For customers in the European Economic Area: Contains SVHC: octyl/nonylphenol ethoxylates. For further processing on its own or in a mixture as part of an IVD method and under controlled conditions only – acc. to Art. 56 (3) and 3 no. 23 REACH Regulation.

GC-RICH PCR System 2.2 KU

Version: 04

Content Version: September 2022

Cat. No. 06 409 571 001

1 kit
2,280 U
For 1,140 PCR reactions in a final volume of 50 µl each
Available in US only

Store the kit at −15 to −25°C.

1. General Information 3
1.1. Contents 3
1.2. Storage and Stability 3
Storage Conditions (Product) 3
1.3. Additional Equipment and Reagent required 3
2. How to Use this Product 4
2.1. Before you Begin 4
Sample Materials 4
General Considerations 4
Enzyme properties 4
Safety Information 4
For customers in the European Economic Area 4
Precautions 4
Waste handling 4
3. Additional Information on this Product 5
3.1. Test Principle 5
3.2. Quality Control 5
4. Supplementary Information 5
4.1. Conventions 5
4.2. Changes to previous version 5
4.3. Trademarks 6
4.4. License Disclaimer 6
4.5. Regulatory Disclaimer 6
4.6. Safety Data Sheet 6
4.7. Contact and Support 6

1. General Information

1.1. Contents

Vial	Label	Function / Description	Content
1	GC-RICH Enzyme Mix	Enzyme mix in storage buffer: 20 mM Tris-HCl, pH 8.0, 100 mM KCl, 0.1 mM EDTA, 1 mM DTT, 0.5% Tween 20 (v/v), 0.5% Nonidet P-40 (v/v), 50% glycerol (v/v).	1 vial, 1,140 µl (2,280 U)
2	GC-RICH PCR Reaction Buffer, 5x conc.	Includes 7.5 mM $MgCl_2$ (final 1.5 mM) and DMSO.	1 vial 7.6 ml
3	Resolution Solution, 5 M	–	2 vials, 7.6 ml each
5	Water, PCR grade	–	3 vials, 7.6 ml each

1.2. Storage and Stability

Storage Conditions (Product)

The kit is shipped on dry ice.
When stored at −15 to −25°C, the kit is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	GC-RICH Enzyme Mix	Store at −15 to −25°C.
2	GC-RICH PCR Reaction Buffer, 5x conc.	Store at −15 to −25°C.
3	Resolution Solution, 5 M	⚠ ***After thawing, crystals are occasionally observed in the solutions. Dissolve completely by heating to +37 to +65°C; mix thoroughly.***
5	Water, PCR grade	Store at −15 to −25°C.

1.3. Additional Equipment and Reagent required

Standard laboratory equipment and reagents

- Template DNA; gene-specific PCR primer pair
- dNTPs, PCR Grade*
- Thermal block cycler
- 0.2 ml thin-walled PCR tubes
- Autoclaved reaction tubes for preparing master mixes and dilutions

2. How to Use this Product

2.1. Before you Begin

Sample Materials

Every sample material suitable for PCR in terms of purity, concentration, and absence of inhibitors can be used. Typically 10 to 500 ng human genomic DNA or 1 to 100 ng cDNA is used.

General Considerations

The optimal reaction conditions, including incubation times and temperatures, concentration of GC-RICH PCR System 2.2 KU Enzyme Mix, Resolution Solution, template DNA, and Mg^{2+} ions depend on the template/primer pair and must be determined individually.

Enzyme properties

Parameter	Value
Volume activity	2 U/µl
Enzyme concentration	The optimal enzyme concentration ranges from 0.5 to 5 U per assay.
Primers	Use primers at a final concentration of 0.2 to 0.5 µM each.
$MgCl_2$ concentration	The optimal Mg concentration is in the range of 1 to 4 mM.
Elongation temperature	▪ The elongation temperature is +72°C when amplifying fragments up to 3 kb. ▪ When amplifying fragments >3 kb, use +66°C for the elongation step.
Resolution Solution	▪ Using the special GC-RICH PCR Reaction Buffer may result in the expected PCR products with GC-rich templates. ▪ Otherwise, titrate with Resolution Solution from 0.5 to 2.5 M.
PCR cloning	▪ TA cloning is the preferred method. ▪ The enzyme blend results in more blunt-ended PCR fragments compared to Taq DNA Polymerase. *i The majority of products still have single A overhangs.*

Safety Information

For customers in the European Economic Area

Contains SVHC: octyl/nonylphenol ethoxylates. For further processing on its own or in a mixture as part of an IVD method and under controlled conditions only - acc. to Art. 56 (3) and 3 no. 23 REACH Regulation.

Precautions

This product contains a substance on REACH Annex XIV (substance of very high concern due to endocrine disrupting properties for the environment) at or above 0.1% w/w.
This product may only be used under the exemption from authorization for scientific research and development (including analytical activities, quality control, and *In-Vitro* Diagnostics) under controlled conditions.
Only trained and authorized personnel are allowed to handle the substance.

Waste handling

Product: The unused or used product should not be allowed to enter drains, waterways, or the soil. Do not contaminate ponds, waterways, or ditches with chemicals or used containers. Collect the used and unused product separately and send it to a licensed waste management company for disposal.
Contaminated packaging: Empty remaining contents. Dispose of as unused product. Empty containers are considered as packaging waste and should be taken to an approved waste handling site for disposal. Do not reuse empty containers.

3. Additional Information on this Product

3.1. Test Principle

The GC-RICH PCR System is composed of a special enzyme blend of thermostable Taq DNA Polymerase and Tgo DNA Polymerase, a thermostable enzyme with a proofreading (3′→5′ exonuclease) activity. This polymerase mixture by itself outperforms Taq DNA Polymerase in respect to yields, fidelity, and specificity, besides the possibility to amplify fragments up to 5 kb in length. The GC-RICH PCR Reaction Buffer in combination with the separately included Resolution Solution allows to amplify difficult templates, such as GC-rich targets very efficiently.

3.2. Quality Control

The GC-RICH PCR System is function tested, amplifying a 284 bp fragment of ApoE gene from human genomic DNA. In the presence of 1.0 or 1.5 M Resolution Solution in the PCR reaction mix, the specific 284 bp band is subsequently detected on a 2% agarose gel.

4. Supplementary Information

4.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

4.2. Changes to previous version

Layout changes.
Editorial changes.

4.3. Trademarks

All product names and trademarks are the property of their respective owners.

4.4. License Disclaimer

Consult product detail pages at **custombiotech.roche.com** for patent license limitations, if available.

4.5. Regulatory Disclaimer

For customers in the European Economic Area: Contains SVHC: octyl/nonylphenol ethoxylates. For further processing on its own or in a mixture as part of an IVD method and under controlled conditions only – acc. to Art. 56 (3) and 3 no. 23 REACH Regulation.

4.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

4.7. Contact and Support

For additional documentation such as certificates and safety data sheets, please visit **documentation.roche.com**.

Your Roche CustomBiotech Customer Service:

Europe, Middle East, Africa and Latin America
Roche Diagnostics Deutschland GmbH
Phone +49 621 759 8580
Fax +49 621 759 6385
mannheim.custombiotech@roche.com

United States
Roche Diagnostics Corporation
Phone +1 800 428 5433 (toll free)
Fax +1 317 521 4065
custombiotech.ussales@roche.com

Canada
Roche Diagnostics
Phone +1 450 686 7050
Fax +1 450 686 7012
custombiotech.can@roche.com

Japan
Roche Diagnostics K.K.
Phone +81 3 6634 1046
Fax +81 3 5479 0585
japan.custombiotech@roche.com

Asia Pacific
Roche Diagnostics Asia Pacific Pte. Ltd.
Phone +65 6371 6638
Fax +65 6371 6601
apac.custombiotech@roche.com

0922.06487521001 ⊕

Roche Diagnostics GmbH
Sandhofer Strasse 116
68305 Mannheim
Germany