September 2011

REPLI-g® UltraFast Mini Handbook

For fast whole genome amplification from purified genomic DNA, blood, and cells

Contents

Kit Contents

REPLI-g UltraFast Mini Kit	**(25)**	**(100)**
Catalog no.	**150033**	**150035**
Number of 20 µl reactions (approximately 7–10 µg yield)	**25**	**100**
REPLI-g UltraFast DNA Polymerase (blue lid)	25 µl	100 µl
REPLI-g UltraFast Reaction Buffer (yellow lid)	375 µl	1.5 ml
Buffer DLB (clear lid)	1 tube	1 tube
Stop Solution (red lid)	1.8 ml	1.8 ml
PBS, 1x (clear lid)	1.8 ml	1.8 ml
DTT, 1 M (lilac lid)	1 ml	1 ml
Handbook	1	1

Shipping and Storage

The REPLI-g UltraFast Mini Kit is shipped on dry ice. The kit, including all reagents and buffers, should be stored immediately upon receipt at –20°C in a constant-temperature freezer. When stored under these conditions and handled correctly, this product can be kept at least 6 months after shipping without showing any reduction in performance. For longer storage, the kit should be stored at –70°C.

Quality Control

In accordance with QIAGEN's ISO-certified Quality Management System, each lot of REPLI-g UltraFast Mini Kit is tested against predetermined specifications to ensure consistent product quality.

Product Use Limitations

The REPLI-g UltraFast Mini Kit is intended for molecular biology applications. This product is not intended for the diagnosis, prevention, or treatment of a disease.

Product Warranty and Satisfaction Guarantee

QIAGEN guarantees the performance of all products in the manner described in our product literature. The purchaser must determine the suitability of the product for its particular use. Should any product fail to perform satisfactorily due to any reason other than misuse, QIAGEN will replace it free of charge or refund the purchase price. We reserve the right to change, alter, or modify any product to enhance its performance and design. If a QIAGEN® product does not meet your expectations, simply call your local Technical Service Department or distributor. We will credit your account or exchange the product — as you wish.

A copy of QIAGEN terms and conditions can be obtained on request, and is also provided on the back of our invoices. If you have questions about product specifications or performance, please call QIAGEN Technical Services or your local distributor (see back cover).

Technical Assistance

At QIAGEN we pride ourselves on the quality and availability of our technical support. Our Technical Service Departments are staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of QIAGEN products. If you have any questions or experience any difficulties regarding the REPLI-g UltraFast Mini Kit or QIAGEN products in general, please do not hesitate to contact us.

QIAGEN customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other scientists as well as to the researchers at QIAGEN. We therefore encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance and more information please call one of the QIAGEN Technical Service Departments or local distributors (see back cover).

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDSs). These are available online in convenient and compact PDF format at www.qiagen.com/ts/msds.asp where you can find, view, and print the MSDS for each QIAGEN kit and kit component.

The following risk and safety phrases apply to the components of the REPLI-g UltraFast Mini Kits:

Buffer DLB

Contains potassium hydroxide: corrosive, harmful. Risk and safety phrases:* R22–35. S26–36/37/39–45

24-hour emergency information

Emergency medical information in English, French, and German can be obtained 24 hours a day from:

Poison Information Center Mainz, Germany

Tel: +49-6131-19240

* R22: Harmful if swallowed; R35: Causes severe burns. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice; S36/37/39: Wear suitable protective clothing, gloves and eye/face protection; S45; In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Introduction

The REPLI-g UltraFast Mini Kit contains DNA polymerase, buffers, and reagents for whole genome amplification from small samples using Multiple Displacement Amplification (MDA). This handbook contains protocols for amplification of DNA from various samples, including purified DNA, whole blood, and tissue culture cells.

Genotyping and DNA sequence analysis of samples can be limited by the small amount of sample available. The REPLI-g UltraFast Mini Kit allows fast and uniform amplification of whole genomic DNA from limited samples, enabling a greater variety and number of analyses to be performed.

Typical DNA yield from a REPLI-g UltraFast Mini Kit reaction is approximately 7–10 µg per 20 µl reaction, depending on the quality of the sample material. Low quality DNA may result in reduced yields. The average product length is typically greater than 10 kb, with a range between 2 kb and 100 kb.

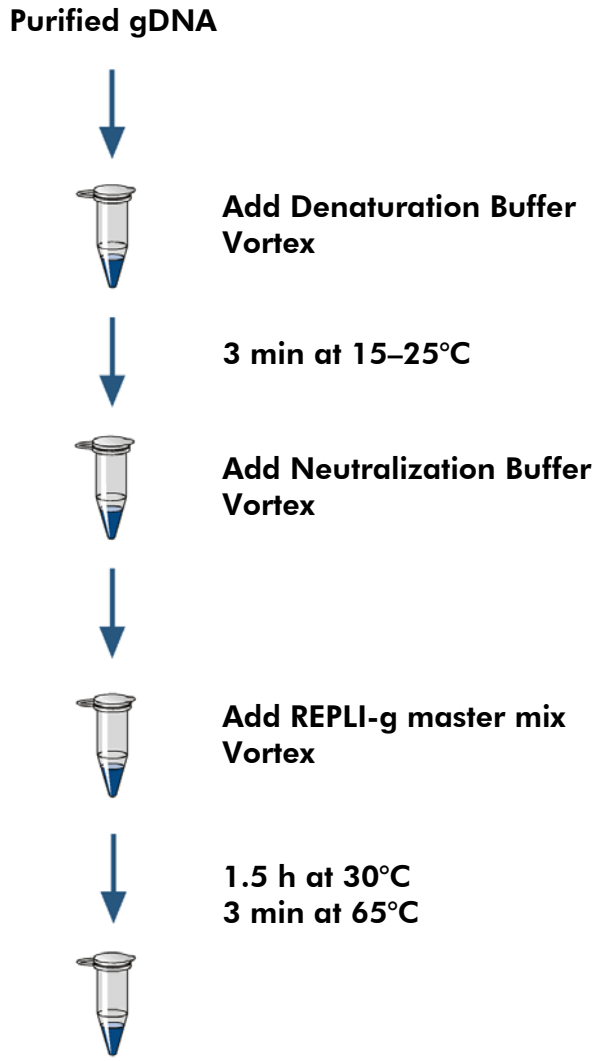
In contrast to the REPLI-g MDA technique, all PCR-based whole genome amplification methods can generate nonspecific amplification artifacts, give incomplete coverage of loci, and generate DNA less than 1 kb long that cannot be used in many downstream applications. This amplification bias results in an unreliable template for diagnostic testing.

Principle and procedure

The REPLI-g UltraFast Mini Kit provides highly uniform amplification across the entire genome, with negligible sequence bias. The method is based on MDA technology, which carries out isothermal genome amplification utilizing a uniquely processive DNA polymerase capable of replicating 100 kb without dissociating from the genomic DNA template. The DNA polymerase has a 3'→5' exonuclease proofreading activity to maintain high fidelity during replication and is used in the presence of exonuclease-resistant primers to achieve high yields of DNA product.

The sample material is lysed and the DNA is denatured by adding denaturation buffer. After denaturation has been stopped by addition of neutralization buffer, a master mix, containing reaction buffer and REPLI-g UltraFast DNA Polymerase, is added. The isothermal amplification reaction proceeds for 1.5 hours at 30°C.

Purified Genomic DNA Procedure



Equipment and Reagents to Be Supplied by User

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, consult the appropriate material safety data sheets (MSDSs), available from the product supplier.

- Microcentrifuge tubes
- Water bath or heating block
- Microcentrifuge
- Vortexer
- Pipets and pipet tips
- Ice
- Nuclease-free water

Protocol: Amplification of Purified Genomic DNA

Important points before starting

- This protocol is optimized for whole genome amplification from >10 ng genomic DNA template. The template DNA should be suspended in TE. Smaller amounts (1–10 ng) of starting material can be used if the DNA is of sufficient quality.
- A REPLI-g UltraFast reaction typically yields between 7–10 µg DNA. Lower DNA yields may be observed when using low-quality DNA.
- For best results, the template DNA should be >2 kb in length with some fragments >10 kb.
- REPLI-g UltraFast DNA Polymerase should be thawed on ice (see step 6). All other components can be thawed at room temperature (15–25°C).
- Buffer D1 and Buffer N1 should not be stored longer than 3 months.

Things to do before starting

- Prepare Buffer DLB by adding 500 µl nuclease-free water to the tube. Mix thoroughly and centrifuge briefly.

  Note: Reconstituted Buffer DLB can be stored for 6 months at –20°C. Buffer DLB is pH-labile. Avoid neutralization with CO_2.
- All buffers and reagents should be vortexed before use to ensure thorough mixing.
- Set a water bath or heating block to 30°C for use in step 9.

Procedure

1. **Prepare sufficient Buffer D1 (denaturation buffer) and Buffer N1 (neutralization buffer) for the total number of whole genome amplification reactions (see Tables 1 and 2, page 11).**

   Note: The total volumes of Buffer D1 and Buffer N1 given in Tables 1 and 2 are suitable for up to 40 reactions. Buffer D1 and Buffer N1 should not be stored longer than 3 months.

Table 1. Preparation of Buffer D1

Component	Volume*
Reconstituted Buffer DLB†	5 µl
Nuclease-free water	35 µl
Total volume	**40 µl**

* Volumes given are suitable for up to 40 reactions. Excess Buffer D1 can be stored at –20°C for up to 3 months.

† Reconstitution of DLB is described in the "Things to do before starting" section, page 10.

Table 2. Preparation of Buffer N1

Component	Volume‡
Stop solution	8 µl
Nuclease-free water	72 µl
Total volume	**80 µl**

‡ Volumes given are suitable for up to 40 reactions.

2. **Place 1 µl template DNA into a microcentrifuge tube.**
   The amount of template DNA should be >10 ng.
   A DNA control reaction can be set up using 10 ng (1 µl) control genomic DNA (e.g., REPLI-g Human Control Kit, cat. no. 150090).
3. **Add 1 µl Buffer D1 to the DNA. Mix by vortexing and centrifuge briefly.**
4. **Incubate the samples at room temperature (15–25°C) for 3 min.**
5. **Add 2 µl Buffer N1 to the samples. Mix by vortexing and centrifuge briefly.**
6. **Thaw REPLI-g UltraFast DNA Polymerase on ice. Thaw all other components at room temperature, vortex, then centrifuge briefly.**
   The REPLI-g UltraFast Reaction Buffer may form a precipitate after thawing. The precipitate will dissolve by vortexing for 10 s.

7. **Prepare a master mix on ice according to Table 3. Mix and centrifuge briefly.**

   Important: The master mix should be kept on ice and used immediately upon addition of the REPLI-g UltraFast DNA Polymerase.

Table 3. Preparation of Master Mix

Component	Volume/reaction
REPLI-g UltraFast Reaction Buffer	15 µl
REPLI-g UltraFast DNA Polymerase	1 µl
Total volume	**16 µl**

8. **Add 16 µl of the master mix to 4 µl of denatured DNA (step 5).**
9. **Incubate at 30°C for 1.5 h.**

   After incubation at 30°C, heat the water bath or heating block to 65°C if the same water bath or heating block will be used in step 10.

10. **Inactivate REPLI-g UltraFast DNA Polymerase by heating the sample for 3 min at 65°C.**

    Note: If the amplified DNA is to be analyzed using PCR, dilute the DNA after inactivation 1:25 in water or TE buffer (e.g., 2 µl DNA + 48 µl water/TE buffer). Use 2–3 µl of the diluted DNA for each PCR.

11. **Store amplified DNA at –20°C until required.**

    DNA amplified using the REPLI-g UltraFast Mini Kit should be treated as genomic DNA with minimal freeze-thaw cycles.

Protocol: Amplification of Genomic DNA from Blood or Cells

Important points before starting

- This protocol is optimized for 0.5 µl whole blood or cell material (e.g., sorted cells, tissue cultured cells, etc.). The cell concentration should be >600 cells/µl.
- A REPLI-g UltraFast reaction typically yields between 7–10 µg DNA. Lower DNA yields may be observed when using low-quality DNA.
- High concentrations of heparin in blood samples can inhibit the REPLI-g reaction. Blood stabilized in EDTA or citrate may yield better results.
- REPLI-g UltraFast DNA Polymerase should be thawed on ice (see step 7). All other components can be thawed at room temperature (15–25°C).
- Buffer D2 should not be stored longer than 3 months.

Things to do before starting

- Prepare Buffer DLB by adding 500 µl nuclease-free water to the tube. Mix thoroughly and centrifuge briefly

  Note: Reconstituted Buffer DLB can be stored for 6 months at –20°C. Buffer DLB is pH-labile. Avoid neutralization with CO_2.
- All buffers and reagents should be vortexed before use to ensure thorough mixing.
- Set a water bath or heating block to 30°C for use in step 10.

Procedure

1. **Prepare sufficient Buffer D2 (denaturation buffer) for the total number of whole genome amplification reactions (Table 4).**

   Note: The total volume of Buffer D2 given in Table 4 is suitable for up to 40 reactions. Buffer D2 should not be stored longer than 3 months.

Table 4. Preparation of Buffer D2

Component	Volume*
DTT, 1 M	5 µl
Reconstituted Buffer DLB†	55 µl
Total volume	**60 µl**

* Volumes given are suitable for up to 40 reactions. Excess Buffer D2 can be stored at –20°C for up to 3 months.

† Reconstitution of DLB is described in the "Things to do before starting" section (above).

2. **Place 1 µl PBS into a microcentrifuge tube.**
3. **Add 0.5 µl cell material (>600 cells/µl) or 0.5 µl blood to the PBS.**
   Alternatively, a dilution of blood or cell samples in PBS (up to 1:10) can be used if sample is inhibitory to REPLI-g reactions (e.g., 2 µl blood or cell material and 18 µl PBS).

   A DNA control reaction can be set up using 10 ng (1 µl) control genomic DNA (e.g., REPLI-g Human Control Kit, cat. no. 150090; see protocol for purified DNA).
4. **Add 1.5 µl Buffer D2. Mix by vortexing and centrifuge briefly.**
5. **Incubate for 10 min on ice.**
6. **Add 1.5 µl Stop Solution. Mix by vortexing and centrifuge briefly.**
7. **Thaw REPLI-g UltraFast DNA Polymerase on ice. Thaw all other components at room temperature, vortex, then centrifuge briefly.**
   The REPLI-g UltraFast Reaction Buffer may form a precipitate after thawing. The precipitate will dissolve by vortexing for 10 s.
8. **Prepare a master mix according Table 5. Mix and centrifuge briefly.**
   Important: The master mix should be kept on ice and used immediately upon addition of REPLI-g UltraFast DNA Polymerase.

Table 5. Preparation of Master Mix

Component	Volume/reaction
REPLI-g UltraFast Reaction Buffer	15 µl
REPLI-g UltraFast DNA Polymerase	1µl
Total volume	**16 µl**

9. **Add 16 µl of the master mix to 4.5 µl of denatured DNA (step 6).**

10. **Incubate at 30°C for 1.5 h.**

    After incubation at 30°C, heat the water bath or heating block up to 65°C if the same water bath or heating block will be used in step 11.

11. **Inactivate REPLI-g UltraFast DNA Polymerase by heating the sample for 3 min at 65°C.**

    Note: If the amplified DNA is to be analyzed using PCR, dilute the DNA after inactivation 1:25 in water or TE buffer (e.g., 2 µl DNA + 48 µl water/TE buffer). Use 2–3 µl of the diluted DNA for each PCR.

12. **Store amplified DNA at –20°C until required.**

    DNA amplified using the REPLI-g UltraFast Mini Kit should be treated as genomic DNA with minimal freeze-thaw cycles.

Troubleshooting Guide

This troubleshooting guide may be helpful in solving any problems that may arise. The scientists in QIAGEN Technical Services are always happy to answer any questions you may have about either the information and protocols in this handbook or molecular biology applications (see back cover for contact information).

All protocols

	Comments and suggestions
Reduced or no high-molecular-weight product in agarose gel in some samples but DNA yield in other samples (e.g., positive control) is approximately 7 µg	
Reaction failed. Possible inhibitor in the genomic DNA template	Clean up or dilute the genomic DNA and re-amplify.
DNA yields of approximately 7 µg in negative (no-template) controls and positive result in downstream assay (e.g., PCR)	
DNA is generated during REPLI-g reaction by contaminating DNA templates	Decontaminate all laboratory equipment, and take all necessary precautions to avoid contamination of reagents and samples with extraneous DNA. If possible, work in a laminar-flow hood. Use sterile equipment and barrier pipette tips only, and keep amplification chemistry and DNA templates in separate storage locations.
Downstream application results not optimum	
Sensitive downstream applications may require DNA cleanup after REPLI-g reaction	Contact QIAGEN Technical Services for DNA cleanup recommendations suitable for your application.

Genomic DNA protocol

Reduced or no locus representation in real-time PCR analysis	
Genomic DNA template is degraded	Use intact genomic DNA template. Use higher concentration of genomic DNA.

Comments and suggestions	
Allele dropout observed in genotyping assay	
Genomic DNA template is degraded	Repeat experiment with intact genomic DNA template. Repeat experiment with higher concentration of genomic DNA.
Blood and cell protocol	
Reduced or no locus representation in real-time PCR analysis	
Higher than normal concentration of heparin used as blood anticoagulant	Dilute the heparin-treated blood up to 5-fold using 1x PBS.
Sample material contains degraded DNA	Repeat experiment with intact starting material. Isolate DNA from sample material and use increase the amount used in the purified genomic DNA protocol (page 10).
Sample material is inhibitory	Isolate DNA from sample material and use purified genomic DNA protocol (page 10).
Allele dropout observed in genotyping assay	
Higher than normal concentration of heparin used as blood anticoagulant	Dilute the heparin-treated blood up to 5-fold using 1x PBS.

Appendix A: Determination of DNA Concentration and Yield

Quantification of DNA yield

A 20 µl REPLI-g UltraFast Mini Kit reaction typically yields approximately 7–10 µg of DNA regardless of the amount of template DNA, allowing direct use of the amplified DNA in most downstream genotyping experiments. However, if a more accurate quantification of DNA is required, it is important to utilize a DNA quantification method that is specific for double-stranded DNA, since REPLI-g UltraFast Mini Kit amplification products contain unused reaction primers. PicoGreen® reagent displays enhanced binding to double-stranded DNA and may be used, in conjunction with a fluorometer, to quantify the double-stranded DNA product. A protocol for the quantification of REPLI-g amplified DNA can be found in Appendix B.

Appendix B: PicoGreen Quantification of REPLI-g Amplified DNA

This protocol is designed for quantification of double stranded REPLI-g amplified DNA using PicoGreen reagent.

Important: When working with hazardous chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDSs), available from the product supplier.

Equipment and reagents to be supplied by user

- Quant-iT™ PicoGreen dsDNA reagent (Invitrogen, cat. no. P7581)
- TE buffer (10 mM Tris·Cl; 1 mM EDTA, pH 8.0)
- Human genomic DNA (e.g., Promega, cat. no. G3041)
- 2 ml microcentrifuge tube
- 96-well plates (suitable for use in a fluorescence microplate reader)
- Fluorescence microplate reader (e.g., TECAN® Ultra)

Procedure

1. **In a 2 ml microcentrifuge tube, make a 1:150 dilution of PicoGreen stock solution in TE buffer. 20 µl is required for each quantification reaction. Cover the microcentrifuge tube in aluminum foil or place it in the dark to avoid photodegradation of the PicoGreen reagent.**

For example, to prepare enough PicoGreen working solution for 100 samples, add 13.3 µl PicoGreen to 1986.7 µl TE buffer.

Important: Prepare the PicoGreen/TE solution in a plastic container as the PicoGreen reagent may adsorb to glass surfaces.

2. **Prepare a 16 µg/ml stock solution of genomic DNA in TE buffer.**
3. **Make 200 µl of 1.6, 0.8, 0.4, 0.2, and 0.1 µg/ml DNA standards by further diluting the 16 µg/ml genomic DNA with TE buffer.**
4. **Transfer 20 µl of each DNA standard in duplicate into a 96-well plate labeled A (see figure below).**

   Note: The 96-well plate must be suitable for use in a fluorescent microplate reader.

96-Well Plate

	1	2	3	4	5	6	7	8	9	10	11	12
A												
B												
C												
D												
E												
F												
G												
H			1.6	0.8	0.4	0.2	0.1	1.6	0.8	0.4	0.2	0.1

Gray squares: genomic DNA standard (µg/ml).

5. **Place 2 µl of each REPLI-g amplified DNA sample for quantification into a new 96-well plate and add 598 µl TE buffer to make a 1/300 dilution. Store the remaining REPLI-g amplified DNA at –20°C.**
6. **Place 20 µl diluted REPLI-g DNA (from step 5) into an unused well 96-well plate A.**

   The 1/150 dilutions can be stored at –20°C and used for future downstream sample analysis.
7. **Add 20 µl PicoGreen working solution (from step 1) to each sample (amplified DNA and DNA standards) in 96-well plate A. Gently shake the plate on the bench top to mix the samples and reagent.**
8. **Centrifuge the 96-well plate briefly to collect residual liquid from the walls of the wells.**

9. **Measure the sample fluorescence using a fluorescence microplate reader and standard fluorescence filters (excitation approximately 480 nm; emission approximately 520 nm).**

   To ensure that the sample readings remain in the detection range of the microplate reader, adjust the instrument's gain so that the sample with the highest DNA concentration yields fluorescence intensity near the fluorimeter's maximum.

Calculation of DNA concentration and yield

10. **Generate a standard curve by plotting the concentration of DNA standards (µg/ml) (X-axis) against the fluorescence reading generated by the microplate reader (Y-axis). Plot an average of the fluorescence recorded for each DNA standard of the same concentration.**
11. **Use the standard curve to determine the concentration (µg/ml) of the diluted REPLI-g amplified DNA sample. This is achieved by plotting the fluorescence reading of the sample against the standard curve and reading the DNA concentration on the X-axis.**

    Note: The calculation of DNA concentration depends on the standard curve and the determination of the slope. For accurate results, the standard curve should be a straight line. Any deviation from this may cause inaccuracies in the measurement of REPLI-g amplified DNA concentrations.
12. **Multiply the value determined in step 11 by 300 to show the concentration of undiluted sample DNA (as the sample DNA measured by PicoGreen fluorescence had been diluted 1 in 300).**
13. **To determine the total amount of DNA in your sample, multiply the concentration of undiluted sample DNA (µg/ml) (step 12) by the reaction volume in milliliters (i.e., for a 20 µl reaction, multiply by 0.02).**

References

QIAGEN maintains a large, up-to-date online database of scientific publications utilizing QIAGEN products. Comprehensive search options allow you to find the articles you need, either by a simple keyword search or by specifying the application, research area, title, etc.

For a complete list of references, visit the QIAGEN Reference Database online at www.qiagen.com/RefDB/search.asp or contact QIAGEN Technical Services or your local distributor.

Ordering Information

Product	Contents	Cat. no.
REPLI-g UltraFast Kit — for fast, highly uniform whole genome amplification from purified genomic DNA, blood, and cells		
REPLI-g UltraFast Mini Kit (25)	DNA Polymerase, Buffers, and Reagents for 25 x 20 µl whole genome amplification reactions	150033
REPLI-g UltraFast Mini Kit (100)	DNA Polymerase, Buffers, and Reagents for 100 x 20 µl whole genome amplification reactions	150035
REPLI-g Mitochondrial DNA Kit — for highly uniform whole genome amplification from human mitochondria		
REPLI-g Mitochondrial DNA Kit (25)	DNA Polymerase, Buffers, and Reagents for 25 x 50 µl whole genome amplification reactions	151023
REPLI-g Mitochondrial DNA Kit (100)	DNA Polymerase, Buffers, and Reagents for 100 x 50 µl whole genome amplification reactions	151025
REPLI-g Mini and Midi Kits — for highly uniform whole genome amplification from small or precious samples		
REPLI-g Mini Kit (25)	DNA Polymerase, Buffers, and Reagents for 25 x 50 µl whole genome amplification reactions	150023
REPLI-g Mini Kit (100)	DNA Polymerase, Buffers, and Reagents for 100 x 50 µl whole genome amplification reactions	150025
REPLI-g Midi Kit (25)	DNA Polymerase, Buffers, and Reagents for 25 x 50 µl whole genome amplification reactions	150043
REPLI-g Midi Kit (100)	DNA Polymerase, Buffers, and Reagents for 100 x 50 µl whole genome amplification reactions	150045

Product	Contents	Cat. no.
REPLI-g Screening Kit — for high-throughput manual or automated whole genome amplification from small or precious samples		
REPLI-g Screening Kit (200)	DNA Polymerase, Buffers, and Reagents for 200 x 40 µl whole genome amplification reactions	150126
REPLI-g Screening Kit (1000)	DNA Polymerase, Buffers, and Reagents for 1000 x 40 µl whole genome amplification reactions	150127
REPLI-g Service — large scale highly uniform whole genome amplification and quality assessment from limited or precious samples		
REPLI-g Service, (100 µg)	Whole Genome Amplification Service from single tubes or <84 samples in microplates, 100 µg scale	805923
REPLI-g Service, (500 µg)	Whole Genome Amplification Service from single tubes or <84 samples in microplates, 500 µg scale	805925
REPLI-g Service (100 µg)	Whole Genome Amplification Service from microplates (84 sample minimum), 100 µg scale	805943
REPLI-g Service (500 µg)	Whole Genome Amplification Service from microplates (84 sample minimum), 500 µg scale	805945
Related products		
REPLI-g Human Control Kit (25)	Human control DNA for 25 x 50 µl whole genome amplification reactions	150090
QIAamp® DNA Blood Mini Kit (50)*	For 50 DNA minipreps: 50 QIAamp Mini Spin Columns, QIAGEN Protease, Reagents, Buffers, Collection Tubes (2 ml)	51104
QIAamp DNA Micro Kit (50)	For 50 DNA preps: 50 QIAamp MinElute Columns, Proteinase K, Carrier RNA, Buffers, Collection Tubes (2 ml)	56304

* Larger kit sizes available; please inquire.

Product	Contents	Cat. no.
QIAamp DNA Mini Kit (50)*	For 50 DNA preps: 50 QIAamp Mini Spin Columns, QIAGEN Proteinase K, Reagents, Buffers, Collection Tubes (2 ml)	51304
QuantiTect® Probe PCR Kit (200)*	For 200 x 50 µl reactions: 3 x 1.7 ml QuantiTect Probe PCR Master Mix, 2 x 2.0 ml RNase-free water	204343
QuantiTect Multiplex PCR Kit (200)*	For 200 x 50 µl reactions: 3 x 1.7 ml QuantiTect Multiplex PCR Master Mix (contains ROX™ dye), 2 x 2 ml RNase-Free Water	204543
QIAGEN Multiplex PCR Kit (100)*	For 100 x 50 µl multiplex PCR reactions: 2x QIAGEN Multiplex PCR Master Mix (providing a final concentration of 3 mM $MgCl_2$, 3 x 0.85 ml), 5x Q-Solution (1 x 2.0 ml), distilled water (2 x 1.7 ml)	206143

* Larger kit sizes available; please inquire.

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Notes

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Austria ■ Orders 0800-28-10-10 ■ Fax 0800-28-10-19 ■ Technical 0800-28-10-11

Belgium ■ Orders 0800-79612 ■ Fax 0800-79611 ■ Technical 0800-79556

Brazil ■ Orders 0800-557779 ■ Fax 55-11-5079-4001 ■ Technical 0800-557779

Canada ■ Orders 800-572-9613 ■ Fax 800-713-5951 ■ Technical 800-DNA-PREP (800-362-7737)

China ■ Orders 86-21-3865-3865 ■ Fax 86-21-3865-3965 ■ Technical 800-988-0325

Denmark ■ Orders 80-885945 ■ Fax 80-885944 ■ Technical 80-885942

Finland ■ Orders 0800-914416 ■ Fax 0800-914415 ■ Technical 0800-914413

France ■ Orders 01-60-920-926 ■ Fax 01-60-920-925 ■ Technical 01-60-920-930 ■ Offers 01-60-920-928

Germany ■ Orders 02103-29-12000 ■ Fax 02103-29-22000 ■ Technical 02103-29-12400

Hong Kong ■ Orders 800 933 965 ■ Fax 800 930 439 ■ Technical 800 930 425

Ireland ■ Orders 1800 555 049 ■ Fax 1800 555 048 ■ Technical 1800 555 061

Italy ■ Orders 800-789-544 ■ Fax 02-334304-826 ■ Technical 800-787980

Japan ■ Telephone 03-6890-7300 ■ Fax 03-5547-0818 ■ Technical 03-6890-7300

Korea (South) ■ Orders 080-000-7146 ■ Fax 02-2626-5703 ■ Technical 080-000-7145

Luxembourg ■ Orders 8002-2076 ■ Fax 8002-2073 ■ Technical 8002-2067

Mexico ■ Orders 01-800-7742-639 ■ Fax 01-800-1122-330 ■ Technical 01-800-7742-436

The Netherlands ■ Orders 0800-0229592 ■ Fax 0800-0229593 ■ Technical 0800-0229602

Norway ■ Orders 800-18859 ■ Fax 800-18817 ■ Technical 800-18712

Singapore ■ Orders 1800-742-4362 ■ Fax 65-6854-8184 ■ Technical 1800-742-4368

Spain ■ Orders 91-630-7050 ■ Fax 91-630-5145 ■ Technical 91-630-7050

Sweden ■ Orders 020-790282 ■ Fax 020-790582 ■ Technical 020-798328

Switzerland ■ Orders 055-254-22-11 ■ Fax 055-254-22-13 ■ Technical 055-254-22-12

UK ■ Orders 01293-422-911 ■ Fax 01293-422-922 ■ Technical 01293-422-999

USA ■ Orders 800-426-8157 ■ Fax 800-718-2056 ■ Technical 800-DNA-PREP (800-362-7737)