biotechrabbit

Product Catalog

2014–2015

biotechrabbit
leap and lead

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About biotechrabbit

Scientists around the world are working to leap ahead of diseases and to improve our lives with innovation. Aside from brilliant minds and relentless passion, the success of science depends on the quality of the materials used.

biotechrabbit is determined to offer the best products and services to those who lead the way in research. The valued relationships with our partners and customers drive us to exceed current limitations with flexibility, innovation and highly customized solutions to match their specific requirements. Each member of our team of highly engaged scientists, experienced managers and talented business developers aims to facilitate our partners and customers to leap and lead progress in the life science.

Our way of doing business combines the passion and pure curiosity of excellent researchers with the agile spirit of true entrepreneurs.

biotechrabbit

leap and lead

- Products made in Germany
- Diagnostic-grade quality
- OEM, custom and bulk

- Enzymes for diagnostics
- Antibody services
- PCR, hot-start, real-time
- Nucleic acid purification
- Protein research

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Product Overview

Product Overview

Diagnostic Services and Custom Solutions

biotechrabbit innovates, develops and manufactures products with superior performance for diagnostics, life science research and applied markets. We specialize in the production of enzymes for molecular biology and provide high-quality products with top-class availability. Most biotechrabbit products are available in bulk or as custom formulations. In close collaboration with our customers, we develop new enzymes, reagents and antibodies.

- Custom enzymes for diagnostics
- Contract manufacturing
- Antibody development services
- Human serum for diagnostics

biotechrabbit's collaborative approach ensures reliability.

Diagnostic-grade quality

Production according to diagnostic requirements

- Audited quality and different manufacturing sites
- Lyophilization service or glycerol-free enzymes

Contract manufacturing

Large-scale enzyme and antibody production

- Enzyme modeling, cloning and expression optimization
- Production in *E. coli*, eukaryotic and insect cells

OEM and private label

Products tailor-made to your needs

- Custom formulation, individual packaging and labeling
- A choice high-quality PCR products and molecular biology enzymes

Antibody services

Mono- and polyclonal antibody development

- Flexibility to use protein, peptide, or protein sequence as starting material
- Development of antiserum, hybridoma cell lines or up to kilogram-scale monoclonal antibody

Human serum and plasma

Products for diagnostic kit development and QC

- Human serum panels, matrix selections, bulk and pool plasma
- Customization for disease states, special requirements regarding parameters, gender, age, origin of donor, etc.

Get in touch with biotechrabbit and start your project.

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Human Serum and Plasma for Diagnostics

biotechrabbit provides highest quality human serum and plasma from normal donors for the following application areas:

- Biomarker identification
- Diagnostic test development and validation
- Diagnostic kit production and QC

Compliance with ethical and legal regulations is guaranteed and complete documentation enables full traceability. The products are available as highly statistically significant panels as well as in bulk amounts and large pools.

Custom offers are designed to fulfill the specific testing needs of diagnostic test generation. Disease states with defined parameters are provided on request to serve all custom evaluation needs.

- Safe — full compliance with ethical and legal regulations
- Reliable — highest quality serum and plasma for consistent results
- Flexible — custom production
  - Normal and disease state human biomaterial
  - Special parameters (high lipids, fasting, etc.)
  - Gender, age, origin of donor
  - Collection time, processing and analysis

Statistic Human Serum Panels and Matrix Selections

Cat. no.	Size	Package content
Statistic Human Serum Panel		
BR4000101	Panel of 100	100 times 500 µl Serum, normal donors
BR4000102	Panel of 1000	1000 times 500 µl Serum, normal donors
Human Serum Matrix Selection		
BR4000201	4 Matrices	500 µl each: Serum off the clot, K3EDTA, Sodium citrate, Lithium heparine serum
BR4000202	7 Matrices	500 µl each: Serum off the clot, K2EDTA, K3EDTA, Sodium citrate, Lithium heparin, Ammonium heparin, Serum by separator

FEATURES

- High-quality true off-the-clot serum from normal donors in statistical distribution
- Variation of serum in defined matrices
- High ethical standards confirmed by ethic committees and informed donor consent
- Full documentation for serum processing, donor origin, age and gender

APPLICATIONS

- Diagnostic test development, optimization and validation
- Biomarker identification

DESCRIPTION

biotechrabbit Human Serum is true off-the-clot serum in full statistical variation from donors representing a standard European population. The matrix selection contains single-donor serum from one donation in defined coagulants or anticoagulants.

High ethical standards are confirmed by ethic committees and informed donor consent, according to international ethical and legal regulations. Documentation of age, gender and donor origin is provided, as well as specifications for blood collection and processing.

High-quality serum panels or matrix selections ensure efficient and reliable development of diagnostic tests, including biomarker identification, assay optimization and validation.

In addition to standard serum from “normal” donors, custom products can be provided for disease panels or defined panels according to donor origin in or outside Europe, age, gender, or disease state, serological tests, clinical documentation, special sample collection or other specific demands.

Human Plasma Bulk and Pool

Cat. no.	Size	Package content
Human Bulk Plasma		
BR4000301	350 ml	350 ml CPD Plasma from single female or male donation
Human Plasma Pool Female		
BR4000401	100 ml	100 ml CPD Plasma Pool, normal female donors
BR4000402	500 ml	500 ml CPD Plasma Pool, normal female donors
Human Plasma Pool Male		
BR4000501	100 ml	100 ml CPD Plasma Pool, normal male donors
BR4000502	500 ml	500 ml CPD Plasma Pool, normal male donors
Human Plasma Pool Mixed Gender		
BR4000601	100 ml	100 ml CPD Plasma Pool, mixed normal gender (1:1)
BR4000602	500 ml	500 ml CPD Plasma Pool, mixed normal gender (1:1)

FEATURES

- High-quality plasma pools from female or male donors
- CPD plasma frozen only once to retain highest biomarker activity
- Large batch quantities available
- Stringent ethical standards and full documentation of processing and donor origin, age and gender

APPLICATIONS

- Diagnostic test production and QC
- Standard samples included in test kits

DESCRIPTION

biotechrabbit Human CPD Plasma is collected in single donations and directly frozen to ensure highest biomarker activity. This method allows a choice of male or female donors as well as custom mixes. Plasma Pools are available from female, male or mixed gender donors. Stringent ethical standards are confirmed by ethic committees and informed donor consent, according to international ethical and legal regulations. Documentation for age, gender and donor origin is provided as well as specifications on blood collection and processing.

High-quality plasma bulk and serum pools are available in large quantities for diagnostic test kit production and quality control as well as for standards to be included in the kits.In addition to plasma from “normal” donors, custom products can be provided for disease states. Large batches can be created according to defined specifications, such as donor origin, age, gender and disease state, serological tests, clinical documentation, special sample collection method other specific demands.

Antibody Services

biotechrabbit‘s exceptional quality antibody development and high-capacity antibody production services are provided by qualified specialists who have been working in the field for more than 10 years. More than 1800 hybridomas have already been produced.

Large-scale production facilities, fermentation in serum- or protein-free medium and established purification schemes guarantee highest antibody purity. Endotoxin-free antibodies with cGMP-compliant documentation can be supplied for preclinical trials.

- Short project times — hybridomas or antiserum in 5–6 weeks
- Flexible start— 500 µg to 1.5 mg protein, peptide or protein sequence
- Best performance — highest purity of monoclonal antibodies
- No delay — project start on short notice

Monoclonal Antibody Development and Production

Features	Description
BR3231001 Peptide synthesis for monoclonal antibody development	
• Monoclonal antibody development • Peptide-selection service	Peptide synthesis • Peptide-selection service included • Three mg peptide synthesis for the peptide required for immunization and ELISA
BR3232001 Conjugation to protein carrier	
• Peptide or small protein • Monoclonal antibody development	Includes: • Conjugation of 5 mg peptide or small protein to LPH or BSA protein carrier • Note: Peptide design to be discussed upfront with biotechrabbit • Recommendation: Synthesis of 15 mg peptide required for ELISA and antibody purification
BR3300101 Immunization of 3 Balb/c mice	
• Efficient immunization method • 70% of B lymphocytes are antigen specific	Immunization of three mice: • Protein antigen provided by customer: 500 µg protein (>1 mg/ml in phosphate buffer) • Alternative: immunization with peptide or project start with protein sequence Duration: 17 days
BR3300201 Cell-fusion-producing hybridomas	
• Fusion of B lymphocytes with myeloma cells • Selection of fused cells	Includes: • Preparation of lymph nodes (from three immunized mice) • Fusion with myeloma cell line P3-X63-Ag8 • Distribution to 360 wells on culture plates • Cultivation and selection of fused cells Duration: 10 days
BR3300301 Hybridoma screening and expansion	
• Screening and selection of clones • Expansion of positive clones	Includes: • ELISA screening of 360 oligoclones • Verification by ELISA, western blot analysis or immunoprecipitation • Selection and expansion of up to 24 positive clones Duration: 2 weeks
BR3300401 Hybridoma subcloning	
• Two subcloning rounds • Delivery of the final hybridoma cell lines	Includes: • First and second subcloning of one positive oligoclone • Verification by ELISA, western blot analysis or immunoprecipitation • Delivery of the final hybridoma cell lines Duration: 2 weeks for each subcloning
BR3330501 Purified supernatant antibodies	
• From oligoclone or subclone • Up to 50 µg antibody per clone	Includes: • Cultivation of oligoclone or subclone • Purification of 50 ml supernatant via affinity column • Antibody concentration and buffer exchange (PBS, Tris, or custom buffer) • Delivery of up to 50 µg antibody (depending on clone productivity) Duration: 2 weeks
BR3330601–6 Monoclonal antibody production, 5–1000 mg	
• Highest purity standards • Production scale up to 1 kg	Cell line from hybridoma generation by biotechrabbit or customer to deliver hybridoma cell line. Includes: • Adaptation to serum-free media • Cell-line test for mycoplasma • Cultivation in serum-free or protein-free media • Purification by protein A/G affinity chromatography • Quality control and delivery of purified antibody Duration: • Approximately 5 weeks for cell-line adaptation and mycoplasma test • Two weeks for cultivation to produce up to 40 mg • Two weeks for purification and quality control

Polyclonal Antibody Development and Production

Features	Description
BR3320101 Polyclonal Rabbit Antiserum — Protein Antigen	
• High-quality antiserum • First serum delivery after 5 weeks	For two rabbits, protein antigen provided by customer (1.5 mg protein; >1 mg/ml) Includes: • Pre-immune sera, first immunization and boosts • Week 4: Bleeding, ELISA tests of sera and pre-sera (ELISA available only if protein is suitable for testing) • Week 5: Delivery of 1.5 ml pre-sera, approximately 20 ml antisera (each) and ELISA reports • Week 6: Customer confirms final bleeding or orders extension of immunization (BR3320104) • Week 7: Final bleeding • Week 8: Delivery of approximately 50 ml antiserum (each)
BR3231002 Peptide synthesis for polyclonal antibody development	
• For polyclonal antibody development • Peptide-selection service	Peptide synthesis: • Peptide-selection service included • Price includes 15 mg of a standard 15 amino acid peptide, purity >80% • Final price depends on sequence, length, quantity and purity • Quantity calculated according to immunization protocol and additional services ordered • Customer receives remaining peptide at the end of service
BR3320102 Polyclonal Rabbit Antiserum — Peptide Antigen	
• High-quality antiserum • Peptide synthesis and conjugation to carrier	Peptide synthesis: • Peptide-selection service included • Synthesis of 15–20 mg peptide, purity >80% • Conjugation of peptide to protein carrier (LPH or BSA) • Customer receives remaining peptide at the end of service Immunization of 2 rabbits: • Pre-immune sera, first immunization and boosts • Week 4: Bleeding, ELISA tests of sera and pre-sera (ELISA only available if protein is suitable for testing) • Week 5: Delivery of 1.5 ml pre-sera, approximately 20 ml antisera (each) and ELISA reports • Week 6: Customer confirms final bleeding or orders extension of immunization (BR3320104) • Week 7: Final bleeding • Week 8: Delivery of approximately 50 ml antiserum (each)
BR3320103 Antibody Titer Guarantee	
• Guaranteed titer after immunization • Full refund, if titer is not attained	Must be ordered with protein or peptide immunization protocols, BR3320101/02 (protein from one batch of >90% purity) Including: • Protein pre-test in SDS gel • Antibody titer guarantee of at least 1:25,000 after protein immunization and 1:10,000 after peptide immunization (recognition of the antigen in an ELISA) • Full refund if guaranteed titer is not attained • Animal selection after pre-immune sera testing • Delivery of approximately 50 ml antisera (each) • Immunization schemes: over 5 weeks with protein antigen and over 6 weeks with peptide antigen, extension up to 3 months, if titer is not reached
BR3320104 Extension of Immunization (4 weeks)	
• Additional 20 ml high-quality antiserum • Delay of final bleeding	For one rabbit, using the same antigen as the initial immunization. Extension delays the final bleeding by 4 weeks and can be repeated up to 2 years. Includes: • Immunization boost • 4 weeks animal keeping • Approximately 20 ml serum

Standard PCR

Standard PCR products include a highly active *Taq* DNA Polymerase that is suitable for demanding applications, such as diagnostics and routine amplification. PCR master mixes, which contain all necessary PCR reagents, simplify PCR setup. Colored, high-density PCR buffers allow PCR products to be loaded directly onto gels after cycling. Colored storage buffers allow easy identification of mixes containing *Taq* DNA polymerase during reaction setup. *Taq* DNA polymerase allows targets of 3–5 kb to be routinely amplified under standard or fast cycling conditions. In addition, an adenine is added to the 3' end of the product, allowing TA cloning.

- Diagnostic-grade quality — top performance for demanding application
- Convenient — master mixes and colored enzymes make your job easier
- Efficient — abundant DNA ready for downstream applications

Product	Main feature	Main PCR application	Simplified setup	Flexibility	Direct gel loading	Colored enzyme
Taq DNA Polymerase recombinant, 5 U/µl	$MgCl_2$ supplied in a separate vial for maximum flexibility	Standard and demanding		✓		
Taq DNA Polymerase convenient, 5 U/µl	Reaction buffer contains standard $MgCl_2$ concentration	Standard and demanding	✓			
PCR Master Mix, 2×	Premixed PCR reagents; just add template, primers and water	Routine, high-throughput	✓			
Green *Taq* DNA Polymerase, 5 U/µl	Green-colored buffer for direct loading onto gel after PCR	Standard with direct gel loading		✓	✓	
Green PCR Master Mix, 2×	Premixed PCR including green-colored buffer for direct loading onto gel after the PCR	Routine, high-throughput with direct gel loading	✓		✓	✓
Red *Taq* DNA Polymerase, 5 U/µl	Red-colored storage buffer for identification of mixes containing the enzyme	Standard with enzyme identification		✓		✓
Red PCR Master Mix, 2×	Premixed PCR reagents including red-colored buffer for identification of mixes containing the enzyme	Routine, high-throughput with enzyme identification	✓			✓
50 mM $MgCl_2$	Flexible optimization of Mg^{2+} concentration	Standard and demanding		✓		
5× PCR Enhancer	Improved PCR specificity and efficiency	Standard and demanding		✓		
PCR Grade Water	Ultrapure, sterile filtrated, contamination-free	Standard and demanding				

Taq DNA Polymerase recombinant, 5 U/µl

Cat. no.	Size	Package content
BR0100101	100 U	20 µl *Taq* DNA Polymerase 1.8 ml 10×Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100102	500 U	100 µl *Taq* DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100103	2500 U	5 times 100 µl *Taq* DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer 5 times 1.5 ml 50 mM $MgCl_2$

FEATURES

- High product yields and robustness in a wide application range
- Highest quality utilized in molecular diagnostics and research
- Exceptionally pure *Taq* DNA Polymerase for routine and demanding PCR applications

APPLICATIONS

- Routine and applied PCR up to 5 kb
- RT-PCR
- TA cloning

DESCRIPTION

biotechrabbit *Taq* DNA polymerase is a first-choice enzyme for all routine and molecular diagnostics PCR applications . The exceptional quality and purity of the enzyme ensures the highest performance that is required by the diagnostic industry and research labs. The polymerase is suitable for standard and fast PCR applications ensuring high product yields from various templates with targets of up to 5 kb in size.

biotechrabbit *Taq* DNA polymerase is a thermostable, highly processive 5'→3' DNA polymerase that has low 5'→3' exonuclease activity and lacks 3'→5' exonuclease (proofreading) activity. The latter allows incorporation of modified nucleotides.

The enzyme also exhibits deoxynucleotidyl transferase activity that results in the addition of extra A overhang at the 3'ends of PCR products, allowing easy cloning of PCR products into vectors with T overhangs.

QUALITY CONTROL — ensuring highest performance

Double-stranded endodeoxyribonuclease assay

Supercoiled plasmid DNA (1 µg) is incubated with 10 U *Taq* DNA Polymerase in a 50 µl reaction mixture for 4 h at 37°C. No conversion of covalently closed circular DNA to nicked DNA was detected.

Double-stranded exodeoxyribonuclease assay

Linearized lambda DNA *Hin*dIII fragments (1 µg) are incubated with 10 U *Taq* DNA Polymerase in a 50 µl reaction mixture for 4 h at 37°C.
No degradation of DNA was observed.

Single-stranded exodeoxyribonuclease assay

Single-stranded M13mp18 DNA (1 µg) is incubated with 10 U *Taq* DNA Polymerase for 3 h at 37°C.
No degradation compared to control was measurable.

Self-priming activity

Standard PCR is carried out without primers, using *Taq* DNA Polymerase and human genomic DNA.
No products were amplified.

DNA contamination assay

A sample of *Taq* DNA Polymerase is analyzed for DNA contamination with the Agilent® 2100 Bioanalyzer®.
No fragments in the range of 50–7000 bp were detected.

E. coli genomic DNA contamination assay

A sample of 5 µl denatured *Taq* DNA Polymerase is analyzed with specific primers for the 16S rRNA gene in qPCR for the presence of contaminating *E. coli* genomic DNA. The detection limit is < 1 copy genome per unit *Taq* DNA Polymerase. No genomic DNA was detectable.

Functional assay

Human genomic DNA (100 ng) was amplified using specific primers to produce a distinct band of 750 bp.

Unit Definition

One unit is defined as the amount of enzyme required to catalyze the incorporation of 10 nm dNTP into acid-insoluble form in 30 min at 72°C in the presence of the reaction buffer.

Taq DNA Polymerase convenient, 5 U/µl

Cat. no.	Size	Package content
BR0100701	100 U	20 µl *Taq* DNA Polymerase 1.8 ml 10× Reaction Buffer with $MgCl_2$
BR0100702	500 U	100 µl *Taq* DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer with $MgCl_2$
BR0100703	2500 U	5 times 100 µl *Taq* DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer with $MgCl_2$

FEATURES

- Optimal concentration of $MgCl_2$ included in Reaction Buffer
- High product yields and robustness in a wide application range
- Exceptionally pure *Taq* DNA Polymerase for both routine and demanding PCR applications

APPLICATIONS

- Routine PCR up to 5 kb
- RT-PCR
- TA cloning

DESCRIPTION

biotechrabbit *Taq* DNA Polymerase is a first-choice thermostable DNA polymerase for all routine PCR applications, ensuring high product yields from various templates for targets up to 5 kb in size.

Our *Taq* DNA Polymerase convenient version provides optimal $MgCl_2$ concentration in the Reaction Buffer, saving time during reaction setup.

biotechrabbit *Taq* DNA Polymerase is a thermostable, highly processive 5'→3' DNA polymerase that has low 5'→3' exonuclease activity and lacks 3'→5' exonuclease (proofreading) activity. The latter activity allows incorporation of modified nucleotides into DNA.

The enzyme also exhibits deoxynucleotidyltransferase activity, resulting in the addition of an extra A overhang at the 3' ends of PCR products, allowing easy cloning of PCR products into vectors with T overhangs.

PCR Master Mix, 2×

Cat. no.	Size	Package content
BR0100201	100 rxn of 50 µl	2 times 1.25 ml PCR Master Mix
BR0100202	500 rxn of 50 µl	10 times 1.25 ml PCR Master Mix
BR0100203	2500 rxn of 50 µl	50 times 1.25 ml PCR Master Mix

FEATURES

- Optimized PCR Master Mix for minimal hands-on and fast setup
- Exceptionally pure *Taq* DNA Polymerase and highest quality dNTPs
- High product yields and robustness in a wide application range

APPLICATIONS

- Routine and high-throughput PCR up to 5 kb
- TA cloning

DESCRIPTION

biotechrabbit PCR Master Mix is a perfect choice for fast reaction setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. It is designed for routine, high-throughput PCR amplification of 0.2–5 kb DNA targets. The 2× Master Mix contains highly purified recombinant biotechrabbit *Taq* DNA Polymerase, extremely high-quality dNTPs and optimized PCR buffer; thus, only template DNA, PCR primers and PCR-grade water need to be added.

biotechrabbit *Taq* DNA Polymerase is a thermostable, highly processive 5'→3' DNA polymerase that has low 5'→3' exonuclease activity and lacks 3'→5' exonuclease (proofreading) activity. The latter activity allows incorporation of modified nucleotides into DNA.

The enzyme also exhibits deoxynucleotidyltransferase activity that results in the addition of an extra A overhang at the 3' ends of PCR products, allowing easy cloning of PCR products into vectors with T overhangs.

Green *Taq* DNA Polymerase, 5 U/µl

Cat. no.	Size	Package content
BR0100301	100 U	20 µl *Taq* DNA Polymerase 2 times 1.8 ml 5× Green Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100302	500 U	100 µl *Taq* DNA Polymerase 4 times 1.8 ml 5× Green Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100303	2500 U	5 times 100 µl *Taq* DNA Polymerase 20 times 1.8 ml 5× Green Reaction Buffer 5 times 1.5 ml 50 mM $MgCl_2$

FEATURES

- Green Reaction Buffer formulation for direct loading on the gel
- High product yields and robustness in a wide application range
- Exceptionally pure *Taq* DNA Polymerase for both routine and demanding PCR applications

APPLICATIONS

- PCR and immediate gel analysis
- Routine PCR up to 5 kb
- TA cloning

DESCRIPTION

biotechrabbit Green *Taq* DNA Polymerase is a first-choice thermostable DNA polymerase for routine PCR applications that allows direct electrophoresis without the need to add loading buffer and ensures high product yields from various templates.

The 5× Reaction Buffer of Green *Taq* DNA Polymerase is recommended for any amplification reaction that will be visualized by agarose gel electrophoresis. The buffer contains two dyes (blue and yellow) that separate during electrophoresis, allowing the migration progress to be monitored. Reactions assembled with 5× Reaction Buffer have sufficient density for direct loading onto agarose gels.

biotechrabbit *Taq* DNA Polymerase is a thermostable, highly processive 5'→3' DNA polymerase that has low 5'→3' exonuclease activity and lacks 3'→5' exonuclease (proofreading) activity. The enzyme also exhibits deoxyribonucleotidyl transferase activity that results in the addition of an extra A overhang at the 3' ends of PCR products.

Green PCR Master Mix, 2×

Cat. no.	Size	Package content
BR0100401	100 rxn of 50 µl	2 times 1.25 ml Green PCR Master Mix
BR0100402	500 rxn of 50 µl	10 times 1.25 ml Green PCR Master Mix
BR0100403	2500 rxn of 50 µl	50 times 1.25 ml Green PCR Master Mix

FEATURES

- Optimized Green PCR Master Mix for fast setup and direct loading on the gel
- Exceptionally pure *Taq* DNA Polymerase and highest quality dNTPs
- High product yields and robustness in a wide application range

APPLICATIONS

- High-throughput PCR and immediate gel analysis
- Routine PCR up to 5 kb
- TA cloning

DESCRIPTION

biotechrabbit Green PCR Master Mix is a perfect choice for a fast reaction setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. Additionally the special formulation allows reactions onto be loaded onto an agarose gel directly after amplification without a separate step for adding loading dye.

Green PCR Master Mix contains two dyes (blue and yellow) that separate during electrophoresis, allowing the migration progress to be monitored. Reactions with the Green PCR Master Mix have sufficient density for direct loading onto agarose gels. Green Reaction Buffer also allows mixtures containing the enzyme to be identified.

The Green PCR Master Mix contains highly purified recombinant biotechrabbit *Taq* DNA Polymerase, extremely high-quality dNTPs and optimized PCR buffer; thus, only template DNA, PCR primers and PCR-grade water need to be added.

Red *Taq* DNA Polymerase, 5 U/µl

Cat. no.	Size	Package content
BR0100801	100 U	20 µl Red *Taq* DNA Polymerase 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100802	500 U	100 µl Red *Taq* DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$
BR0100803	2500 U	5 times 100 µl Red *Taq* DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer 5 times 1.5 ml 50 mM $MgCl_2$

FEATURES

- Red *Taq* DNA Polymerase Storage Buffer for identifying mixtures containing the enzyme
- High product yields and robustness in a wide application range
- Exceptionally pure *Taq* DNA Polymerase for both routine and demanding PCR applications

APPLICATIONS

- Simplified PCR setup with easy identification of the reaction mixtures that contain the enzyme
- Routine PCR up to 5 kb
- TA cloning

DESCRIPTION

biotechrabbit Red *Taq* DNA Polymerase is a first-choice enzyme ensuring high product yields and simplified PCR setup. This red-colored enzyme formulation performs in all respects like colorless polymerases. Additionally, reaction mixtures containing the enzyme are easily identified due to the red-colored enzyme Storage Buffer.

Red *Taq* DNA Polymerase is a thermostable, highly processive 5'→3' DNA polymerase that has low 5'→3' exonuclease activity and lacks 3'→5' exonuclease (proofreading) activity. The enzyme also exhibits deoxynucleotidyltransferase activity that results in the addition of an extra A overhang at the 3' ends of PCR, products allowing easy cloning of PCR products into vectors with T overhangs.

Red PCR Master Mix, 2×

Cat. no.	Size	Package content
BR0100601	100 rxn of 50 µl	2 times 1.25 ml Red PCR Master Mix
BR0100602	500 rxn of 50 µl	10 times 1.25 ml Red PCR Master Mix
BR0100603	2500 rxn of 50 µl	50 times 1.25 ml Red PCR Master Mix

FEATURES

- Optimized Red PCR Master Mix for fast and easy setup
- Exceptionally pure *Taq* DNA Polymerase and highest quality dNTPs
- High product yields and robustness in a wide application range

APPLICATIONS

- High-throughput PCR setup with easy visualization of the reaction mixtures
- Routine PCR up to 5 kb
- TA cloning

DESCRIPTION

biotechrabbit Red PCR Master Mix is a perfect choice for simplified reaction setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. Additionally the colored formulation provides the possibility to identify the reactions which already contain the enzyme and dNTPs.

This red-colored master mix performs in all respects like colorless PCR master mixes and ensures high product yields from various templates. It contains highly purified recombinant biotechrabbit *Taq* DNA Polymerase, extremely high-quality dNTPs and optimized PCR buffer; thus, only template DNA, PCR primers and PCR-grade water need to be added.

$MgCl_2$

Cat. no.	Size	Package content
BR2000101	6 ml	4 times 1.5 ml 50 mM $MgCl_2$

FEATURES
- Flexibility in PCR optimization
- Improved PCR performance

APPLICATIONS
- Optimization of PCR buffer conditions

DESCRIPTION
biotechrabbit $MgCl_2$ is ideally suited for optimization of PCR conditions. For convenience and flexibility, it is provided as 50 mM solution.

PCR Enhancer

Cat. no.	Size	Package content
BR2000201	6 ml	4 times 1.5 ml 5x PCR Enhancer

FEATURES
- Increased specificity and efficiency
- Improved results with GC-rich templates

APPLICATIONS
- Optimize PCR performance in demanding applications
- Sensitive, low-background amplification

DESCRIPTION
biotechrabbit PCR Enhancer is a unique PCR additive that improves sensitivity, resulting in increased PCR efficiency and reduced background. PCR Enhancer is ideal for difficult templates (e.g., GC-rich) and complex reactions, such as low-abundance templates and multiplex PCR.

PCR Grade Water

Cat. no.	Size	Package content
BR2000301	15 ml	10 times 1.5 ml PCR Grade Water

FEATURES
- Ultrapure and sterile filtrated
- DNase-, RNase- and protease-free, no DNA contamination

APPLICATIONS
- Ready-to-use water for standard and enhanced PCR and qPCR
- Buffer preparation and enzyme dilutions

DESCRIPTION
biotechrabbit PCR Grade Water is ultrapure and sterile filtered water for use in all PCR applications. It is tested for bacterial and mammalian DNA contamination and for DNases, RNases and proteases as well. Aliquots of 1.5 ml support an easy and contamination-free assay setup.

Hot-Start PCR

Hot-start enzymes are completely inactive during room-temperature setup and become active only after heating, reducing random primer annealing and unspecific amplification that can occur with standard PCR enzymes. The fidelity of hot-start PCR is the same as for standard PCR, and targets of 3–5 kb are routinely amplified. Like standard *Taq* DNA polymerase, hot-start enzymes add an adenine to the 3' end of the product, allowing TA cloning.

Hot-start PCR master mixes, which contain all necessary PCR reagents, simplify PCR setup. Colored, high-density hot-start PCR buffers allow PCR products to be loaded directly onto gels after cycling. Colored storage buffers allow easy identification of mixes containing Hot Start *Taq* DNA Polymerase during reaction setup.

- Optimized — excellent enzyme performance for enhanced applications
- Specific and sensitive — hot start for better results
- Convenient — component choices that make your job easier
- Fast — master mixes for less pipetting during setup

Product	Main feature	Main PCR application	Simplified setup	Flexibility	Direct gel loading	Colored enzyme
Hot Start *Taq* DNA Polymerase, 5 U/µl	Antibody-based hot start polymerase for improved PCR specificity and yield	High-sensitivity, high-specificity		✓		
UPstart™ *Taq* Antibody, 1 mg/ml	Hot-start using *Taq* DNA polymerases	High-sensitivity, high-specificity		✓		
Hot Start *Taq* DNA Polymerase convenient, 5 U/µl	Antibody-based hot start supplied with PCR buffer containing Mg^{2+}	High-sensitivity, high-specificity	✓			
Hot Start PCR Master Mix, 2×	Antibody-based hot start with premixed PCR reagents; just add template, primers and water	High-throughput, high-specificity, high-sensitivity	✓			
Green Hot Start DNA Polymerase, 5 U/µl	Antibody-based hot start with green-colored buffer for direct loading onto gels after PCR	High-specificity, high-sensitivity, direct gel loading		✓	✓	
Green Hot Start PCR Master Mix, 2×	Antibody-based hot start with premixed PCR reagents and green-colored buffer for direct loading onto gels after PCR	High-throughput, high-specificity, high-sensitivity, direct gel loading	✓		✓	✓
Red Hot Start DNA Polymerase, 5 U/µl	Antibody-based hot start with red-colored buffer for easy identification of mixes containing enzyme	High-sensitivity, high-specificity, identification of enzyme mix		✓		✓
Red Hot Start PCR Master Mix, 2×	Antibody-based hot start with premixed PCR reagents and red-colored buffer	High-throughput, high- specificity, identification of enzyme mix	✓			✓

Hot Start *Taq* DNA Polymerase, 5 U/µl

Cat. no.	Size	Package content
BR0200101	100 U	20 µl Hot Start *Taq* DNA Polymerase 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$ 500 µl 5× PCR Enhancer
BR0200102	500 U	100 µl Hot Start *Taq* DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$ 1.5 ml 5× PCR Enhancer
BR0200103	2500 U	5 times 100 µl Hot Start *Taq* DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer 5 times 1.5 ml 50 mM $MgCl_2$ 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- High PCR specificity and sensitivity
- Exceptionally pure Hot Start *Taq* DNA Polymerase for sensitive PCR applications and high yields
- Antibody-based Hot Start for fast polymerase activation

APPLICATIONS

- Hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- RT-PCR and TA cloning

DESCRIPTION

biotechrabbit Hot Start *Taq* DNA Polymerase is a first-choice hot-start PCR enzyme for all demanding PCR applications. The enzyme ensures high product yields with low background and without primer–dimer formation and nonspecific priming.

The Hot Start *Taq* DNA Polymerase is inactive during reaction setup due to the bound antibody which is quickly released at elevated temperatures, ensuring the enzyme is active only during PCR. There is no need for prolonged heating or denaturation steps.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

UPstart™ *Taq* Antibody, 1 mg/ml

Cat. no.	Size	Package content
BR1200101	100 µg (500 U)	100 µl UPstart *Taq* Antibody
BR1200102	250 µg (1250 U)	250 µl UPstart *Taq* Antibody
BR1200103	1000 µg (5000 U)	1000 µl UPstart *Taq* Antibody

FEATURES

- Inhibition of >95% *Taq* activity at 45°C
- 100–200 ng UPstart *Taq* Antibody are blocking 1 U *Taq* DNA polymerase
- Exceptionally pure—no contamination of mouse genomic DNA

APPLICATIONS

- Thermolabile inhibition of *Taq* DNA polymerases
- Convenient hot-start PCR setup at room temperature
- Fast polymerase activation with the first PCR denaturation step

DESCRIPTION

biotechrabbit UPstart *Taq* Antibody is an ultra-pure monoclonal antibody against the *Taq* DNA polymerase. The antibody can be used with highly efficient *Taq* DNA polymerases, provides an excellent method for "hot start" PCR and enhances PCR specificity and sensitivity. PCR hot start prevents the formation of primer–dimers and nonspecific amplification and allows convenient PCR setup at room temperature.

In the first denaturation step of the thermal cycling, the UPstart Antibody becomes nonfunctional and the active *Taq* DNA polymerase is released. This antibody-mediated hot-start method is significantly more convenient to use than other hot-start methods. Polymerase reactivation using this antibody is faster than with methods using chemically inhibited polymerases.

Hot Start *Taq* DNA Polymerase convenient, 5 U/µl

Cat. no.	Size	Package content
BR0200601	100 U	20 µl Hot Start *Taq* DNA Polymerase 1.8 ml 10× Reaction Buffer with $MgCl_2$ 500 µl 5× PCR Enhancer
BR0200602	500 U	100 µl Hot Start *Taq* DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer with $MgCl_2$ 1.5 ml 5× PCR Enhancer
BR0200603	2500 U	5 times 100 µl Hot Start *Taq* DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer with $MgCl_2$ 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Optimal concentration of $MgCl_2$ included in Reaction Buffer
- High-sensitivity and robustness in a wide application range
- Exceptionally pure Hot Start *Taq* DNA Polymerase for both routine and demanding PCR applications

APPLICATIONS

- High-specificity hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- RT-PCR and TA cloning

DESCRIPTION

biotechrabbit Hot Start *Taq* DNA Polymerase is a first-choice hot-start PCR enzyme for all demanding PCR applications. The enzyme ensures high product yields with low background and without primer–dimer formation and nonspecific priming.

Our Hot Start *Taq* DNA Polymerase convenient version provides optimal $MgCl_2$ concentration in the Reaction Buffer, saving time during reaction setup.

The Hot Start *Taq* DNA Polymerase is inactive during reaction setup due to the bound antibody which is quickly released at elevated temperatures, ensuring the enzyme is active only during PCR. There is no need for prolonged heating or denaturation steps.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

Hot Start PCR Master Mix, 2×

Cat. no.	Size	Package content
BR1200201	100 rxn of 50 µl	2 times 1.25 ml Hot Start PCR Master Mix 500 µl 5× PCR Enhancer
BR1200202	500 rxn of 50 µl	10 times 1.25 ml Hot Start PCR Master Mix 1.5 ml 5× PCR Enhancer
BR1200203	2500 rxn of 50 µl	50 times 1.25 ml Hot Start PCR Master Mix 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Highest PCR sensitivity without prolonged reactivation
- Optimized PCR Master Mix for minimal hands-on and fast setup
- Exceptionally pure Hot Start *Taq* DNA Polymerase and highest quality dNTPs

APPLICATIONS

- High-specificity and high-throughput hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- TA cloning

DESCRIPTION

biotechrabbit Hot Start PCR Master Mix is a perfect choice for a fast reaction setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. It is designed for low-background, high-throughput PCR of 0.2–5 kb DNA targets.

The 2x Hot Start PCR Master Mix contains pure biotechrabbit Hot Start *Taq* DNA Polymerase, extremely high-quality dNTPs and optimized PCR buffer; thus, only template, PCR primers and PCR-grade water are added.

The Hot Start *Taq* DNA Polymerase is inactive during reaction setup due to the bound antibody, which is quickly released at elevated temperatures, ensuring the enzyme is active only during PCR. There is no need for prolonged heating or denaturation steps. The hot start minimizes primer–dimers and miss-priming.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

Green Hot Start DNA Polymerase, 5 U/µl

Cat. no.	Size	Package content
BR0200701	100 U	20 µl Hot Start *Taq* DNA Polymerase 1.8 ml 5× Green Reaction Buffer 500 µl 5× PCR Enhancer
BR0200702	500 U	100 µl Hot Start *Taq* DNA Polymerase 2 times 1.8 ml 5× Green Reaction Buffer 1.5 ml 5× PCR Enhancer
BR0200703	2500 U	5 times 100 µl Hot Start *Taq* DNA Polymerase 10 times 1.8 ml 5× Green Reaction Buffer 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Green Reaction Buffer formulation for direct loading on the gel right after PCR
- High PCR specificity and sensitivity
- Hot Start *Taq* DNA Polymerase for demanding sensitive PCR applications and high yields

APPLICATIONS

- High-sensitivity PCR and immediate gel analysis
- High-specificity hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- RT-PCR and TA cloning

DESCRIPTION

biotechrabbit Green Hot Start DNA Polymerase is a first-choice hot-start PCR enzyme for all demanding PCR applications. The enzyme ensures high product yields with low background and without primer–dimer formation and nonspecific priming that allows direct electrophoresis without the need to add loading buffer and ensures high product yields from various templates.

The 5× Reaction Buffer of Green Hot Start *Taq* DNA Polymerase is recommended for any amplification reaction that will be visualized by agarose gel electrophoresis. The 5× Reaction Buffer contains two dyes (blue and yellow) that separate during electrophoresis, allowing the migration progress to be monitored. Reactions assembled with 5× Reaction Buffer have sufficient density for direct loading onto agarose gels.

The optional use of 5x PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

Green Hot Start PCR Master Mix, 2×

Cat. no.	Size	Package content
BR1200501	100 rxn of 50 µl	2 times 1.25 ml Green Hot Start PCR Master Mix 500 µl 5× PCR Enhancer
BR1200502	500 rxn of 50 µl	10 times 1.25 ml Green Hot Start PCR Master Mix 1.5 ml 5× PCR Enhancer
BR1200503	2500 rxn of 50 µl	50 times 1.25 ml Green Hot Start PCR Master Mix 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Optimized Green Hot Start PCR Master Mix for fast setup and direct loading on the gel
- Exceptionally pure Hot Start *Taq* DNA Polymerase and highest quality dNTPs
- High product yields and robustness in a wide application range

APPLICATIONS

- High-throughput hot-start PCR and immediate gel analysis
- High-specificity hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- TA cloning

DESCRIPTION

biotechrabbit Green Hot Start PCR Master Mix is a perfect choice for a fast reaction setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. It is designed for low-background, high-throughput PCR amplification of 0.2–5 kb DNA targets. Additionally the special formulation allows reactions to be loaded directly onto gels after amplification without adding additional loading dye.

Green Hot Start PCR Master Mix contains two dyes (blue and yellow) that separate during electrophoresis, allowing migration progress to be monitored. Reactions with Green Hot Start PCR Master Mix have sufficient density for direct loading onto agarose gels.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

Red Hot Start DNA Polymerase, 5 U/µl

Cat. no.	Size	Package content
BR0200301	100 U	20 µl Red Hot Start DNA Polymerase 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$ 5 times 1.5 ml 5× PCR Enhancer
BR0200302	500 U	100 µl Red Hot Start DNA Polymerase 2 times 1.8 ml 10× Reaction Buffer 1.5 ml 50 mM $MgCl_2$ 1.5 ml 5× PCR Enhancer
BR0200303	2500 U	5 times 100 µl Red Hot Start DNA Polymerase 10 times 1.8 ml 10× Reaction Buffer 5 times 1.5 ml 50 mM $MgCl_2$ 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Red Hot Start DNA Polymerase storage buffer for identifying mixtures containing the enzyme
- Exceptionally pure Hot Start *Taq* DNA Polymerase for both routine and demanding PCR applications
- Highest PCR specificity and sensitivity without prolonged reactivation

APPLICATIONS

- High-throughput simplified PCR setup with easy identification of the reaction mixtures that contain the enzyme
- High-specificity hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- TA cloning

DESCRIPTION

biotechrabbit Red Hot Start DNA Polymerase is a first-choice hot-start enzyme ensuring high product yields with low background and simplified PCR setup.
The red-colored enzyme performs in all respects like colorless hot-start polymerase, ensures low-background and high-specificity amplification. Additionally, reaction mixtures containing the enzyme are easily identified due to the red-colored enzyme Storage Buffer.

The Hot Start *Taq* DNA Polymerase is inactive during reaction setup due to the bound antibody, which is quickly released at elevated temperatures, ensuring the enzyme is active only during PCR, reducing primer–dimer formation and miss-priming.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

Red Hot Start PCR Master Mix, 2×

Cat. no.	Size	Package content
BR1200401	100 rxn of 50 µl	2 times 1.25 ml Red Hot Start PCR Master Mix 500 µl 5× PCR Enhancer
BR1200402	500 rxn of 50 µl	10 times 1.25 ml Red Hot Start PCR Master Mix 5 times 1.5 ml 5× PCR Enhancer
BR1200403	2500 rxn of 50 µl	50 times 1.25 ml Red Hot Start PCR Master Mix 5 times 1.5 ml 5× PCR Enhancer

FEATURES

- Optimized Red Hot Start PCR Master Mix for highest sensitivity and easy setup
- Exceptionally pure Hot Start *Taq* DNA Polymerase and highest quality dNTPs
- High product yields and robustness in a wide application range

APPLICATIONS

- High-throughput PCR setup with easy visualization of the reaction mixtures
- Hot-start PCR up to 5 kb
- Amplification of low-copy-number targets
- TA cloning

DESCRIPTION

biotechrabbit Red Hot Start PCR Master Mix is a perfect choice for simplified hot-start PCR setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. Additionally, the colored formulation allows the reactions that contain the enzyme and dNTPs to be identified.

The optional use of 5× PCR Enhancer improves PCR results in many cases, including impure template or low template abundance.

The 2× Red Hot Start PCR Master Mix contains pure biotechrabbit Hot Start *Taq* DNA Polymerase, extremely high-quality dNTPs and optimal PCR buffer; thus, only template, PCR primers and PCR-grade water are added.

Direct PCR, Blood and Crude Sample PCR

The DirectUP DNA Polymerase is an inhibitor-resistant thermophilic polymerase that enables amplification from crude samples without prior DNA template purification. The time- and cost-saving technique allows fast detection of targets directly from blood, soil, food samples and tissue homogenates.

- Fast — for direct amplification of unpurified targets
- Robust — resistant to inhibitors in blood and crude samples

DirectUP™ PCR Kit

Cat. no.	Size	Package content
BR0100901	100 rxn of 25 µl	100 µl DirectUP DNA Polymerase 1 ml 5× DirectUP Reaction Buffer
BR0100902	400 rxn of 25 µl	400 µl DirectUP DNA Polymerase 2 times 1 ml 5× DirectUP Reaction Buffer
BR0100903	1000 rxn of 25 µl	1 ml DirectUP DNA Polymerase 5 times 1 ml 5× DirectUP Reaction Buffer

FEATURES

- Inhibition-resistant hot-start DNA Polymerase for direct PCR from blood or crude samples
- Excellent performance in a wide application range
- Tolerates up to 40% whole blood, inhibitors in soil, foods and intercalating dyes

APPLICATIONS

- Direct PCR from blood, soil or other crude samples without template purification

DESCRIPTION

biotechrabbit DirectUP PCR Kit contains an engineered hot-start DNA polymerase providing excellent results without the need for template purification. The enzyme retains robust PCR function in the presence of 40% whole blood and is resistant to inhibitors present in complex samples, such as serum, soil, inhibitory foods and fluorescent dyes.

A series of mutations provides an effective hot-start function, ensuring minimized background and eliminating primer–dimer formation. The enzyme lacks both 5'→3' and 3'→5' exonuclease activities.

The enzyme exhibits deoxynucleotidyl transferase activity that results in the addition of an extra A overhang at the 3' ends of PCR products allowing easy cloning of PCR products into vectors with T overhangs.

High-Fidelity and Long-Range PCR

Pfu DNA Polymerase provides PCR accuracy that is approximately 10 times higher than *Taq* DNA Polymerase, and is suitable for demanding cloning, sequencing and expression applications.
Long-range PCR kits provide an optimized combination of *Taq* DNA polymerase and a proofreading DNA polymerase for longer PCR products with higher accuracy than is possible with the *Taq* enzyme alone. Long-range enzymes amplify templates of up to 30–40 kb with high fidelity. PCR Enhancer is supplied for better results with GC-rich amplicons. High-fidelity and long-range products are not recommended for use with dUTP.

- Optimized — excellent enzyme performance for enhanced applications
- Accurate — high-fidelity polymerase
- Reliable — polymerase for large amplicons
- Fast — master mixes for less pipetting during setup

Product	Main feature	Main PCR application	Fidelity	Amplicon length	Simplified setup	Colored enzyme
Pfu DNA Polymerase, 2.5 U/µl	Ten times more accurate than *Taq* DNA Polymerase	High-fidelity, demanding PCR	~10× higher	3 kb		✓
Pfu PCR Master Mix, 2×	Includes *Pfu* DNA Polymerase and high-fidelity PCR reagents	High-throughput, high-fidelity	~10× higher	3 kb	✓	
Long and High Fidelity DNA Polymerase, 2.5 U/µl	DNA polymerases for long-range and high-fidelity PCR	Long-range, GC-rich templates	~4× higher	>30 kb		✓
Long Range PCR Master Mix, 2×	DNA polymerases and reagents for long-range and high-fidelity PCR	High-throughput, long-range	~4× higher	>30 kb	✓	

Pfu DNA Polymerase, 2.5 U/µl

Cat. no.	Size	Package content
BR0300101	100 U	40 µl *Pfu* DNA Polymerase 500 µl 10× *Pfu* Reaction Buffer 500 µl 5× PCR Enhancer
BR0300102	500 U	200 µl *Pfu* DNA Polymerase 2 times 1.25 ml 10× *Pfu* Reaction Buffer 1.5 ml 5× PCR Enhancer

FEATURES

- Accurate PCR for demanding applications
- Approximately ten times higher accuracy than that of *Taq* DNA Polymerase
- Proof-reading for increased fidelity

APPLICATIONS

- High-fidelity PCR
- Generation of PCR products for blunt cloning
- Site directed mutagenesis

DESCRIPTION

biotechrabbit *Pfu* DNA Polymerase is a highly purified thermostable recombinant proofreading DNA polymerase. *Pfu* DNA Polymerase exhibits approximately 10 times higher accuracy than *Taq* DNA polymerase and amplifies targets up to 3–4 kb in size.

The enzyme catalyzes template-dependent nucleotide polymerization in the 5'→3' direction. Additionally the 3'→5' exonuclease (proofreading) activity corrects nucleotide incorporation errors, thereby increasing fidelity and accuracy of DNA polymerization. The enzyme has no 5'→3' exonuclease activity and no detectable reverse transcriptase activity and produces blunt-end PCR products.

For the most demanding applications, the supplied 5× PCR Enhancer can be optionally used for improving results when using templates with GC-rich sequences and complex structures.

Pfu PCR Master Mix, 2×

Cat. no.	Size	Package content
BR0300201	100 rxn of 50 µl	2 times 1.25 ml *Pfu* PCR Master Mix 500 µl 5× PCR Enhancer
BR0300202	500 rxn of 50 µl	10 times 1.25 ml *Pfu* PCR Master Mix 1.5 ml 5× PCR Enhancer

FEATURES

- Optimized *Pfu* PCR Master Mix for minimal hands-on and fast setup
- Pure *Pfu* DNA Polymerase and highest quality dNTPs
- Approximately ten times higher accuracy than that of *Taq* DNA Polymerase for accurate PCR in demanding applications

APPLICATIONS

- High-throughput, high-fidelity PCR
- Generation of PCR products for blunt cloning

DESCRIPTION

biotechrabbit *Pfu* PCR Master Mix is a perfect choice for fast, high-fidelity PCR setup that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. It is designed for routine high-throughput, high-fidelity amplification of targets up to 3–4 kb in size.

The 2× *Pfu* PCR Master Mix contains *Pfu* DNA Polymerase, extremely high-quality dNTPs and optimized PCR buffer; thus, only template, PCR primers and PCR-grade water are added.

For the most demanding applications, the supplied 5× PCR Enhancer can be optionally be used to improve results when using templates with GC-rich sequences and complex structures.

Pfu DNA Polymerase exhibits approximately 10 times higher accuracy compared to *Taq* DNA polymerase. *Pfu* DNA Polymerase produces blunt-end PCR products suitable for blunt cloning.

Long and High Fidelity DNA Polymerase, 2.5 U/µl

Cat. no.	Size	Package content
BR0300301	100 U	40 µl Long and High Fidelity PCR Enzyme Mix 500 µl 10× HF Reaction Buffer 500 µl 5× PCR Enhancer
BR0300302	500 U	200 µl Long and High Fidelity PCR Enzyme Mix 2 times 1.2 ml 10× HF Reaction Buffer 1.5 ml 5× PCR Enhancer

FEATURES

- High-productivity, long-range PCR
- Increased fidelity for accurate amplification of GC-rich templates
- Polymerase mix for high yield and short cycle times

APPLICATIONS

- Long-range PCR up to 40 kb
- Amplification of GC-rich templates

DESCRIPTION

biotechrabbit Long and High Fidelity DNA Polymerase is a first-choice for amplification of targets up to 40 kb in size with higher accuracy than that of *Taq* DNA polymerase.

This specially designed blend of thermophilic polymerases is well suited for amplification of targets that are GC-rich and have complex structures.

For the most demanding applications, the supplied 5× PCR Enhancer can be optionally used to improve results when using templates with GC-rich sequences and complex structures.

Long and High Fidelity DNA Polymerase produces a mixture of A-tailed and blunt-end PCR products. It is advisable to blunt products before cloning into blunt-end vectors.

Long Range PCR Master Mix, 2×

Cat. no.	Size	Package content
BR0300401	100 rxn of 50 µl	2 times 1.25 ml Long Range PCR Master Mix 500 µl 5×PCR Enhancer
BR0300402	500 rxn of 50 µl	10 times 1.25 ml Long Range PCR Master Mix 1.5 ml 5× PCR Enhancer

FEATURES

- Optimized Long Range PCR Master Mix for minimal hands-on and fast setup
- Mix of pure polymerases and highest quality dNTPs for high yield and short cycle times
- Increased fidelity for accurate amplification of GC-rich templates

APPLICATIONS

- High-throughput, long-range PCR up to 40 kb
- Amplification of GC-rich templates

DESCRIPTION

biotechrabbit Long Range PCR Master Mix is a perfect choice for fast reaction setup for long-range PCR that reduces the time required for calculation and pipetting and eliminates the need for buffer optimization. It is designed for amplification of targets up to 40 kb in size. The master mix works well with GC-rich templates and amplifies DNA with a higher fidelity than that of *Taq* DNA polymerase.

The Long Range PCR Master Mix contains a blend of thermophilic polymerases, extremely high-quality dNTPs and optimized PCR buffer; thus, only template, PCR primers and PCR-grade water are added.

For the most demanding applications, the supplied 5× PCR Enhancer can be optionally used to improve results when using templates with GC-rich sequences and complex structures.

Long Range PCR Master Mix produces a mixture of A-tailed and blunt-end PCR products. It is advisable to blunt products before cloning into the blunt-end vector.

Reverse Transcription and RT-PCR

RevertUP Reverse Transcriptase, which is a proprietary modification of the MMuLV reverse transcriptase, provides most efficient cDNA synthesis without RNase H activity, allowing successful synthesis of cDNAs of greater than 14 kb in length.

One-step RT-PCR kits provide optimized reagents, including Hot Start *Taq* DNA Polymerase, for performing both reverse-transcription and amplification reactions in one tube.

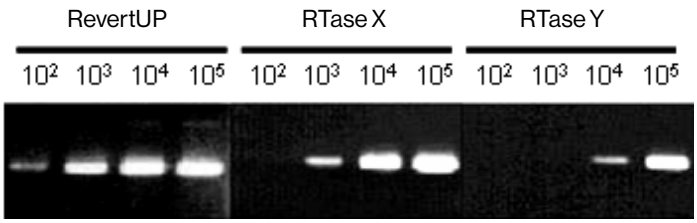
The Moloney-Murine Leukemia Virus (MMuLV) reverse transcriptase is a classic RNA-dependent DNA polymerase. The exceptional purity of the biotechrabbit MMuLV enzyme ensures excellent results in demanding applications.

A special RNase Inhibitor prevents RNA templates from degradation by pervasive RNases.

- High performance — exceptional purity for demanding applications
- Convenient — excellent efficiency at high temperatures
- Reliable — RNase Inhibitor for protecting your RNA

Product	Main PCR application	Main feature
RevertUP™ Reverse Transcriptase	Reliable synthesis of ≥14 kb cDNA, two-step RT-PCR	A proprietary MMuLV reverse transcriptase engineered by point mutations in polymerase and RNase H domains ensures efficient cDNA synthesis with no RNase H activity, allowing successful synthesis of ≥14 kb cDNA.
One Step RT-PCR Kit	One-step RT-PCR	A blend of efficient thermostable reverse transcriptase and proprietary Ribonuclease Inhibitor ensures high cDNA yields. Unique Hot Start *Taq* DNA Polymerase in a mix with high-quality dNTPs and PCR enhancers allows sensitive, low-background amplification.
MMuLV Reverse Transcriptase	cDNA synthesis, two-step RT-PCR	Exceptionally pure reverse transcriptase supplied with reaction buffer for standard applications.
RNase Inhibitor	Prevention of RNA degradation by RNases	A recombinant, non-competitive inhibitor of pancreatic-type ribonucleases, including RNase A, RNase B and RNase C.

Performance of RevertUP Reverse Transcriptase



RT-PCR of the *G3PDH* gene (500 bp). cDNA templates were synthesized with various RNase H^- reverse transcriptases from *G3PDH* mRNA (10^2–10^5 copies/reaction). The reverse transcription reaction was performed with specific reverse primers and 100 U enzyme at 42°C for 20 min.

RevertUP™ Reverse Transcriptase, 100 U/µl

Cat. no.	Size	Package content
BR0400301	10000 U	100 µl RevertUP Reverse Transcriptase 1 ml 5× RevertUP Buffer
BR0400302	50000 U	500 µl RevertUP Reverse Transcriptase 5 times 1 ml 5× RevertUP Buffer

FEATURES

- Improved performance for synthesis of long cDNAs (≥ 14 kb)
- Excellent efficiency at high temperatures up to 55 °C
- High sensitivity for cDNA synthesis from few copies of template

APPLICATIONS

- First-strand cDNA synthesis
- Generation of labeled cDNA
- RNA analysis by primer extension
- cDNA library construction
- RT-PCR

DESCRIPTION

biotechrabbit RevertUP Reverse Transcriptase is a proprietary MMuLV reverse transcriptase engineered by point mutations in polymerase and RNase H domains. This ensures efficient cDNA synthesis and eliminates RNase H activity, allowing successful synthesis of ≥14 kb cDNA.

Reverse transcriptase is a DNA polymerase which uses RNA as a substrate and exhibits no measurable proofreading 3'→5' exonuclease function. This enzyme performs cDNA synthesis by extending a DNA primer annealed to an RNA template; it can also make copies of single-stranded DNA templates.

One Step RT-PCR Kit

Cat. no.	Size	Package content
BR0400101	50 rxn of 50 µl	1.25 ml One Step Mix 125 µl RT-RI Blend
BR0400102	100 rxn of 50 µl	2 times 1.25 ml One Step Mix 2 times 125 µl RT-RI Blend
BR0400103	500 rxn of 50 µl	10 times 1.25 ml One Step Mix 10 times 125 µl RT-RI Blend

FEATURES

- Efficient thermostable Reverse Transcriptase and proprietary Ribonuclease Inhibitor providing high cDNA yields
- Unique Hot Start *Taq* DNA Polymerase in a mix with high-quality dNTPs
- PCR enhancers allowing sensitive low background amplification

APPLICATIONS

- One-step RT-PCR
- Virus detection
- Amplification of GC-rich and complex templates

DESCRIPTION

biotechrabbit One Step RT-PCR Kit provides an easy and efficient way to perform both reverse transcription of RNA and PCR amplification of cDNA in one step. Only RNA template, primers and PCR-grade water are added.

The 20× RT-RI Blend, which contains a blend of an efficient thermostable reverse transcriptase and a proprietary Ribonuclease Inhibitor, ensures high yields of cDNA.

The 2× One Step Mix, which contains unique Hot Start *Taq* DNA Polymerase, dNTPs, $MgCl_2$ and stabilizers in an optimized buffer, provides high PCR product yields with minimal background even when using low-abundance templates and difficult targets. PCR enhancers included in the mix allow efficient amplification of complex templates including GC- or AT-rich sequences.

MMuLV Reverse Transcriptase, 200 U/µl

Cat. no.	Size	Package content
BR0400201	10000 U	50 µl MMuLV Reverse Transcriptase 1 ml 10× MMuLV RT Buffer
BR0400202	50000 U	250 µl MMuLV Reverse Transcriptase 1 ml 10× MMuLV RT Buffer

FEATURES

- Pure reverse transcriptase for cDNA synthesis
- High yields of first-strand cDNA
- High value for a fair price

APPLICATIONS

- First-strand cDNA synthesis
- Generation of labeled cDNA
- RNA analysis by primer extension

DESCRIPTION

biotechrabbit MMuLV Reverse Transcriptase is an exceptionally pure DNA polymerase which uses RNA as a substrate and exhibits no measurable proofreading 3'→5' exonuclease function. This enzyme performs cDNA synthesis by extending a DNA primer annealed to an RNA template; it can also make copies from a single-stranded DNA templates.

The enzyme is purified from a recombinant *E. coli* strain carrying the MMuLV reverse transcriptase gene.

RNase Inhibitor, 40 U/µl

Cat. no.	Size	Package content
BR0400901	2500 U	62.5 µl RNase Inhibitor
BR0400902	10000 U	250 µl RNase Inhibitor

FEATURES

- Exceptionally pure proprietary Ribonuclease Inhibitor for demanding RNA applications
- Active under variety of reaction conditions used for work with RNA
- Prevention of RNA from degradation by RNase A, RNase B and RNase C

APPLICATIONS

- In vitro transcription, translation
- cDNA synthesis
- RNA purification and storage

DESCRIPTION

biotechrabbit RNase Inhibitor is an acidic, 52 kDa protein that is a potent non-competitive inhibitor of pancreatic-type ribonucleases such as RNase A, RNase B and RNase C. The enzyme is purified from a recombinant *E. coli* strain carrying a fusion protein from the porcine RNase Inhibitor gene with a proprietary 22.5 kDa protein tag.

Quantitative Real-Time PCR

biotechrabbit QPCR Green, Probe and One-Step QRT-PCR Master Mixes are first-choice products for fast and easy real-time PCR setup. They contain all reagents required for real-time PCR and are designed to achieve excellent results in reaction efficiency, correlation coefficient and slope.
Intercalating-dye-based mixes, such as QPCR Green Master Mix, allow nonspecific detection of double-stranded DNA and are faster and more cost-effective than probe-based mixes.
Probe-based mixes, such as QPCR Probe Master Mix, can be used specifically or universally. However, more effort is required to design and synthesized specific probes.
biotechrabbit QPCR and QRT-PCR products can be used with the fast and standard modes as well as for multiplex PCR.
The mixes are available with passive reference dyes Rox™ (carboxy-X-rhodamine) or fluorescein to enable the correction of errors caused by the instrument.

- High performance — rapid extension rate for early Ct values
- Sensitive — increased limit of detection for quicker results
- Compatible — use on any real-time PCR platform
- Flexible — for standard and fast cycling consitions

Instrument compatibility for passive reference dyes

Reference dye	Company	Instrument
Low concentration ROX	Analytica Jena	qTower
	Applied Biosystems	7500, 7500 FAST, Viia™ 7
	Bio-Rad	iCycler®, MyiQ™, iQ™ 5, Opticon™, Opticon 2, Chromo4™, MiniOpticon™ , CFX96™, CFX384™
	Cepheid	Smartcycler®
	Eppendorf	Mastercycler® ep REALPLEX®, Mastercycler REALPLEX 2S
	Illumina	Eco™
	QIAGEN	Rotor-Gene® 3000, 6000, Q
	Roche Applied Science	Lightcycler® 480, Lightcycler Nano
	Agilent	Mx4000P®, Mx3000P®, Mx3005P®
	Takara	Cycler Dice™
	Techne	Quantica®
High concentration ROX	Analytica Jena	qTower
	Applied Biosystems	7000, 7300, 7700, 7900, 7900HT, 7900HT FAST, StepOne™, StepOnePlus™
	Cepheid	Smartcycler
	Eppendorf	Mastercycler ep REALPLEX, Mastercycler REALPLEX 2S
	Illumina	Eco
	QIAGEN	Rotor-Gene 3000, 6000, Q
	Roche Applied Science	Lightcycler 480, Lightcycler Nano
	Takara	Cycler Dice
	Techne	Quantica
Fluorescein	Bio-Rad	iCycler, MyiQ, iQ 5

QPCR Green Master Mix, 2×

Cat. no.	Size	Package content
QPCR Green Master Mix LRox, 2×		
BR0500301	100 rxn of 20 µl	1 ml QPCR Green Master Mix LRox
BR0500302	500 rxn of 20 µl	5 times 1 ml QPCR Green Master Mix LRox
BR0500304	2500 rxn of 20 µl	25 times 1 ml QPCR Green Master Mix LRox
QPCR Green Master Mix HRox, 2×		
BR0500401	100 rxn of 20 µl	1 ml QPCR Green Master Mix HRox
BR0500402	500 rxn of 20 µl	5 times 1 ml QPCR Green Master Mix HRox
BR0500404	2500 rxn of 20 µl	25 times 1 ml QPCR Green Master Mix HRox
QPCR Green Master Mix Fluorescein, 2×		
BR0501201	100 rxn of 20 µl	1 ml QPCR Green Master Mix Fluorescein
BR0501202	500 rxn of 20 µl	5 times 1 ml QPCR Green Master Mix Fluorescein
BR0501203	2500 rxn of 20 µl	25 times 1 ml QPCR Green Master Mix Fluorescein

FEATURES

- Non-PCR-inhibiting intercalating dye
- Highest sensitivity for increased limit of detection
- Rapid extension rate for early Ct values

APPLICATIONS

- qPCR based on intercalating dye
- Standard and fast cycling
- Compatible on all real-time PCR platforms

DESCRIPTION

biotechrabbit QPCR Green Master Mixes can be used to quantify any DNA template including genomic, cDNA and viral sequences. Extremely low-copy-number targets can be detected specifically with high efficiency in standard and fast cycling. The mixes use a proprietary intercalating dye which does not inhibit PCR. Hot-start function prevents formation of primer–dimers and nonspecific products leading to improved reaction sensitivity and specificity.

For greater flexibility, master mixes with fluorescein and ROX at high (HRox) or low (LRox) concentration are available.

QPCR Probe Master Mix, 2×

Cat. no.	Size	Package content
QPCR Probe Master Mix, 2×		
BR0501301	100 rxn of 20 µl	1 ml QPCR Probe Master Mix
BR0501302	500 rxn of 20 µl	5 times 1 ml QPCR Probe Master Mix
BR0501304	2500 rxn of 20 µl	25 times 1 ml QPCR Probe Master Mix
QPCR Probe Master Mix LRox, 2×		
BR0500501	100 rxn of 20 µl	1 ml QPCR Probe Master Mix LRox
BR0500502	500 rxn of 20 µl	5 times 1 ml QPCR Probe Master Mix LRox
BR0500504	2500 rxn of 20 µl	25 times 1 ml QPCR Probe Master Mix LRox
QPCR Probe Master Mix HRox, 2×		
BR0500601	100 rxn of 20 µl	1 ml QPCR Probe Master Mix HRox
BR0500602	500 rxn of 20 µl	5 times 1 ml QPCR Probe Master Mix HRox
BR0500604	2500 rxn of 20 µl	25 times 1 ml QPCR Probe Master Mix HRox

FEATURES

- Highest sensitivity for increased limit of detection
- High efficiency in multiplex reactions
- Rapid extension rate for early Ct values

APPLICATIONS

- qPCR based on specific probes
- Standard and fast cycling
- For use on a wide range of probe technologies including Taqman®, Molecular Beacons® and Scorpion® probes

DESCRIPTION

biotechrabbit QPCR Probe Master Mixes can be used to quantify any DNA template including genomic, cDNA and viral sequences. Extremely low-copy-number targets can be detected specifically with high efficiency in standard and fast cycling. The mixes are compatible with many probe technologies. Hot-start function prevents formation of primer–dimers and nonspecific products leading to improved reaction sensitivity and specificity.

For greater flexibility, master mixes without reference dye, with fluorescein and ROX at high (HRox) or low (LRox) concentration are available.

QRT-PCR Green One Step Kit, 2×

Cat. no.	Size	Package content
QRT-PCR Green OneStep Kit LRox		
BR0500801	100 rxn of 20 µl	1 ml QPCR Green Mix LRox 200 µl RTase with RNase Inhibitor
BR0500802	300 rxn of 20 µl	3 times 1 ml QPCR Green Mix LRox 3 times 200 µl RTase with RNase Inhibitor
BR0500803	1500 rxn of 20 µl	12 times 1 ml QPCR Green Mix LRox 12 times 200 µl RTase with RNase Inhibitor
QRT-PCR Green OneStep Kit HRox		
BR0500701	100 rxn of 20 µl	1 ml QPCR Green Mix HRox 200 µl RTase with RNase Inhibitor
BR0500702	300 rxn of 20 µl	3 times 1 ml QPCR Green Mix HRox 3 times 200 µl RTase with RNase Inhibitor
BR0500703	1500 rxn of 20 µl	12 times 1 ml QPCR Green Mix HRox 12 times 200 µl RTase with RNase Inhibitor

FEATURES

- Highest sensitivity for increased limit of detection
- Thermostable, extremely active reverse transcriptase (55°C) and advanced RNase inhibitor
- Non-PCR inhibiting intercalating dye
- Rapid extension rate for early Ct values

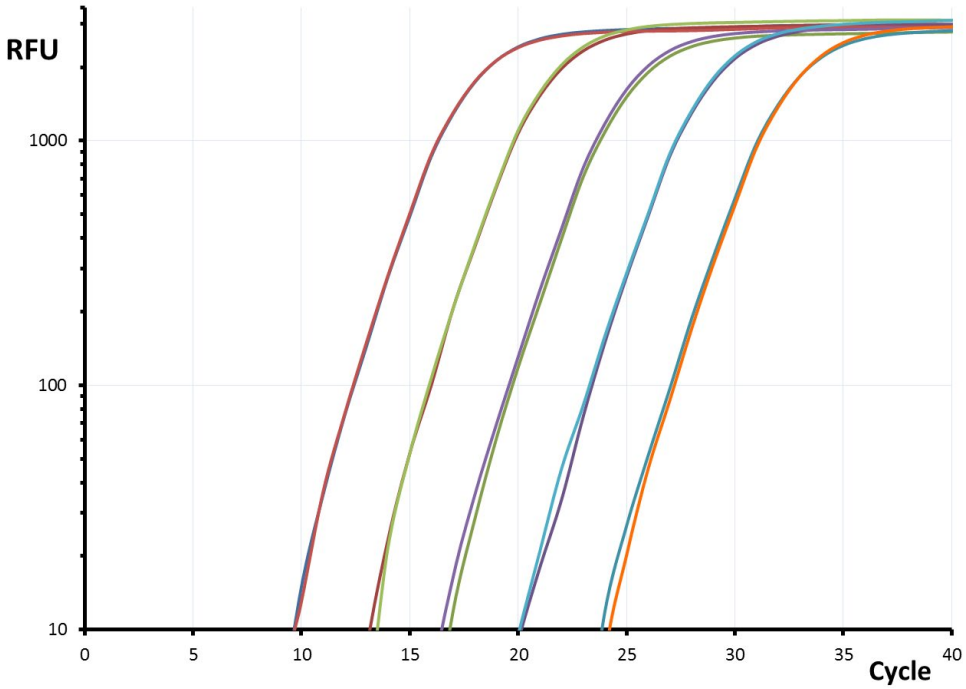
APPLICATIONS

- One step QRT-PCR based on intercalating dye
- For use with standard and fast q PCR platforms

DESCRIPTION

biotechrabbit QRT-PCR Green One Step Kits allow efficient cDNA synthesis and qPCR in a single tube. They can be used to quantify mRNA, total RNA and viral sequences. Extremely low-copy-number targets can be detected with high efficiency. Hot-start function prevents formation of primer–dimers and nonspecific products leading to improved reaction sensitivity and specificity.

QRT-PCR Green One Step Kits perform excellently in standard cycling conditions as well as in fast and ultra-fast cycling conditions. For greater flexibility, one-step kits with ROX at high (HRox) or low (LRox) concentration are available.



Uniform and reproducible results with QPCR Master Mix
Efficiency of the amplification of the *E. coli* 16S RNA gene using tenfold serial dilutions in duplicates from 4.2 ng to 4.2 pg in a QPCR Probe assay.

QRT-PCR Probe One Step Kit, 2×

Cat. no.	Size	Package content
QRT-PCR Probe OneStep Kit		
BR0501101	100 rxn of 20 µl	1 ml QPCR Probe Mix 200 µl RTase with RNase Inhibitor
BR0501102	300 rxn of 20 µl	3 times 1 ml QPCR Probe Mix 3 times 200 µl RTase with RNase Inhibitor
BR0501103	1500 rxn of 20 µl	12 times 1 ml QPCR Probe Mix 12 times 200 µl RTase with RNase Inhibitor
QRT-PCR Probe OneStep Kit LRox		
BR0500901	100 rxn of 20 µl	1 ml QPCR Probe Mix LRox 200 µl RTase with RNase Inhibitor
BR0500902	300 rxn of 20 µl	3 times 1 ml QPCR Probe Mix LRox 3 times 200 µl RTase with RNase Inhibitor
BR0500903	1500 rxn of 20 µl	12 times 1 ml QPCR Probe Mix LRox 12 times 200 µl RTase with RNase Inhibitor
QRT-PCR Probe OneStep Kit HRox		
BR0501001	100 rxn of 20 µl	1 ml QPCR Probe Mix HRox 200 µl RTase with RNase Inhibitor
BR0501002	300 rxn of 20 µl	3 times 1 ml QPCR Probe Mix HRox 3 times 200 µl RTase with RNase Inhibitor
BR0501003	1500 rxn of 20 µl	12 times 1 ml QPCR Probe Mix HRox 12 times 200 µl RTase with RNase Inhibitor

FEATURES

- Highest sensitivity for increased limit of detection
- Thermostable, extremely active reverse transcriptase (55°C) and advanced RNase inhibitor
- Rapid extension rate for early Ct values

APPLICATIONS

- One-step RT-QPCR based on specific probes
- For use with standard and fast qPCR platforms

DESCRIPTION

biotechrabbit QRT-PCR Probe One Step Kits are first-choice products for a fast and easy real-time PCR setup using RNA templates. They contain all reagents required for one-step QPCR and are designed to achieve excellent results in reaction efficiency, correlation coefficient and slope.

To enable the use of the kit on qPCR platforms with different reference dye concentration requirements, three kit versions are available: a one-step kit containing no ROX and LRox and HRox versions containing ROX in high and low concentrations, respectively.

QRT-PCR Probe One Step Kits use proprietary reverse transcriptase technology and buffer chemistry for efficient cDNA synthesis and QPCR in a single tube. They can be used to quantify any RNA template including mRNA, total RNA and viral sequences. Extremely low-copy-number targets can be detected with high efficiency. Hot-start function prevents primer–dimers and nonspecific products leading to improved reaction sensitivity and specificity. Kits also provide leading performance in fast and ultra-fast cycling conditions.

dNTP Sets and Mixes

biotechrabbit deoxynucleotide triphosphates are available as mixes containing all dNTPs or sets of individual dNTPs. Sets and mixes containing dUTP instead of dTTP are available for applications such as PCR carryover prevention. The outstanding purity of the nucleotides ensures excellent performance in the most demanding applications.

- Reproducible — exceptional purity for excellent results
- Reliable — outstanding stability for consistent PCR results

dNTP Sets and Mixes

Cat. no.	Size	Package content
dNTP Set (4× 100 mM solutions)		
BR0600601	4× 250 µl	250 µl 100 mM solutions each: dATP/dCTP/dGTP/dTTP
BR0600602	4× 1 ml	1 ml 100 mM solutions each: dATP/dCTP/dGTP/dTTP
BR0600603	5 pack of 4× 250 µl	5 times 250 µl 100 mM solutions each: dATP/dCTP/dGTP/dTTP
BR0600605	5 pack of 4× 1 ml	5 times 1 ml 100 mM solutions each: dATP/dCTP/dGTP/dTTP
dNTP/dUTP Set (4× 100 mM solutions)		
BR0600701	4× 250 µl	250 µl 100 mM solutions each: dATP/dCTP/dGTP/dTUP
25 mM dNTP Mix		
BR0600501	500 µl	500 µl dNTP Mix (25 mM each)
BR0600502	1 ml	1 ml dNTP Mix (25 mM each)
BR0600503	5× 1 ml	5 times 1 ml dNTP Mix (25 mM each)
10 mM dNTP Mix		
BR0600201	200 µl	200 µl 10 mM dNTP Mix (10 mM each)
BR0600202	1 ml	1 ml 10 mM dNTP Mix (10 mM each)
BR0600204	5× 1 ml	5 times 1 ml 10 mM dNTP Mix (10 mM each)
2 mM dNTP Mix		
BR0600301	1 ml	1 ml 2 mM dNTP Mix (2 mM each)
BR0600302	5× 1 ml	5 times 1 ml 2 mM dNTP Mix (2 mM each)
dNTP/dUTP Mix		
BR0600801	1 ml	1 ml dNTP/dUTP Mix (2 mM dATP/ dCTP/dGTP, 4 mM dUTP)
BR0600802	5× 1 ml	5 times 1 ml dNTP/dUTP Mix (2 mM dATP/dCTP/dGTP, 4 mM dUTP)

FEATURES

- Exceptional quality dNTPs of >99% purity confirmed by HPLC
- Free from DNA and PCR inhibitors
- Consistent PCR results due to outstanding dNTPs stability

APPLICATIONS

- Standard or hot-start PCR
- Long-range and high-fidelity PCR
- cDNA synthesis and RT-PCR
- qPCR
- Sequencing
- DNA labeling

DESCRIPTION

biotechrabbit deoxynucleotide triphosphates are first-choice nucleotides for all PCR applications, including the most demanding, such as amplification of long targets (up to 40 kb), GC-rich templates, qPCR, cDNA synthesis, high-fidelity PCR, DNA labeling and sequencing.

Advanced production technology ensures that deoxy-ribonucleotide triphosphates have >99% purity and outstanding stability, ensuring excellent performance and consistent, reliable results.

For the maximum flexibility, nucleotides are available in sets and mixes of common concentrations.

Nucleic Acid Purification

biotechrabbit nucleic acid purification kits are designed to be fast and convenient to use. Purified nucleic acids are suitable for standard and demanding applications. Universal kits provide reagents and protocols for purification from a wide range of starting materials.

Mini filter based procedures allow easy handling, and proprietary buffer compositions ensure most efficient lysis, nucleic acid binding, washing and elution.

- Convenient — fast and simple procedures to make your work easier
- Efficient — proprietary buffer compositions for high yields of pure nucleic acid

Product	Applications	Starting material
DNA cleanup		
GenUP PCR/Gel Cleanup Kit	PCR product cleanup and DNA extraction from agarose gels	Amplification reactions and TAE or TBE agarose gels
GenUP Exo SAP PCR Cleanup Kit	PCR cleanup for sequencing with 100% product recovery	Amplification reactions
GenUP PCR Cleanup Kit	Mini Filter based PCR product cleanup	Amplification reactions
GenUP Gel Extraction Kit	DNA extraction from agarose gels	TAE or TBE agarose gels
Plasmid isolation		
GenUP Plasmid Kit	Universal kit for isolating high- and low-copy-number plasmids from bacterial culture	Gram-positive and Gram-negative bacteria
GenUP Plasmid Plus Kit	Universal kit for isolating high- and low-copy-number plasmids from different volumes of bacterial culture	Gram-positive and Gram-negative bacteria
Total DNA isolation		
GenUP gDNA Kit	Universal kit for genomic DNA isolation from various eukaryotic starting materials	Tissues, rodent tails, paraffin-embedded samples, swabs, eukaryotic cells suspensions
GenUP Bacteria gDNA Kit	Universal kit for genomic DNA isolation from bacterial cultures	Gram-positive and Gram-negative bacteria
GenUP Blood DNA Kit	Optimized kit for DNA isolation from blood	Fresh or frozen whole blood stabilized with EDTA or citrate
GenUP Plant DNA Kit	Optimized kit for DNA isolation from plants	Fresh, frozen or dry plant materials

Nucleic Acid Purification

- Flexible — reliable purification for a range of sample types with one kit
- Fast — PCR cleanup in only 3 min
- Optimized — no toxic β-mercaptoethanol and no DNase for RNA preparations
- Easy to use — mini filter based kits for easy handling

Product	Applications	Starting material
Total RNA isolation		
UPzol RNA Isolation Solution	Modified guanidine isothiocyanate/phenol method for total RNA isolation from different sources using scalable volumes	Tissues and cell suspensions
GenUP Total RNA Kit	Universal kit for total RNA isolation from various sources	Tissue, eukaryotic cell suspensions, bacteria
GenUP Blood RNA Kit	Optimized kit for total RNA isolation from blood	Fresh or frozen whole blood stabilized with EDTA or citrate
GenUP Plant RNA Kit	Optimized kit for total RNA isolation from plants	Fresh, frozen or dry plant materials
Virus DNA and RNA isolation		
GenUP Virus RNA Kit	Optimized kit for viral RNA isolation from various eukaryotic samples	Serum, plasma and other cell-free body fluids, supernatants from cell cultures, tissues, biopsies, cell cultures, swabs, paraffin-embedded samples
GenUP Virus DNA/ RNA Kit	Optimized kit for simultaneous viral DNA and RNA isolation from eukaryotic samples	Serum, plasma and other cell-free body fluids, supernatants from cell cultures, tissues, biopsies, cell cultures, swabs, paraffin-embedded samples
Paraffin removal and bisulfite conversion		
GenUP FFPE Paraffin Removal Solution	Removal of paraffin from formalin-fixed, paraffin-embedded (FFPE) sample	FFPE slices
GenUP Bisulfite Kit	Bisulfite conversion of unmethylated cytosines to uracils for epigenomics studies	Purified DNA (1 pg to 10 µg)

GenUP™ PCR/Gel Cleanup Kit

Cat. no.	Size	Package content
BR0700501	10 preps	Solutions, Mini Filters and vials
BR0700502	50 preps	Solutions, Mini Filters and vials
BR0700503	250 preps	Solutions, Mini Filters and vials

Gel cleanup	
Starting material	TAE or TBE agarose gel (up to 300 mg)
Extraction time	Approximately 20 min
Binding capacity	>20 µg DNA
Typical yield	100 bp – 30 kb
Average purity	60–90%

PCR cleanup	
Starting material	PCR mixtures (up to 50 µl)
Extraction time	Approximately 3 min
Binding capacity	>20 µg DNA
Typical yield	60 bp – 30 kb
Average purity	60–95%

FEATURES

- Dual performance kit for both PCR product cleanup and DNA purification from agarose gels
- Fast and simple procedure
- High DNA recovery yields

APPLICATIONS

- Fast purification of DNA from agarose gels
- Fast purification of PCR products from amplification reactions

DESCRIPTION

biotechrabbit GenUP PCR/Gel Extraction Kit has been specially developed for a quick and easy cleanup or concentration of PCR fragments from reaction mixtures as well as extraction of DNA from both TAE and TBE agarose gels. The DNA is bound to a Mini Filter using a novel buffer, washed and then eluted in a separate tube. The purified DNA is ready to be used in all demanding molecular biology applications, including restriction digestion, ligation, sequencing, transfection into mammalian cells and in vitro transcription.

GenUP™ Exo SAP PCR Cleanup Kit

Cat. no.	Size	Package content
BR0701801	100 rnx	100 µl Shrimp Alkaline Phosphatase 100 µl Exonuclease 1
BR0701802	500 rnx	500 µl Shrimp Alkaline Phosphatase 500 µl Exonuclease 1
BR0701803	2000 rnx	2 times 1000 µl Shrimp Alkaline Phosphatase 2 times 1000 µl Exonuclease 1

FEATURES

- Fast 15 min PCR cleanup without the need for spin columns
- 100% recovery — no loss of PCR product
- Simple process — just add Exonuclease 1 and Shrimp Alkaline Phosphatase to PCR mix
- Easy scalability and automation

APPLICATIONS

- PCR cleanup prior to sequencing or genotyping
- Removal of nucleotides and primers from PCR reaction

DESCRIPTION

biotechrabbit GenUP Exo SAP PCR Cleanup Kit is designed for quickly and easily cleaning up PCR amplification reactions, enabling their direct use in sequencing or genotyping.
The kit provides a combination of Shrimp Alkaline Phosphatase (SAP) and Exonuclease 1 (Exo) for removing nucleotides and primers. Double-stranded DNA is not affected, ensuring 100% recovery of PCR products.

Both enzymes are active in PCR buffers and completely inactivated by heating for 10 min at 80°C: no further processing is required. Shrimp Alkaline Phosphatase dephosphorylates nucleotides and primers, and the 5' → 3' exonuclease activity of Exonuclease 1 degrades single-stranded primers.

GenUP™ PCR Cleanup Kit

Cat. no.	Size	Package content
BR0700301	10 preps	Solutions, Mini Filters and vials
BR0700302	50 preps	Solutions, Mini Filters and vials
BR0700303	250 preps	Solutions, Mini Filters and vials

Starting material	Amplification reaction mixtures (up to 50 µl)
Extraction time	Approximately 3 min
Binding capacity	>20 µg DNA
Typical yield	60 bp – 30 kb
Average purity	60–95%

FEATURES

- Fast and convenient PCR cleanup procedure in only 3 min
- Just bind and elute, no need for washing steps
- High-purity DNA recovery for all demanding applications
- High DNA recovery yields

APPLICATIONS

- Fast purification of PCR products from PCR amplification reactions

DESCRIPTION

biotechrabbit GenUP PCR Cleanup Kit has been developed for quick and easy cleanup or concentration of PCR fragments from reaction mixtures. High-yield PCR product with excellent quality is purified from the PCR mixtures in a simple two-step procedure. DNA is bound to a Mini Filter using a novel buffer and eluted. The need for a washing step has been eliminated, reducing hands-on-time. The procedure takes approximately 3 min, compared to 8 min required to other kits.

The purified DNA is ready for use in all demanding molecular biology applications, including restriction digestion, ligation and sequencing.

GenUP™ Gel Extraction Kit

Cat. no.	Size	Package content
BR0700401	10 preps	Solutions, Mini Filters and vials
BR0700402	50 preps	Solutions, Mini Filters and vials
BR0700403	250 preps	Solutions, Mini Filters and vials

Starting material	TAE or TBE agarose gel (up to 300 mg)
Extraction time	Approximately 20 min
Binding capacity	>20 µg DNA
Typical yield	100 bp – 30 kb
Average purity	60–90%

FEATURES

- Fast and simple DNA extraction from agarose gels
- High recovery yields
- Excellent purity DNA for demanding applications

APPLICATIONS

- Fast purification of DNA from TAE or TBE agarose gels

DESCRIPTION

biotechrabbit GenUP Gel Extraction Kit has been specially developed for a quick and easy extraction of DNA from both TAE and TBE agarose gels. After few initial procedures, the DNA is bound to a Mini Filter using a novel buffer, washed and then eluted in a separate tube.

The purified DNA is ready to be used in all demanding molecular biology applications, including restriction digestion, ligation, sequencing, transfection into mammalian cells and in vitro transcription.

GenUP™ Plasmid Kit

Cat. no.	Size	Package content
BR0700201	10 preps	Solutions, Mini Filters and vials
BR0700202	50 preps	Solutions, Mini Filters and vials
BR0700203	250 preps	Solutions, Mini Filters and vials

Starting material	Bacterial cultures: 0.5–5 ml for high-copy-number plasmids, 5–10 ml for low-copy-number plasmids
Extraction time	Approximately 16 min
Binding capacity	Approximately 40 µg plasmid DNA
Typical yield	Variable: 6–20 µg high-copy plasmid DNA is typically purified from 2 ml
Average purity	A_{260}/A_{280} 1.8–2.0

FEATURES

- Universal kit for both high- copy and low-copy-number plasmid isolation
- Fast and simple procedure
- High yields of pure plasmid DNA suitable for all applications

APPLICATIONS

- Plasmid DNA isolation from Gram-positive and Gram-negative bacteria

DESCRIPTION

biotechrabbit GenUP Plasmid Kit is designed for fast and efficient plasmid purification from 0.4–10 ml bacterial suspensions in a mini format. After performing an alkaline lysis step and precipitating chromosomal DNA and bacterial proteins, plasmid DNA is bound to a Mini Filter, washed and then eluted in a low-salt buffer. Typically yields are 10–40 µg plasmid DNA from a 5–10 ml bacterial suspension, depending on a plasmid copy number.

The purified plasmid DNA is ready to be used in all demanding molecular biology applications, including enzymatic reactions and sequencing.

GenUP™ Plasmid Plus Kit

Cat. no.	Size	Package content
BR0701201	10 preps	Solutions, Mini Filters and vials
BR0701202	50 preps	Solutions, Mini Filters and vials
BR0701203	250 preps	Solutions, Mini Filters and vials

Starting material	Bacterial culture (5–15 ml)
Extraction time	Approximately 20 min
Binding capacity	80 µg plasmid DNA
Typical yield	60–70 µg DNA from high-copy plasmid (15 ml culture)
Average purity	A_{260}/A_{280} 1.7–2.0

FEATURES

- Universal kit for plasmid isolation from Gram-positive and Gram-negative bacteria
- Fast and simple procedure
- High yields of pure plasmid DNA suitable for all applications

APPLICATIONS

- Plasmid isolation DNA from 5–15 ml bacterial cultures

DESCRIPTION

biotechrabbit GenUP Plasmid Plus Kit is designed for fast and efficient plasmid purification from 5.0–15.0 ml bacterial suspensions. After performing an alkaline lysis step and precipitating chromosomal DNA as well as bacterial proteins, plasmid DNA is bound to a Mini Filter, washed and then eluted in a low-salt buffer. The purified plasmid DNA is ready to be used in all demanding molecular biology applications, including ligation, sequencing, cloning.

Protocols are available for Gram-negative (such as *E. coli*) and Gram-positive bacteria.

GenUP™ gDNA Kit

Cat. no.	Size	Package content
BR0700601	10 preps	Solutions, Mini Filters and vials
BR0700602	50 preps	Solutions, Mini Filters and vials
BR0700603	250 preps	Solutions, Mini Filters and vials

Starting material	Eukaryotic cells (up to 5×10^6), tissue samples (up to 50 mg), rodent tail specimens of 0.5–1 cm in length, paraffin-embedded tissue samples, buccal swabs
Extraction time	Approximately 8 min after lysis
Binding capacity	>100 µg DNA
Typical yield	Variable; approximately 65 µg
Average purity	A_{260}/A_{280} 1.7–2.0

FEATURES

- Universal kit for DNA isolation from various eukaryotic starting materials
- Fast and simple procedure with >100 µg gDNA filter-binding capacity
- High yields of pure DNA

APPLICATIONS

- Isolation of genomic DNA from tissues, cells, rodent tail, buccal swaps and paraffin samples

DESCRIPTION

biotechrabbit GenUP gDNA Kit is designed for a fast and efficient genomic DNA isolation from various sources and different amounts of starting material, such as mammalian tissues (including paraffin-embedded), buccal swabs and eukaryotic cell cultures. After a few initial procedures, the genomic DNA is bound to a Mini Filter, washed and then eluted in a low-salt buffer.

High yields of pure, unshared genomic are ready to be used in all demanding molecular biology applications, including enzymatic reactions and sequencing.

GenUP™ Bacteria gDNA Kit

Cat. no.	Size	Package content
BR0700701	10 preps	Solutions, Mini Filters and vials
BR0700702	50 preps	Solutions, Mini Filters and vials
BR0700703	250 preps	Solutions, Mini Filters and vials

Starting material	1×10^9 Gram-negative or Gram-positive bacterial cells
Extraction time	Approximately 45 min
Binding capacity	>50 µg DNA
Typical yield	Variable; approximately 35 µg

FEATURES

- Fast and simple procedure
- Genomic DNA from up to 1×10^9 bacteria
- High yields of pure DNA for demanding applications

APPLICATIONS

- Isolation of bacterial genomic DNA from Gram-positive and Gram-negative bacteria

DESCRIPTION

biotechrabbit GenUP Bacterial gDNA Kit has been specially developed for quick and easy purification of bacterial genomic DNA from both Gram-negative and difficult to process Gram-positive bacteria.

A combined lysozyme and proteolytic lysis steps allow efficient cell disruption. The DNA is bound to a high-capacity filter, washed and then eluted in a separate tube. The purified DNA is ready to be used in all demanding molecular biology applications, including PCR, enzymatic digestions, cloning and other.

GenUP™ Blood DNA Kit

Cat. no.	Size	Package content
BR0701301	10 preps	Solutions, Mini Filters and vials
BR0701302	50 preps	Solutions, Mini Filters and vials
BR0701303	250 preps	Solutions, Mini Filters and vials

Starting material	Fresh or frozen whole blood; stabilized with EDTA or citrate (200 µl or 400µl)
Extraction time	Approximately 24 min
Binding capacity	>60 µg DNA
Typical yield	Variable depending on the starting material; approximately 30 µg DNA
Average purity	A_{260}/A_{280} 1.7–2.0

FEATURES

- Fast and simple procedure
- Genomic gDNA from fresh and frozen, EDTA- or citrate-treated blood
- Excellent genomic DNA quality in yields of up to 30 µg

APPLICATIONS

- Isolation of genomic DNA from up to 400 µl whole blood

DESCRIPTION

biotechrabbit GenUP Blood DNA Kit is designed for fast isolation of genomic DNA from up to 400 µl whole blood from fresh or frozen samples that have been stabilized with EDTA or citrate. After an efficient lysis step, genomic DNA is bound to a Mini Filter, washed and eluted. The isolation chemistry and extraction protocol are optimized for maximum yield. Including lysis, isolated DNA is available in approximately 24 min. The isolated DNA is suitable for a wide range of different molecular biology applications.

Protocols are available for isolating DNA from 200 µl or 400 µl whole blood samples.

The GenUP Blood DNA Kit is designed for the use with blood. For other starting material, such as cell-free body fluids (including cerebrospinal fluid, serum, plasma or urine), tissue, stool samples, buffy coat, cultured or isolated cells, swabs, dried blood spots, viruses, fungi, bacteria or parasites, please refer to the GenUP gDNA Kit (cat. no. BR07006), GenUP Bacteria gDNA Kit (cat. no. BR07007), GenUP Plant DNA Kit (cat. no. BR07008) or GenUP Virus DNA/RNA Kit (cat. no. BR07011).

GenUP™ Plant DNA Kit

Cat. no.	Size	Package content
BR0700801	10 preps	Solutions, Mini Filters and vials
BR0700802	50 preps	Solutions, Mini Filters and vials
BR0700803	250 preps	Solutions, Mini Filters and vials

Starting material	Fresh, frozen or dried plant tissue (maximum 100 mg dry weight)
Extraction time	Approximately 40 min
Binding capacity	>50 µg DNA
Typical yield	Variable depending on the starting material; approximately 25 µg DNA
Average purity	A_{260}/A_{280} 1.7–2.0

FEATURES

- Simple and efficient procedure for plant DNA isolation
- Special lysis protocols for different plant materials
- High yields of inhibitor-free DNA

APPLICATIONS

- Universal kit for isolating genomic DNA from various plant materials

DESCRIPTION

biotechrabbit GenUP Plant DNA Kit has been specially developed for quick and easy purification of genomic DNA from a wide variety of plant materials, including fresh, frozen or dried samples from leaves, roots, stems and flowers.

The kit includes an advanced prefiltration step to remove unlysed tissue. Subsequently, DNA is bound to a Mini Filter and is subsequently washed and eluted in a separate tube. The purified DNA is ready for use in any demanding molecular biology application, including PCR, enzymatic digestions and cloning.

This kit provides three buffers for optimized processing with different plant materials. To determine optimal lysis conditions, side-by-side preparation using the three provided protocols are prepared.

UPzol™ RNA Isolation Solution

Cat. no.	Size	Package content
BR0700101	100 preps	100 ml UPzol RNA Isolation Solution
BR0700102	200 preps	2 times 100 ml UPzol RNA Isolation Solution

Starting material	Tissue (100 mg), monolayer cells (3 cm dish), suspension of animal, plant, yeast or bacterial cells (5×10^6)
Extraction time	Approximately 1 h
Typical yield	Depends on the type and amount of starting material

FEATURES

- Simple and efficient RNA isolation from different sources in scalable volumes
- High-quality RNA preparation

APPLICATIONS

- Isolation of RNA using a modified guanidine isothiocyanate/phenol method

DESCRIPTION

biotechrabbit UPzol RNA Isolation Solution is designed for efficient isolation of total RNA from animal tissues and cells, bacterial cells, plants and other material in variable amounts. The extraction method is based on a time-saving, one-step liquid phase separation.

The UPzol RNA Isolation Solution is a mono-phase solution containing phenol and guanidine thiocyanate. After the addition of chloroform and subsequent centrifugation, the homogenate is separated into three phases:

- Colorless aqueous phase containing RNA (upper)
- White interphase (middle)
- Colored organic phase (lower)

RNA is precipitated from the upper aqueous phase using alcohol.

The UPzol RNA Isolation Solution provides high-quality and high-integrity RNA, which can be used for all downstream applications, including northern analysis, cDNA synthesis, RT-PCR, dot-blot hybridization, poly A^+ selection, in vitro translation, cloning and RNase assays.

GenUP™ Total RNA Kit

Cat. no.	Size	Package content
BR0700901	10 preps	Solutions, Mini Filters and vials
BR0700902	50 preps	Solutions, Mini Filters and vials
BR0700903	250 preps	Solutions, Mini Filters and vials

Starting material	Eukaryotic cells (5×10^6), tissue samples (up to 20 mg), bacterial cells (Gram-positive or Gram-negative, 1×10^9)
Extraction time	Approximately 20–40 min
Binding capacity	100 µg RNA
Typical yield	Yield is highly dependent on sample type

FEATURES

- Fast and simple procedure
- High yields of pure RNA
- Physical removal of DNA, no DNase treatment, no toxic β-mercaptoethanol

APPLICATIONS

- Universal kit for total RNA isolation from various sources and different amounts of starting material

DESCRIPTION

biotechrabbit GenUP Total RNA Kit has been specially developed for a quick and easy purification of total RNA from eukaryotic cell suspensions, tissues and biopsies, Gram-negative (e.g., *E. coli*) Gram-positive bacteria and other sources. After few initial procedures, the RNA is bound to a filter, washed and then eluted in a separate tube. DNA is removed physically by binding to a filter wthout any DNase treatment or the use of toxic β-mercaptoethanol. The purified RNA is ready to be used in all demanding molecular biology applications, including cDNA synthesis, northern blot analysis and others.

GenUP™ Blood RNA Kit

Cat. no.	Size	Package content
BR0701401	10 preps	Solutions, Mini Filters and vials
BR0701402	50 preps	Solutions, Mini Filters and vials
BR0701403	250 preps	Solutions, Mini Filters and vials

Starting material	Fresh or frozen whole blood; stabilized with EDTA or citrate (0.5–1.0 ml)
Extraction time	Approximately 45 min
Binding capacity	>20 µg RNA
Typical yield	Variable depending on the starting material; 1–8 µg RNA

FEATURES

- Fast and simple procedure
- High-quality RNA isolated from fresh and frozen, EDTA- or citrate-treated blood
- Physical removal of DNA, no DNase treatment, no toxic β-mercaptoethanol

APPLICATIONS

- Isolation of up to 8 µg total RNA from 0.5–1.0 ml whole blood

DESCRIPTION

biotechrabbit GenUP Blood RNA Kit is designed for fast isolation of total RNA from up to 1 ml whole blood from fresh or frozen samples that have been stabilized with EDTA or citrate. After an initial lysis step, genomic DNA is bound to a Mini Filter DNA, which can be discarded. RNA is selectively bound to a Mini Filter RNA, washed with two different buffers and eluted. Including lysis, isolated RNA is available in approximately 45 min. The isolated RNA is suitable for a wide range of different molecular biology applications, including RT-PCR.

The GenUP Blood RNA Kit is designed for the use with blood. For other starting material, such as cell-free body fluids (including cerebrospinal fluid, serum, plasma or urine), tissue, stool samples, buffy coat, cultured or isolated cells, swabs, dried blood spots, viruses, fungi, bacteria or parasites, please refer to the GenUP Total RNA Kit (cat. no. BR07009), GenUP Virus RNA Kit (cat. no. BR07010), GenUP Virus DNA/RNA Kit (cat. no. BR07011) or UPzol RNA Isolation Solution (cat. no. BR07001).

GenUP™ Plant RNA Kit

Cat. no.	Size	Package content
BR0701501	10 preps	Solutions, Mini Filters and vials
BR0701502	50 preps	Solutions, Mini Filters and vials
BR0701503	250 preps	Solutions, Mini Filters and vials

Starting material	Plant material (up to 100 mg)
Extraction time	30 min after homogenization
Binding capacity	Approximately 100 µg RNA
Typical yield	Variable depending on the starting material; approximately 70 µg RNA
Average purity	A_{260}/A_{280} 1.7–2.0

FEATURES

- Fast and simple procedure
- High-quality RNA isolated from a wide variety of plant samples
- Physical removal of DNA, no DNase treatment, no toxic β-mercaptoethanol

APPLICATIONS

- Isolation of total RNA from up to 100 mg plant material

DESCRIPTION

biotechrabbit GenUP Plant RNA Kit has been developed for quick and easy purification of total RNA from plant materials. After initial homogenization and lysis, genomic DNA is bound to a Mini Filter DNA, which can be discarded. RNA is selectively bound to a Mini Filter RNA, washed with two different buffers and eluted. The purified RNA is ready for use in any demanding molecular biology application, including RT-PCR.

Two lysis buffers, Buffer LYSIS R and Buffer LYSIS U, are provided to maximize yield. Most plant material can be processed with Buffer LYSIS R. In the cases that yield using Buffer LYSIS R is low, use Buffer LYSIS U.

GenUP™ Virus RNA Kit

Cat. no.	Size	Package content
BR0701001	10 preps	Solutions, Mini Filters and vials
BR0701002	50 preps	Solutions, Mini Filters and vials
BR0701003	250 preps	Solutions, Mini Filters and vials

Starting material	Eukaryotic cells (up to 5×10^6), serum, plasma, cell-free body fluids, cell culture supernatants (150 µl), tissue samples, biopsies (up to 20 mg), paraffin-embedded tissues, buccal swabs
Extraction time	Approximately 25 min
Typical yield	Yield is highly dependent on sample type

FEATURES

- Universal kit for isolating viral RNA from various starting materials
- Fast and simple procedure, flexible elution volumes
- High yields of pure RNA
- Physical removal of DNA, no DNase treatment, no toxic β-mercaptoethanol

APPLICATIONS

- Virus RNA isolation from plasma, serum, urine and other body fluids, cell cultures, tissues, and buccal swabs

DESCRIPTION

biotechrabbit GenUP Virus RNA Kit has been specially developed for quick and easy isolation of viral RNA. Viral single-stranded RNA can be isolated from eukaryotic samples including plasma, serum, urine, and other body fluids as well as cell cultures, tissues, and buccal swabs.

The unique binding membrane of our high-capacity Mini Filters guaranties high yields. A high concentration of purified RNA can be achieved with flexible elution volumes. The kit includes carrier RNA (CARRIER).

After few initial procedures, the viral RNA is bound to a Mini Filter, washed and then eluted in a separate tube. The purified RNA is ready to be used in all demanding molecular biology applications, including cDNA synthesis, northern blot analysis, qPCR and RT-PCR.

GenUP™ Virus DNA/RNA Kit

Cat. no.	Size	Package content
BR0701101	10 preps	Solutions, Mini Filters and vials
BR0701102	50 preps	Solutions, Mini Filters and vials
BR0701103	250 preps	Solutions, Mini Filters and vials

Starting material	Eukaryotic cells (up to 5×10^6), serum, plasma, cell-free body fluids, cell culture supernatants (150 µl), tissue samples, biopsies (up to 20 mg), paraffin-embedded tissues, buccal swabs
Extraction time	Approximately 25 min
Typical yield	Yield is highly dependent on sample type

FEATURES

- Universal kit for simultaneous RNA and DNA isolation from different starting materials
- Fast and simple procedure, sample specific protocols
- High yields of pure RNA and DNA
- Physical removal of DNA, no DNase treatment, no toxic β-mercaptoethanol

APPLICATIONS

- Simultaneous viral DNA and RNA isolation from various sources
- Excellent performance for unknown viruses

DESCRIPTION

biotechrabbit GenUP Virus DNA/RNA Kit has been specially developed for quick and easy isolation of viral RNA and DNA. The kit is especially useful when the origin of the virus is unknown. Viral double-stranded DNA and single-stranded RNA are simultaneously isolated from eukaryotic samples, including plasma, serum, and other body fluids as well as cell cultures, tissues, and buccal swabs.
The unique binding membrane of our high-capacity Mini Filters guaranties high yields. A high concentration of purified nucleic acid can be achieved with flexible elution volumes. The kit includes carrier RNA (CARRIER). After a few initial procedures, the viral nucleic acids are bound to a Mini Filter, washed and then eluted in a separate tube. The purified nucleic acids are ready to be used in all demanding molecular biology applications, including cDNA synthesis, northern blot analysis, qPCR and RT-PCR.

GenUP™ FFPE Paraffin Removal Solution

Cat. no.	Size	Package content
BR0701601	10 ml	10 ml GenUP FFPE Paraffin Removal Solution
BR0701602	50 ml	5 times 10 ml GenUP FFPE Paraffin Removal Solution

FEATURES

- One-step deparaffinization of FFPE slices
- No toxic or flammable chemicals

APPLICATIONS

- Removal of paraffin from formalin-fixed, paraffin-embedded (FFPE) sample slices

DESCRIPTION

biotechrabbit GenUP FFPE Paraffin Removal Solution is an odor-free, biofriendly and innovative solution to deparaffinize FFPE slices within minutes in a single step. This product replaces conventional procedures that involve toxic and/or flammable solvents. After removal of paraffin from FFPE slices with GenUP FFPE Paraffin Removal Solution, continue with the genomic DNA purification kit of your choice.

GenUP™ Bisulfite Kit

Cat. no.	Size	Package content
BR0701701	10 preps	Solutions, Mini Filters and vials
BR0701702	50 preps	Solutions, Mini Filters and vials
BR0701703	250 preps	Solutions, Mini Filters and vials

Starting material	Purified DNA (1 pg to 10 µg)
Extraction time	Conversion reaction: 45 min Purification and desulfonation: 45 min

FEATURES

- Fast and easy bisulfite conversion with high conversion rates
- Flexible use with a wide range of sample types
- Including subsequent desulfonation and DNA cleanup

APPLICATIONS

- Bisulfite conversion of unmethylated cytosines to uracils for epigenomics studies

DESCRIPTION

biotechrabbit GenUP Bisulfite Kit provides a fast and easy method for the conversion of unmethylatedcy tosines to uracils enabling DNA methylation studies. The kit is designed for high conversion rates, extremely easy application and exceptionally fast, reliable results. Denaturation and bisulfite treatment are performed in a single tube in approximately 3 h. After conversion, the DNA is cleaned up and desulfonated on a Mini Filter and can be used for downstream applications, such as PCR and sequencing.

Electrophoresis

Stable and ready-to-use, biotechrabbit DNA and protein ladders provide dyes, allowing the progress of gel electrophoresis to be monitored. The location and intensity of ladder bands in gels can be used to estimate the size and, for DNA, quantity of other bands in the gel. Nuclease-free DNA Loading Dye is also available.

- Time saving — ready to use for convenience
- Reliable — high purity and stability

DNA Electrophoresis Ladders and Loading Dye

Cat. no.	Size	Package content
1 kb DNA Ladder with 6× Loading Dye		
BR0800101	100 lanes	500 µl 1 kb DNA Ladder 1 ml DNA Loading Dye
100 bp DNA Ladder with 6× Loading Dye		
BR0800201	100 lanes	500 µl 100 bp DNA Ladder 1 ml DNA Loading Dye
50 bp DNA Ladder with 6× Loading Dye		
BR0800401	100 lanes	500 µl 50 bp DNA Ladder 1 ml DNA Loading Dye
DNA Loading Dye, 6×		
BR0800301	5 ml	5 times 1 ml DNA Loading Dye

FEATURES

- Ready to use DNA ladders ideal for DNA sizing and gel quantification
- Pure and stable — retain sharp bands after 6 months storage at room temperature
- Supplied with 6× Loading Dye for sample DNA

APPLICATIONS

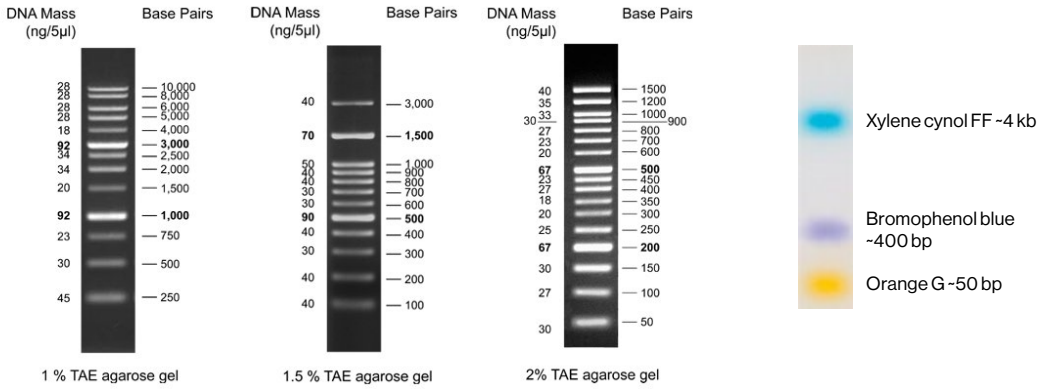
- DNA sizing and approximate quantification on agarose gels

DESCRIPTION

biotechrabbit DNA electrophoresis ladders are mixtures of exceptionally purified DNA fragments created either by PCR or by digesting proprietary plasmids with restriction enzymes. Ladders are ready to use and suitable not only for DNA sizing but also for approximate DNA quantification in gels. For convenience, ladders have increased intensity reference bands and indicated DNA amount in nanograms for every band.

Every ready-to-use ladder is supplied with the nuclease-free Loading Dye Solution, which ensures optimal migration and quantification of your DNA probes. It includes three electrophoresis tracking dyes (xylene cyanol, bromophenol blue and orange G), allowing the process of the DNA through the gel to be visualized.

Ready-to- use ladder:	1 kb DNA Ladder	100 bp DNA Ladder	50 bp DNA Ladder	DNA Loading Dye, 6×
Range | bands:	250–10,000 bp | 13	100–3000 bp | 12	50–1500 bp | 17	Migration of dyes in
Reference:	1000 and 3000 bp	500 and 1500 bp	200 and 500 bp	1% TAE agarose gel



Protein Electrophoresis Ladders

Cat. no.	Size	Package content
TriColor Broad Protein Ladder (3.5–245 kDa)		
BR0900101	100 minigel appl.	500 µl TriColor Broad Protein Ladder (3.5–245 kDa)
TriColor Protein Ladder (10–180 kDa)		
BR0900201	100 minigel appl.	500 µl TriColor Broad Protein Ladder (10–180 kDa)

FEATURES

- Ready-to-use prestained protein ladders covering 3.5–245 kDa and 10–180 kDa ranges
- Pure and stable — retain sharp bands after 3 months storage at 4°C
- Protein bands in three colors with easily recognizable colored reference bands

APPLICATIONS

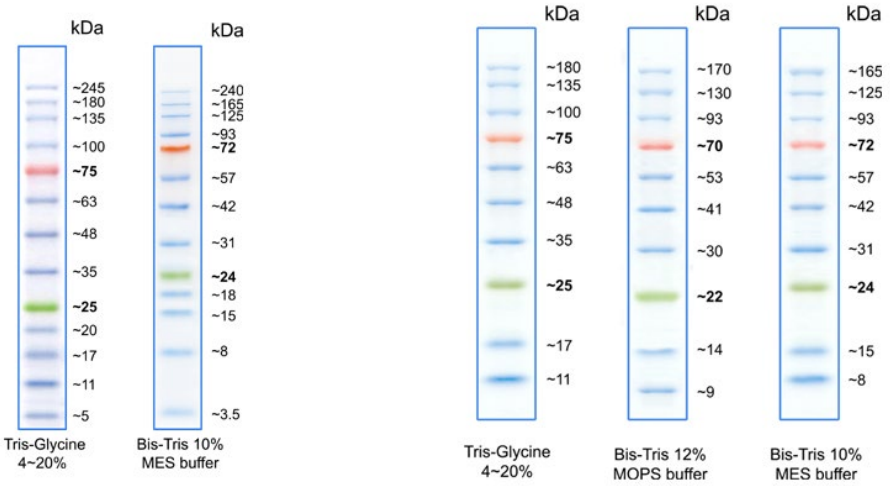
- Approximate protein sizing on SDS PAGE and western blots
- Monitoring protein gel electrophoresis and western transfers

DESCRIPTION

biotechrabbit TriColor Protein Ladders facilitate approximate molecular-weight estimation of proteins on denaturing polyacrylamide gels, monitoring protein separation during electrophoresis and verification of western transfer efficiency to membranes (polyvinylidene difluoride, nylon or nitrocellulose). The ladders provide three colored reference bands.

TriColor Broad Protein Ladder is ready for immediate use and is notably stable: sharp bands are produced after storage for 2 weeks at room temperature or 3 months at 4°C, eliminating the need to thaw before loading.

Ready-to- use ladder:	TriColor Protein Ladder (10–180 kDa)	TriColor Broad Protein Ladder (3.5–245 kDa)
Range | bands:	10–180 kDa | 10	3.5-245 kDa | 13
Reference:	25 and 75 kDa	25 and 75 kDa



Migration patterns in different electrophoresis conditions. The apparent molecular weight of each protein (kDa) was determined by calibrating against unstained proteins under same conditions.

Enzymes for Molecular Biology

biotechrabbit enzymes are suitable for the most demanding molecular biology applications. Selected for specific characteristics and excellent performance, our enzymes provided in exceptionally pure preparations to ensure the integrity of your reactions.

- High performance — success in your molecular biology applications
- Exceptional purity — reliable results in demanding reactions

Product	Applications	Features
phi29 DNA Polymerase	Rolling circle amplification, multiple displacement amplification, whole genome amplification, protein-primed DNA amplification, RNA-primed DNA amplification	Huge DNA yields, accurate amplification, highest processivity with exceptionally strong strand-displacement activity
StranDisplace™ Thermostable DNA Polymerase	Loop-mediated isothermal amplification, sequencing	Exceptional purity for demanding applications, strong strand-displacement activity
T4 DNA Ligase, Rapid	Blunt and sticky end DNA ligation for cloning, joining linkers or adaptors to double-stranded DNA, self-circularization of linear DNA	Exceptional purity and high concentration for demanding applications, rapid ligation, supplied with two buffers for standard and fast ligation protocols
Shrimp Alkaline Phosphatase	Removal of nucleotides from PCR prior to sequencing, dephosphorylation of restriction-digested vectors to prevent religation prior to cloning, rapid dephosphorylation of RNA, proteins or other biomolecules	Completely inactivated after 5 min at 65°C, active in common restriction enzyme and PCR buffers; no need for extra addition of buffer of ions, exhibits excellent stability at 4°C and room temperature
Heat labile Uracil–DNA Glycosylase	Elimination of carry-over contamination in PCR, RT-PCR, qPCR and RT-qPCR, post-PCR analysis such as cloning and sequencing, analysis of ancient DNA	Completely and irreversibly heat inactivated without addition of agents or inhibitors, active in common PCR and RT-PCR buffers
Uracil–DNA Glycosylase	PCR carry-over contamination control	High quality for a fair price
Heat labile dsDNase	Integration into cDNA synthesis protocols, removal of genomic DNA from RNA preparations, removal of contaminating DNA from PCR, qPCR and RT-qPCR, purification of DNA polymerases	Heat-inactivated at high temperatures, degrades genomic DNA in RNA preps, does not affect RNA quality or quantity
Proteinase K	Nonspecific protein degradation, nucleic acid purification, deactivation of nucleases in enzymatic reactions	Exceptional purity suitable for the most sensitive applications

phi29 DNA Polymerase, 10 U/µl

Cat. no.	Size	Package content
BR1100101	250 U	25 µl phi29 DNA Polymerase 1 ml 10× phi29 Reaction Buffer
BR1100102	1000 U	100 µl phi29 DNA Polymerase 1 ml 10× phi29 Reaction Buffer

FEATURES

- Huge DNA yields, accurate amplification
- Highest processivity DNA polymerase with exceptionally strong strand displacement activity
- Exceptionally pure phi29 DNA Polymerase for demanding applications

APPLICATIONS

- Rolling circle amplification
- Multiple displacement amplification
- Whole genome amplification
- Protein-primed and RNA-primed DNA amplification

DESCRIPTION

biotechrabbit phi29 DNA Polymerase is an exceptionally pure DNA polymerase for demanding applications. The enzyme is purified from a recombinant *E. coli* strain carrying the phi29 DNA Polymerase gene from bacteriophage phi29.

The enzyme is a highly processive DNA polymerase (up to 70,000 base insertions per binding event) with a powerful strand-displacement activity and a 3'→ 5' proofreading exonuclease function.

phi29 DNA Polymerase proofreading activity acts preferentially on single-stranded DNA or RNA. Therefore, to avoid primer degradation during the DNA synthesis, 3'modified (protected) primers are highly recommended.

StranDisplace™ Thermostable DNA Polymerase, 40 U/µl

Cat. no.	Size	Package content
BR1100201	8000 U	200 µl StranDisplace Thermostable DNA Polymerase 8 times 1 ml 10× SD Reaction Buffer

FEATURES

- Exceptionally pure thermstable DNA polymerase for demanding applications
- Strong strand-displacement activity

APPLICATIONS

- Loop-mediated isothermal amplification
- Sequencing

DESCRIPTION

biotechrabbit StranDisplace Thermostable DNA Polymerase is an exceptionally pure DNA polymerase for applications in which strong strand-displacement activity at elevated temperatures is required.

The StranDisplace Thermostable DNA Polymerase is a thermophilic DNA polymerase with a strong strand-displacement activity and is deficient in both proofreading (3'→ 5') and nick-translation (5'→ 3') nuclease activities. The polymerase can be used for the same applications as *Bst* DNA Polymerase Large Fragment and *Bsm* DNA Polymerase.

T4 DNA Ligase, Rapid, 600 U/µl

Cat. no.	Size	Package content
BR1100301	6000 U	100 µl T4 DNA Ligase, Rapid 1 ml 2× Rapid Ligation Buffer 1 ml 10× Ligation Buffer
BR1100302	180000U	300 µl T4 DNA Ligase, Rapid 3 times 1 ml 2× Rapid Ligation Buffer 3 times 1 ml 10× Ligation Buffer

FEATURES

- Exceptionally pure high-concentration T4 DNA Ligase for demanding applications
- Rapid ligation
- Supplied with two buffers for fast and usual ligation protocols

APPLICATIONS

- Blunt and sticky end DNA ligation for cloning
- Joining of linkers or adaptors to double-stranded DNA
- Self-circularization of linear DNA

DESCRIPTION

biotechrabbit T4 DNA Ligase, Rapid, is an exceptionally pure, highly concentrated ligase for applications in which high enzyme concentrations are required. It is especially recommended for fast ligations.

T4 DNA Ligase, Rapid, is supplied with two buffers: the common 10× Ligation Buffer for typical 1 h or overnight ligation and the 2× Rapid Ligation Buffer containing PEG for fast 5–10 minutes ligation or ligation of low-concentration or blunt-end DNA.

T4 DNA Ligase catalyzes the formation of a phosphodiester bond between the terminal 5' phosphate and the 3' hydroxyl groups of duplex DNA or RNA. The enzyme efficiently joins blunt and cohesive ends and repairs single stranded nicks in duplex DNA, RNA or DNA–RNA hybrids.

Shrimp Alkaline Phosphatase (rSAP), 1 U/µl

Cat. no.	Size	Package content
BR1100601	1000 U	1 ml Shrimp Alkaline Phosphatase (rSAP)
BR1100602	5000 U	5 times 1 ml Shrimp Alkaline Phosphatase (rSAP)

FEATURES

- Quickly and easily removes 5' phosphates from DNA, RNA, dNTPs and proteins
- Completely inactivated after 5 min at 65°C
- Active in common restriction enzyme and PCR buffers
- Exhibits excellent stability at 4°C and room temperature

APPLICATIONS

- Removal of nucleotides from PCR prior to sequencing
- Dephosphorylation of restriction-digested vectors to prevent religation prior to cloning
- Rapid dephosphorylation of RNA, proteins or other biomolecules

DESCRIPTION

biotechrabbit Shrimp Alkaline Phosphatase is a multipurpose alkaline phosphatase that dephosphorylates most biomolecules and is fully inactivated by heating for 5 min at 65°C. The enzyme is stable at room temperature and active in common buffers for restriction digestion and PCR.

Dephosphorylation of restriction-digested plasmid to prevent religation prior to cloning

Shrimp Alkaline Phosphatase provides an efficient method to reduce the religation of vectors during cloning of DNA fragments by dephosphorylating restriction-digested plasmids. The enzyme dephosphorylates all types of DNA termini — 3'-protruding, blunt and 5'-protruding — and is either added to the restriction mixture or after digestion. Subsequently, Shrimp Alkaline Phosphatase is efficiently heat-inactivated.
During the ligation of plasmid with DNA fragments, the background of unwanted “empty” clones is reduced to less than 5%.

PCR cleanup prior to sequencing

The combination of Exonuclease 1 (not included) and Shrimp Alkaline Phosphatase provides a simple and fast method for PCR cleanup. Both enzymes are simply added to the PCR mixture, incubated and heat-inactivated. Shrimp Alkaline Phosphatase dephosphorylates nucleotides and primers, while Exonuclease 1 degrades primers, leaving a PCR product that can be directly used for sequencing or genotyping.

Heat Labile Uracil–DNA Glycosylase, 1 U/µl

Cat. no.	Size	Package content
BR1100701	100 U	100 µl Heat Labile Uracil-DNA Glycosylase
BR1100702	1000 U	1 ml Heat Labile Uracil-DNA Glycosylase

FEATURES

- The only Uracil–DNA glycosylase that is completely and irreversibly heat inactivated
- Heat-labile without any addition of agents or inhibitors
- Active in common PCR and RT-PCR buffers

APPLICATIONS

- Eliminates carry-over contamination in PCR, RT-PCR, qPCR and RT-qPCR
- Enables downstream post-PCR analysis such as cloning and sequencing
- Analysis of ancient DNA

DESCRIPTION

biotechrabbit Heat Labile Uracil–DNA Glycosylase selectively degrades uracil-containing PCR products. After performing PCR or RT-PCR using dUTP instead of dTTP, PCR products remain intact after treatment with Heat Labile Uracil–DNA Glycosylase, whereas contaminating DNA (i.e., not amplified) is degraded. Heat Labile Uracil–DNA Glycosylase is completely and irreversibly inactivated by moderate heat treatment at 50°C, allowing contamination control in RT-qPCR. The enzyme hydrolyses the N-glycosylic bond between the deoxyribose sugar and the base in uracil-containing DNA leaving an abasic (apyrimidinic) site in DNA but does not modify uracils in RNA.

Heat Labile Uracil–DNA Glycosylase is highly active at 20–40°C. No cofactors or divalent cations are required for activity, and the enzyme is active in most PCR and RT-PCR buffers. Although the enzyme is active a pH 6.5–9.0, the optimal pH 7.5 is in 50 mM NaCl.

Uracil–DNA Glycosylase, 2 U/µl

Cat. no.	Size	Package content
BR1100401	200 U	100 µl Uracil–DNA Glycosylase 1 ml 10x UDG Reaction Buffer
BR1100402	1000 U	500 µl Uracil-DNA Glycosylase 2 times 1 ml 10x UDG Reaction Buffer

FEATURES

- Exceptionally pure Uracil–DNA Glycosylase for demanding applications
- High value for a fair price

APPLICATIONS

- PCR carry-over contamination control
- Site-directed mutagenesis
- Glycosylase-mediated single-nucleotide polymorphism detecion

DESCRIPTION

biotechrabbit Uracil–DNA Glycosylase (UDG) is an exceptionally pure enzyme that is especially useful for PCR carry-over contamination control. Amplification of contaminating templates remaining in the work environment from previous experiments is one of the most common PCR contamination problems. The use of Uracil–DNA Glycosylase (UDG) and dUTP (dNTP/dUTP Mix) helps prevent carry-over contamination.

The enzyme shows no measurable activity with short oligonucleotides (<6 bases) and RNA substrates. Uracil–DNA Glycosylase is purified from a recombinant *E. coli* strain carrying the Uracil–DNA glycosylase gene from *E. coli* K-12.

Uracil–DNA Glycosylase degrades DNA containing uracil. To prevent carry-over contamination, use dUTP or dTTP/dUTP rather than dTTP alone for PCR. After PCR with dUTP, the PCR products are substrates for UDG and any DNA containing uracil is degraded during the brief incubation with Uracil–DNA Glycosylase. This step eliminates contaminating DNA from previous experiments.

Heat Labile dsDNase, 2 U/µl

Cat. no.	Size	Package content
BR1100801	250 U	125 µl Heat Labile dsDNase
BR1100802	1000 U	500 µl Heat Labile dsDNase

FEATURES

- Provides endonuclease activity specific for double-stranded DNA
- Is easily heat-inactivated at low temperatures
- Degrades genomic DNA in RNA preps
- Does not affect RNA quality or quantity

APPLICATIONS

- Easy integration into cDNA synthesis protocols
- Removal of genomic DNA from RNA preparations
- Removal of contaminating DNA from PCR, qPCR and RT-qPCR
- Purification of DNA polymerases

DESCRIPTION

biotechrabbit Heat Labile dsDNase is an endonuclease that cleaves phosphodiester bonds in DNA to yield oligonucleotides with 5'-phosphate and 3'-hydroxyl termini. The enzyme has a particularly strong preference for double-stranded DNA (dsDNA), thus double-stranded DNA is degraded, leaving single-stranded DNA and RNA intact. The enzyme is completely and irreversibly inactivated with 5 min at 55°C in the presence of 1 mM DTT and pH 8.0. Heat Labile dsDNase is highly active at 20–40°C.

Proteinase K

Cat. no.	Size	Package content
Proteinase K, lyophilized		
BR1100901	25 mg	25 mg Proteinase K lyophilized
BR1100902	100 mg	100 mg Proteinase K lyophilized
Proteinase K, soluble		
BR1101001	1,25 ml	1.25 ml Proteinase K solution
BR1101002	10 ml	10 ml Proteinase K solution

FEATURES

- Exceptional purity suitable for the most sensitive applications
- PCR-grade for highest perfromance

APPLICATIONS

- Nonspecific protein degradation
- Nucleic acid purification
- Deactivation of nucleases in enzymatic reactions

DESCRIPTION

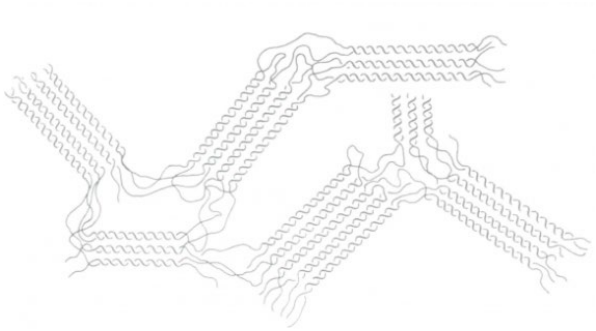
biotechrabbit Proteinase K is an active endopeptidase that is effective with native proteins, allowing endogenous RNases and DNases to be inactivated rapidly. The robust enzyme is stable over a wide pH range (4–12.5) and remains fully active for several hours when incubated at pH 6.5–9.5. The exceptional purity of the enzyme ensures that it is ideally suited for preparing PCR templates, as it is free of RNases, DNases and DNA.

biotechrabbit Proteinase K is available as an aqueous solution or lyophilized powder.

NOTES

Protein Purification Media

biotechrabbit Agarose 40 Resin is produced from agarose using a proprietary cross-linking method that results in a highly porous and physically stable matrix with a narrow particle size distribution of approximately 40 microns. Agarose-based matrices are successfully used in biotechnology research and in the industrial purification of proteins. Agarose is proven to be exceptionally compatible with natural biomolecules such as proteins, DNA and carbohydrates. Due to the hydrophilic nature, the resin exhibits minimal nonspecific interaction. Unlike matrices from synthetic polymers, agarose does not have micro pores that can contribute to local pH variations in the microenvironment in the column that can lead to distorted separation.



Picture 1. Agarose net scheme

Agarose is quite inert with respect to soluble molecules. Ligands attached to agarose function without "nonspecific background interaction" from the matrix, ensuring low risk of artifacts and easier cleaning. These low levels of nonspecific interaction are due to the following features:

Very low matrix content: agarose media has typically only 6% matrix content per volume. Synthetic matrices have typically 30% matrix content and correspondingly higher risk of interaction.

Very high hydrophilicity: most soluble molecules will not interact with hydrophilic surfaces. Synthetic media are more or less hydrophobic even when they have been modified to increase hydrophilicity. Some synthetic media, such as divinylbenzene, are more hydrophobic; others, such as methacrylate, are less.

Very high porosity: pores in synthetic media increase the surface area available for interaction. Agarose does not have micropores, and, accordingly non-specific interaction is limited. In comparison, cellulose, which is a natural, hydrophilic material, has higher risk of non-specific interaction than agarose.

Agarose exhibits extreme chemical and physical stability, which is advantageous for process flexibility, economics and process performance: Properly cross-linked agarose has a stability range of pH 2–14. Many synthetic resins are not stable at high pH. Agarose maintains a nearly constant volume in different solvents and conditions (i.e., does not swell or shrink). Thus, it can be used for extended periods in packed columns or filters without affecting functionality. The surface of an agarose bead is very smooth and the bead exhibits some elasticity. Even when used for extended periods in columns and filters or when handled extensively during packing and other operations, it will not break up into particles can block the flow. (In comparison, cellulose typically fragments easily on handling).

Agarose is known to have extremely low levels of leaching and that leachates are carbohydrates having little or no toxicity. Many synthetic media have been used for many years extensively at the laboratory scale but, due to tiny amounts of leakage of charged groups, use cannot be scaled up.

Choice of Agarose 40 Media for different applications:

Immobilized metal affinity chromatography media and His-tagged protein purification media

IDA/high Agarose 40 Resin
IDA/low Agarose 40 Resin
TREN/high Agarose 40 Resin
TREN/low Agarose 40 Resin
Ni Agarose 40 Resin

Ion-exchange chromatography protein purification media

Q Agarose 40 Resin
S Agarose 40 Resin

Size-exclusion chromatography protein purification media

SEC Agarose 40 Resin
SEC 100 Agarose 40 Resin
SEC 10000 Agarose 40 Resin

His-Tagged Protein Purification Media

Cat. no.	Product	Size
BR1000101	Ni Agarose 40 Resin	25 ml
BR1000102	Ni Agarose 40 Resin	150 ml

Our package size correlates to final packed column volume

FEATURES

The concentrated suspension provides gel volumes that are twice as large, allowing twice as many applications, than 50% slurries from other suppliers. High-throughput agarose media for capture of His-tagged proteins with very high capacity (≥60 mg/ml) and high-flow characteristics.

APPLICATIONS

Ni Agarose 40 Resin is developed for capture of His-tagged proteins.
Typical binding and wash buffer is 20 mM sodium phosphate, pH 7.4, with 0.5 M NaCl. To reduce unspecific binding, 20–40 mM imidazole is added to the buffer. Proteins are typically eluted with 300–500 mM imidazole, although elution conditions must also be determined for each protein.

CHARACTERISTICS

Agarose content	7.4–7.8%
Metal ion capacity	40–50 µeqv Ni^{2+}/ml
Particle size	32–60 µm
Protein capacity	>60 mg/ml
Max flow rate at 20 cm bed height and 5 bar	>500 cm/h
pH stability	pH 2–14
Solvent stability	100% methanol 100% ethanol 8 M urea 6 M guanidine hydrochloride 30% acetonitrile 70% formic acid 30% trifluoroacetic acid

DESCRIPTION

Ni^{2+} is the preferred metal ion for purification of His-tagged proteins. Immobilized metal ion affinity chromatography is based on interaction between chelated transition metal ions and side-chains of amino acids (mainly histidine) on proteins.

Ni Agarose 40 Resin is produced from agarose using a proprietary cross-linking method that results in a highly porous and physically stable agarose matrix.
Ni Agarose 40 Resin for immobilized metal affinity chromatography is activated and a chelator is coupled according to the bromohydrin method. This method gives rise to a spacer arm between the agarose backbone and the attached chelator.

Ni^{2+} ions are already preloaded and the product is ready for use once packed into a column. Agarose media are generally easy to pack.

biotechrabbit concentrated Ni agarose 40 Resin is an economical, high-quality product providing a double volume of the packed gel or two times more applications compared to 50% Ni agarose slurries from other suppliers. Our package size correlates to final packed column volume.

Immobilized Metal Affinity Chromatography Media

Cat. no.	Product	Size
BR1000201	IDA/high Agarose 40 Resin	25 ml
BR1000202	IDA/high Agarose 40 Resin	150 ml
BR1000301	IDA/low Agarose 40 Resin	25 ml
BR1000302	IDA/low Agarose 40 Resin	150 ml
BR1000401	TREN/high Agarose 40 Resin	25 ml
BR1000402	TREN/high Agarose 40 Resin	150 ml
BR1000501	TREN /low Agarose 40 Resin	25 ml
BR1000502	TREN /low Agarose 40 Resin	150 ml

Our package size correlates to final packed column volume

FEATURES

High-throughput agarose media for immobilized metal affinity chromatography (IMAC)
Choice of IMAC chemistry to fit variety of proteins High flow characteristics

APPLICATIONS

To help you find the best match for your protein, biotechrabbit offers four different IMAC chemistries. We recommend starting with IDA/high, as this has the best capacity and works well for most proteins. Proteins that are difficult to recover or exhibit lower activity after purification may be binding too strongly. In these cases, try IDA/low. For further optimization, we recommend trying TREN/high then TREN/low.

CHARACTERISTICS

Agarose 40 Resin	IDA	TREN
Agarose content, %	7.4–7.8	7.4–7.8
Chelating group	IDA	TREN
Metal ion capacity, μeqv Ni^{2+}/ml	10–20 IDA low 40–50 IDA high	10–20 TREN low 50–60 TREN high
Particle size, μm	32–60	32–60
Max flow rate at 20 cm bed height and 5 bar, cm/h	>500	>500
pH stability	pH 2–14	pH 2–14
Solvent stability after coupling the ligand	100% methanol 100% ethanol 8 M urea 6 M guanidine hydrochloride 30% acetonitrile 70% formic acid 30% trifluoroacetic acid	

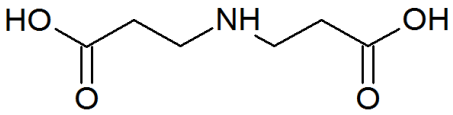
DESCRIPTION

Agarose 40 Resin IMAC media are produced from agarose using a proprietary cross-linking method that results in a highly porous and physically stable agarose matrix. Agarose 40 Resin IDA and TREN series of IMAC gels are activated and coupled according to the bromohydrin method. This method provides a spacer arm between the agarose backbone and the attached chelator.

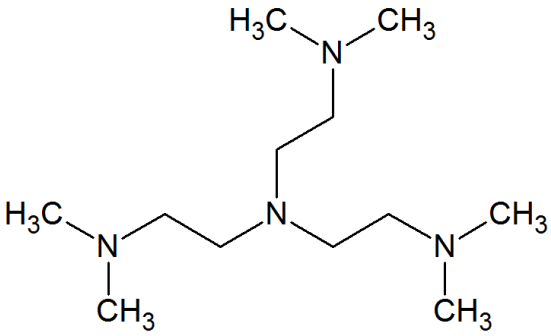
Ligand density has been shown to have a great impact on separation. In some cases, a high-capacity gel is needed while in other cases a low-capacity gel is sufficient. Therefore, Agarose 40 Resin IDA and TREN media are available in two degrees of substitution (low and high) to allow maximum flexibility.

CHELATING GROUPS

Chelators attached to Agarose 40 Resin are iminodiacetic acid (IDA, Picture 1), and the new chelator tris(2-ethylaminoethyl)amine (TREN, Picture 2).



Picture 1. Iminodiacetic acid



Picture 2. Tris(2-ethylaminoethyl)amine (TREN)

Ion-Exchange Chromatography Protein Purification Media

Cat. no.	Product	Size
BR1000601	Q Agarose 40 Resin	25 ml
BR1000602	Q Agarose 40 Resin	250 ml
BR1000701	S Agarose 40 Resin	25 ml
BR1000702	S Agarose 40 Resin	250 ml

Our package size correlates to final packed column volume

FEATURES

Ion-exchange media for preparative- and bioprocess-scale purification of proteins
High-throughput and high-resolution
Reliable and reproducible, easy scale-up
High chemical stability for easy cleaning in place

APPLICATIONS

Q and S Agarose 40 Resin ion exchange media are designed for high-throughput protein separation under a variety of conditions. The high resolution that can be obtained at high protein loading and high flow rates makes this resin ideal for process applications. The chemical stability allows cleaning-in-place protocols using sodium hydroxide to be developed easily.

CHARACTERISTICS

Agarose 40 Resin	Q	S
Agarose content, %	7.4–7.8	7.4–7.8
Protein xapacity, mg/ml	BSA, 130	IgG, 70
Ionic group	Quartenary amine	Sulphonic acid
Ionic capacity, mmol/ml	0.18–0.26	0.18–0.26
Particle size, µm	32–60	32–60
pH stability	pH 1–14	pH 1–14
Solvent stability	100% methanol	
	100% ethanol	
	8 M urea	
	6 M guanidine hydrochloride	
	30% acetonitrile	
	70% formic acid	
	30% trifluoroacetic acid	

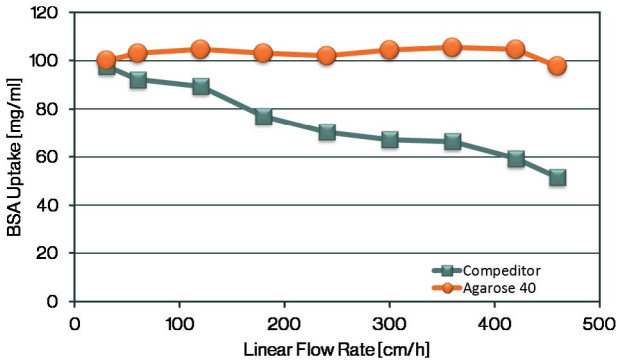
DESCRIPTION

Separation media based on agarose are well known for excellent selectivity. Q and S Agarose 40 Resin have a high selectivity, ensuring protein peaks are well separated with greater distance from each other than comparable products made from synthetic polymers. Thus, these media have the capacity to separate proteins well even when loading large amounts of protein.

Resolution is the combined effect of selectivity (distance between peaks) and efficiency (peak width, depending on particle size).

Q and S Agarose 40 Resin ion-exchange media are produced from agarose using a proprietary cross-linking method that results in a highly porous and physically stable agarose matrix.

The particle size of 40 mm, with a very narrow particle size distribution, in combination with the proprietary cross-linking results in columns packed with very high efficiency and excellent flow characteristics that are well suited to demanding bioprocess applications.



Picture 1. Wider binding dynamics of Q Agarose 40 Resin

Q AGAROSE 40 RESIN COMPARISON WITH OTHER MEDIA

Media	Q Agarose 40 Resin	Leading 90 µm media	Leading 34 µm media
Agarose content, %	7.4–7.8	>6	>6
Ionic group	Quarternary amine	Quarternary amine	Quarternary amine
Ion capacity, mmol/ml	0.18–0.26	00.18–0.25	0.14–0.20
Particle size, µm	32–60	42–165 (average 90)	34
Max linear flow rate, cm/h	>500 (20 cm bed height/5 bar)	400–700 (15 cm bed height/1 bar)	<150 (10 cm bed height/3 bar)
pH stability	pH 1–14	pH 2–14	pH 1–14

Size-Exclusion Chromatography Protein Purification Media

Cat. no.	Product	Size
BR1000802	SEC Agarose 40 Resin	300 ml
BR1000901	SEC 100 Agarose 40 Resin	300 ml
BR1001003	SEC 10000 Agarose 40 Resin	300 ml

** Concentrated slurry: equal to double volumes of 50% slurries from other suppliers.*

Our package size correlates to final packed column volume

FEATURES

High-performance size-exclusion chromatography media for preparative- and process-scale separation of proteins
Excellent resolution
Robust separation results can be achieved for a wide range of proteins and conditions
Chemically stable for cleaning in place

APPLICATIONS

SEC Agarose 40 Resin gel-filtration media is designed for high-performance protein separation under a variety of conditions. The high resolution that can be obtained makes it ideal for both preparative work and process-scale separation of proteins.

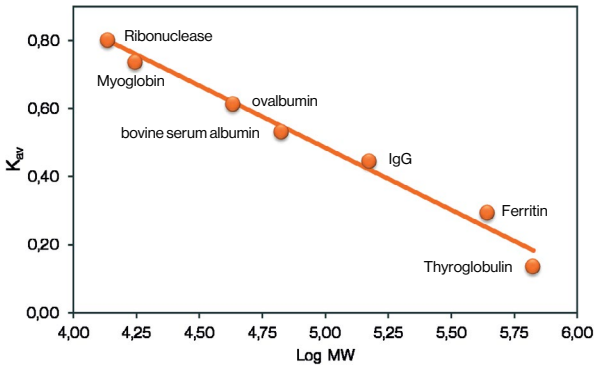
CHARACTERISTICS

Agarose 40 Resin	SEC	SEC 100	SEC 10,000
Agarose content, %	7.4–7.8	9.2–9.8	4.6–5.0
Exclusion limit, kDa	1200	150	>10,000
Separation range, kDa	50–1200	10–150	Very large molecules
Flow rate in a 8 x 300 mm column; cm/min	15	15	10
Particle size, µm	32–60	32–60	32–60
pH stability	pH 1–14	pH 1–14	pH 1–14
Solvent stability after coupling the ligand	100% methanol, 100% ethanol, 8 M urea, 6 M guanidine hydrochloride, 30% acetonitrile, 70% formic acid, 30% trifluoroacetic acid		

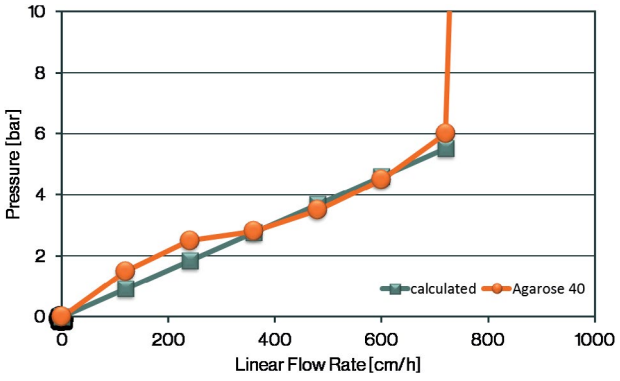
DESCRIPTION

SEC Agarose 40 Resin size-exclusion chromatography or gel-filtration media has a high selectivity, ensuring that the protein peaks are well separated with greater distance from each other than comparable products made from synthetic polymers. Thus, the media has the capacity to separate proteins well, even when loading large amounts of protein.

All SEC Agarose 40 Resin media are produced from agarose using a proprietary cross-linking method that results in a highly porous and physically stable agarose matrix. The narrow particle size distribution of approximately 40 mm in combination with the proprietary cross-linking results in a media that is easy to pack in columns with very high efficiency and good flow characteristics.



Picture 1. K_{av} curve for some common proteins. The dimer of thyroglobulin elutes in V_o and the other proteins nicely follow the theoretical K_{av} relation



Picture 2. Flow/pressure plot. SEC Agarose 40 Resin, Column 0.8 × 30 cm

NOTES

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