR.

New

FastGene® qFYR

Real-Time PCR System

SPECIFICATIONS					
Thermal cycler			**Optical detection**		
Block capacity	✔	96	Excitation source	✔	4 long-life, high-performance LEDs
Sample volume	✔	1-50 µl	Detector	✔	Highly sensitive PMT (photo multiplier tube) with Fresnel lens
Heating/cooling method	✔	Peltier	Scanning principle	✔	Time-resolved scanning technology
Maximum ramp rate	✔	6 °C/s (thermal block) 4 °C/s (sample)	Detector position	✔	Top of the block
Temperature setting range	✔	4-100 °C	Excitation/ detection range	✔	455-650 nm / 510-715 nm
Heated lid	✔	Electronic automatic lid	Fluorescence channel	✔	4 + 1 channels
Temperature accuracy	✔	± 0.2 °C	Detection sensitivity	✔	1 copy of the target sequence
Temperature uniformity	✔	± 0.2 °C	System sensitivity	✔	1.33-fold target difference detection
Gradient zone	✔	12 columns	Dynamic range	✔	10 orders of magnitude
Gradient range	✔	1-36 °C	Dye compatibility	✔	FAM/SYBR Green, VIC/JOE/HEX/TET, JUN, ROX/Texas Red, Mustang Purple, Cy5/LIZ

New

Get your personal demonstration of the powerful FastGene® qFYR!

Get in touch with us and you will receive a complete product demonstration, or a demonstration adjusted to your specific needs!

+49 2421 554960

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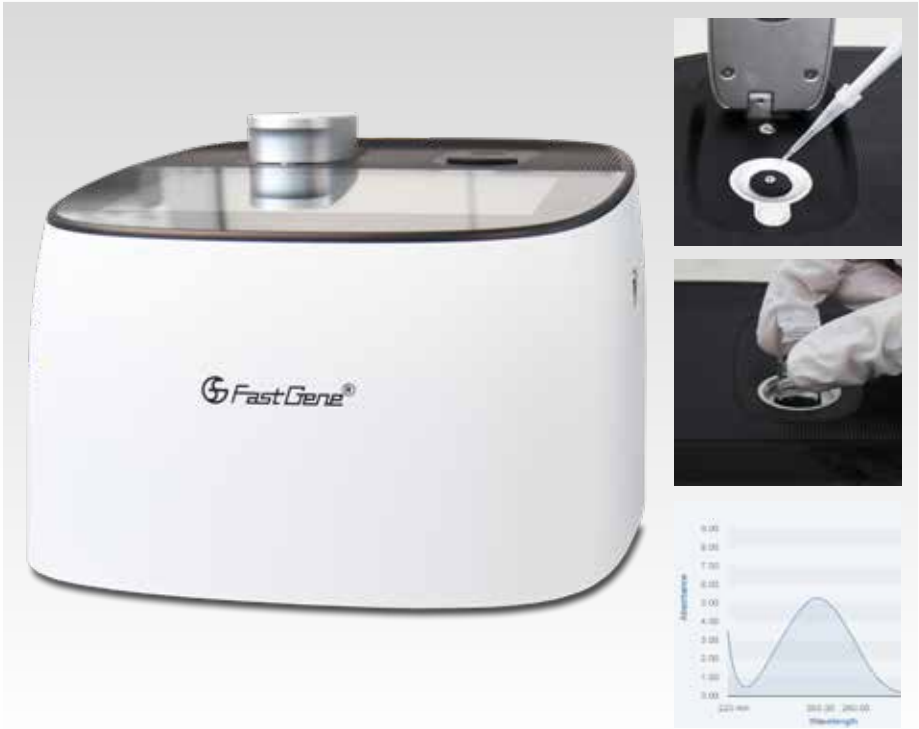
FastGene® NanoSpec Photometer

Powerful, reliable, intuitive



- **Best performance**
  Microvolume drop and cuvette reader
- **Powerful**
  Full analysis (190 - 850 nm)
- **Highest reliability**
  20+ measurement modes
- **Convenient usage**
  Simple and intuitive menu
- **Cost-saving**
  Affordable stand-alone device

The all-round UV-Vis spectrophotometer

The FastGene® NanoSpec is a powerful, all-round UV-Vis spectrophotometer characterised by highest user-friendliness.

The integration of a microvolume drop reader and a cuvette reader enable the use of small as well as large sample volumes.

A high-end full spectrum analysis (190 - 850 nm) and over 20 preset measuring modes allow fast and easy sample analysis.

Versatile applications include quantitative measurements of nucleic acids, proteins, protein assays or bacterial cultures.

Easy performance of the FastGene® NanoSpec is ensured by an integrated control unit with a simple to use software, navigated by a glove-compatible touch-screen.

Ordering information

Cat. No.	Product
FG-NP01	FastGene® NanoSpec Photometer

FastGene® NanoSpec Photometer

Powerful, reliable, intuitive

SPECIFICATIONS		
Light source	✔	Xenon Flash Lamp
Wave length spectrum	✔	190 - 850 nm
Measurement time	✔	< 8 Sec
Spectral Resolution	✔	1.0 nm (FWHM at Hg 253.7 nm)
Minimum Sample Size	✔	1 µL (microvolume mode)
Cuvette Center Height	✔	8.5 mm
Connectivity, Data storage	✔	4 x USB Ports, Ethernet, RS-232, 32 GB Internal storage
Integrated power supply	✔	100-240V, 4 A (50/60 Hz) automatic voltage sense, standard IEC Inlet plug
Display	✔	7-inch widescreen 1200 x 800 HD colour touch display
Footprint (D x W), Weight	✔	29 cm x 21.6 cm, 3.0 kg

Testimonial from our R&D

"The FastGene® NanoSpec is simple to use, thanks to its large touch screen. It has an intuitive menu that allows for quick measurements of the concentration of DNA, RNA, or proteins. In my everyday laboratory work I really appreciate the FastGene® NanoSpec for its ability to swiftly switch between microvolume and cuvette measurements."

Kerstin Rahn
Research Scientist
NIPPON Genetics EUROPE

★★★★★

The light weight of the FastGene® NanoSpec combinded with a small footprint of roughly a DIN A4 page size, make it a compact and uncomplicated yet powerful stand-alone device, even with limited benchtop space.

FastGene® NanoSpec Photometer

Powerful, reliable, intuitive

Two sources - one instrument

The FastGene® NanoSpec comes with a microvolume drop reader and a cuvette reader. You have the possibility to easily measure smallest sample quantities or large sample quantities.

Two sources: microvolume (µL) drop reader and cuvette reader. FastGene® NanoSpec comes with both reading modes so that you can choose what to use.

Intuitive and easy to use software

The software of the FastGene® NanoSpec was designed having the user in mind. The programs are easy to identify and straight-forward to use.

The device software comprises over 20 preset measurement modes organized in distinct tabs for versatile applications. The creation of new and personalized programs is easy and self-explanatory.

Nucleic Acids
The Nucleic Acid tab allows you to choose the measurement mode for different types of DNA and RNA. A customized Nucleic Acid measurement mode can also be applied.

Protein UV
The Protein UV tab supports 8 modes at 280 nm with different measurement factors or customizable input of extinction coefficients.

Protein Assay
The Protein Assay tab allows quantification of protein concentration at a specific wavelegth, after staining with colorimetric reagents. The protein concentration is determined using a standard curve.

More
The More Application tab supports various measurement modes used in general-purpose UV-Vis spectrophotometry.

Ordering information

Cat. No.	Product
FG-NP01	FastGene® NanoSpec Photometer

Talk to the experts and get a free product demonstration

Finding the perfect Spectrophotometer can be difficult. We can help you!
Just arrange an appointment with us and get a product demonstration.

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FastGene® NanoView Photometer

Compact, easy to use, affordable

- **Best performance**
  Microvolume drop and cuvette reader
- **Specialist**
  For DNA, RNA, Proteins and OD600
- **Convenient User Interface**
  10 preset measurement modes
- **Smart**
  Compact, silent and easy to use
- **Cost-saving**
  Affordable stand-alone device

Drop reader or cuvette reader - Why not both in one device?
Both measurement modes are smartly integrated under one lid and allow you to take precise measurements of DNA, RNA, protein or OD600.

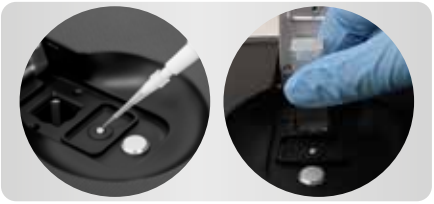
The compact specialist

The FastGene® NanoView is our smart and compact specialist photometer designed for precise applications.

The microvolume drop reader and cuvette reader are both integrated under one lid making the FastGene® NanoView ultra-small, silent and an absolute lightweight.

Ten preset modes ensure easy quantitative analysis of nucleic acids (260 nm), proteins (280 nm) and OD600 cuvette measurements.

Easy performance of the FastGene® NanoView is ensured by an integrated control unit with a simple to use software, navigated by a glove-compatible touch-screen.



FastGene® NanoView Photometer

Compact, easy to use, affordable

Convenient and optimized user interface

The software UI of the FastGene® NanoView was designed for ease of use with large and self-explanatory icons.

The specialist device comes with 10 preset measurement modes enableing convenient DNA, RNA, protein or OD600 analysis.

Main Menu tab composition
The main menu enables easy navigation through distinct measurement modes with intuitive icons.

Keeping it clean? Easy!
Not only the software is easy to operate. The microvolume drop reader is quickly cleaned with a dust-free laboratory tissue, also between multiple sample measurements, for effortless device maintenence.

Favorites Screen
The preferred and often used measurement modes can be stored in the Favorites tap for fast navigation and convenient use.

SPECIFICATION		
Light source	✔	LEDs
Wave lengths	✔	260 nm, 280 nm / 600 nm (Cuvette) / 360 nm (Baseline)
Measurement time	✔	< 10 Sec
Minimum Sample Size	✔	2 µL
Cuvette Center Height	✔	15 mm
Connectivity, Data storage	✔	2 x USB ports, USB-B, RS-232, 8 GB internal storage
Integrated power supply	✔	100-240V, 4 A (50/60 Hz) automatic voltage sense, standard IEC Inlet plug
Display	✔	4.3-inch 480 x 272 colour touch display
Footprint (D x W), Weight	✔	19 cm x 14.5 cm, 1.4 kg

Ordering information

Cat. No.	Product
FG-NP02	FastGene® NanoView Photometer

FastGene® Ultra Cycler

Efficient, intuitive, smart

- **Very fast ramp rates for a quick PCR**
- **96-well PCR instrument with gradient function**
- **Touchscreen with a very easy-to-use software**
- **Compatible with most PCR tubes and 96-well microplates**

Simple and precise gradient PCR

A thermal gradient of up to 24°C can be precisely generated in the FastGene® Ultra Cycler. The temperature of each well is stable and reliably repeatable from cycle to cycle. The fully adjustable heated lid is compatible with a wide range of 0.2 ml PCR tubes (standard and low profile) and 96-well PCR microplates (fully-skirted, semi-skirted, and non-skirted). With a huge touchscreen interface and simple programming, this system is convenient and easy-to-use. As a small and robust device, the FastGene® Ultra Cycler is perfect for any lab environment by providing years of reliable amplification!

Ordering information

Cat. No.	Product
FG-TC01	Gradient UltraCycler PCR Thermocycler with touchscreen

FastGene® Ultra Cycler

Efficient, intuitive, smart

SPECIFICATIONS		
Gradient	✔	12 columns with 24°C gradient range
High temperature range, accuracy and resolution	✔	Temperature range: 4°C - 99°C | Temperature accuracy: ± 0.25°C Temperature resolution: 0.1°C increments
Very fast ramp rates	✔	Heating rate: 7°C / per second Cooling rate: 5°C / per second
Compatible	✔	0.2 ml tubes or strip tubes with flat or domed caps 96- well high or low skirted plates with strip caps, adhesive seal
Condensation control	✔	Heated lid with automatically applied pressure
Heated lid	✔	Heated lid with a temperature range of 60 °C - 115°C
Compact design	✔	Dimensions (H x D x W): 19 cm x 28.5 cm x 18 cm Weight: 5.5 kg
Integrated power supply	✔	100-240V, 4 A (50/60 Hz) automatic voltage sense, standard IEC Inlet plug
Huge touchscreen	✔	7-inch widescreen colour touch display

Customer Testimonial

"We own a Nippon FastGene® Ultra Cycler since December 2017. The Cycler is used every day. So far, the device works very reliable. It is relatively small, very quiet and has very short run times, because of fast heating and fast cooling of the samples. The handling and programming of the cycler is very simple with a clear menu navigation. Everyone can save own programs with a personal avatar"

Researcher
Institute of Molecular Botany,
University Ulm, Germany

★★★★★

FastGene® Ultra Cycler

The gradient advantage

The gradient function allows you to optimise your reactions. Discover the best annealing temperature over a range of 24°C. The block system is designed for the use of 96 individual PCR tubes (0.2 ml), 12 PCR 8-well strips (0.2 ml) or 96-well PCR plates (0.2 ml). The UltraCycler combines the latest electronics and Peltier technology with an remarkably high operating comfort.

Quickstart with Albert

Albert enables the user to configure easy to moderate complexity profiles in just a few moments. Every step of a routine PCR is available (even a 1-Step RT-PCR can be performed.

Touchscreen graphical user interface

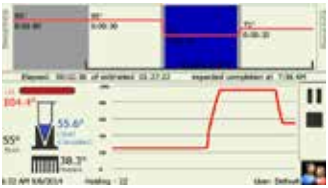
A high performance graphical processor with a large 7 inch, vivid colour touchscreen display allows an easy run setup and monitoring. The powerful yet intuitive software makes the creation of even the most complex thermal profiles a child's play.

Heated lid evaporation control

The FastGene® Ultra Cycler employs an applied pressure heated lid design to keep the air contained within the tube hotter than the reaction volume. This causes any evaporation to condense back into the cooler reaction liquid, thereby eliminating the need for an oil or wax condensation overlay.

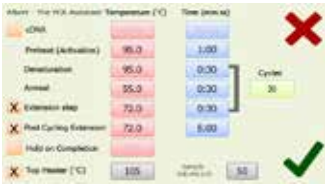
USB connectivity

A front USB port allows fast and easy file transfer. This enables sharing of thermal profiles between instruments and users. The use of an USB mouse is also supported.



Watch your PCR
The software allows you to watch all steps during the PCR cycle with precise temperature information.

Exact temperatures
The temperature gradient selected with the Albert PCR assistant is used to calculate the exact temperature in each lane. Hence, a better determination of the optimal temperature is possible.



Genious configuration
The Albert PCR assistant enables the user to configure easy to moderate complexity profiles in just a few moments. All the thermal steps which occur in a typical profile are included and the parameters can be adjusted in just a few clicks.

User accounts section
The software allows to create up to 99 user profiles each with dedicated file storage directory and personalized Icon. When a user is selected, thermal profiles will be loaded or saved to a directory specific to that user providing easy navigation of data.

Ordering information

Cat. No.	Product
FG-TC01	Gradient UltraCycler PCR Thermocycler with Touchscreen

Talk to the experts and get a free product demonstration

Finding the perfect Thermal Cycler can be difficult. We can help you! Just arrange an appointment with us and get a product demonstration.

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LAB DEVICES

FastGene® Mini Centrifuge

- **Four different colours with a compact design**
- **Supplied with standard microtube, slide and strip tube rotor**
- **Ideal for quick spin down and microfiltration**

The ideal lab companion

The FastGene® Mini Centrifuges come in four different colours and are supplied with three rotors. The first rotor is designed to centrifuge up to six individual 1.5 ml plastic micro centrifuge tubes. It will also spin down 0.5 ml tubes and 0.2 ml tubes with the adapters supplied with the unit. The second rotor can load two 8-well strips (tube capacity 0.2 ml). The rotors are designed for applications requiring relatively low g-forces, such as microfiltration, cell separation and quick spin downs of liquid from the tube lids and tube walls.

The FastGene® Mini Centrifuge adaptors and rotors.

The rotors of the Mini Centrifuges can be easily switched.

FastGene® Mini Centrifuge

FastGene® Mini Centrifuge in Pink

FastGene® Mini Centrifuge in Blue

FastGene® Mini Centrifuge in Green

FastGene® Mini Centrifuge in Red

SPECIFICATIONS		
Four different colours	✔	Pink, Blue, Green and Red
Three different rotors included	✔	Standard angle rotor for 6x 1.5/2.0 ml tubes | Slide rotor 0.2 ml strip tube rotor
Adaptors included	✔	6x adaptors for 0.5 ml tubes 6x adaptors for 0.2 ml tubes
High speed	✔	Centrifugal force: 2,000 x g Speed: 6000 rpm
Compact design	✔	Dimensions (H x D x W): 11.8 cm x 17.5 cm x 14.8 cm
Integrated power supply	✔	100-240 V ~ 0.5 A

Ordering information

Cat. No.	Product	Content
NG002P	FastGene® Mini Centrifuge (Pink)	Pink Mini Centrifuge | 3 rotors | 6 adaptors for 0.2 ml and 0.5 ml tubes
NG002B	FastGene® Mini Centrifuge (Blue)	Blue Mini Centrifuge | 3 rotors | 6 adaptors for 0.2 ml and 0.5 ml tubes
NG002G	FastGene® Mini Centrifuge (Green)	Green Mini Centrifuge | 3 rotors | 6 adaptors for 0.2 ml and 0.5 ml tubes
NG002R	FastGene® Mini Centrifuge (Red)	Red Mini Centrifuge | 3 rotors | 6 adaptors for 0.2 ml and 0.5 ml tubes

FastGene® High Speed Mini Centrifuge

Fast and silent

The FastGene® High Speed Mini Centrifuge comes with a microrotor with a capacity of 12 tubes. It can centrifuge up to 12,300 x g (13,500 rpm). The centrifuge has a very compact design. After centrifugation, the door will open automatically. All mechanical parts are made of high-quality, strong steel components. The air flow system keeps the noise during centrifugation to a minimum. The included rotor is autoclavable and a rotor for 8-well PCR strips is also available separately.

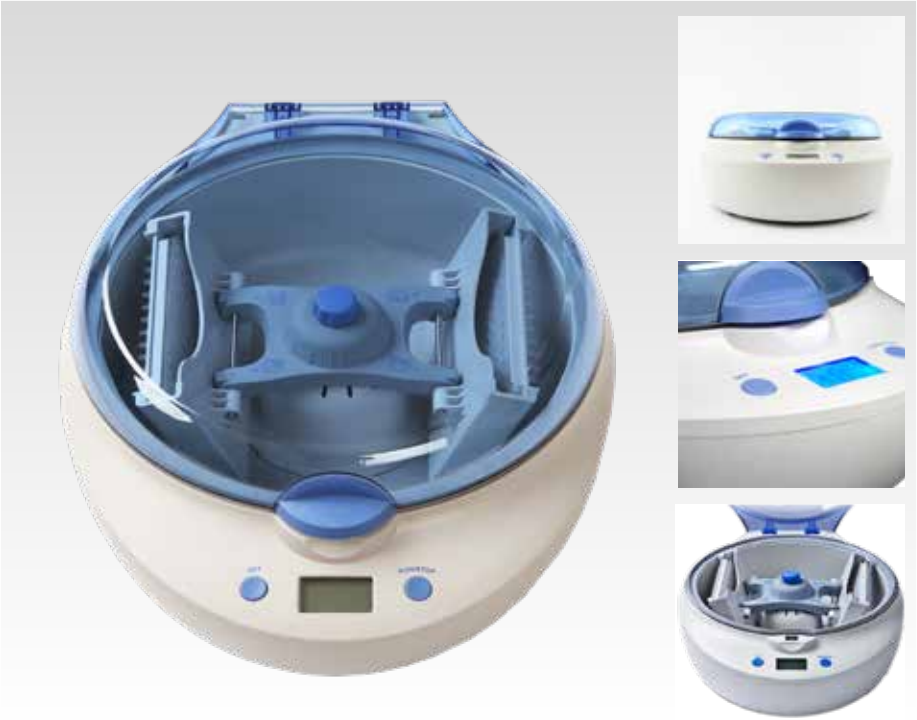
The standard rotor of the FastGene® High Speed Mini Centrifuge can load 12x 2 ml or 1.5 ml tubes. The optional PCR rotor (Cat.No.: NG004) is suitable for 24 x 0.2 ml single tubes or 4 x 8-well strips.

SPECIFICATIONS					
High speed	✔	Standard rotor	Centrifugal force: 12,300 x g Speed: 13,500 rpm	PCR strip rotor	Centrifugal force: 1,850 x g Speed: 6,000 rpm
High capacity	✔	Standard rotor	12x 2 ml or 1.5 ml tubes	PCR strip rotor	4 x 8well PCR strips
Time control	✔	Pulse or timed ≤ 30 min Blue LCD display			
RPM/RCF conversion	✔	Easy conversion of RPM to RCF			
Very silent	✔	Less than <56 dB			
Compact size	✔	Dimensions (H x D x W): 14.5 cm x 24.5 cm x 20.8 cm Weight: 4.4 kg			
Integrated power supply	✔	220V, 50-60 Hz			

Ordering information

Cat. No.	Product	Content
NG003	FastGene® High Speed Mini Centrifuge	Centrifuge comes with the standard rotor
NG004	PCR rotor	Optional rotor for 24 x 0.2 ml single tubes or 4 x 8-well strips

FastGene® Plate Centrifuge



- **Plate Centrifuge with two plate carriers**
- **Convenient, silent and easy-to-use**
- **Spinning down liquids in 96- and 384-well plates**

Optimize your results

The FastGene® Plate centrifuge was made for reliable and reproducible results. It is important to have the entire reaction volume present in the bottom of the wells to eliminate the chance of cross-contamination with other wells. Droplets or condensation on the sides of the wells can cause assay failure due to inadequate volumes or reaction separation. A reliable and properly-designed plate-centrifugation should therefore be a part of every GLP-protocol.

Spin down your plates - the easy way

Our FastGene® Plate centrifuge was designed for quick and gentle centrifugation of various plate and tube types. Its handling could not be easier! All you need to do is set the spinning time (up to 10 min) on the illuminated display and you are good to go. The compact footprint, simple handling and affordable price make the FastGene® Plate Centrifuge the perfect alternative to more complex and expensive high-speed plate centrifuges.

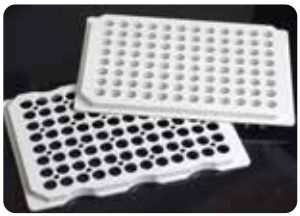
Centrifugation was never more silent

We know that everyday laboratory life can be loud and stressful. The FastGene® Plate Centrifuge is equipped with an extra silent rotor and extra tight lid sealing. It is the perfect device to support a more silent lab environment – keep your work focus high and get better results!

FastGene® Plate Centrifuge

Convenient and versatile

The FastGene® Plate Centrifuge is very versatile: It comes with 2 plate adapters, making it compatible with all types of 96-well plates such as full-skirted, half-skirted or non-skirted plates. These adapters can also be used for individual reaction tubes and 8-well strips, making it the perfect centrifuge for spinning down liquids in life science laboratories. Even 384-well plates (full-skirted) are no problem for the plate centrifuge.



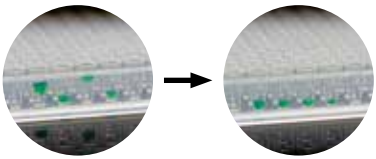
Adapter plates for semi- and non-skirted 96-well plates as well as single reaction tubes or 8-tube strips.

Optimize your high throughput applications

Precise high throughput applications need reliable equipment. For genuine analysis it is extremely important to have the entire reaction volume in the bottom of the well, without any droplets on the wall side. The FastGene® Plate Centrifuge helps to spin down your plates for:

- PCR and qPCR applications
- ELISA
- Colorimetric or fluorescence based high throughput screenings
- Next Generation Sequencing applications
- Bacterial growth cultures

Prevent assay failures with a reliable and properly designed plate centrifuge.



Before and after centrifugation of a full-skirted 384-well plate.

Easy to clean

Spilling biological material can be a major source of infection. The rotors of the centrifuge are easily removable, enabling complete cleaning of the internal area of the centrifuge.

SPECIFICATIONS		
Compatible for many well plates	✔	96-well plates (full-skirted, semi-skirted and non-skirted) 384-well plates (full-skirted)
High speed	✔	Centrifugal force: 480 x g Speed: 2200 rpm
Compact size	✔	Dimensions (H x D x W): 14 cm x 36 cm x 29 cm Weight: 1.3 kg
Adapter plates included	✔	Adapter plate for semi-and non-skirted 96-well plates Adapter plate for single reaction tubes or 8-tube strips
Integrated power supply	✔	200-240 V, 50-60 Hz Additional version with 110 V, 50-60 Hz is also available

Ordering Information

Cat. No.	Product	Content
NG040	FastGene® Plate Centrifuge	Plate Centrifuge, 4 x Adapters (200-240 V)
NG040US	FastGene® Plate Centrifuge (US version)	Plate Centrifuge, 4 x Adapters (110 V)

Do you have questions about our centrifuges?

We understand that, as a scientist, you would like to test our centrifuges before buying them. That is why we offer a product demonstration online or in your lab. Just arrange an appointment with us!

+49 2421 554960
info@nippongenetics.de

www.nippongenetics.eu

FastGene® Mini Dry Bath Advance

- **Precise temperature control**
- **9 setable programs, each with three temperature steps**
- **Exchangeable thermoblocks for every tube size**

Precise sample heating for every tube size

The FastGene® Mini Dry Bath Advance is a microprocessor controlled block heater, operated via 9 setable programs. It provides excellent temperature control for a wide variety of applications and delivers accurate and reliable experimental results. Applications include sample and reaction tempering, sample heating, denaturation of electrophoresis samples, serum coagulation and many more. The compact, yet powerful design fulfills all your incubation needs. The mini dry bath is used with exchangeable thermo blocks for different tube sizes, ranging from 0.2 ml PCR tubes to 50 ml culture tubes.

SPECIFICATIONS		
Temperature Control Range	✔	room temp. (+5 °C) - ~100 °C)
Heating Time (20 °C to 100 °C)	✔	≤ 18 min
Temperature Accuracy Discrepancy	✔	± 0.3 °C
Time Setting	✔	0-99 h, 0-99 min, 0-99 sec
Max. temperature	✔	100 °C
Cooling Time	✔	Natural Cooling
Dimensions (H x D x W)	✔	13.6 cm x 16 cm x 11 cm
Cover	✔	With Transparent Plastic Cover

FastGene® Mini Dry Bath Advance

FastGene® Mini Dry Bath Advance, equipped with the 15x 1.5 ml tube thermoblock. Nine different programs can be set, including three temperature steps for each program.

Seven thermoblocks for common tube sizes are available for the FastGene® Mini Dry Bath Advance, ranging from 0.2 ml PCR tubes to 50 ml culture tubes.

Ordering information

Cat. No.	Product	Content
NG020A	FastGene® Mini Dry Bath Advance	Mini dry bath main device
NG025A	Metal thermo block	For 32x 0.2 ml reaction tubes
NG029A	Metal thermo block	For 24x 0.5 ml reaction tubes
NG026A	Metal thermo block	For 15x 1.5 ml reaction tubes
NG030A	Metal thermo block	For 15x 2 ml reaction tubes
NG024A	Metal thermo block	For 12x 5 ml reaction tubes
NG027A	Metal thermo block	For 6x 15 ml reaction tubes
NG028A	Metal thermo block	For 2x 50 ml reaction tubes

FastGene® Vortexer Mini

Compact with a high performance

The FastGene® Vortexer Mini is suitable for mixing samples in single tubes, falcon tubes and beakers. The adjustable rotational speed of 0-4000 rpm enables a very gentle up to vigorous shaking. The stability is ensured by a heavy base preventing the vortexer from dancing and avoiding a slipping of the sample tube.

SPECIFICATIONS	
Construction material	Chemical resistant plastic
Support system	Heavy base
Operational mode	Touch
Speed setting	Analogue
Speed	0 - 4000 rpm

Ordering information

Cat. No.	Product	Content
VX2	FastGene® Vortexer Mini	Main Unit

FastGene® Mixy Professional Tissue Grinder

- **Grinder for resuspending pellets and disrupting tissue**
- **Simply to use and cordless**
- **Homogenization of animal tissue, bones, plant tissue and food**

Mixy homogenizes almost everything

The Tissue Grinder Mixy Professional is a motor-driven grinder for resuspending pellets or disrupting soft tissue in microcentrifuge tubes. The motor is powered by a 3.7 V battery and can be used cordlessly for up to 4 hrs.

The easiest way to homogenize tissue

Take the grinder out. Place the pestle on the pestle adapter. Insert the pestle into the microcentrifuge tube, and use the button to start mixing. Release the button after the mixing operation is completed.

SPECIFICATIONS	
Speed:	12,000 rpm
Successfully homogenized tissues	Animal, bacteria, plants (root and leaf) and bones
Life time of the rechargeable battery	4 hours
Dimension (H x W):	15.5 cm x 2.5 cm
Weight:	0.2 kg

Ordering information

Cat. No.	Product	Content
NG010	Mixy Professional	Tissue Grinder with lithium battery and 10 plastic pestles
NG011	Metal Pestle	Autoclavable steel pestle
NG006	Plastic Pestles	100 disposable plastic pestles 1.5 cm^3

Application Note
2017 <01e>

Application

Improving RNA extraction from arterial tissue

Product	Mixy Professional Tissue Grinder (NG010)
Manufacturer	NIPPON Genetics EUROPE

The following data is kindly provided by Daniel Schick, University Medical Centre in Aachen, Germany.

Background

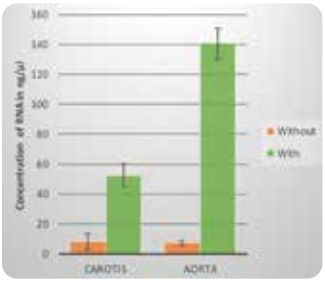
Isolation of RNA from arterial tissue is difficult. Disrupting the tissue before starting the isolation of the nucleic acid can enhance the RNA yield. Here, we present the isolation of RNA performed with and without the use of the homogenizer Mixy Professional. The RNA was used to analyse the expression of metalloproteins in cardiovascular diseases.

Experimental Condition

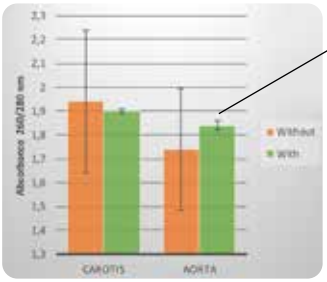
- Type and amount of tissue: Aorta (30 µg) and carotis (5 µg) isolated from mice (1 - 12 months old, stored at -80 °C)
- Condition of tissue: Intact tissue morphology
- **Methods:**
  1. Homogenizing the tissue in lysis buffer using the Mixy Professional Tissue Grinder
  2. Incubation with Proteinase K
  3. Column based mRNA isolation
  4. Spectrometric determination of concentration and quality
  5. RNA quality determination using agarose gel electrophoresis
  6. Reverse transcription
  7. Relative Quantification of gene expression using qPCR assays

Results

Concentration of RNA



Quality of RNA



Using the Mixy Professional Tissue Grinder reduces the variability of the RNA quality immensely.

Customers comment

Daniel Schick:

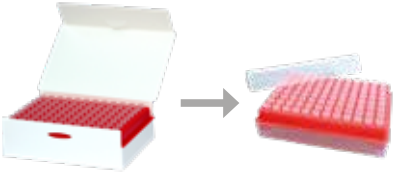
The RNA yield was extensively increased by 6 - 20 fold when using the Mixy Professional Tissue Grinder. Additionally, the quality of the RNA measured spectrometrically showed considerably less variation when using the Grinder (absorbance at 260/280 nm is 1.94 ± 0.30 without vs 1.90 ± 0.01 with the Mixy Grinder Professional).

LAB PLASTIC

FastGene® Filter Tips

Quality Made in Japan

- **Compatible with various pipettes**
- **Highest quality control**
- **Easy-to-use and ecological refill system**



Japanese quality

The filter tips are made in Japan. Quality control is one of the highest priorities. This ensures that our tips are free of faults, such as misplacement of the filter, broken tips, missing tips, endotoxins, etc.. All of our tips are free of RNase, DNase, genomic DNA and proteins.

Easy-to-use PaperRefill system

The FastGene® PaperRefill System is a more ecological way compared to standard refill systems. Just insert the new pipette tip rack in your filter tip box without any tip wobbling during refill.

More than just plastic

To improve precision and handling, NIPPON Genetics EUROPE provides high quality and modern filter tips. Their maximum compatibility and conformity with a large number of pipettes enable accuracy and comfortability for the daily laboratory work.

Customer Testimonial

"We have been using the refillable filter tips from Nippon Genetics for a broad spectrum of molecular biology techniques, including NGS and array-CGH. We are impressed by their high manufacturing quality and ease of use. The tips are long and thin and the filter does not come in contact with the liquid even if you fill it to the maximum. They also exhibit minimum retention of liquids. It is very easy to refill the empty tip boxes (spare tips come in pre-filled and sterile racks) and by using that system you produce less plastic waste! We highly recommend these tips to all researchers looking for excellent quality, value-for-money filter tips!"

D. Palaiologou, PhD
Genesis Genoma Lab,
Chalandri, Greece

★★★★★

FastGene® Filter Tips

Quality Made in Japan

Precision for lowest volume

The FastGene® Filter Tips come in three different versions for the lowest volumes:

- Filter Tips 10 µl short: The small size guarantees easier handling in such small wells (e.g. 96-well plates or PCR Tubes).
- Filter Tips 10 µl long: Very useful to avoid contamination of the pipette with samples stored in larger tubes.
- Filter Tips 20 µl: The best option for larger volumes with a small tip.

Cat. No.	Product	Content
FG-FT10S	10 µl short	10 racks with 96 tips
FG-FT10SRF	10 µl short refill	10 racks with 96 tips
FG-FT10L	10 µl long	10 racks with 96 tips
FG-FT10LRF	10 µl long refill	10 racks with 96 tips

Cat. No.	Product	Content
FG-FT20	20 µl	10 racks with 96 tips
FG-FT20RF	20 µl refill	10 racks with 96 tips

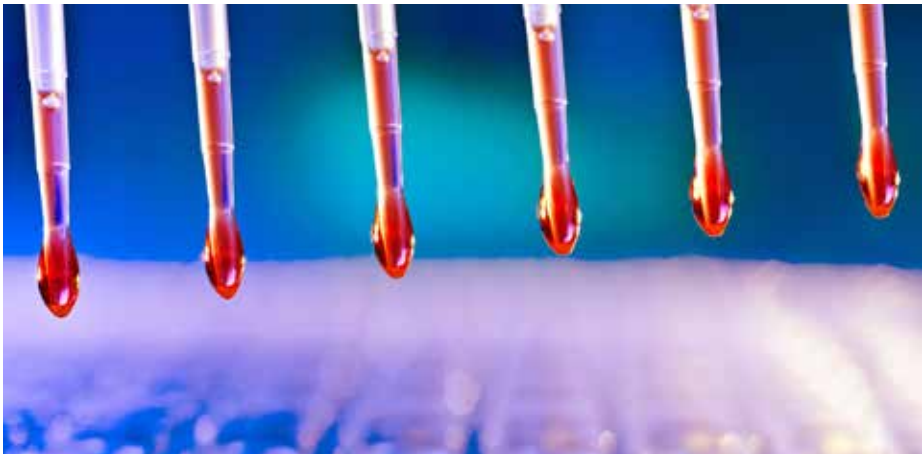
Precision for larger volumes

Cat. No.	Product	Content
FG-FT100	100 µl	10 racks with 96 tips
FG-FT100RF	100 µl refill	10 racks with 96 tips

Cat. No.	Product	Content
FG-FT200	200 µl	10 racks with 96 tips
FG-FT200RF	200 µl refill	10 racks with 96 tips

Cat. No.	Product	Content
FG-FT1000	1000 µl	10 racks with 96 tips
FG-FT1000RF	1000 µl refill	10 racks with 96 tips

FastGene® TP Filter Tips



- **Compatible with pipettes from Eppendorf, Gilson, Rainin, Thermo, Socorex and many more**
- **Highest quality control**
- **Efficient contamination protection**

Highest quality plastic

Quality control is one of the highest priorities. This ensures that our FastGene TP Filter Tips are free of faults, such as misplacement of the filter, broken tips, missing tips, etc.. All of our tips are free of RNase, DNase, genomic DNA and proteins.

Best volume control

FastGene® TP Filter Tips are transparent for easy liquid control inside of the pipette. For clear observation of the aspirated volume, the smallest and the largest tips (10 µl, short and 1000 µl) come with volume marks.

Compatibility

The FastGene® TP Filter Tips are compatible with the following single channel pipettes:

		FastGene® TP line Filter Tips					
		FG-TP-10	**FG-TP-10L**	**FG-TP-20**	**FG-TP-100**	**FG-TP-200**	**FG-TP-1000**
Single Channel Pipettes	**Eppendorf (Reference, Research V)**	0.5-10 µl	0.1-2.5 µl 0.5-10 µl	2-20 µl	10-100 µl	20-200 µl	100-1000 µl
	Finnpipette (Digital, Focus)	1-10 µl 2-20 µl	1-10 µl 2-20 µl	2-20 µl 10-100 µl	10-100 µl	20-200 µl	100-1000 µl
	Gilson (Pipetman)	P-2, P-10	P-2, P-10	P-20	P-100	P-200	P-1000
	Rainin (SL-PL-Series)	0.5-10 µl	0.5-10 µl	2-20 µl	10-100 µl	20-200 µl	100-1000 µl
	Rainin (XLS-Series)	0.5-10 µl	0.5-10 µl	20-200 µl	20-200 µl	20-200 µl	100-1000 µl
	Brand	0.1-2.5 µl 0.5-10 µl	0.1-2.5 µl	2-20 µl 5-50 µl, 10-100 µl	---	20-200 µl	100-1000 µl
	DragonLab	0.5-10 µl	0.5-10 µl	2-20 µl	10-100 µl	20-200 µl	100-1000 µl
	SOCOREX	0.5-10 µl	0.5-10 µl	20-200 µl	20-200 µl	20-200 µl	100-1000 µl

FastGene® TP Filter Tips

Filter protection

The tips are equipped with an anti-aerosol filter. Cross-contamination between samples is avoided, giving you maximum security with your results.

Cat. No.	Product	Content
FG-TP-10	10 µl short	10 racks with 96 tips

Cat. No.	Product	Content
FG-TP-20	20 µl	10 racks with 96 tips

Cat. No.	Product	Content
FG-TP-200	200 µl	10 racks with 96 tips

No DNA adsorption

FastGene® TP Filter Tips are made of tested polypropylene plastic, which stop the adsoprtion of DNA and prevents concentration fluctuations.

Cat. No.	Product	Content
FG-TP-10L	10 µl long	10 racks with 96 tips

Cat. No.	Product	Content
FG-TP-100	100 µl	10 racks with 96 tips

Cat. No.	Product	Content
FG-TP-1000	1000 µl	10 racks with 96 tips

FastGene® PCR Tubes

- **Compatible with most thermal cyclers**
- **Reproducible PCR results**
- **Free of RNase, DNase and human genomic DNA**

No evaporation

The evaporation of samples is a well-known error factor which depends on the quality of the PCR plastic. Preventing evaporation is important especially for users that perform low volume (5 - 10 µl) PCR. FastGene® PCR Tubes and strips are intensively tested, under very stringent conditions.

Guaranteed quality

The performance and reproducibility of your PCR result is significantly influenced by plastics. As a result of a unique manufacturing process, our FastGene® PCR single tubes and 8-well strips fulfill the highest requests of quality. All FastGene® PCR plastic products are manufactured by using ultra pure polypropylene. Proteins are not able to bind to the surface. The tubes and strips have very thin walls but are extremely stable and robust. Because of a very stringent QC procedure the „batch-to-batch" reproducibility of all plastics is extremely high.

Test our PCR tubes for free!

We offer PCR tubes with certified quality standards. Convince yourself and contact us for free testing!

0.1 ml PCR Tubes

0.1 ml PCR single tubes with flat caps (1000)
Cat. No.: FG-011F

0.1 ml PCR 8-well strips and flat cap strips (120)
Cat. No.: FG-017FC

FastGene® PCR Tubes

0.1 ml PCR 8-well strips with single flat caps (120)
Cat. No.: FG-018WF

0.1 ml flat cap strips (120)
Cat.No.: FG-008FCP

0.1 ml PCR 8-well white tube strips with flat cap strips (125)
Cat. No.: FG-019FC

0.1 ml PCR 8-well strips (120)
Cat. No.: FG-018

0.2 ml PCR Tubes

0.2 ml PCR single tubes with flat caps (1000)
Cat. No.: FG-021F

0.2 ml PCR single tubes with domed caps (1000)
Cat. No.: FG-021D

0.2 ml PCR 8-well strips with single flat caps (120)
Cat. No.: FG-088WF

0.2 ml PCR 8-well strips with single domed caps (120)
Cat. No.: FG-088WD

0.2 ml PCR 8-well strips without caps (120)
Cat. No.: FG-028

0.2 ml flat cap strips (120)
Cat.No.: FG-008FC

0.2 ml domed cap strips (120)
Cat.No.: FG-008DC

0.2 ml PCR 8-well strips and flat cap strips (120)
Cat. No.: FG-016FC

0.2 ml PCR 8-well strips and domed cap strips (120)
Cat. No.: FG-016DC

Application

Comparing PCR tubes for Multiplex Probe-based Assay on a Rotor-Gene® Q

Product	FastGene® 0.2 ml PCR tubes with flat caps (FG-021F)
Manufacturer	NIPPON Genetics EUROPE

The following data is kindly provided by Dr. Birgit Klinkert, ARDEYPHARM GmbH, Herdecke, Germany

Background

The detection of the non-pathogenic *Escherichia coli* strain Nissle 1917 (EcN) in stool samples is standardly performed in this laboratory using strain specific TaqMan® Probes. Here, the signal of the manufacturer's original plastic was compared to the FastGene® PCR Tubes from NIPPON Genetics EUROPE.

Method

- PCR tubes

1) FastGene® 0.2 ml PCR tubes with flat caps (Cat. No.: FG-021F)
2) Original 0.2 ml Rotor-Gene® tubes (Cat. No.: 981005)

- qPCR Instrument

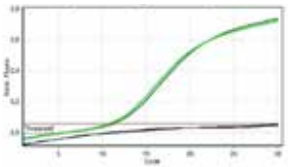
QIAGEN® Rotor-Gene® Q Mdx 5plex

- Probes-labels

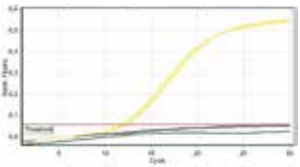
1) FAM™ (green channel) - Reporter primer designed to detect specific EcN plasmids
2) HEX (yellow channel) - Reporter primer designed to detect specific EcN plasmids
3) ROX™ (orange channel) - Reporter primer designed to detect specific regions in the EcN genome
4) Cy5 (red channel) - Reporter primer as a positive PCR control and designed to detect common enterobacteriae sequences

Results

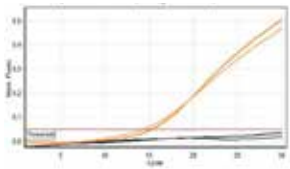
1) FAM™ - Probe (green channel)



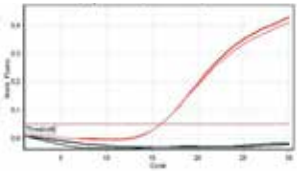
2) HEX-Probe (yellow channel)



1) ROX™ - Probe (orange channel)



2) Cy5 - Probe (red channel)



Customers comment

Dr. Birgit Klinkert:

The lid of the FastGene® 0.2 ml PCR tubes are different from the original. Nonetheless, the lock mechanism of the Rotor-Gene® Q Mdx worked perfectly with them. The fluorescence of the probes in the reaction are measured at the tip of the tubes. We can recommend to replace the original tubes for the here tested fluorescent probes without any restriction.

FastGene® CapEasy

For capping and decapping

The CapEasy was created to keep your daily labwork simple. Sealing or removing the caps on 8-well and 12-well PCR strip tubes can often lead to loss of sample, cross contamination, and sore fingers.

This can be avoided by using the CapEasy Tool. The uniformly distributed pressure ensures perfect sealing of all wells regardless if domed or flat lids are used. When access to the contents of the strip tubes is needed, removing the lids is done in a single smooth motion without the chance of knocking the sample out of the tube.

PCR tube recommendation

0.1 ml PCR 8-well strips and flat cap strips
Cat. No.: FG-017FC

0.2 ml PCR 8-well strips and flat cap strips (120)
Cat. No.: FG-016FC

0.2 ml PCR 8-well strips and domed cap strips
Cat. No.: FG-016DC

Ordering information

Cat. No.	Product
FG-CDC02	FastGene® CapEasy

FastGene® 2.0 ml Reaction Tube

- Frosted lid and frosted side writing surface
- Graduations every 500 µl
- Thumb-friendly beveled lip, easy to open and close
- Autoclavable when open
- Compatible with all common micro centrifuges

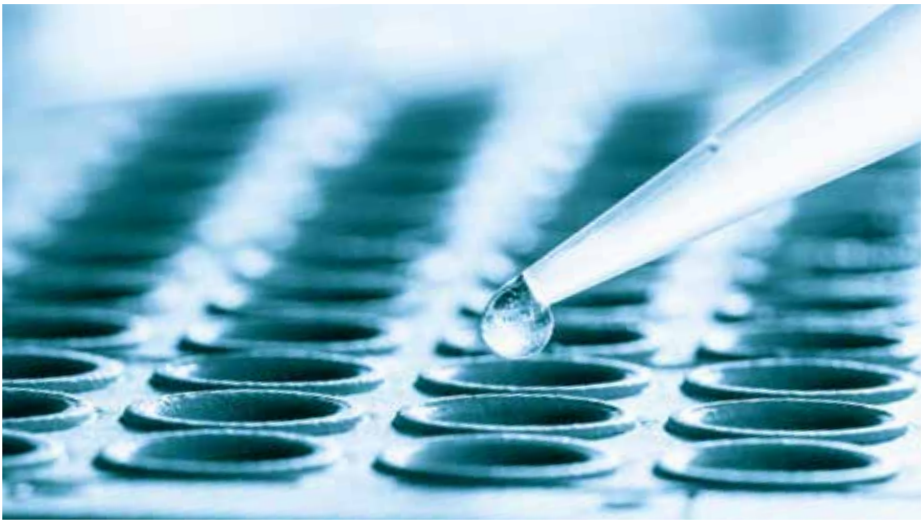
Cat. No.: FG-014 (500 Units)

FastGene® 1.5 ml Reaction Tube

- Frosted lid and frosted side writing surface
- Graduations every 100 µl
- Thumb-friendly beveled lip, easy to open and close
- Autoclavable when open
- Compatible with all common micro centrifuges

Cat. No.: FG-015 (500 Units)

FastGene® PCR Plates



- **Compatible with most thermal cyclers**
- **Raised well rims to avoid cross contamination**
- **Free of RNase, DNase and human genomic DNA**
- **Compatible with heat sealing foils**

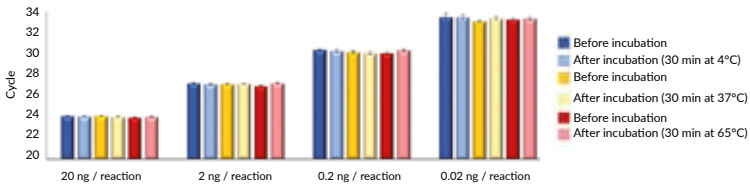
Guaranteed quality

The FastGene® PCR Plates are manufactured and tested for compatibility with leading manufacturers thermal cyclers. Due to the thin-walled design optimizing heat transfer, the reaction volume becomes realibly tempered.

All FastGene® PCR plastic products are manufactured by using ultra pure polypropylene. Proteins are not able to bind to the surface. Because of a very stringent QC procedure the „batch-to-batch" reproducibility of all PCR Plates is extremely high.

DNA adsorption test with the FastGene® 96-well PCR plate (FG-170225)

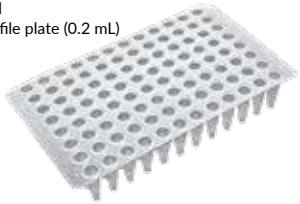
Method:
Comparison of the DNA concentration after the incubation of different temperatures (4°C, 37°C, 65°C) compared to control DNA amount before incubation. DNA concentration was determined using qPCR quantification.



Result/Conclusion:
The incubation tests under all conditions showed no significant decrease of DNA concentration after incubation in comparison with the control DNA amount. This means that the FastGene® plastic shows no binding of DNA.

FastGene® PCR Plates

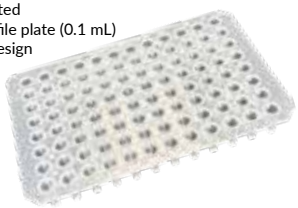
FastGene® 96-well Plate
- Non-skirted
- Normal-profile plate (0.2 mL)



"Easy to cut"

Cat. No.: FG-170225 (25 plates)

FastGene® 96-well Plate
- Non-skirted
- Low-profile plate (0.1 mL)
- Stable Design



Cat. No.: FG-170350 (50 plates)

"Very high plate stabiliy through cross-connected wells"

FastGene® 96-well Plate
- Semi-skirted
- Normal-profile plate (0.2 mL)

Cat. No.: FG-190250 (50 plates)

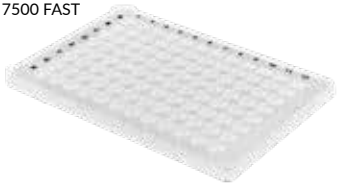
FastGene® 96-well Plate FROSTED ABI® style
- Semi-skirted
- Normal-profile plate (0.2 mL)
- Frosted plastic

Cat. No.: FG-200250 (50 plates)

FastGene® White 96-well Plate Roche® style
- Semi-skirted
- Low-profile plate (0.1 mL)
- For LightCycler™

Cat. No.: FG-210250 (50 plates)

FastGene® Fast 96-well Plate
- Semi-skirted
- Low-profile plate (0.1 mL)
- For ABI 7500 FAST



Cat. No.: FG-03890-50 (50 plates)

FastGene® 96-well Plate
- Full-skirted
- Low-profile plate (0.2 mL)

Cat. No.: FG-180250 (50 plates)

FastGene® 384-well Plate
- FastGene® Silicon sealing mat (soft)
- Full-skirted
- Volume 50 µl
- For ABI 7500 FAST

Cat. No.: FG-300150 (50 Plates)
Cat. No.: FG-3110MS (10 Mats soft)

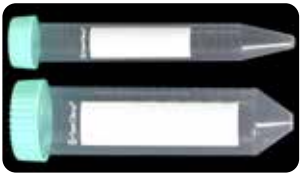
FastGene® Centrifuge Tubes

New

- **Mix of five different cap colours**
- **Durable polypropylene**
- **Centrifugable up to 12,000 x g**
- **High temperature tolerance (-80 °C to 121 °C)**
- **Sterile, free from DNase, RNase, ATP and DNA**

Expect the highest quality

The tubes have the quality you would expect from an excellent laboratory consumable. There are absolutely no compromises.



Both tube sizes (15 mL and 50 mL) have a large white writing area that makes clear and secure labelling possible.

Bring more colour into your lab

What is special about the FastGene® Centrifuge Tubes? Each bag comes with a mix of 5 different colours. Make your laboratory life easier and use the colours to distinguish samples at a glance.

FastGene® Centrifuge Tubes 15 mL with five different cap colours.

FastGene® Centrifuge Tubes 50 mL with five different cap colours.

Ordering information

Cat. No.	Product	Content
FG-CT15ML	FastGene® Centrifuge Tubes 15 mL	500 tubes (20 x 25 tubes)
FG-CT50ML	FastGene® Centrifuge Tubes 50 mL	500 tubes (20 x 25 tubes)

Free Sample?

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

+49 2421 554960
info@nippongenetics.de
www.nippongenetics.eu

FastGene® PCR Adhesive PCR Foil

- 138 x 79 mm (with edge), 118 x 79 mm (without edge)
- Suitable for Real-Time PCR applications
- Suitable for PE, PS and PP plates
- Prevents evaporation during PCR or storage
- Without sticky residue after the seal is peeled off
- End tabs for easy removal
- Resistant to DMSO
- Can be used at temperatures from -80 °C to +120 °C

Cat. No.: FG-93AC2 (100 sheets)

Ordering information

Cat. No.	Product	Content
FG-93AC2	FastGene® Adhesive PCR Foil	100 sheets

FastGene® PCR Adhesive Seal Aluminium

- 141 mm x 79 mm (with edge) and 121 mm x 79 mm (adhesive area)
- Soft aluminium for high conformability
- For use between -70 °C and +100 °C
- Adheres well to a wide range of plate material (PE, PS, PP)
- Easily piercable
- Pressure sensitive acrylate adhesive on the other side

Cat. No.: FG-93AC2 (100 sheets)

Ordering information

Cat. No.	Product	Content
FG-93AF	FastGene® Adhesive Seal Aluminium	100 sheets

Free Sample?

Just give us a call or write us an email if you would like to test our seals and receive a free sample!

+49 2421 554960 info@nippongenetics.de

FastGene® Aluminium Rack

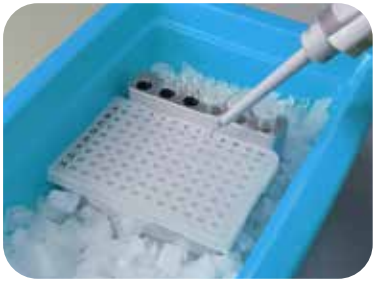
Made In Germany

- **Made in Germany from high quality aluminium**
- **Perfect for cooling tubes and plates on ice**
- **Holds semi-skirted or non-skirted 96 well plates**
- **Holds 6 reaction tubes and 8 PCR tubes**

Keep PCR plates and tubes cool and secure

The FastGene® Aluminium Rack is a high quality rack holding 1x 96 well PCR plate (semi or non skirted), 6x reaction tubes and 8x PCR tubes. The rack was designed for convenient cooling of PCR and qPCR plates as well as all the necessary reaction components. The premium quality aluminium block keeps plates and tubes cool and secure on ice. The high thermal conductivity of aluminium allows reliable, fast and uniform cooling of plates and tubes, which is especially important for sensitive samples, such as PCR enzymes. Keep your samples safe and secure on ice and improve your results - no more tipping over tubes in the ice box and getting ice contaminations.

The FastGene® Aluminium Rack conveniently and securly holds semi-skirted or non-skirted 96-well plates - also at room temperature.



The high quality aluminium block is the perfect tool to keep sensitive samples cool and secure on ice.

Ordering information

Cat. No.	Product	Content
FG-AR01	FastGene® Aluminium Rack	1x Rack for 1x 96 Well plate, 6 reaction tubes and 8 PCR tubes

FastGene® Cryo Tubes

- **Cryopreservation of cells and tissues**
- **Temperature resistant: -196°C to +121°C**
- **Separate and unremovable 2-D barcode**
- **Wide opening for easy tissue storage**

Cell and tissue cryopreservation

The FastGene® Cryo Tubes are the optimal solution for a safe and long storage of cryopreserved samples. Two different sizes with 1 ml and 2 ml volume, the choice of an external or internal lid and the possibility of introducing a FastGene® 2-D barcode offer the right tube for every demand. The FastGene® 2-D barcode inserts are separately available and once attached to the tube they are so firmly embedded that they can´t be lost. The Cryo Tubes are designed self-standing and with an extra protection against leakage.

Automation friendly by using SBS format

The FastGene® Cryo Racks were designed to be automation friendly. This is ensured by the SBS format, which is widely used in an automated environment.

The FastGene® Cryo Tubes were designed to accomodate different volumes. The large tubes are able to store 2 ml, while the smaller tubes can handle a volume of 1 ml. All FastGene® Cryo Tubes have a perfect inlay that enables FastGene® 2-D barcode insert to be introduced.

The FastGene® Cryo Racks are SBS format compatible.

FastGene® Cryo Tubes

Cryo Tubes with external lid

1.0 ml Cryo Tubes with external lid
500 tubes (20 bags of 25 tubes)

Cat. No.: FG-CRY-10S

2.0 ml Cryo Tubes with external lid
500 tubes (20 bags of 25 tubes)

Cat. No.: FG-CRY-20S

Cryo Tubes with internal lid

1.0 ml Cryo Tubes with internal lid
500 tubes (20 bags of 25 tubes)

Cat. No.: FG-CRY-In-10S

2.0 ml Cryo Tubes with internal lid
500 tubes (20 bags of 25 tubes)

Cat. No.: FG-CRY-In-20S

Cryo Racks

Cryo Tube Racks in SBS format
for 1.0 ml (10 racks, 40 tubes per rack)

Cat. No.: FG-CRY-10RC

Cryo Tube Racks in SBS format
for 2.0 ml (10 racks, 40 tubes per rack)

Cat. No.: FG-CRY-20RC

2-D Inserts
500 pcs.

Cat. No.: FG-CRY-2D

FastGene® Screw Cap Tubes

- **Small packaging units prevent contamination**
- **High temperature resistance -80 °C to +121°C**
- **Compatible with 2D barcode inserts**

Screw Cap Tubes for cell storage

The storage of prokaryotic and eukaryotic cells gives the researcher the possibility to perform experiments over an extended time period and save cells that delivered experimental success. The FastGene® Screw Cap Tubes were developed to tolerate very high temperature fluctuations.

The FastGene® Screw Cap Tubes are available in 5 different cap colours and 2 different volumes. Dark tubes for light protection are also available. The 2D barcodes enable easy tracking of stored tubes.

Perfect design - Japanese precision

The FastGene® Screw Cap Tubes were designed for different storage volumes. The large tubes are able to store 2 ml, while the small tubes have a volume of 0.5 ml. Both versions of the FastGene® Cell Storage Tubes have a convex inlay that enables the introduction of FastGene® 2D barcode inserts.

The FastGene® Screw Cap Tubes come in small packaging units (25 tubes per bag) to prevent contaminations.

The FastGene® Tube Racks are SBS format compatible.

FastGene® Screw Cap Tubes

DNA adsorption test

Purpose:
FastGene® Screw Cap Tubes (0.5 ml) were tested for their DNA adsorption over the cryopreservation.

Method:
Measurement of DNA concentration in FastGene® Screw Cap Tubes before and after cryopreservation.

1: Human genomic DNA was 20-fold diluted in order to create a 250 µl solution with a concentration of 5.0 ng/µl.
2: Each time 50 µl of this DNA were dispensed to 0.5 ml Screw Cap Tubes. As result, 5 mother tubes were created.
3: For the measurement of DNA concentration in the mother tubes after dispensing, a Qubit® was used.
4: 10 µl from each mother tube were dispensed to three daughter tubes.
5: After dispensing the daughter tubes were stored for 24 h at 4°C.
6: The concentration of each daughter tube (5 x 3 daughter tubes = 15 tubes) was measured with Qubit®.
7: The mother tubes´ DNA concentration was determined as 100%.

DNA conc. mother tube [ng/µl]	DNA conc. daughter tube [ng/µl]	DNA conc. changing [%]
5.08	5.18	
	5.22	101.84
	5.12	

Results/Conclusion:
The DNA concentration in the FastGene® 0.5 ml Screw Cap Tubes shows little or no change, so that the tubes could be used without problems for DNA experiments.

Ordering information

Cat. No.	Product	Description	Cap	Content
FG-SCT05-S	0.5 ml Screw Cap Tubes	clear tube, natural colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT05-RS	0.5 ml Screw Cap Tubes	clear tube, red colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT05-GS	0.5 ml Screw Cap Tubes	clear tube, green colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT05-BS	0.5 ml Screw Cap Tubes	clear tube, blue colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT05-YS	0.5 ml Screw Cap Tubes	clear tube, yellow colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT05-SHS	0.5 ml Screw Cap Tubes	dark tube with light protection, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-S	2 ml Screw Cap Tubes	clear tube, natural colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-RS	2 ml Screw Cap Tubes	clear tube, red colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-GS	2 ml Screw Cap Tubes	clear tube, green colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-BS	2 ml Screw Cap Tubes	clear tube, blue colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-YS	2 ml Screw Cap Tubes	clear tube, yellow colour cap, sterilized		500 tubes (20 x 25 tubes)
FG-SCT20-SHS	2 ml Screw Cap Tubes	dark tube with light protection, sterilized		500 tubes (20 x 25 tubes)
FG-SCR-RC	Tube Rack	Empty rack (red)	---	10 Racks for 48 tubes
FG-SCR-2D	2D Inserts	2D barcode Inserts	---	500 pcs.

FastGene® High-Throughput Plastic

Accessories for high-throughput applications

Our FastGene® High-Throughput Plastic includes deep-well plates, elution plates and tip comb plates, compatible with KingFisher™ automated sample purification systems. The accessories are used for the purification of nucleic acids with the help of automatic magnetic separation in high throughput.

FastGene® 96 Deep-well Plate for King Fisher™

- Deep well plates developed for magentic-bead based, automated nucleic acid purification workflows
- High quality polypropylene (PP)
- No nucleic acid or protein adherence
- Excellent recovery of magnetic beads due to well-design
- Well shape: Deep wells (up to 2.2 ml storage volume per well), square wells, V-bottom

Ordering information

Cat. No.	Product	Content
FG-250150	FastGene® 96 Deep-well Plate for KingFisher™	50 pcs

FastGene® 96-well Tip Comb for King Fisher™

- Tip combs for magnetic separation platforms
- Serve as a cover for automation platform magnets and prevent sample carryover during purification procedure
- High quality polypropylene (PP)
- No nucleic acid or protein adherence
- Excellent recovery of magnetic beads due to well-design
- Size: 127.2 mm x 85.2 mm x 43.9 mm
- Well shape: round wells, V-bottom

Ordering information

Cat. No.	Product	Content
FG-2502100	FastGene® 96-well Tip Comb for KingFisher™	100 pcs

FastGene® 96-well Elution Plate for King Fisher™

- Elution plates developed for magnetic-bead based, automated nucelic acid purifiaction workflows
- Low binding - Medical-grade quality polypropylene (PP)
- No nucleic acid or protein adherence
- Size: 127.5 mm x 85.35 mm x 15.1 mm
- Well shape: 0.5 ml, square wells, V-bottom

Ordering information

Cat. No.	Product	Content
FG-250350	FastGene® 96-well Elution Plate for KingFisher™	50 pcs

Free Sample?

You would like to test our Lab plastic? 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

NUCLEIC ACID PURIFICATION

FastGene® RNA Kits

New level of RNA purity

- **Fast procedure delivering high-quality RNA in minutes**
- **Consistent RNA yields**
- **Ready-to-use RNA for any downstream application**
- **Basic Kit for an easy and fast purification, even of fatty tissue**
- **Premium Kit for ultrapure & concentrated RNA - free of genomic DNA**

RNA of the highest quality

The FastGene® RNA Kits deliver RNA of the highest grade. The quality of RNA is determined by the RNA integrity number (RIN). According to the manufacturer's instructions, the RIN gives an idea of the integrity of the RNA. High quality RNA will give a RIN above 8, with 10 being the maximum value. The FastGene® RNA Basic and Premium Kits purify RNA to a grade comparable to market leaders. Therefore, the purified RNA is in an ideal state for downstream applications, such as reverse transcription.

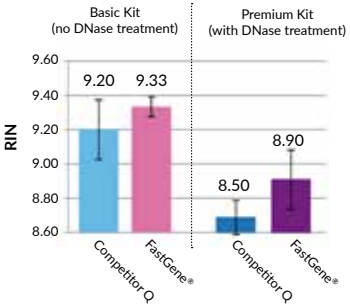
New level of RNA purity

The FastGene® RNA Premium Kit was developed for rapid, efficient, and clean purification of RNA from tissues and cells for challenging applications such as next-generation sequencing (NGS). The silica membrane based technology does not use phenols.

Very quick procedure

The FastGene® RNA Basic Kit has a very quick and easy procedure, optimal for a high number of samples. Additionally, a special protocol for large quantities was developed. The buffer necessary for large quantities can be purchased separately without the need of buying a whole kit.

Quality (RIN Score)



RNA quality determination using an Agilent Bioanalyzer.
The FastGene® RNA Kits repeatedly deliver high quality RNA.

FastGene® RNA Kits

New level of RNA purity

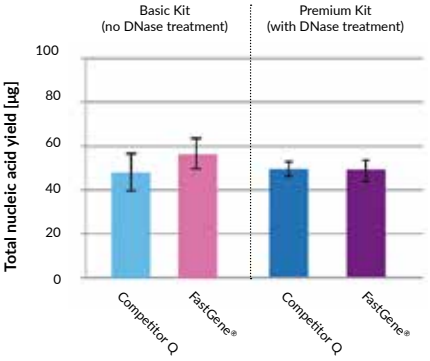
Large yields

Obtaining a good yield from the RNA purification is essential. The FastGene® RNA Basic and Premium Kits deliver very large total yields, therefore enabling multiple analyses of a single RNA purification. When compared to the market leaders, the FastGene® RNA Basic kit delivers a higher yield showing the optimised purification procedure.

Basic or premium?

The FastGene® RNA Kits come in two different versions. The FastGene® RNA Basic Kit is ideal for purification of RNA where small amounts of copurified DNA can be neglected. Whereas the FastGene® RNA Premium Kit ensures the complete elimination of genomic DNA.

Yield



The FastGene® RNA Kits deliver very high yield.

Choose the Basic Kit when small amounts of copurified DNA are not a problem for you.

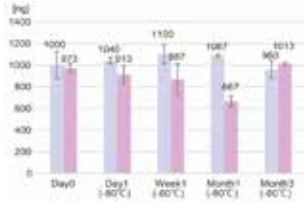
Choose the Premium Kit for an optimal DNA removal for very pure RNA.

RNA stability of samples stored in RL-lysis buffer (3 months)

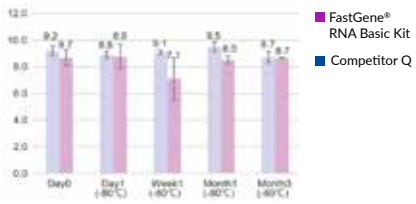
Background:
Ideally, the extraction of the RNA and the subsequent analysis should be carried out as quickly as possible, since the RNA degrades rapidly. Depending on the timing of an experiment, it can be necessary to store the RNA before extraction.

Method:
Here, we investigated the possibility of storing the RNA in the cell lysis buffer RL at -80 °C and compared the yield of RNA and the RIN score to RNA extracted from directly frozen cells.

1. Yield



1. RIN Score



Results/Conclusion:
The RNA yield and RIN score of a freshly prepared RNA isolation did not change when stored at -20 °C or at -80 °C for up to 3 months. Both yield and RIN score showed equivalent or better results than competitor Q´s RNA kit.

FastGene® RNA Kits - Sizes

BASIC

FastGene® RNA Basic (6 Preps)

FastGene® RNA Basic (50 Preps)

FastGene® RNA Basic (250 Preps)

PREMIUM

FastGene® RNA Premium (6 Preps)

FastGene® RNA Premium (50 Preps)

FastGene® RNA Premium (250 Preps)

Customer Testimonial

"I can highly recommend the FastGene® RNA Kits:

- *easy protocol*
- *easy procedure without long waiting times*
- *good price-performance ratio"*

More testimonials on our website
www.nippongenetics.eu

Jennifer Truong
Physiological Institute,
University of Munich, Germany

★★★★★

Ordering Information

Cat. No.	Product	Content
FG-80006	FastGene® RNA Basic Kit	6 Preps
FG-80050	FastGene® RNA Basic Kit	50 Preps
FG-80250	FastGene® RNA Basic Kit	250 Preps
FG-81006	FastGene® RNA Premium Kit	6 Preps
FG-81050	FastGene® RNA Premium Kit	50 Preps
FG-81250	FastGene® RNA Premium Kit	250 Preps
FG-80L025	FastGene® RNA Lysis Buffer	25 ml
FG-80L125	FastGene® RNA Lysis Buffer	125 ml

FastGene® RNA Kits - Procedure

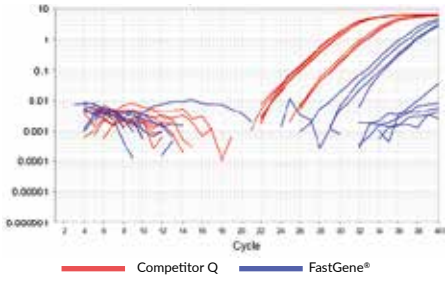
Step	FastGene® RNA Basic		FastGene® RNA Premium	
	Standard protocol	Large input protocol	Standard protocol	Large input protocol
Sample quantity	< 5 * 10^6 cultured cells <10 mg animal tissue	< 10^7 cultured cells <20 mg animal tissue	< 5 * 10^6 cultured cells <10 mg animal tissue	< 10^7 cultured cells <20 mg animal tissue
Resuspension | lysis of the cells	350 µl buffer RL (with final concentration of 20 mM DTT or TCEP)	600 µl buffer RL (with final concentration of 20 mM DTT or TCEP)	350 µl buffer RL (with final concentration of 20 mM DTT or TCEP)	600 µl buffer RL (with final concentration of 20 mM DTT or TCEP)
Filtration of cellular debris			Transfer lysate into a FastGene® RNA filter column Centrifuge at ≥ 10,000 x g for 1 min at room temp.	
Optimize RNA binding conditions	350 µl 70% ethanol Mix thoroughly	600 µl 70% ethanol Mix thoroughly	350 µl 70% ethanol Mix thoroughly	600 µl 70% ethanol Mix thoroughly
RNA binding	Load mix onto FastGene® RNA binding column Centrifuge at ≥ 10,000 x g 1 min		Load mix onto FastGene® RNA binding column Centrifuge at ≥ 10,000 x g 1 min	
Protein elimination	Add 600 µl of buffer RW1 Centrifuge at ≥ 10,000 x g 30 s		Add 600 µl of buffer RW1 Centrifuge at ≥ 10,000 x g 30 s	
Desalination	Add 700 µl of buffer RW2 Centrifuge at ≥ 10,000 x g 30 s		Add 700 µl of buffer RW2 Centrifuge at ≥ 10,000 x g 30 s	
Removal of RW2	Centrifuge at full speed 1 min Transfer spin column to new 1.5 ml collection tube		Centrifuge at full speed 1 min Transfer spin column to new 1.5 ml collection tube	
Elution of RNA	Add 50 µl of buffer RE to membrane center Centrifuge at ≥ 10,000 x g 1 min		Add 50 µl of buffer RE to membrane center Centrifuge at ≥ 10,000 x g 1 min	
Optimize DNase I conditions			Add 5 µl 10 x DNase I reaction buffer to the eluate	
DNA Digestion			Add 1 µl of DNase I to the mixture Incubate for 10 min	
RNA rebinding optimization			Add 250 µl of buffer RBD to the mixture Mix thoroughly by pipetting	
RNA binding			Transfer the mix into FastGene® RNA mini-elute column Centrifuge at ≥ 10,000 x g 1 min	
Desalination | Elimination of digested DNA			Add 700 µl buffer RW2 Centrifuge at ≥ 10,000 x g 30 s Transfer spin column in new 2 ml collection tube	
Removal of RW2			Centrifuge at full speed 1 min Transfer spin column in new 1.5 ml collection tube	
Elution of RNA			Add 10-50 µl of buffer RE to the membrane center Centrifuge at ≥ 10,000 x g 1 min	

FastGene® RNA Premium Kit

No more DNA contamination

Purification of RNA will always have the possibility of genomic DNA contamination. The FastGene® RNA Premium Kit comes with an enzyme, which specifically degrades DNA: DNase I.

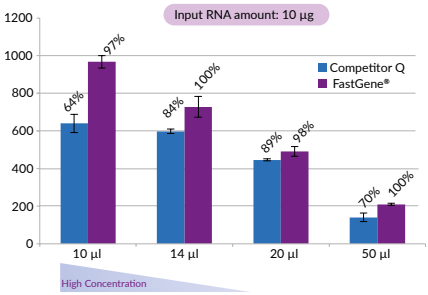
Many RNA purification kits perform the DNA degrading step on the silica membrane. Nonetheless, this step is much more efficient when performed in solution. The FastGene® RNA Premium Kit comprises a DNA degrading step after elution of nucleic acids from the silica membrane.



Detection of genomic DNA contamination using DNA specific primer. RNA isolated using Competitor Q's kit shows considerably earlier Cq values when compared to the FastGene® RNA Premium Kit.

Mini elute column for the highest concentration and perfect recovery

The FastGene® RNA Premium Kit comes with a mini elution column. It has a unique design, allowing elution volumes of as little as 10 µl. This generates highly concentrated RNA stocks, essential for low amount of tissue or cellular material. The recovery rate is very high (>95%) even at very low elution volumes. At these volumes, not even the market leader can achieve our yield and recovery rates.



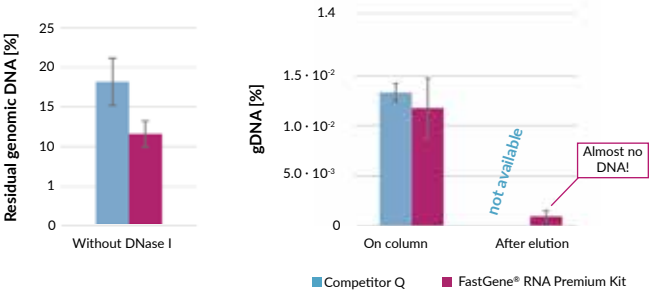
Extremely good recovery rates of the FastGene® RNA Premium Kit compared with a RNA kit from a competitor. The mini elution columns of the FastGene® RNA Premium Kit allow a very low elution volume of 10 µl.

DNase I treatment after elution vs. on column

Background:
Treatment with DNase I is important to remove copurified DNA after RNA purifications. There are two ways for DNase I treatment when working with silica membranes:

1. DNase I treatment after elution: this is the standard protocol of the FastGene® RNA Premium Kit.
2. DNase I treatment on column: standard protocol for most other RNA purification kits.
   (this option is also availabe for the FastGene® RNA Basic Kit)

Method:
Here, we investigated the effect of two different DNase I treatment options: 1. After elution and 2. On column



Results/Conclusion:
DNase I treatment after elution showed the lowest amount of residual genomic DNA with a higher reproducibility when compared to the other tested conditions.

Application

Contamination of DNA in purified RNA; Comparative evaluation of RNA extraction kit, by analyzing the lowest level of contamination

Product	FastGene® RNA Premium Kit (FG-81050, FG-81250)
Manufacturer	NIPPON Genetics EUROPE

The following data is kindly provided by Mr. Tetsuro Ariyoshi, RIKEN Center for Biosystems Dynamics Research, Laboratory of Cell Polarity Regulation, Japan. Thank you for your kind publication.

Background

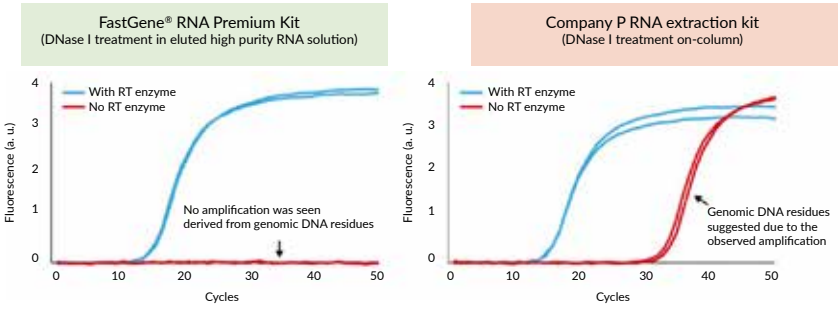
Quantitative analysis of expression of RNA is carried out, but since we are conducting experiments in which the detection of genomic DNA cannot be avoided in the design of qPCR primer, we should suppress DNA contamination in the purified RNA as much as possible. It is necessary to analyse RNA extraction kits for this applicability. In this case, FastGene® RNA Premium Kit which adopts "DNase I treatment in eluted high-purity RNA solution" and can expect high DNA removal efficiency as a standard protocol, is compared to a commercially available RNA extraction kit with "DNase I treatment on-column" as the standard protocol, and the comparative evaluation was conducted. As an evaluation method, we examined "whether amplification by residual genomic DNA with qPCR is observed" under the reaction condition "without addition of reverse transcripase (without RT enzyme)".

Method

RNA is analysed using two kinds of RNA extraction kits, "when reverse transcriptase treatment was performed" and "when reverse transcription reaction was not performed". qPCR was performed respectively, and the amplification curves were compared.

1. Type of initial sample (per Prep): Animal cells (HEK293T 5×10^5 cells)
2. Final elution buffer volume during RNA extraction: 30 µl
3. Reverse transcription and qPCR reaction reagents: TaKaRa One Step TB Green PrimeScript PLUS RT-PCR Kit (RR096A)
4. Input amount of RNA: Total RNA 60 ng
5. One Step RT-qPCR reaction with and without RT enzyme

Results



Signals derived from contamination of genomic DNA are hardly detected from purified RNA using FastGene® RNA Premium Kit.

Customers comment

Mr. Tetsuro Ariyoshi:

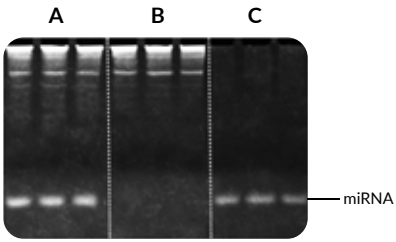
Quantitative analysis of expression of RNA is carried out. However, we are conducting experiments in which the detection of genomic DNA cannot be avoided in the design of qPCR primer. I was looking for an extraction kit in which DNA contamination in purified RNA can be suppressed as much as possible. In purified RNA using FastGene® RNA Premium Kit, almost no signal derived from contamination of DNA was detected, and the amount of expressed RNA could be more accurately quantified compared with purified RNA using competitor`s products. In experiments where it is necessary to minimize DNA contamination as much as possible, such as when primers with junctions cannot be designed, the FastGene® RNA Premium Kit is the product of choice.

FastGene® miRNA Enhancer

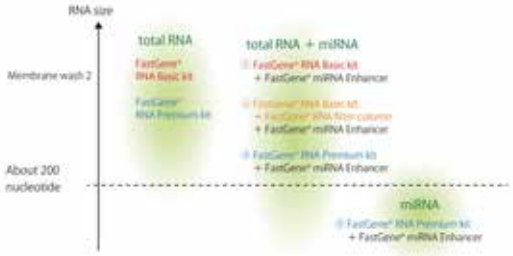
- **Simply add to your RNA kit and enrich miRNA molecules**
- **Suitable with competitors and FastGene® RNA extraction kits**
- **3x higher amount of pure miRNA compared to competitors**
- **Easy-to-use, only one additional step in the protocol**

Enrichment of miRNA using a standard RNA purification kit

The FastGene® miRNA Enhancer allows the binding of small RNA to the column of your standard RNA purification protocol. With a single additional step you simply have to add the miRNA enhancer solution during the purification. Dependent on the kit or protocol you are using, you obtain pure miRNA or total RNA + miRNA. Use the miRNA Enhancer with our FastGene® RNA Premium Kit and you will get pure miRNA. Or use the miRNA Enhancer with the FastGene® RNA Basic Kit and you will obtain total RNA together with miRNA. The miRNA Enhancer is also compatible with other RNA extraction kits.



(A) Purification of total RNA + miRNA by using the miRNA Enhancer together with the RNA Basic Kit. (B) Purification of RNA by using only the RNA Basic Kit without the miRNA Enhancer. (C). Purification of pure miRNA together with the RNA Premium Kit.



Use the miRNA Enhancer with FastGene® RNA Basic kit or FastGene® RNA Premium Kit for the recovery of miRNA

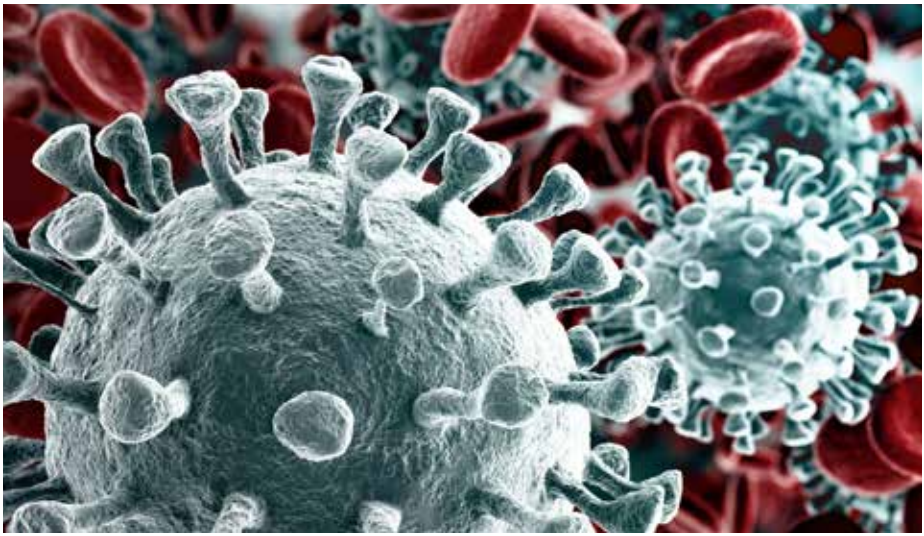
Ordering information

Cat. No.	Product	Content
FG-RNAE-25	FastGene® miRNA Enhancer Kits (4 times×25)	100 Preps

The importance of miRNA

Micro RNAs (miRNAs) form a group of about 2,500 molecules known for humans so far, which bind to proteins from the Argonaute family (AGO). A small-sized miRNA-AGO complex binds to specific mRNA sites, that is determined by the sequence of the miRNA. The Argonaute protein either blocks protein translation of the mRNA or eliminates the mRNA by cleaving it. Therefore, if a miRNA-AGO complex interacts with a specific mRNA, the gene is silenced and its corresponding protein will no longer be produced.

FastGene® RNA Viral Kit



- **Quick procedure**
- **Easy protocol**
- **Consistent performance**
- **Suitable for SARS-CoV-2 purification**

SPECIFICATIONS	
Parameter	**High copy plasmid**
Max. sample volume	300 µl / prep
Preparation time	20 min
Maximum loading volume	800 µl
Maximum elution volume	30 µl
Operation	Spin column centrifugation
Storage temperature	Room temp.

Highest quality viral RNA

The FastGene® RNA Virus kit purifies RNA to a grade comparable to market leaders and delivers RNA of the highest quality. The RNA is therefore ideal for downstream applications, such as reverse transcription and qPCR.

Fast and convenient procedure

The FastGene® RNA Virus kit is a silica-membrane based RNA purification method optimized for viral RNA. The procedure was designed to be straight forward and easy to perform. The kit employs the silica membrane technology for the fastest and most convenient high purity RNA isolation, instead of conventional alcohol precipitation or phenol / chloroform extraction.

Virus RNA extraction from different sources

- Cell-free fluid
- Plasma and serum
- Urine
- Virus infected samples
- Cell culture supernatant

Compatible with SARS-CoV-2 diagnostic kits

The FastGene® RNA Virus kits purifies RNA to a quality that it can be used with commercially available virus detection diagnostic kits.

Ordering information

Cat. No.	Product	Content
FG-82050	FastGene® RNA Viral Kit	50 preps
FG-82300	FastGene® RNA Viral Kit	300 preps

FastGene® Mag Virus Kit

- **For various sample materials**
- **Simple and short protocol**
- **Easy to automate**
- **Suitable for SARS-CoV-2 purification**

Purification of viral RNA and DNA

The FastGene® Mag Virus Kit is based on magnetic bead technology. It has been developed for the isolation of total nucleic acids (DNA and RNA) from a variety of sample materials:

- Blood samples
- Liquid samples (e.g. plasma, serum, urine, swab wash)
- Tissue samples
- Feces

Very quick procedure

The FastGene® Mag Virus kit has a quick protocol and the procedure is very easy to perform. The obtained nucleic acids are of highest quality and can be used directly as a template for downstream applications such as PCR, qPCR, qRT-PCR or for any other kind of enzymatic reaction.

Easy to automate

The kit is suitable for manual use but also can easily be used in automated systems. Automation protocols are available for KingFisher® Flex and BioSprint® 96 systems. The kit is also compatible with liquid handling roboters, e.g. Hamilton® or Tecan®.

Compatible with SARS-CoV-2 diagnostic kits

The FastGene® Mag Virus kit purifies RNA and DNA to a quality that it can be used with commercially available virus detection diagnostic kits. The kit also enables handling of potentially infectious samples.

Ordering information

Cat. No.	Product	Content
FG-84096	FastGene® Mag Virus Kit	96 preps
FG-84960	FastGene® Mag Virus Kit	10 x 96 preps
FG-845K	FastGene® Mag Virus Kit	5000 preps
FG-8425K	FastGene® Mag Virus Kit	25000 preps

FastGene® Plasmid Mini Kit

- **High yields of plasmid DNA**
- **Cost effective preparations**
- **Optimum lysis protocol**
- **LB-Broth capsules included**

One kit with all components

Each kit comes with ready-to-use LB-Broth capsules. Add one LB-Broth capsule in 40 ml water, autoclave your solution and start your cloning experiment. The kit includes everything that is needed for a plasmid preparation.

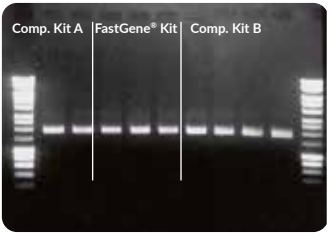
Each Plasmid Mini Kit comes with the easy-to-use LB-Broth capsules.

High and low-copy plasmid DNA preparation

The FastGene® Plasmid Mini Kit is designed for rapid small scale isolation and purification of high copy and low copy plasmid DNA. The purified plasmid DNA is of high quality and ready to use in low-salt Tris buffer, suitable for typical downstream applications: Cloning, sequencing, PCR, transformation and restriction analysis.

Fast protocol and high yield

The FastGene® Plasmid Mini Kits are faster than competitors with comparable yield. This allows you to save time and perform your downstream application quicker.

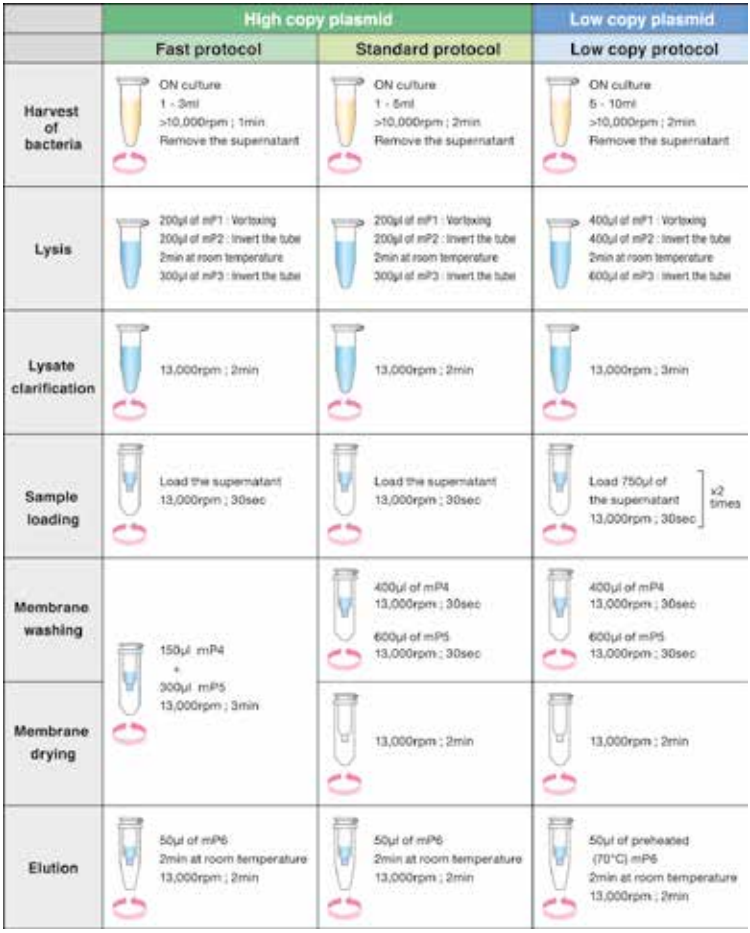


pBluescript plasmid DNA was isolated from a 1.4 ml E. coli culture according to the recommended procedures of the different kits and eluted in 50 µl elution buffer. 2 µl of each eluate were loaded on a 0.7% TAE agarose gel. FastGene® Plasmid Mini Kits yield an equal amount of plasmid DNA in a faster time compared to other suppliers. The preparation with the FastGene® Plasmid Mini Kit was performed by using the Fast Protocol (next page).

Ordering information

Cat. No.	Product	Content
FG-90402	FastGene® Plasmid Mini Kit	100 preps + 10 LB-Broth capsules
FG-90502	FastGene® Plasmid Mini Kit	300 preps + 10 LB-Broth capsules

FastGene® Plasmid Mini Kit



SPECIFICATIONS		
Parameter	**High copy plasmid**	**Low copy plasmid**
Max. sample volume	1-5 ml over-night culture	5-10 ml over-night culture
Typical yield	< 25 μg	< 25 μg
Elution volume	50 μl	50 μl
Binding capacity	40 μg	40 μg
Size of vector	< 15 kb	< 15 kb
Prep time	26 min / 12 samples	36 min / 12 samples
Format	spin column	spin column

FastGene® Gel/PCR Extraction Kit

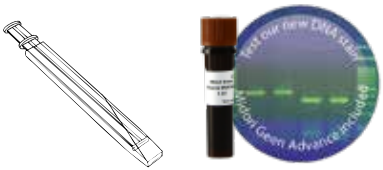
- **Very high recovery rate**
- **Cost effective preparations**
- **Fast and convenient procedure**
- **MIDORI[Green] Advance and Gel Band Cutter are included**

Two in one - DNA cleanup from agarose gels and PCR

The FastGene® Gel/PCR Extraction Kit is designed for the extraction of DNA from agarose gels and for the purification of PCR products. DNA fragments purified with FastGene® Gel/PCR Extraction Kits are ready for direct use in all common downstream applications, like sequencing, ligation and transformation, restriction digestion, microarray analysis, PCR and in vitro transcription.

SPECIFICATIONS

Parameter	Gel Extraction	PCR Clean-up
Max. sample volume	300 mg agarose gel	100 µl PCR mix
Gel	< 2,5% TAE or TBE	---
Typical Recovery	70-80%	80-90%
Binding capacity	10 µg	10 µg
DNA fragment size	50 bp – 10 kb	50 bp – 10 kb
Primer removal	---	< 25 bp
Elution volume	20-50 µl	20-50 µl
Prep time	20 minutes	20 minutes



Each Gel/PCR Extraction Kit contains 5 Agarose Gel Band Cutters and 50 µl MIDORI[Green] Advance. Everything you need to cut out your DNA fragments!

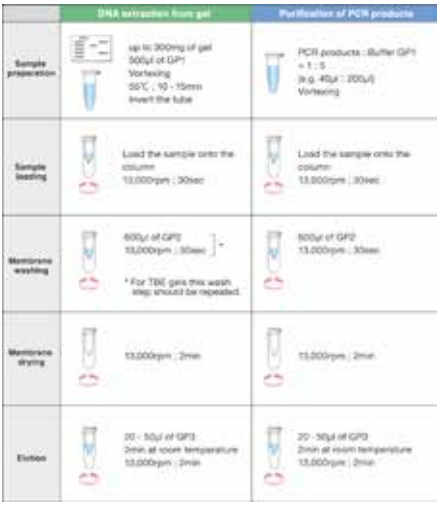
Get a free sample!

Convince yourself and test the Gel/PCR Extraction Kit for free. Just contact us and get your free sample very soon!

Ordering information

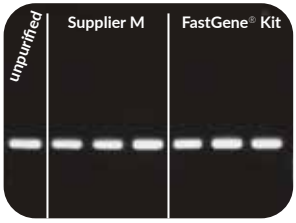
Cat. No.	Product	Content
FG-91202	FastGene® Gel/PCR Extraction Kit	100 preps + 50 µl MIDORI[Green] Advance + 5 Gel Band Cutter
FG-91302	FastGene® Gel/PCR Extraction Kit	300 preps + 50 µl MIDORI[Green] Advance + 5 Gel Band Cutter
FG-830	FastGene® Agarose Gel Band Cutter	50 pieces

FastGene® Gel/PCR Extraction Kit



Easy workflow

The FastGene® Gel/PCR Extraction Kit provides spin columns, buffers, and collection tubes for silica-membrane-based purification of DNA fragments from agarose gels and PCR products. With a simple and fast bind-wash-elute procedure you can purify DNA ranging from 15 bp to 10 kb with an elution volume of 20-50 µl.



PCR fragments of 300 bp were purified from 40 µl of a PCR stock solution using FastGene® Gel/ PCR Extraction Kit and a competitor kit, according to manufacturers protocol. 5 µl of eluted DNA were analyzed on a 1.5% TAE agarose gel. The figure demonstrates that the FastGene® Gel/PCR Extraction Kit shows up to 90% of DNA recovery.

Extraction of large DNA fragments with the FastGene® Gel/PCR Extraction Kit

Background:
It is a well-known problem that the recovery of DNA fragments larger than 1 kb proves to be difficult and leads to the loss of large amounts of DNA. In this AppNote the FastGene® Gel/PCR Extraction Kit was used for the isolation of two DNA bands after restriction digestion.

Method:
A 6.9 kb large plasmid was digested with a restriction enzyme. The restriction digest was analysed by agarose gel electrophoresis at 100 V for 20 min. The 0.7% agarose gel was produced using 1x TAE buffer (Fig 1.). The target fragments were excised out of the gel and transferred in a 1.5 ml tube. The fragments were purified with the FastGene® Gel/PCR Extraction Kit. 100 ng of each purified DNA fragment were electrophoresed again at 100 V for 20 min (Fig. 2).

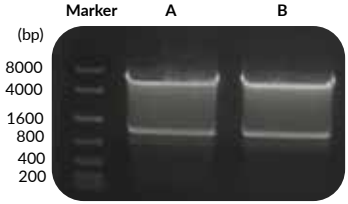


Fig. 1: Identification of two restriction sites (5.4 kb and 1.5 kb) of the plasmid after restriction.

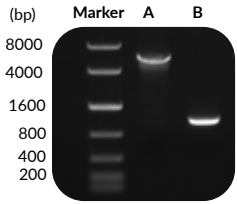
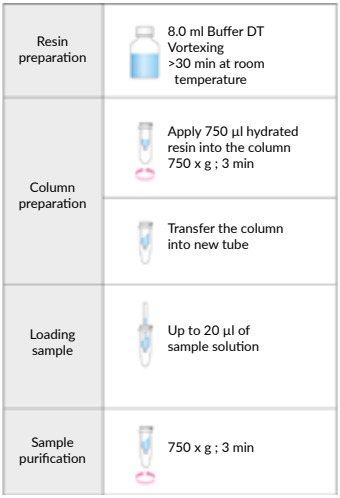


Fig. 2: Clear identification of the two DNA fragments after extraction with the FastGene® Gel/PCR Extraction Kit.

Results/Conclusion:
Both fragments show a good recovery rate after extraction. The customer also highlighted the fast preparation, easy handling, high recovery rate for large fragments and the unproblematic performance in downstream applications.

FastGene® Dye Terminator Removal Kit

- **Remove dyes from sequencing products**
- **Avoid sequencing blobs**
- **Easy protocol**

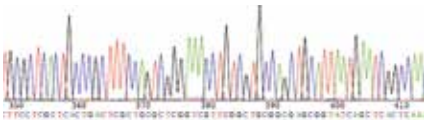


Workflow of the FastGene® Dye Terminator Removal Kit.

Optimized sequencing results

The FastGene® Dye Terminator Removal Kit removes dye terminator molecules from sequencing samples, using an efficient and reasonably priced gel filtration. The kit includes a bottle of gel filtration matrix, resuspension buffer and filter spin columns. At first, an aliquot of the matrix is mixed with resuspension buffer. Thereafter, the equilibrated matrix is transferred into filter spin columns. After a brief spin, the sequencing reaction can be loaded onto the column. The last centrifugation step elutes the purified sample. All components can be stored at room temperature.

SPECIFICATIONS	
Parameter	**Dye Terminator Removal**
Max. sample volume	20 µl sequencing reaction
Recovery	> 90%
Prep time	5 minutes
Storage	room temperature, 12 months



DNA purified by the FastGene® Dye Terminator Removal Kit shows a very good performance in sequencing experiments, no dye blobs are detected.

Ordering information

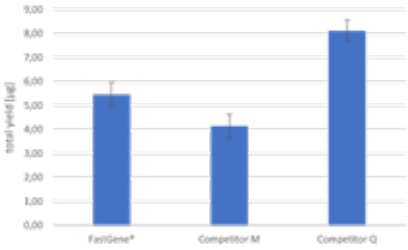
Cat. No.	Product	Content
FG-9411	FastGene® Dye Terminator Removal Kit	50 preps

FastGene® Blood & Tissue gDNA Extraction Kit

Coming soon

Coming soon

- **Easy extraction protocol**
- **Proteinase K included**
- **Excellent gDNA yields with highest purity**
- **Blood, Tissue or cell culture - get your gDNA from any source**



The FastGene® Blood & Tissue gDNA Extraction Kit provides excellent gDNA yields, comparable to leading manufacturers.

The FastGene® Blood & Tissue gDNA Extraction Kit purifies genomic DNA from mammalian blood, tissue and cultured cells using a simple extraction protocol. The isolated DNA can be used directly for a variety of downstream applications such as PCR, qPCR, Southern blot, enzymatic reactions and many more. The kit contains Blood and Tissue Lysis Buffers, Wash and Elution Buffers, Proteinase K, FastGene® DNA Binding Columns and collection tubes.

Ordering information

Cat. No.	Product	Content
FG-70005	FastGene® Blood & Tissue gDNA Extraction Kit	5 preps
FG-70050	FastGene® Blood & Tissue gDNA Extraction Kit	50 preps
FG-70250	FastGene® Blood & Tissue gDNA Extraction Kit	250 preps

FastGene® Magna Stands

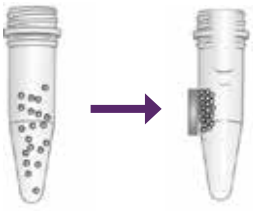
- **Neodymium magnets for optimal separation**
- **Very quick separation of magnetic beads from the solution**
- **Stable pellet even during resuspension**
- **Complete collection of magnetic beads for less material loss**

Adjustable side position magnets

By securing a pellet (with neodymium magnets) on the side of the tube walls rather than at the bottom, the MagnaStands allow complete removal of the supernatant without touching the pellet. Additionally, with the MagnaStand 1.5, the vertical position is adjustable allowing the magnets to be precisely placed on the tube according to volume used in the purification. Leaders in NGS are recommending the MagnaStand for use with their products!

No more carry-over effects

Magnetic beads have long been used to isolate nucleic acids as well as recombinant proteins. These purifications can be problematic, often resulting in carry-over contaminants when the pellet is disturbed or not allowing to completely remove the supernatant. The design of the FastGene® MagnaStand elegantly solves both issues.



FastGene® MagnaStands are the best tool to easily purify magnetic beads from small volumes. The magnetic beads are firmly held in one position of the tube wall. This prevents accidental aspiration of magnetic beads.

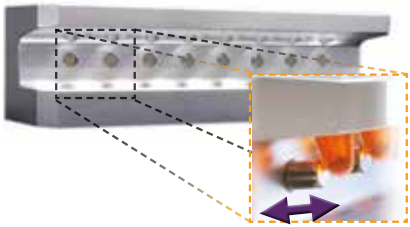
Ordering information

Cat. No.	Product	Size
FG-SSMAG96	96-Well FastGene® MagnaStand	96 Wells
FG-SSMAG96LV	96-Well FastGene® MagnaStand low volume	96 Wells
FG-SSMAG2	FastGene® 0.2 ml MagnaStand	8 x 0.2 ml
FG-SSMAG1.5	FastGene® 1.5 ml MagnaStand	8 x 1.5 ml

FastGene® Magna Stands

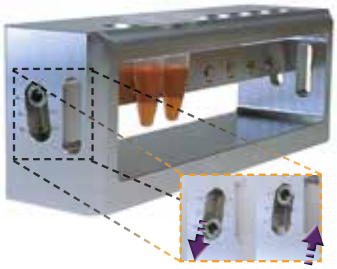
96-Well MagnaStand

- Magnetic stand for reliable high-throughput purification
- Optimal positioning of full- and half-skirted 96-well plates
- Purification from very small volumes (5 µl)
- Ultra low elution volume version (3 µl)



0.2 ml MagnaStand

- 8 magnets for 0.2 ml reaction tubes
- Perform up to 8 purifications in parallel
- Purification of DNA from very small volumes (down to 3 µl)
- Each magnet position is adjustable for close contact



1.5 ml MagnaStand

- 8 Ultra strong extra large magnets for larger volumes
- Suitable e.g. for the purification of recombinant proteins
- Adjust the magnet position to the volume of your sample

Test the MagnaStands for free!

Each FastGene® MagnaStand uses neodymium magnets, the strongest type of permanent magnet commercially available. Convince yourself and contact us for free testing.

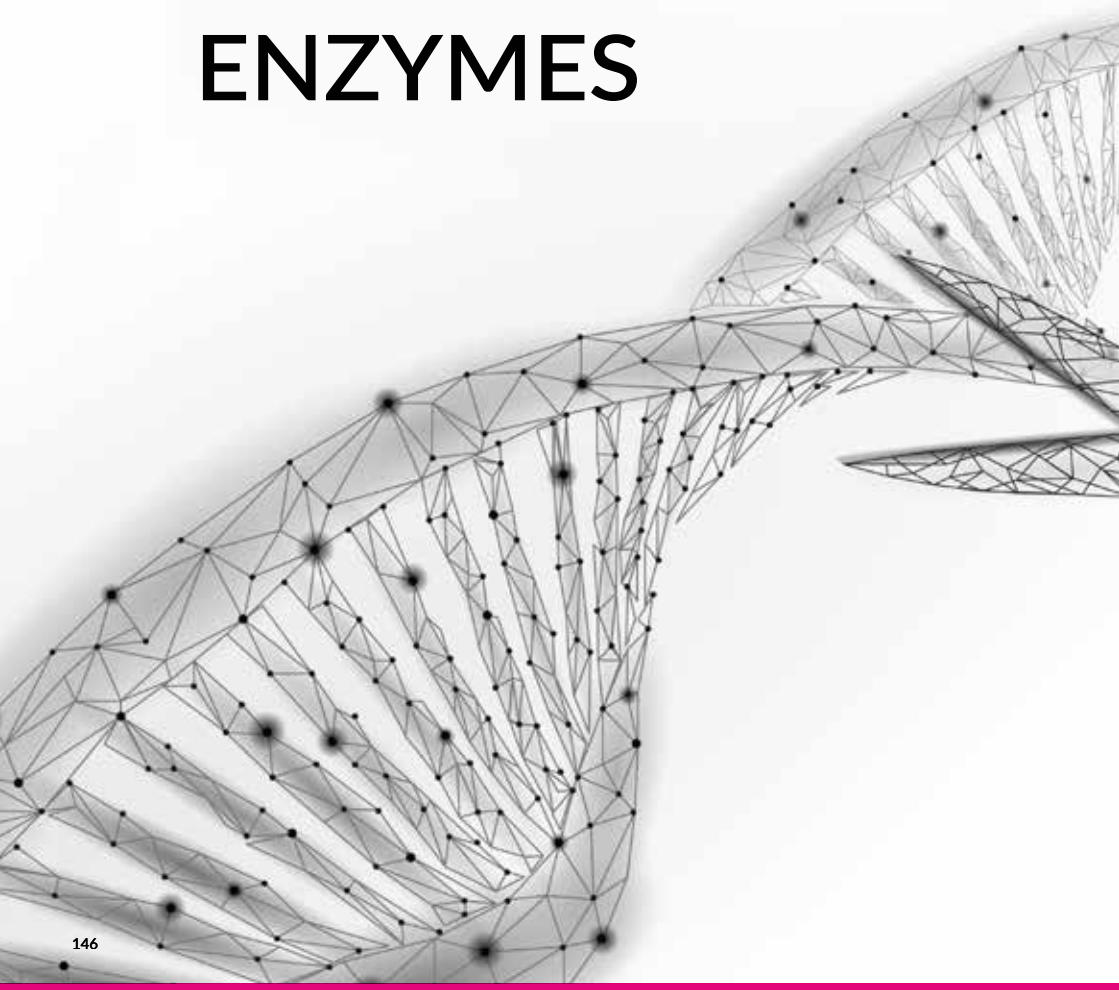
Customer Testimonial

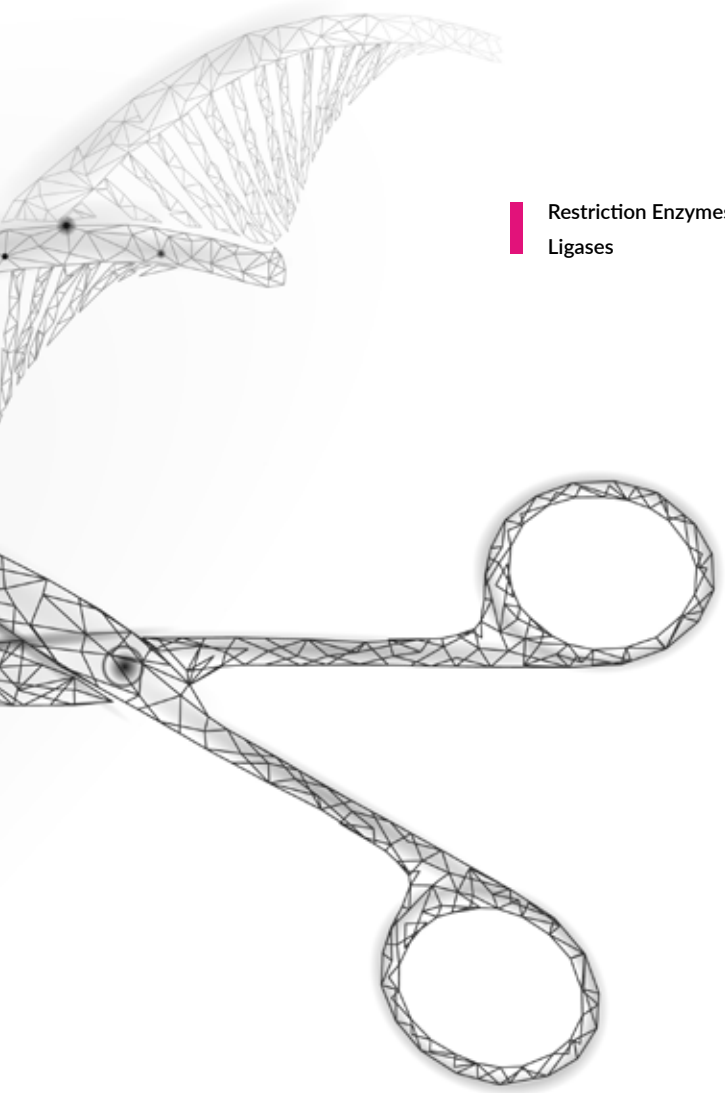
"NIPPON Genetics EUROPE provided us a 0.2 MagnaStand for testing. I was totally excited and ordered several MagnaStands for the whole lab. I tested several comparison products, but none of them was so convincing as the FastGene® MagnaStand. The beads are kept punctually, and the magnets can be positioned exactly with the supplied allen key. Meanwhile, the magnetic stands are present in the whole institute. Each laboratory table has now a MagnaStand."

Carolin Dreier
Institute of Human Genetics,
University Hospital Münster, Germany

More testimonials on our website
www.nippongenetics.eu

CLONING ENZYMES





FastGene® Restriction Enzymes

Cut your DNA the easy way

- **115 restriction enzymes for all your needs**
- **FastCut digestion in just 5-15 minutes**
- **No Star activity**
- **Highest activity and purity**

What are Restriction Endonucleases?

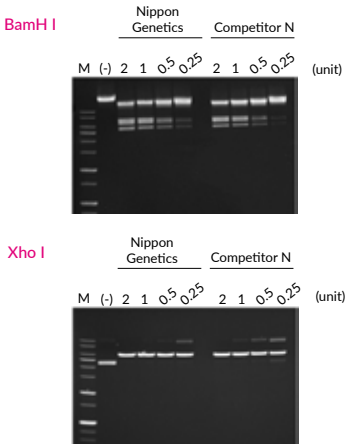
Restriction enzymes cleave double-stranded DNA at or near a specific recognition site. These enzmyes are classified into four types, based on their subunit structure, cofactor requirements and specificity of cleavage.

Perfect for your cloning experiments

Our restriction enzymes belong to type II, which cleave DNA within or near the recognition sequence. The restriction enzymes cleave double stranded DNA either at the center of both strands to yield “blunt ends” or at a staggered position leaving overhangs called “sticky ends”.

Excellent activity - compare it to the world market leader

Our restriction enzymes show an excellent activity, at least as high as the world market leader, competitor N. Let's ask you this simple question: Why paying higher prices for the same results? Our restriction enzymes show superb activity, purity, no star activity and promise satisfying results. It's that simple.



Our restriction enzymes (BamH I and Xho I) show at least the same activity as competitor N. M (Marker), (-) negative control.

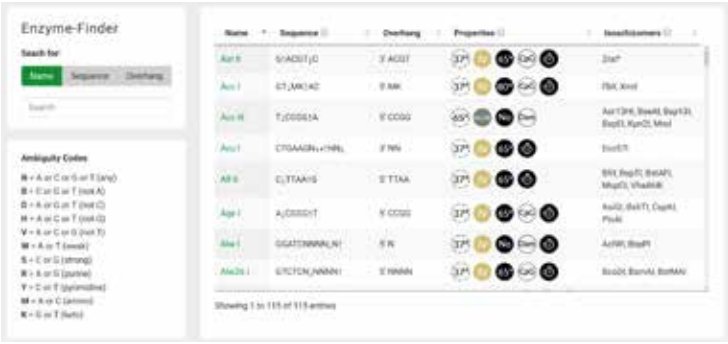
FastGene® Restriction Enzymes

Cut your DNA the easy way

Find the restriction enzymes you need - with the Enzyme-Finder

Find your suitable restriction enzyme with our practical Enzyme-Finder by either typing in the name, recognition sequence or overhang sequence. The enzyme list shows you all important properties of our 115 restriction enzymes. Also listed are Isochizomers, which have the exact same recognition and cutting site. Check our the Enzyme-Finder: www.nippongenetics.eu/en/enzyme-finder/

Choose between 115 different restriction enzymes for your cloning experiments:



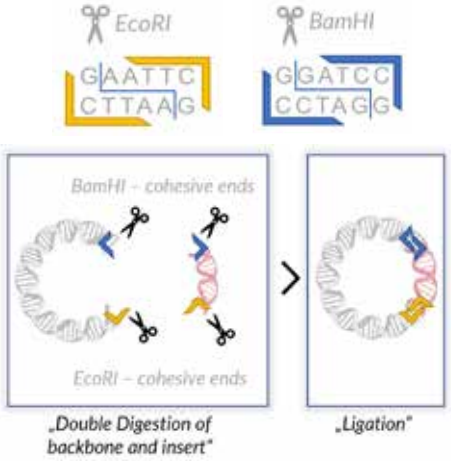
Scan me

Digestion in just 5-15 minutes - The FastCut protocol

Most of our restriction enzmyes are supplied with the FastCut buffer, enabling a digestion in just 5-15 minutes. Take 5-10 units of the FastCut restriction enzyme per µg DNA and incubate at the recommended temperature for at least 5 minutes.

Double digestion for easy cloning

A vector and insert DNA can be cloned by cleaving both DNA fragments with two different restriction enzymes. This generates two different overhang ends for each fragment. The double digestion strategy prevents the vector from self-ligation and increases cloning efficiency. Most of our restriction enzymes are 100% active in the FastCut buffer, making double digestion simple.



1. Double digestion using colour-coded buffers:
If possible, use the buffer in which both enzymes have 100% activity. Example: For performing a double digestion reaction using Not I and Pst I, simply select Buffer III, because both enzymes are 100% active in Buffer III.

If there is no optimal buffer for both enzymes, use a non-optimal Buffer and adjust the number of units or incubation time for the slower rate of cleavage. Example: For performing a double digestion reaction using Not I and Pvu II, we recommend to select Buffer II (100% activity of Pvu II) and double the units of Not I, as Not I shows 50 % activity in Buffer II.

2. Double digestion using the FastCut buffer:
Most restriction enzymes are 100% active in FastCut buffer, making the buffer choice for double digestion very simple.

3. Setting up a double digestion with a unique buffer
Some restriction endonucleases require a unique buffer for maximum activity: If a restriction enzyme requires a unique buffer, please refer to the table "activity chart of common restriction enzymes in the five unique buffers", for selection of the ideal double digestion buffer.

FastGene® Restriction Enzymes

Enzyme	Cat. #	Sequence 5′ → 3′	Enzyme Properties	Activity in FastGene Buffer [%]			
				I	II	III	IV
Aat II	FG-AatII	GACGT↓C	37 80 Y CpG ☆	0	25	25	100
Acc I	FG-AccI	GT↓MKAC	37 80 Y CpG ☆	75	100	100	100
Acc III*	FG-AccIII	T↓CCGGA	65 Na Dam	0	25	100	0
Acu I	FG-AcuI	CTGAAGN$_{16}$↓	37 65 Y ☆	50	50	75	100
Afl II	FG-AflII	C↓TTAAG	37 65 Y ☆	75	100	75	100
Age I	FG-AgeI	A↓CCGGT	37 65 Y CpG ☆	100	50	0	100
Alw I	FG-AlwI	GGATCNNNN↓N	37 65 Y Dam CpG ☆	50	50	10	100
Alw26 I	FG-Alw26I	GTCTCN↓NNNN	37 65 Y CpG ☆	75	100	50	100
Apa I	FG-ApaI	GGGCC↓C	37 65 Y CpG Dcm ☆	100	25	0	100
ApaL I	FG-ApaLI	G↓TGCAC	37 Na Y CpG ☆	50	100	50	100
Apo I	FG-ApoI	R↓AATTY	50 80 R ☆	10	75	100	75
Asc I	FG-AscI	GG↓CGCGCC	37 80 Y CpG ☆	0	0	0	100
Ava I	FG-AvaI	C↓YCGRG	37 80 Y CpG ☆	25	100	100	100
Ava II	FG-AvaII	G↓GWCC	37 80 Y CpG Dcm ☆	100	100	50	100
Avr II	FG-AvrII	C↓CTAGG	37 Na Y ☆	100	50	50	100
Bal I*	FG-BalI	TGG↓CCA	37 65 Dam Dcm	0	75	25	75
BamH I*	FG-BamHI	G↓GATCC	37 Na Dam ☆	75	100	100	100
Bcl I	FG-BclI	T↓GATCA	50 Na R Dam ☆	50	100	100	75
Bgl I	FG-BglI	GCCNNNN↓NGGC	37 65 R CpG ☆	75	75	100	50
Bgl II	FG-BglII	A↓GATCT	37 65 R ☆	10	75	100	10
Bsa I	FG-BsaI	GGTCTCN↓NNNN	37 65 Y CpG Dam ☆	50	100	100	100
BsaW I	FG-BsaWI	W↓CCGGW	60 80 Y ☆	50	100	100	100
BsiW I	FG-BsiWI	C↓GTACG	55 80 R CpG ☆	50	75	100	50
BsmB I	FG-BsmBI	CGTCTCN↓NNNN	55 80 R CpG ☆	10	50	100	25
BsoB I	FG-BsoBI	C↓YCGRG	37 80 Y ☆	10	100	100	100
BspE I	FG-BspEI	T↓CCGGA	37 80 R CpG Dam ☆	10	10	100	10
BsrF I	FG-BsrFI	R↓CCGGY	37 Na Y CpG ☆	75	100	100	100
BstY I	FG-BstYI	R↓GATCY	60 Na B ☆	50	100	75	100
BtsC I	FG-BtsCI	GGATGNN↓	50 80 Y ☆	75	100	100	100
Cfr10 I*	FG-Cfr10I	R↓CCGGY	37 Na Dam CpG ☆	10	10	10	25
Cfr42 I	FG-Cfr42I	CCGC↓GG	37 65 I CpG ☆	100	50	25	75
Cfr9 I	FG-Cfr9I	C↓CCGGG	37 65 R CpG	0	0	100	0
Cla I	FG-ClaI	AT↓CGAT	37 65 Y CpG Dcm ☆	50	75	75	100
CviA I	FG-CviAI	↓GATC	37 65 Y Dam ☆	10	50	10	100
Dde I	FG-DdeI	C↓TNAG	37 65 R CpG ☆	25	50	100	50
Dpn I	FG-DpnI	GA↓TC	37 80 Y ☆	75	100	100	100
Dpn II*	FG-DpnII	↓GATC	37 65 Dam Dcm ☆	25	75	100	75
Dra I	FG-DraI	TTT↓AAA	37 65 Y ☆	75	100	50	100
Eag I	FG-EagI	C↓GGCCG	37 65 R CpG ☆	10	25	100	10
Eco47 I	FG-Eco47I	G↓GWCC	37 65 R CpG Dcm ☆	100	100	100	100
EcoN I	FG-EcoNI	CCTNN↓NNNAGG	37 65 Y ☆	50	100	75	100
EcoO109 I	FG-EcoO109I	RG↓GNCCY	37 65 Y Dcm ☆	50	75	100	100
EcoR I*	FG-EcoRI	G↓AATTC	37 65 Dam CpG ☆	50	100	75	100
EcoR V	FG-EcoRV	GAT↓ATC	37 80 R CpG ☆	0	100	100	50
EcoT38 I	FG-EcoT38I	GRGCY↓C	37 65 Y ☆	75	100	0	100
Esp3 I	FG-Esp3I	CGTCTCN↓NNNN	37 65 Y CpG ☆	25	50	10	100
Fok I	FG-FokI	GGATGN$_{13}$↓	37 65 Y CpG Dcm ☆	100	100	10	100
Fsp I	FG-FspI	TGC↓GCA	37 Na Y CpG ☆	75	100	50	100
Hae II	FG-HaeII	RGCGC↓Y	37 80 Y CpG ☆	10	100	100	100
Hae III	FG-HaeIII	GG↓CC	37 80 Y ☆	50	100	75	100
Hga I	FG-HgaI	GACGCN$_5$↓N$_4$	37 65 I CpG ☆	100	75	10	100
Hinc II	FG-HincII	GTY↓RAC	37 65 Y CpG ☆	75	50	50	100
Hind II	FG-HindII	GTY↓RAC	37 65 R CpG ☆	100	100	50	100
Hind III	FG-HindIII	A↓AGCTT	37 80 R ☆	25	100	75	100
Hinf I	FG-HinfI	G↓ANTC	37 80 Y CpG ☆	50	100	100	100
HinP1 I	FG-HinP1I	G↓CGC	37 65 R CpG ☆	50	100	100	75
Hpa I	FG-HpaI	GTT↓AAC	37 Na Y CpG ☆	0	50	25	100
Hpa II	FG-HpaII	C↓CGG	37 80 Y CpG ☆	100	75	50	100
Hph I	FG-HphI	GGTGAN7↓	37 65 Y Dam ☆	100	75	10	100
Hpy188 I	FG-Hpy188I	TCN↓GA	37 65 Y Dam ☆	50	75	50	100
Hpy99 I	FG-Hpy99I	CGWCG↓	37 65 Y CpG ☆	100	25	10	100

*Supplied with Unique Buffer

FastGene® Restriction Enzymes

Enzyme	Cat. #	Sequence 5′ → 3′	Enzyme Properties	Activity in FastGene Buffer [%]			
				I	II	III	IV
HpyCH4 V	FG-HpyCH4V	TG↓CA	37° 25° IV	75	100	25	100
Kpn I	FG-KpnI	GGTAC↓C	37° No I	100	50	0	100
Kpn2 I	FG-Kpn2I	T↓CCGGA	55° 80° I CpG	100	25	75	50
Lsp1109 I	FG-Lsp1109I	GCAGCN7↓N3	37° 25° III	25	75	100	100
Mbo I	FG-MboI	↓GATC	37° 25° III CpG Dam	75	100	100	100
Mbo II	FG-MboII	GAAGAN7↓	37° 25° II Dam	100	100	50	100
Mlu I	FG-MluI	A↓CGCGT	37° 80° III CpG	25	75	100	50
Mnl I	FG-MnlI	CCTCN6↓	37° 25° II	75	100	75	100
Mse I	FG-MseI	T↓TAA	37° 25° IV	75	100	100	100
Msp I	FG-MspI	C↓CGG	37° No IV	75	100	75	100
MspA1 I	FG-MspA1I	CMG↓CKG	37° 25° IV CpG	0	100	75	100
Mun I	FG-MunI	C↓AATTG	37° 25° II	100	100	10	100
Nae I	FG-NaeI	GCC↓GGC	37° No I CpG	100	100	25	100
Nco I	FG-NcoI	C↓CATGG	37° 80° III	50	100	100	75
Nde I	FG-NdeI	CA↓TATG	37° 25° IV	75	100	100	100
NgoM IV	FG-NgoMIV	G↓CCGGC	37° No IV CpG	25	75	0	100
Nhe I	FG-NheI	G↓CTAGC	37° 25° II CpG	100	100	10	100
Nla IV	FG-NlaIV	GGN↓NCC	37° 25° IV CpG Dam	0	10	10	100
Not I	FG-NotI	GC↓GGCCGC	37° 25° III CpG	0	50	100	0
Nru I	FG-NruI	TCG↓CGA	37° No III CpG Dam	0	50	100	75
Nt.BstNB I	FG-NtBstNBI	GAGTCNNNN↓	55° 80° III	0	10	100	0
PaeR7 I	FG-PaeR7I	C↓TCGAG	37° No IV CpG	25	100	10	100
PflM I	FG-PflMI	CCANNNN↓NTGG	37° 25° III Dcm	0	100	100	50
Ple I	FG-PleI	GAGTCNNNN↓N	37° No IV CpG	75	75	50	100
PluT I	FG-PluTI	GGCGC↓C	37° No IV CpG	75	25	10	100
PspG I	FG-PspGI	↓CCWGG	37° No IV Dcm	25	100	75	100
Pst I	FG-PstI	CTGCA↓G	37° 80° III	100	100	100	75
Pvu I	FG-PvuI	CGAT↓CG	37° No III CpG	25	75	100	50
Pvu II	FG-PvuII	CAG↓CTG	37° No II	75	100	25	10
Rsa I	FG-RsaI	GT↓AC	37° No IV CpG	100	100	75	100
Sac I	FG-SacI	GAGCT↓C	37° 25° I	100	75	25	75
Sac II	FG-SacII	CCGC↓GG	37° 25° IV CpG	50	100	50	100
Sal I	FG-SalI	GTCGAC	37° 25° III CpG	0	0	100	0
Sau96 I	FG-Sau96I	G↓GNCC	37° 80° IV CpG Dam	50	100	100	100
Sbf I	FG-SbfI	CCTGCA↓GG	37° 80° IV	50	25	10	100
Sca I	FG-ScaI	AGT↓ACT	37° 80° III	0	0	100	0
Sda I	FG-SdaI	CCTGCA↓GG	37° 80° IV	75	75	0	100
Sfi I	FG-SfiI	GGCCN3↓NGGCC	50° No II CpG Dam	25	100	25	100
SgrA I	FG-SgrAI	CR↓CCGGYG	37° 25° IV CpG	100	100	0	100
Sma I	FG-SmaI	CCC↓GGG	25° 25° IV CpG	0	0	0	100
SnaB I	FG-SnaBI	TAC↓GTA	37° 80° IV CpG	100	75	25	100
Spe I	FG-SpeI	A↓CTAGT	37° 80° IV	50	100	75	100
Sph I	FG-SphI	GCATG↓C	37° 25° II	50	100	50	75
Sse9 I	FG-Sse9I	↓AATT	55° 25° I	100	50	50	75
Ssp I	FG-SspI	AAT↓ATT	37° 25° IV	50	100	25	100
Stu I	FG-StuI	AGG↓CCT	37° No IV Dcm	75	100	75	100
StyD4 I	FG-StyD4I	↓CCNGG	37° 25° IV CpG Dam	10	100	100	100
Swa I	FG-SwaI	ATTT↓AAAT	25° 25° III	75	75	100	25
Taq I	FG-TaqI	T↓CGA	65° 80° III Dam	50	100	100	100
TspM I	FG-TspMI	C↓CCGGG	75° No IV CpG	50	75	50	100
Tth111 I	FG-Tth111I	GACN↓NNGTC	65° No IV	25	100	100	100
Xba I	FG-XbaI	T↓CTAGA	37° 25° IV Dam	0	100	100	100
Xho I	FG-XhoI	C↓TCGAG	37° 80° IV CpG	50	100	100	100
Xma I	FG-XmaI	C↓CCGGG	37° 25° IV CpG	50	75	25	100

Chart Legend

25° 37° 50° 55° — Optimal reaction temperature

I II III IV — Supplied buffer

CpG Dcm Dam — Cleavage blocked or impaired by CpG, Dam or Dcm methylation

65° 80° — Thermal inactivation condition

No — Not heat inactivatable

FastCut protocol available

BalI BamHI DpnII EcoRI — Supplied with unique buffer

FastGene® Ligases

- **T4 Ligase joins blunt ends and sticky ends**
- **Quick ligation of DNA fragments in 5 min using the Kickspeed ligation kit**
- **Supplied with optimal buffer conditions for an efficient ligation**
- **Highest activity and purity**

T4 DNA Ligase

The FastGene® T4 DNA Ligase catalyzes the formation of a covalent bond between the 5′-phosphate and 3′-OH in nicked duplex DNA or between two DNA ends. This activity is very useful to ligate DNA fragments with either cohesive or blunt ends, that are generated by restriction enzyme digestion.

The T4 DNA Ligase can also ligate RNA with DNA or RNA in a double helix with lower efficiency. The enyzme is expressed and purified in E. coli and is free of endonuclease, exonuclease and phosphatase.

Ligation in 5 minutes using the Kickspeed Ligation kit

The FastGene® Kickspeed DNA Ligation kit is formulated for quick ligation of DNA fragments with cohesive ends within 5 min at room temperature.
Or use the Kickspeed 2X DNA Ligation Mix. This is a ready-to-use solution. This master mix enables quick ligation in a short incubation time (< 5min) at room temperature.

Applications

- Vector construction
- Linker ligation
- Fragment assembly
- Routine cloning

Ordering information

Cat. No.	Product	Content
FG-T4	FastGene® T4 DNA Ligase	20,000 units (400 U/µl)
FG-T4BP	FastGene® T4 DNA Ligase	100,000 units (400 U/µl)
FG-T4HC	FastGene® T4 DNA Ligase	100,000 units (2000 U/µl)
FG-LK30	FastGene® Kickspeed DNA Ligation kit	30 reactions
FG-LK60	FastGene® Kickspeed DNA Ligation kit	60 reactions
FG-LM50	FastGene® Kickspeed 2x DNA Ligation kit	50 reactions

Would you like to try it?

You would like to test our Restriction Enzymes or Ligases? No problem! Just give us a call or write us an email and get your enzymes very soon.

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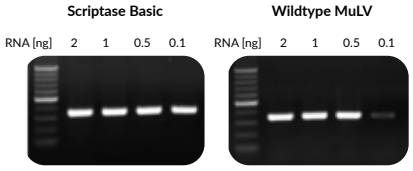
(q)PCR ENZYMES

FastGene® Scriptase Basic

Perfect Enzymes for Reverse Transcription

- **Reverse transcriptase for the quantification of gene expression**
- **RNase inhibitor included**
- **For high DNA concentrations**
- **Enzyme only or cDNA Synthesis Kit**



The FastGene® Scriptase Basic shows higher sensitivity when compared to wildtype MuLV. The Scriptase Basic is able to produce a template from RNA concentrations as low as 0.1 ng.

Enzyme only or cDNA Synthesis Kit

The FastGene® Scriptase Basic is available in two forms: Enzyme only contains the enzyme, buffer and dNTPs. The cDNA Synthesis Kit, additionally comes with Oligo dTs, random hexamers and RNase inhibitor.

Designed for endpoint RT-PCR

The FastGene® Scriptase Basic was designed for large RNA quantities, typically used in an endpoint RT-PCR. Nonetheless, it is also able to process lower RNA concentrations.

Optimized for better performance

The FastGene® Scriptase Basic is an enhanced version of the Murine Leukemia Virus (MuLV) reverse transcriptase. Like the wildtype, it has the ability to synthesize a cDNA strand, with a reduced RNase H activity and processivity. The robustness of the enzyme was greatly increased. It is perfectly suited for large RNA quantities and easy templates.

No inhibition - Even at large RNA concentration

The special buffer formulation permits a high RNA concentration. Other reverse transcriptases are not able to process such large quantities.

Ordering information

Cat. No.	Product	Content
LS52	FastGene® Scriptase Basic (20,000 units at 200 U/µl) (Includes: enzyme, buffer, dNTPs and sterile water)	100 rxn
LS62	FastGene® Scriptase Basic cDNA Synthesis Kit (Kit includes: enzyme, buffer, dNTPs, sterile water, RNase inhibitor, oligo dTs and random hexamers)	100 rxn

FastGene® Scriptase II

Perfect Enzymes for Reverse Transcription

- **Reverse transcriptase for the quantification of gene expression**
- **Very low RNase H activity**
- **High yield of full-length cDNA**
- **Synthesis of cDNA from very low amounts of RNA**

Everything you need for your reverse transcription

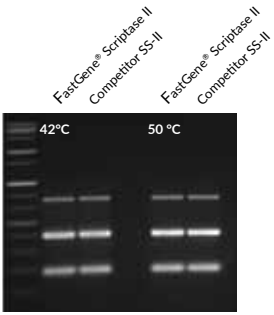
The FastGene® Scriptase II cDNA Synthesis Kit includes all necessary components to perform a reverse transcription. The kit contains the Scriptase II enzyme, buffer, DTT, dNTPs, RNase inhibitor, random hexamer and oligo dTs.

The Scriptase II is also available in two 5x ready-to-use mixes!

Have a look on the next page!

Engineered enyzme for better performance

The reverse transcriptase Scriptase II from FastGene® allows the synthesis of cDNA from very low RNA quantities. The FastGene® Scriptase II contains mutations within the RNase H domain of the MuLV's reverse transcriptase. By reducing the degradation of the RNA during the first-strand synthesis, a higher yield of full-length cDNA is obtained.
The FastGene® Scriptase II delivers superior cDNA templates for downstream applications, e.g. qPCR and NGS. The resulting full length cDNA gives a complete picture of the gene and is able to show modifications, e.g. splicing variants.

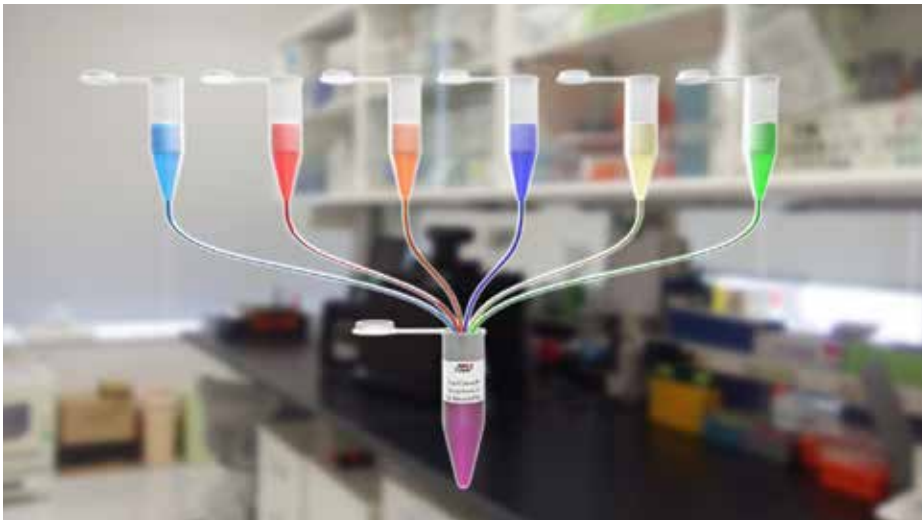


Comparison of multiplex PCR using cDNA produced by Competitor SS-II enzyme and FastGene® Scriptase II at 42°C and 50 °C.

Ordering information

Cat. No.	Product	Content
LS53	FastGene® Scriptase II (20.000 units at 200 U/µl) (Includes: enzyme, buffer, DTT, dNTPs and sterile water)	100 rxn
LS63	FastGene® Scriptase II cDNA Synthesis Kit (Kit includes: enzyme, buffer, DTT, dNTPs, sterile water, RNase inhibitor, oligo dTs and random hexamers)	100 rxn

FastGene® Scriptase II ReadyMix

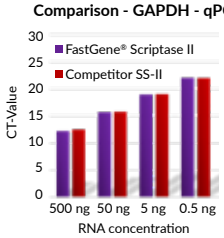


Reverse transcription: Ready-to-use

The FastGene® Scriptase II cDNA Synthesis 5x ReadyMix is ready-to-use with all necessary ingredients in just one vial. Just add the Scriptase II ReadyMix to your template and start the reaction.

Mixes with or without oligo dTs

The FastGene® Scriptase II ReadyMix is available in two variants. LS64 contains random hexamers and is suitable for prokaryotic systems. The LS65 mix additionally contains oligo dT primers that are able to bind to poly(A) tails of mRNA. This makes the mix perfectly suitable for eukaryotic systems.



Comparison of qPCR results using primers for GAPDH produced by using different RNA starting concentration by FastGene® Scriptase II and competitor SS-II enzyme at 42°C.

Customer Testimonial

"I especially like that the Scriptase II leads to stable results. As a result of performing RT-PCR using tumor derived RNA, we were able to detect the expression of genes, where the amplification was unstable with other RT reagents. The amplification of full-length cDNA has also been confirmed. I would love to also try the 5x ReadyMix."

Haruko Hayasaka
Department of Bioscience and Biotechnology,
Kinki University, Osaka, Japan

★★★★★

Ordering information

Cat. No.	Product	Content
LS64	FastGene® Scriptase II cDNA Synthesis 5x ReadyMix (Mix contains: enzyme, buffer, dNTPs, RNase inhibitor, random hexamers and helper protein)	100 rxn
LS65	FastGene® Scriptase II cDNA Synthesis 5x ReadyMix OdT (Mix contains: enzyme, buffer, dNTPs, RNase inhibitor, random hexamers, helper protein and oligo dTs)	100 rxn

Technical Data — Very fast reverse transcription reactions

Purpose

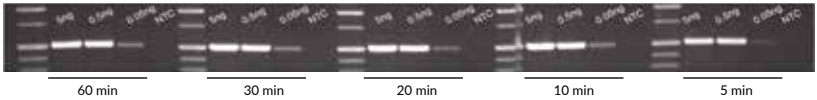
FastGene® Scriptase II is an engineered reverse transcriptase, able to deliver highest quality cDNA from a small amount of RNA. Optimization of enzymatic design has led to one of the most reactive RT-enzymes. This technical note shows the investigation of the minimum time possible of a reverse transcription. We were able to shorten time to 5 minutes with different concentrations of RNA. The resulting cDNA was used in endpoint PCR as well as in qPCR experiments.

Method

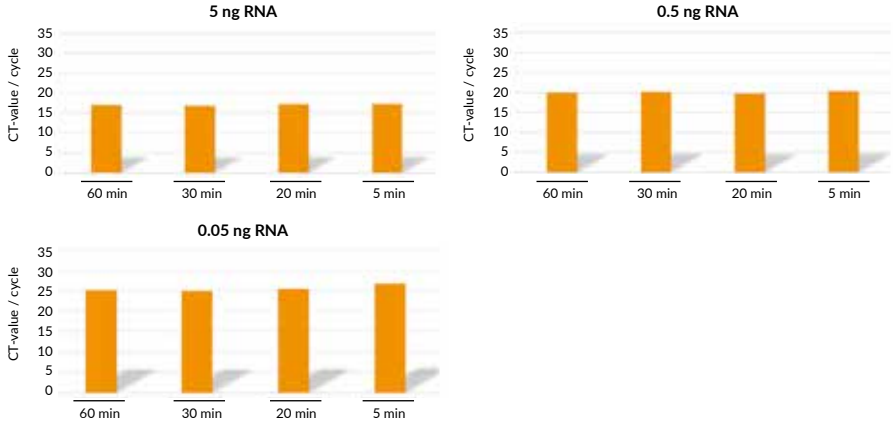
- FastGene® Scriptase II cDNA Synthesis Kit (LS63)
- RNA: Universal Human Reference RNA (Agilent Technologies) Input RNA amount: 5 ng, 0.5 ng, 0.05 ng
- Primer:
  - TUBB (1006 bp): Endpoint PCR
  - GAPDH (138 bp): qPCR

Result

1 Endpoint PCR



2 Quantitative PCR



Conclusion

FastGene® Scriptase II was able to produce cDNA in 5 minutes.
Result 1: For large PCR products, the band of 0.05 ng RNA after 5 min was slightly weaker. Hence, for products of 1000 bp a 10 min RT step is recommended for low RNA amounts.
Result 2: No difference in CT-value exceeding ± 1 cycle was detected.
FastGene® Scriptase II can therefore be recommended for short-term reverse transcripton reactions.

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

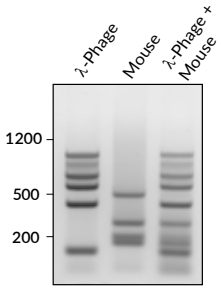
The FastGene® HiFi Polymerase is provided in a 2x Master Mix, which significantly speeds up the preparation of a PCR. It contains an advanced buffering system with dNTPs, Mg2+, reaction enhancers and the polymerase enzyme.

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

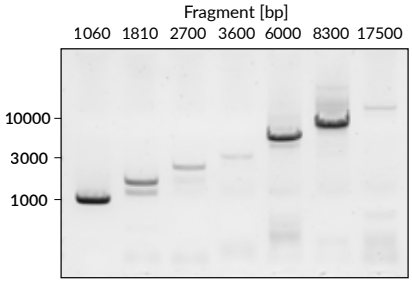
The FastGene® HiFi polymerase is working extremely accurate and fast. This is ideal for applications where high fidelity is essential, such as sequencing, cloning and site-directed mutagenesis.



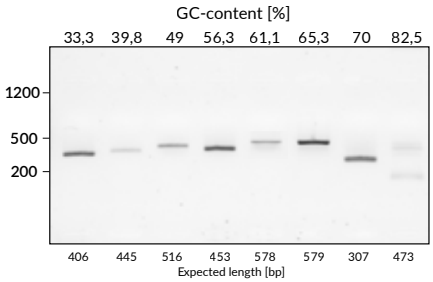
The FastGene® HiFi Polymerase Mix can be used for multiplexing PCR. In this experiment, 6 phage DNA fragments, 4 mouse DNA fragments and a combination of both were successfully amplified in a single reaction mix.

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.

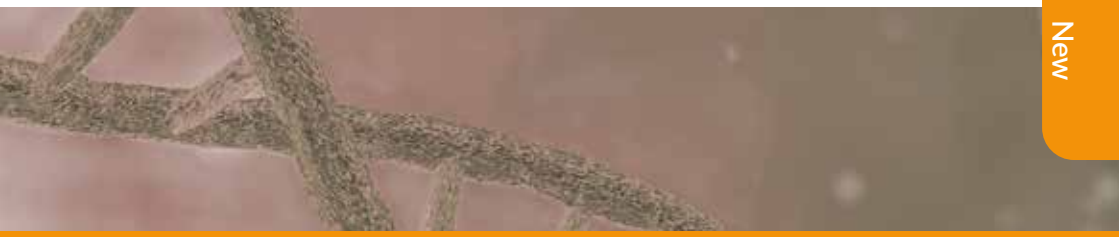


Templates with varying GC-contect, ranging from ~30 % to ~80 % can be successfully amplified with the FastGene® HiFi Polymerase Mix.

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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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).

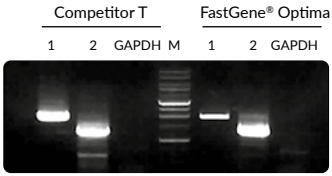


Fig. 2: Comparing the ability of Competitor T and FastGene® Optima polymerase mixture to amplify GC-rich DNA fragments. Two fragments with 60.7% GC and 64.3% GC were amplified, resulting in two products of 1839 bp and 1260 bp, respectively. FastGene® Optima had a higher efficiency compared to Competitor 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.

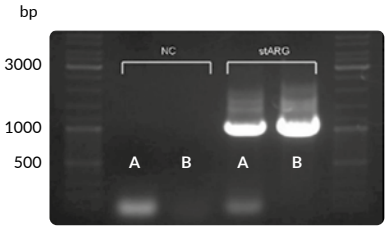


Fig. 1: The comparison between (A) the "best-selling" blended Taq mix and (B) FastGene® Optima polymerase mixture uses with catshark liver DNA (hard to amplify) as a template. The PCR product with a size of 1030 bp was separated on a 1.2% agarose gel. The FastGene® Optima produces less primer dimers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

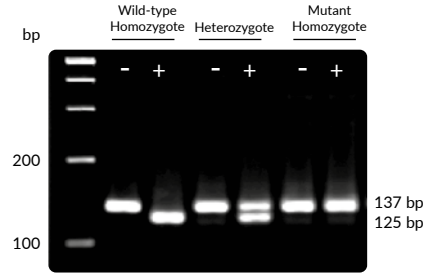


Fig. 3: SNP typing of the ALDH gene using FastGene® Optima polymerase. The ALDH gene, classified as human sensitivity to alcohol, was analysed for presence of SNP by digesting the amplification of homo- and heterozygotes using MboII.

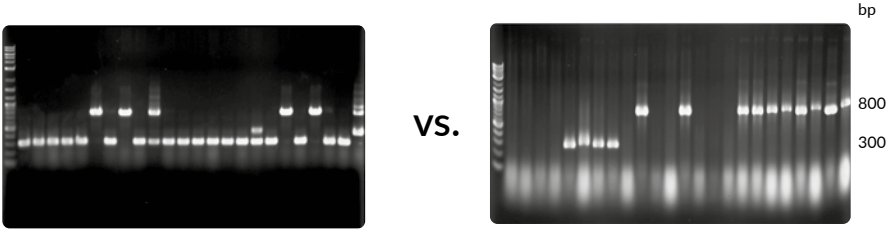
HotStart - It is your decision when to start

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® apTaq HotStart Polymerase

- **HotStart: Very fast PCR**
- **Aptamer technology: Reversible enzyme activation or inactivation**
- **Maximal specificity, sensitivity and yield**
- **Robust and reliable reaction**
- **For a wide range of templates**

Redefine your PCR

The FastGene® apTaq DNA polymerase is a recombinant and thermostable Taq-Polymerase using the aptamer based HotStart activation technology. The aptamer allows a reversible and immediate activation of the polymerase, leading to specific priming and a very fast PCR.

Reversible polymerase activation – The aptamer principle

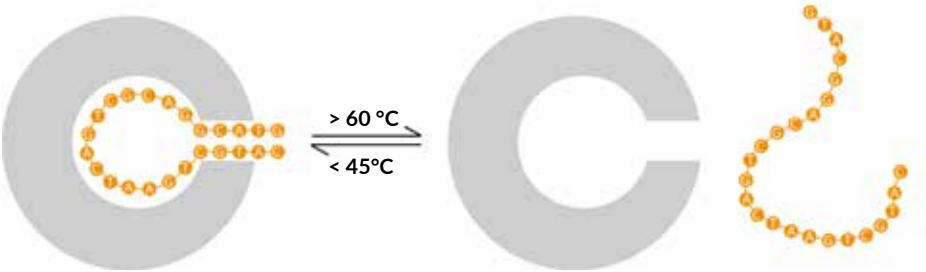
The FastGene® apTaq DNA-Polymerase is a HotStart enzyme, which is completely inactive at room-temperature and only becomes active at higher temperatures. Random primer annealing and unspecific amplification that might occur with standard PCR enzymes are yesterday's problems. In contrast to antibody-based methods, the apTaq DNA-Polymerase includes synthetically manufactured aptamer-oligonucleotides. At low temperatures, the polymerase is inactivated through reversible aptamer binding. The aptamer acts as a molecular switch, changing its tertiary structure at higher temperatures. Temperatures below 45 °C deactivate the polymerase, whereas temperatures above 60 °C fully activate the enzyme. Therefore, the FastGene® apTaq DNA-Polymerase is less temperature-sensitive and reduces the risk of contamination.

Applications

- Fast PCR
- Routine PCR
- PCR using complex templates
- SNP Analysis
- Any standard PCR application

Inactive apTaq Polymerase inhibited by aptamer

Active apTaq Polymerase with denatured aptamer



The polymerase oligonucleotide-aptamer mixture is a reversible, temperature-dependent HotStart system.

Ordering information

Cat. No.	Product	Content
LS34	FastGene® apTaq HotStart Polymerase	500 Units

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

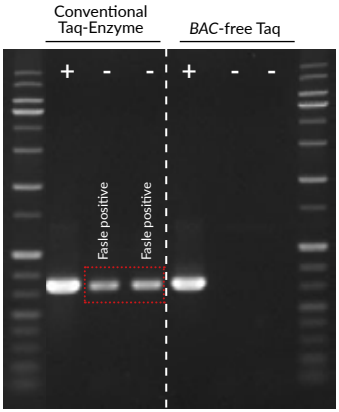
The FastGene® BAC-free HotStart Taq DNA polymerase is based on the single-subunit, wild-type Taq DNA polymerase of the thermophilic bacterium Thermus aquaticus, but is purified from an eukaryotic recombinant expression system. Contaminating DNA, present in most other polymerase preparations, often precludes 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



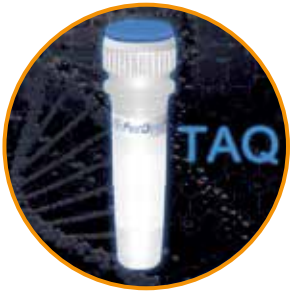
Amplification of a non-ribosomal gene using E. coli DNA (+) or no template control. The no template control (-) was amplified with standard Taq and FastGene® BAC-free HS Taq. The conventional Taq produced a PCR-product despite no tempate being present, while no product was detected using the FastGene®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

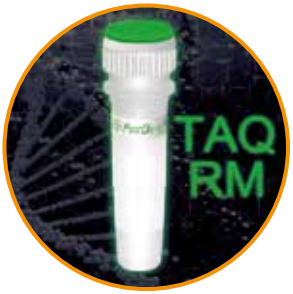
Dr. J. Wagner
PlantaLyt GmbH, Hannover, Germany

★★★★★

Ordering information

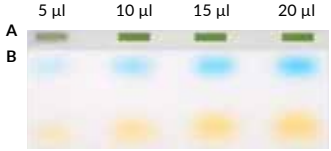
Cat. No.	Product	Content
LS21	FastGene® TAQ DNA polymerase	500 Units
LS22	FastGene® TAQ DNA polymerase	2000 Units

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

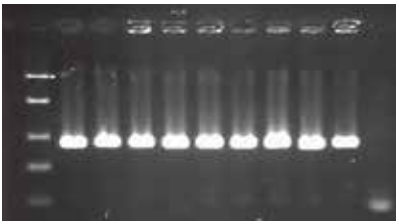
Are you tired of the time-consuming extraction processes and costly spin columns that you've been using to prepare samples for DNA amplification? With the DNAreleasy Advance Direct Lysis Kit, we now offer a better solution. The new cell lysing reagent only requires a 15 minutes incubation in a thermal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

Successfully used samples

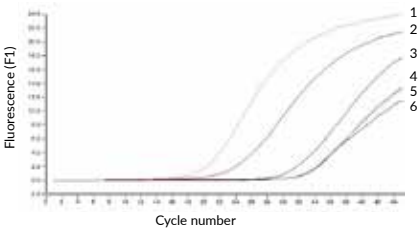
- Saliva
- Hair roots
- Animal tissue (horse, pig liver, etc.)
- Mouse tails and ears
- Plants (leaf, blossom, pollem): Cabbage, maize, canola, soy, sugar beet, etc.
- Drosophila
- Yeast
- Mollusca

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

FastGene® IC Green qPCR Universal Kit

No inhibition - For highest sensitivity

It is well-known that SYBR® Green is extensively inhibiting the qPCR. This fact led to the development of SYBR® resistant enzymes. An alternative approach is to develop a dye that does not inhibit the reaction. This dye is named FastGene® IC Green. FastGene® IC Green is an intercalating dye, only detecting double stranded DNA. By not inhibiting the reaction, the FastGene® IC Green Kit is able to detect genes at a lower CT-value, creating a higher sensitivity!

The superior buffer chemistry enables the detection of low copy number genes, which could not be detected with other dyes. The comparison to competitors shows that FastGene® IC Green is one of the best qPCR mixes available. This has been confirmed by customers analysing various genes.

Universal - for any qPCR instrument

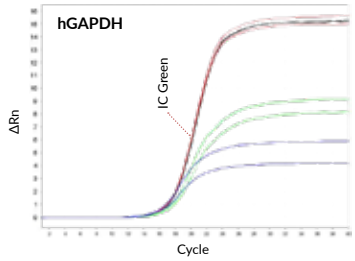
The FastGene® IC Green Kit is universal. The reference dyes come in a separate vial and can be added to the master mixes once. Hence, this kit can be used with qPCR instruments which need a high ROX™ concentration as well as instruments that need a low concentration or no ROX™. A special version with fluorescein is also available

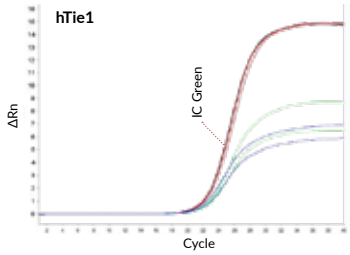
Robust chemistry for faster results

The FastGene® IC Green buffers were designed to have a superior robustness. This guarantees the linearity of the qPCR and creates a better accuracy, essential for reproducible results. Additionally, qPCRs can be performed at shorter amplification times, for example using fast protocols.

Applications

- Quantification of gene expression
- Quantification of gene copy number
- Melt-curve analysis
- Detection of gene expression (knock-out analysis)





Comparison of FastGene® IC Green (black & red) with the market leading competitors KB (green) and T (blue). The differences of the C_T-values were under 1 cycle.

Ordering information

Cat. No.	Product	Content
LS4001	FastGene® 2x IC Green Universal (ROX™)	100 reactions
LS4005	FastGene® 2x IC Green Universal (ROX™)	500 reactions
LS4050	FastGene® 2x IC Green Universal (ROX™)	5000 reactions
LS4101	FastGene® 2x IC Green Universal (Fluorescein)	100 reactions
LS4105	FastGene® 2x IC Green Universal (Fluorescein)	500 reactions
LS4150	FastGene® 2x IC Green Universal (Fluorescein)	5000 reactions

FastGene® Probe qPCR Universal Kit

Save time with fast protocols

The unique buffer composition enables a faster reaction: apply a fast protocol, available on many modern qPCR instruments, and save plenty of time.

Perfect efficiency

For the FastGene® Probe qCPR, use hydrolysis probes, enabling multiplex, and leading to very specific signal and low to none background fluorescence. The buffer chemistry, combined with optimal primer design, is the most important part of a Probe assay based reaction. Here we present the superior buffer system of the FastGene® Probe Universal Kit.

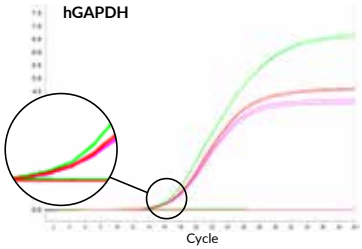
Get a very high dynamic range and reproducible results by using the FastGene® Probe Universal mix. Achieve higher efficiencies and more accurate results.

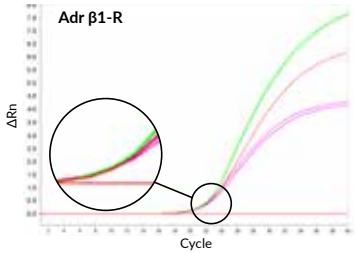
Robust chemistry for multiplexing

The robustness of the buffer ensures the ability to perform multiplex qPCR. Get the highest sensitivity for multiple targets using the FastGene® Probe Universal Kit. The FastGene® Probe Universal Kit is compatible with all real time PCR instruments.

Applications

- Quantification of gene expression
- Quantification of gene copy number
- Multiplex qPCR
- SNP genotyping
- NGS validation





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. PCR was performed for a total of 35 cycles. Green: Competitor KB. Red: Competitor T. Pink: Probe qPCR Universal Kit.

Ordering information

Cat. No.	Product	Content
LS4501	FastGene® 2x Probe Universal (ROX™)	100 reactions
LS4505	FastGene® 2x Probe Universal (ROX™)	500 reactions
LS4550	FastGene® 2x Probe Universal (ROX™)	5000 reactions

FastGene® IC Green 1-Step RT-qPCR

Robust chemistry for 2 reactions in one tube

The FastGene® IC Green 1-Step mix contains a reverse transcriptase and a DNA polymerase. Having a 1-tube reaction setup for the reverse transcription and for the quantitative PCR has many advantages: 1) The 2x master mix ensures the same concentration of buffer and enzyme when performing the experiment multiple times, 2) it is less prone to wrong mixtures of the reaction mix contents, 3) higher convenience due to less preparation time, and many more.

Applications

- Quantification of gene expression
- Quantification of gene copy number
- Melt-curve analysis
- Detection of gene expression (knock-out analysis)

Ordering information

Cat. No.	Product	Content
LS4301LR	2x FastGene® IC Green 1-Step Mix (low ROX™)	1 ml (100 reactions)
LS4305LR	2x FastGene® IC Green 1-Step Mix (low ROX™)	5 x 1 ml (500 reactions)
LS4301HR	2x FastGene® IC Green 1-Step Mix (high ROX™)	1 ml (100 reactions)
LS4305HR	2x FastGene® IC Green 1-Step Mix (high ROX™)	5 x 1 ml (500 reactions)

FastGene® Probe 1-Step RT-qPCR

High-performance enzymes for incredible sensitivity

The FastGene® Probe 1-Step Mix was developed for the rapid detection of multiple gene expressions using multiplex qPCR directly from RNA. The optimal conditions for the reverse transcription as well as for the DNA polymerisation ensures highest sensitivity and the detection of low copy genes.

Applications

- Quantification of gene expression
- Quantification of gene copy number
- Multiplex qPCR
- SNP genotyping
- NGS validation

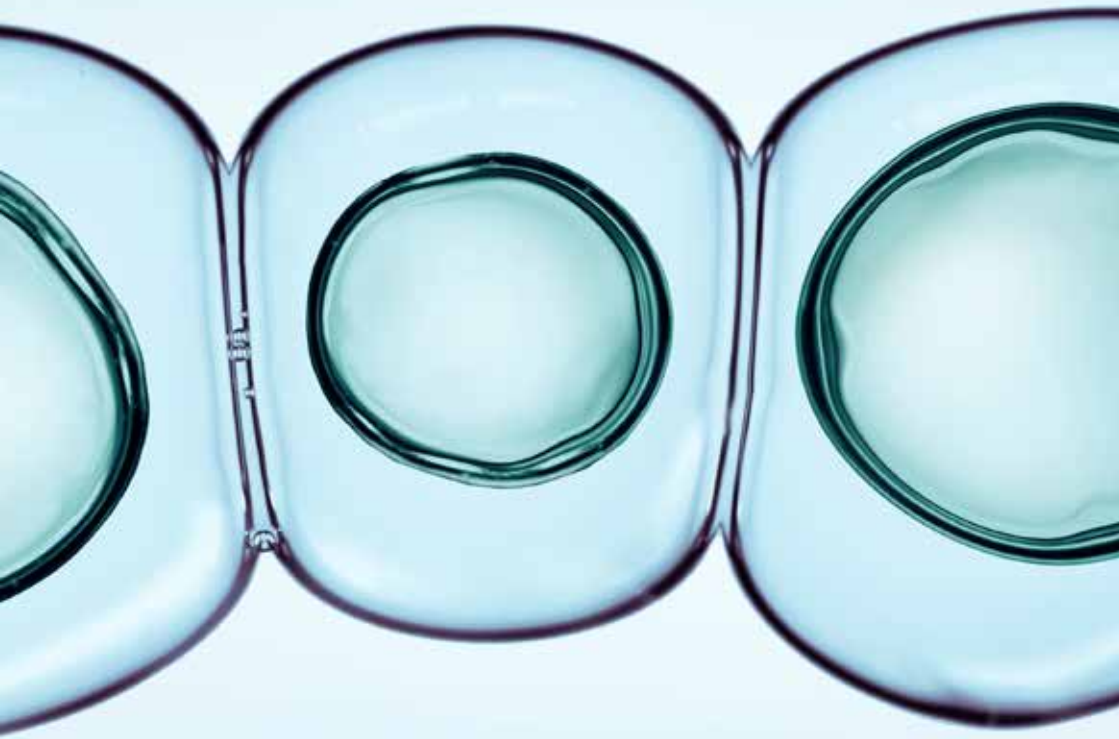
Ordering information

Cat. No.	Product	Content
LS4701LR	2x FastGene® Probe 1-Step Mix (low ROX™)	1 ml (100 reactions)
LS4705LR	2x FastGene® Probe 1-Step Mix (low ROX™)	5 x 1 ml (500 reactions)
LS4701HR	2x FastGene® Probe 1-Step Mix (high ROX™)	1 ml (100 reactions)
LS4705HR	2x FastGene® Probe 1-Step Mix (high ROX™)	5 x 1 ml (500 reactions)

Free Sample?

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

+49 2421 554960
info@nippongenetics.de
www.nippongenetics.eu



CELL BIOLOGY

StemFit®

Recommended by leading Scientist

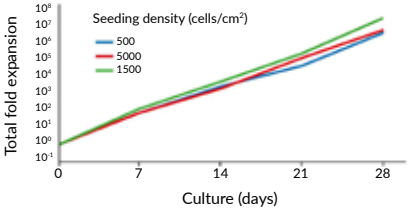
- **Recommended by the nobel prize winner Shin'ya Yamanaka**
- **Enables single cell cloning**
- **Feeder-free and Xeno-free**
- **Less media volume needed**
- **Reproducible and fast replication rates**

No feeder cells and xeno-free culture medium

StemFit® medium was developed to produce a reliable and well-defined growth condition for human stem cells. It has all necessary components for the culture of embryonic stem cells (ES) as well as induced pluripotent stem cells (iPS). It has a xeno-free composition and only contains human components. StemFit® also eliminates the need for feeder cells. These important benefits lead to a reduction of variation in growth, and reduces concerns for contamination in the cultivation of stem cells.

Very reproducible growth rates

The cultivation of stem cells using StemFit® results in a very reproducible growth rate, allowing a perfect planning of experiments. No more variation due to different starting conditions caused by the natural variation when culturing on feeder cells. Analysing the morphology of stem cells cultivated in StemFit® shows that the colony shape and size are very similar to the cells grown on feeder cells.



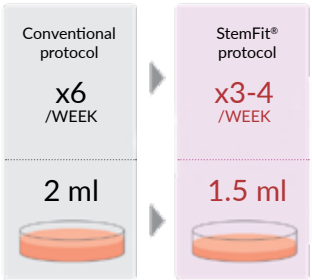
Human 201B7 iPSCs were cultured on iMatrix-511 with StemFit® for 4 weeks without weekend feeding.

StemFit®

Recommended by leading Scientist

Less media needed

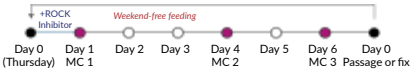
Due to the high-quality components and the ideal concentration of nutrients, the volume of StemFit® required per plate is lower than that of conventional media, and even lower than that of other feeder-free media. For each well of a six-well plate you need just 1.5 ml, instead of 2 ml. A further 50% reduction in media consumption is the direct result of far fewer feeding steps during the week. This means that you are saving in reagents, time, and money.



The volume of StemFit® can be reduced by 25% per well. The reduced amount of media changes leads to a further volume reduction of more than 50%.

Keep your weekend free

The cultivation of stem cells is very complicated and labor-intensive, including feeding steps during the weekend. StemFit® allows a weekend free from stem cell media changes. The recommended weekly workflow minimizes the hands-on time.



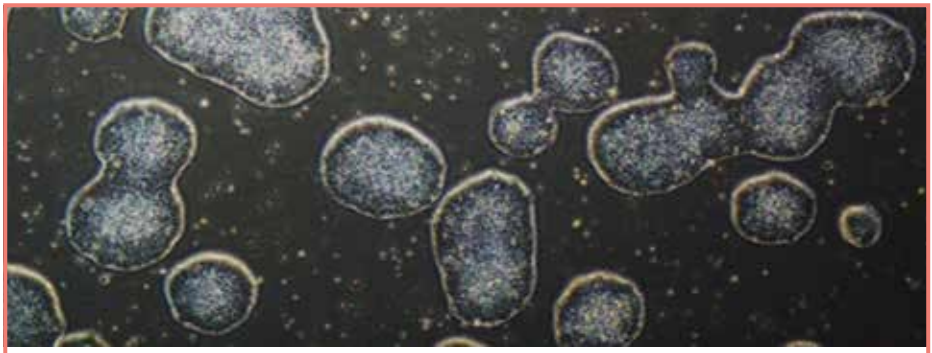
Weekend-free workflow with StemFit®. (Black circle = cell passage; Pink circle = media change (MC); white circle = maintenance-free day).

Let StemFit feed your cells while you enjoy your weekend!

Combined medium during the whole process

StemFit® contains no bFGF, so you can choose the best bFGF concentration for your needs. Therefore, you can use the same medium for reprogramming, cultivation and differentiation.

StemFit®

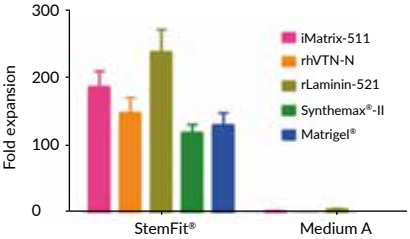


Recommended by the nobel prize winner Shin'ya Yamanaka

"StemFit, a newly developed Xf-medium, was the best medium for hESC and hiPSC culture with rLN511E8"

Superior growth performance on any matrix

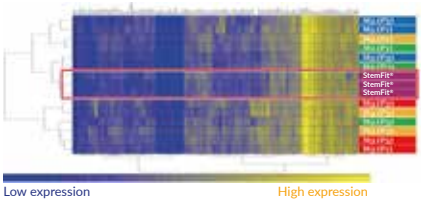
StemFit® has been tested on many different matrices. As can be seen below, the fold expansion rate of cells cultured in StemFit® is much higher when compared to Medium A from the market leading competitor.



Fold expansion of human 201B7 iPS-cells, transitioned to feeder-free conditions with StemFit® or commercially available medium A. Cells were cultered for one week.

Consistent gene expression profile

The cultivation of stem cells is very stressful for the cells. Every passage and growth period can introduce unwanted changes in the genome expression profile. The CGI Catapult Institute in London investigated the genomic profile of StemFit® after 1 passage, 3 and 5 passages and compared it to 4 commercially available media. The most consistent gene expression was obtained using StemFit®.



The expression profile using the TaqMan ScoreCard™ assay (n=3) showed that the most consistent gene expression of after 5 passages was obtained using StemFit®.

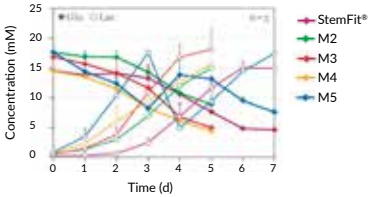
Start from a single cell

StemFit® enables a superior colony forming efficiency from a single cell clone, which minimizes the effects of stress and results in reliable cells for downstream applications. Furthermore, with StemFit® you can easily determine the efficiency of your cell production and duplicate individual clones.

Human embryonic stem cells were dissociated into single cells and cultered with StemFit®. Cells show a normal cell morphology.

Less production of lactate

The production of lactate is the result of hypoxic stress. The consequences can be changes in the genome expression profile or lead to unwanted differentiation of the stem cells. The CGI Catapult Institute in London showed that there is considerably less lactate production when the cells are grown in StemFit® (pink line with white circles).



StemFit Basic03

StemFit Basic04CT (complete type)

Single-cell culture	✔	✔
Xeno-free	✔	✔
Animal-origin free	✔	✔
Clinical research	✔	✔
bFGF	-	✔
cGMP	-	in preparation
Number of bottles	2	1

Reference in Literature

- **Nakagawa, M.** *et al.* (2014). A novel efficient feeder-free culture system for the derivation of human induced pluripotent stem cells. *Sci. Rep.*, 4, 3594.
- **Desai N.** *et al.* (2015). Human embryonic stem cell cultivation: historical perspective and evolution of xeno-free culture systems. *Reprod Biol Endocrinol.*, 13:9.
- **Morizane, R. and Bonventre, J.** (2017). Generation of nephron progenitor cells and kidney organoids from human pluripotent stem cells. *Nature Protocols*, 12 No.1.
- many others...

Ordering Information

Cat. No.	Product	Content
Basic03	StemFit® Medium (Clinical grade)	500 ml (400 ml Liquid A, 100 ml Liquid B)
Basic04CT	StemFit® Medium Complete Type (Clinical grade, incl. bFGF)	500 ml (one bottle composition)

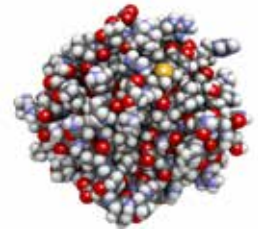
Recombinant human bFGF

Take care of your stem cells

Basic fibroblast growth factor (bFGF) is a prototypic member of the fibroblast growth factor family. Proteins of this family play a central role during prenatal development, postnatal growth and regeneration of a variety of tissues, by promoting cellular proliferation and differentiation.

bFGF is a critical component for maintaining embryonic stem cells and iPS cells in culture in an undifferentiated state. Human bFGF from Ajinomoto is a bioactive protein intended for use in cell culture applications.

- **Manufactured under cGMP compliant facility**
- **Animal-origin free**
- **Great performance with StemFit®**
- **High purity and activity**
- **High batch homogeneity**



Molecular structure of the basic fibroblast growth factor.

Ordering information

Cat. No.	Product	Content
bFGF-1mg	Basic Fibroblast Growth Factor (bFGF).	1 mg

Activin A

Differentiate stem cells into endoderm or mesoderm cells

Activin A is a member of the TGF-beta superfamily of cytokines and is involved in a wide range of biological processes including tissue morphogenesis and repair, fibrosis, inflammation, neural development, hematopoiesis, reproductive system function, and carcinogenesis. Human Activin A is a 26.0 kDa disulfide-linked homodimer of two βA chains, each containing 116 amino acid residues.

Activin A is mainly used for stem cell cultivation in order to differentiate the stem cells into endoderm or mesoderm.

The perfect combination with StemFit®

Ordering information

Cat. No.	Product	Content
BasicAA10	Recombinant human Activin A (0.1 mg/ml)	100 µl, 10 µg
BasicAA50	Recombinant human Activin A (0.1 mg/ml)	500 µl, 50 µg

Stem cell therapy moves towards the clinic

Stem cell research is leading to potential new therapies to treat disease, with several applications in clinical trails or expected to enter trials in the coming months. These new discoveries are transforming how we think about the future of medicine.

Due to its high potential, the global regenerative medicine market is likely to expand considerably in the coming years. According to a report published by Fortune Business Insights, titled "Regenerative Medicine: Global Market Analysis, Insights and Forecast, 2019-2026," the market was valued at US$ 23,841.5 Mn in 2018. Fortune Business Insights states that the market will reach US$ 151,949.5 Mn by the end of 2026.

Bambanker™

- **Higher survival rate**
- **No programmed or sequential freezing required**
- **Serum-free - no risk of contamination**
- **Usable for all known cell lines**

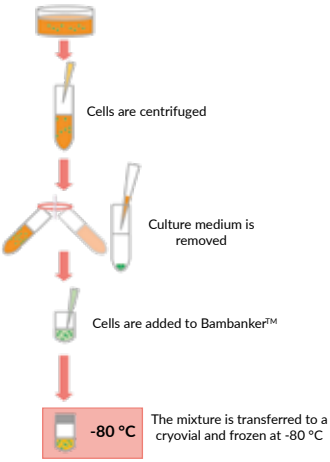
Save time while saving your cells

The cell freezing media Bambanker™ permit cryopreservation of cells at -80 °C (or in liquid nitrogen), avoiding the need for an additional and expensive ultra-low freezer or time consuming and complicated controlled freezing protocols. Simply 1) harvest cells, 2) aspirate medium, 3) resuspend in Bambanker™, 4) transfer to a cryovial and 5) store at -80 °C. No programmed or sequential freezing is required! Bambanker™ is a serum-free cryopreservation medium that is delivered ready-to-use and can be kept in the refrigerator for up to two years. Convenient 20 ml bottles are available, making Bambanker™ freezing medium ideal for use by individual members of your lab.

Ready-to-use medium for preservation of cells

Long-term storage of cultured cells

Cryopreservation of mammalian cells is extremely valuable and common in biological research. Once transferred from growth media to freezing medium, the cells are usually frozen at a controlled rate and stored in liquid nitrogen or at -130 °C in a mechanical deep freezer. Although freezing a cell line is a commonly performed procedure, problems arise when suitable freezers are not available, or undefined variables are introduced by the presence of serum.



Bambanker™

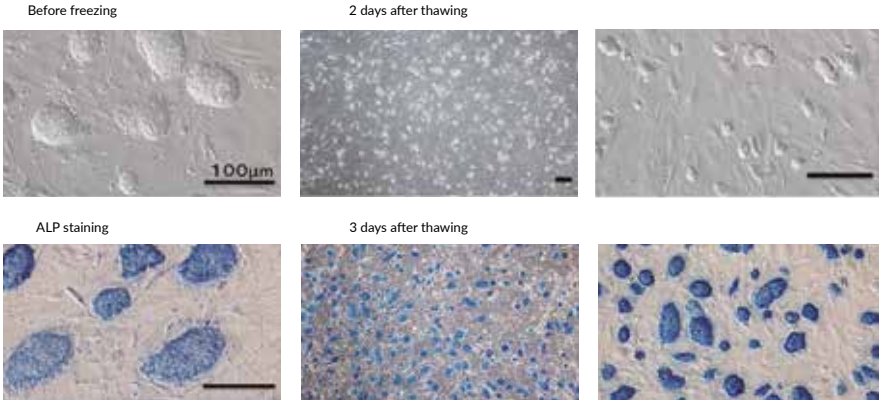
Higher number of intact cells after thawing

Bambamker™ freezing medium provides a simple protocol and results in high cell survival. This product has been used in many laboratories worldwide for a wide range of cell types. Recovery rates, even of sensitive cells, are significantly higher compared to conventional cell freezing media. The vast majority of cell types have survival rates greater than 50%, with many reaching 90% or higher. Hybridoma cells can achieve 100% recovery after long-term storage.

Serum can lead to variations

All Bambanker™ products are manufactured without serum. Cryopreservation media containing serum have an undefined composition. The reproducibility of experiments with cells frozen in serum-containing medium may vary with each batch due to the variable composition of the serum. This may lead to unexpected problems after thawing of the cells. Each ingredient in Bambanker™ is precisely defined. Therefore, the cells will behave and recover in a reproducible manner after thawing.

Bambanker™ prevents undesired differentiation



Cell viability and ALP staining of pluripotent stem cells. Upper row: A great number of cells are detected two days after thawing. The cells show no morphological change after thawing. Lower row: Bambanker™ does not cause cell differentiation as all stem cells frozen down are still producing high levels of alkaline phosphatase, a reporter for pluripotent stem cells.

Cells successfully frozen with Bambanker™

Bambanker™ is suitable for all known cell lines. The JCRB cell bank stores over 1,400 different cell lines with great success with Bambanker™ (take a look at the Application Note on the next page). Furthermore, there are plenty of published scientifc research papers, describing Bambanker™ as the freezing medium of choice.

Ordering information

Cat. No.	Product	Content
BB01	Bambanker™	120 ml
BB02	Bambanker™	5 x 20 ml
BB03	Bambanker™	20 ml

Application

Comparing Bambanker™ with another cryopreservation medium for the cultivation of 1,400 different cell lines

The following data were kindly provided by Dr. Arihiro Ohara, National Institute of Biomedical Laboratories JCRB cell bank.

Background

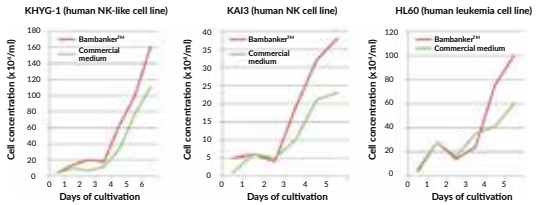
The JCRB cell bank handles approximately 1,400 different cell lines. A low survival rate after thawing frozen cell lines (KHYG-1, KAI3, HL60, OVMANA) has let us to test Bambanker™ and compare it to the previously used preservation medium for the four cell lines. The growth efficiency after thawing was compared for cells stored with the currently used commercially available preservation medium and Bambanker™.

Method

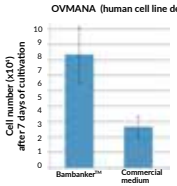
All cultured cells were harvested in the logarithmic growth phase. 1 ml preservation medium was added to approximately 1 x 10^6 cells in a storage tube. The cells were stored for 2 weeks at -80 °C. The frozen cells were thawed in an 37°C water bath and incubated at 37°C and 5% CO_2 in a 96-well plate. Every day the viable cell number was determined.

Results

Cell lines in suspension



Adherent cell line



	Bambanker™	Commercial medium
Recovery rate immediately after thawing	32%	39%

The survival rate after thawing the four cell lines (KHYG-1, HL60, KAI3, OVMANA) was very low, either with the previously used commercially available product or with Bambanker™. However, after thawing, the cell proliferation of all four cell lines was improved with Bambanker™ when compared to the previously used commercially available product.

Customers comment

Dr. Arihiro Ohara:

JCRB cell bank has carried out cell bank business for 30 years and we currently store 1,400 types of cell lines. [...] Due to the high number and the wide variety of cell lines, we had some problems. Some users complained that their cell lines died after thawing, resulting in unsuccessful cultivation. Especially four types of cell lines were a problem which had to be urgently improved. Therefore, we compared Bambanker™ with our currently used commercial preservation medium in a cryopreservation test. The cell lines, which were stored with Bambanker™, showed much higher cell proliferation than cells, which were stored with our currently used commercially available product. Surprisingly, with Bambanker™ we got for all four cell lines very reproducible results. [...] In the future, **we will completely change to Bambanker™** in order to improve the survival rate and growth of our cells. We are thankful for resolving that long-standing problem and recommend Bambanker™ to all domestic researchers and foreign cell banks.

→ The JCRB cell bank has been using Bambanker™ since 2014 for all their cell lines.

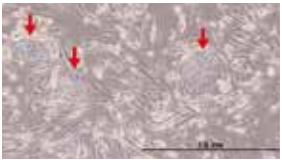
Bambanker™ - HRM

- **Optimal for the cryopreservation of primate ES and iPS cells**
- **Made with human serum albumin**
- **No animal components - xeno-free medium**

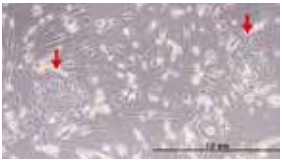
For cryopreservation of ES and iPS cells

Primate embryonic stem cells and induced pluripotent stem cells are extremely sensitive to cryopreservation. Bambanker™ HRM was developed specifically for these cells. Bovine serum albumin, which can lead to cell differentiation, has been removed from the medium, as has any material of animal origin (xeno-free medium). This improves the storage and survivability of stem cells. In addition, the freezing protocol with Bambanker™ HRM is particularly simple. The stem cells can be frozen directly at -80°C.

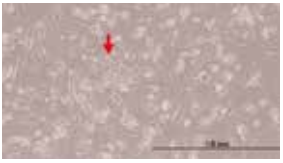
Cells cryopreserved with Bambanker™ HRM 4 days after thawing



Cells cryopreserved with vitrification freezing preservation solution 4 days after thawing



Cells cryopreserved with 10% DMSO containing medium 4 days after thawing



IPS cells (201B7) were cryopreserved in Bambanker™ HRM, in a conventional vitrification medium or in a 10% DMSO/culture medium. After 3 days, the cells were thawed, according to protocol, and then plated. In case of 10% DMSO containing medium only small colonies could be recovered what suggests a small survival rate, while with Bambanker™ HRM it was possible to recover large colonies with almost the same size as achieved with vitrification freezing preservation solution. These results indicate that the same storage efficiency can be achieved with Bambanker™ HRM as with the vitrification preservation solution with the additional advantage of an easier handling.

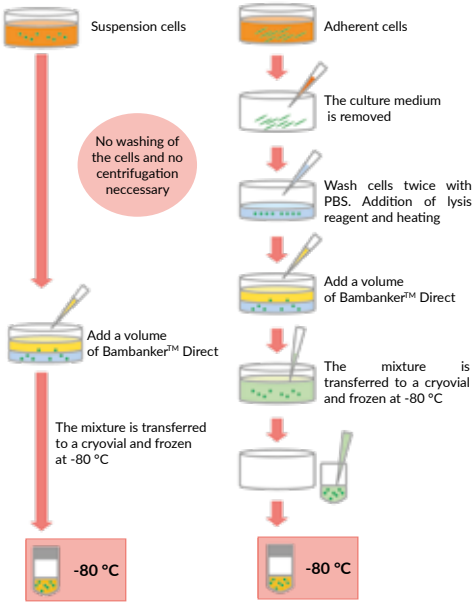
Ordering information

Cat. No.	Product	Content
BBH01	Bambanker™ HRM	20 ml

Bambanker™ - Direct

Eliminate the centrifugation step

Certain cell types, such as hybridomas, show a high sensitivity to external stress. Bambanker™ Direct was developed specifically for these cell types. The freezing medium is added directly to the cell medium (1:1 ratio), mixed and frozen at -80 °C. This allows cells to be frozen immediately after addition of Bambanker™ Direct and eliminates the need for a centrifugation step. Bambanker™ Direct does not contain any serum components, which guarantees a consistent composition.



Ordering information

Cat. No.	Product	Content
BBD01	Bambanker™ Direct	20 ml

Bambanker™ - DMSO-Free

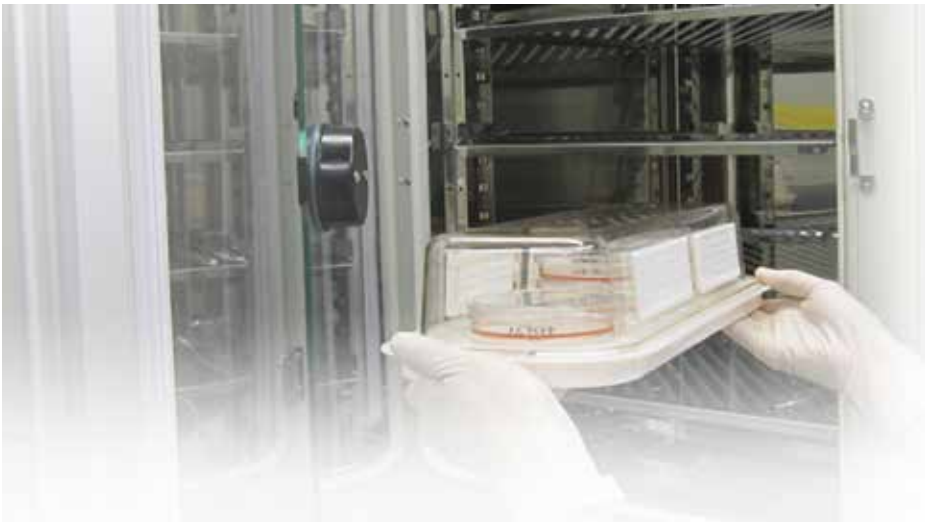
DMSO-Free - for the most sensitive cells

DMSO is added to freezing media to prevent the formation of ice crystals, which can damage cells during freezing. However, for highly sensitive cells, DMSO can have a toxic effect and reduce the survival rate. Bambanker™ DMSO-Free is manufactured without DMSO. Instead, a unique formula is used to prevent ice crystal formation. This makes Bambanker™ DMSO-Free particularly suitable for cell lines that are sensitive to DMSO.

Ordering information

Cat. No.	Product	Content
BBF01	Bambanker™ DMSO-Free	20 ml

FastGene® Cell Culture Chamber



- **Cell culture tray for cell protection**
- **Versatile - Usable with all standard plates, dishes and flasks**
- **Prevents contamination of your cells**

Protect your valuable cells

Tissue and cell culture are indispensable tools for modern biology. Nevertheless, many cell biologists had the frustrating experience of dealing with microbial infections or cross-contamination with other cell lines. This problem can become a disaster when primary cells or stem cells are affected. Cell culture vessels (flasks, plates or dish) are unknowingly exposed to pathogens in three primary locations: (1) cell culture hood, (2) cell incubator, and (3) during transport between them. It is critical to maintain a sterile environment and clean cell culture technique. However, accidents happen and once a culture container is infected, it can cause the infection to spread to other cell culture vessels throughout the incubator. This can cause massive issues for the scientific research in your lab!

Prevent contamination or infections

End the risk of infection of your cells with the FastGene® Cell Culture Chamber. The chambers provide a sterile environment for your culture plates, dishes and flasks. They also provide protection in the incubator, under the cell culture hood or during transport.

Each FastGene® Cell Culture Chamber can fit numerous plates, dishes, and flasks — making them ideal for labs with multiple users.

Ordering information

Cat. No.	Product	Content
CC01	FastGene® Cell Culture Chamber	1 x autoclavable chamber including filters
CC01F	Filters	Replacement set containing 4 x filters

Notes