

PCR-related Products

The simplest PCR Solution

GenePack DNA Tubes

Take-it-Easy PCR Kit

Thermophilic DNA Polymerases

Taq DNA Polymerase

Buffers for Taq DNA Polymerase

Taq-red DNA Polymerase

Thermus aquaticus DNA Polymerase, modified (Taq-T)

Tth DNA Polymerase

KleinTaq DNA Polymerase

Pfu DNA Polymerase

Psp DNA Polymerase

SuperHot Taq DNA Polymerase

Monoclonal Anti-Taq DNA Polymerase Antibodies

SuperHOT Mastermix

Deoxynucleoside Triphosphates

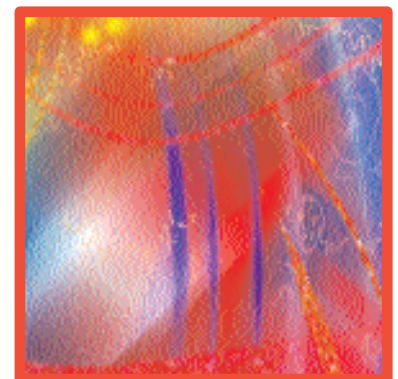
Uracil-DNA Glycosylase (UDG)

Reverase™ (M-MuLV Reverse Transcriptase, RNase H minus)

One Tube RT-PCR Kit

Agarose, Molecular Biology Grade

Proteinase K



PCR-related Products

PCR is a powerful basic technique. It's simple and it gives fast and reliable results, but only if all components you use are of a good quality and the conditions for your reaction are appropriate. Let's start with the basic components.

At least 4 components should be added to your DNA template to start PCR in a thermocycler:

- thermophilic DNA polymerase;
- dNTP's;
- primers -oligonucleotides;
- appropriate buffer.

Please have a look at the Bioron products for PCR and you will definitely make the right choice. To read more about PCR conditions, tricks, applications visit our web page www.bioron.net for PCR-related links.

You will find everything for your PCR in the catalog:

- simplest solutions for PCR - kits, lyophilized PCR master mix
- a good range of thermophilic polymerases
- high quality dNTPs and modified dNTPs
- other relevant products

Enjoy the excellent results of your PCR!

Gene Pack DNA Tube Kit / The simplest PCR Solution

The simplest PCR solution - to get everything prepared for you by Bioron. Use GenePack Tubes - forget about enzymes, dNTP's, even about freezer - everything is already in a good balance, lyophilized to the single spot on the bottom of the tube, can be stored on the shelf at room temperature for more than 1 year. Just add a drop of the diluent buffer, your DNA and primers and run Hot-Start PCR with a good yield of product!

GenePack DNA Tube Kit

Each tube contains lyophilized mixture of

- *Taq* DNA Polymerase, (for QPCR)
- heat-sensitive *Taq* DNA polymerase inhibitors,
- dNTPs,
- MgCl₂, for the final concentration of 2,5mM
- special stabilizers to provide long-term storage.

All in amounts adjusted for optimal Hot-Start PCR in 25µl volume. The mixture is blue to facilitate visual control of dissolving and mixing.

GenePack Tube Kit contains:

1. 100 MasterMix tubes.
2. PCR diluent - 1ml.
3. Mineral oil - 1 ml.

Cat #	Tubes	Pack Size
115001	0.5 ml	1 kit (100 tubes)
115002	0.5 ml	5 kits (500 tubes)
116001	0.2 ml	1 kit (100 tubes)
116002	0.2 ml	5 kit (500 tubes)



The tubes are specially good for large-scale experiments or for experiments in unusual conditions (in open field, expeditions, trainings etc.).

Your specific primers may be lyophilized together with other components on request to make your operations even simpler!

Available in 0.2 ml and in 0.5 ml PCR tubes.

Protocol for PCR with GenePack DNA tubes:

1. Add 10 µl of PCR diluent (provided) in each tube.
2. Add 5 µl of primer mix in each tube (recommended concentration 0.1-0.5 µM of each).
3. Add 2-10 µl of sample (template DNA) in each tube.
4. Adjust the volume to 25 µl by water if necessary.
5. Add 20 µl of Mineral oil in each tube if the PCR cyclor has no hot-lid.
6. Run the PCR in thermocycler as usual. Use the annealing temperature 2-3°C below the temperature optimized for the same pair of primers in a routinely used buffer.
7. As soon as thermocycling is finished, load 5-10 µl of the mix on the gel. There is no need to add stop-solution, stain and loading buffer in the samples before loading on the gel.

Take-it-Easy PCR Kit

More traditional kits for PCR (Take-it-Easy PCR kits) contain all components for PCR amplification in a liquid form. The kits also contain positive control (high molecular weight DNA) and control pair of primers to provide confidence in PCR control reaction.

The Hot Start Take-it-Easy PCR kit is specially designed for Hot-Start PCR. The kits are available in 2 sizes - for 100 and 500 reactions. Control DNA and primers are sufficient for 10 reactions in 50 microliters. The size of the amplicon synthesized with the use of control primers and control DNA is 827bp.



Take-it-Easy PCR Kit contains:

1. 10x *Taq* DNA polymerase buffer,
2. dNTP mix (8mM each),
3. 25 mM MgCl₂,
4. *Taq* DNA polymerase (SuperHot *Taq* DNA polymerase for Hot Start Take-it-Easy kit),
5. Nuclease-free water,
6. Control DNA,
7. Control primer mixture,
8. Mineral oil,
9. Protocol.

Also available with *Taq-red* DNA polymerase.

Take-it-Easy PCR Kit

Cat#	Kit Size
112001	for 100 PCR reactions
112002	for 500 PCR reactions

Take-it-Easy Hot Start PCR Kit

Cat#	Kit Size
117001	for 100 PCR reactions
117002	for 500 PCR reactions

Thermophilic DNA Polymerases

In addition to a well-known *Taq* DNA Polymerase there appeared a lot of thermophilic polymerases. Many of them are available from Bioron. Please check the list of polymerases and the table with the properties of thermophilic polymerases to make a correct choice for your particular experiment:

- 1. *Taq* DNA Polymerase** - for everyday PCR experiments: inexpensive, robust, reliable.
- 2. *Taq-red* DNA Polymerase** - *Taq* DNA Polymerase, in a red-stained solution to provide visual control of the reaction mixture preparation. Good for low-volume reaction mixtures, for experiments in training courses.
- 3. *Taq-T* DNA Polymerase** - *Taq* DNA Polymerase with mutations in the active center. The mutations enable the enzyme to bind equally well modified and non-modified dNTPs. Can be used for DNA sequencing, for effective incorporation of bio-dUTP and other modified dNTPs into DNA.
- 4. *Tth* DNA Polymerase** - DNA Polymerase with RT activity.
- 5. *Klein-Taq*** - *Taq* DNA Polymerase with the deleted N-terminal part, no 5'-exo activity, increased heat-stability, good for GC-rich DNA amplification, in combination with *Pfu* or *Psp* DNA Polymerase - for long-distance-PCR.
- 6. *Pfu* and *Psp* DNA Polymerases** - thermostable DNA polymerases with proofreading activity, ideal for high-fidelity PCR, in combination with *Klein-Taq* - for long-distance-PCR.
- 7. SuperHot *Taq* DNA Polymerase** - optimized mixture of *Taq* DNA Polymerase and monoclonal antibodies to *Taq* DNA polymerase. No polymerase activity at room temperature, enzyme is activated by heating-up. Can be effectively used for Hot-Start PCR.
- 8. Monoclonal antibodies to *Taq* DNA Polymerase** - IgG type mouse antibodies completely block DNA polymerase activity of *Taq* DNA Polymerase. Can be used for preparation of *Taq*-Polymerase-Antibodies mixture (for Hot-Start PCR), for *Taq* DNA Polymerase detection.

Feature/characteristic	Taq Pol	Taq-red	Taq T	SuperHotTaq	Tth Pol	Klein Taq	Psp-Pol and Pfu-Pol
5'-3' polymerase	yes	yes	yes	yes	yes	yes	yes
5'-3' exonuclease	yes	yes	yes	yes	yes	no	yes
3'-5' exonuclease	no	no	no	no	no	no	yes
dNTPs incorporation (nucleotides/sec)	35-100	35-100	70-120	35-100	no data	no data	no data
Error rate (x10 ⁻⁵)	2,4	2,4	2	2	no data	no data	0,4
Thermostability and remaining activity at 95 °C	40 min >50%	40 min >50%	40 min >50%	40 min >50%	60 min >70%	90 min >70%	240 min >70%
Longest amplicons	5kb	5kb	2kb	8kb	4kb	>20kb (as a mixture with Pfu-Pol)	>20kb (as a mixture with Klein-Taq)
Addition of poly A	yes	yes	yes	yes	yes	yes	blunt end
Application	PCR	PCR	Sequencing, dUTP and modified incorporation	Hot-Start PCR, QPCR	PCR of GC-rich regions	PCR of GC-rich regions, RT-PCR, long-distance-PCR	High fidelity PCR, long-distance-PCR

PCR-related Products

Taq DNA Polymerase

Description:

Taq DNA Polymerase is a thermostable enzyme of approximately 94kDa isolated from eubacterium *Thermus aquaticus* strain YT-1(1). This unmodified enzyme replicates DNA at 72°C. The enzyme catalyzes the polymerization of nucleotides into duplex DNA in the 5'→3' direction in the presence of magnesium ions and possesses a 5'→3' exonuclease activity. The enzyme is highly purified and is free of nonspecific endo- or exonucleases. *Taq* DNA Polymerase adds extra 3'-dA nucleotide(s) overhangs to their reaction products.

Concentration: 5000 units/ml.

Taq DNA Polymerase

Cat #	Pack Size
101005	500 U
101025	2500 U
101100	10000 U
101500	50000 U

Storage Buffer:

10 mM KPO₄ (pH 7.4), 0.1 mM EDTA, 50% glycerol, 0.1% Triton X-100, 0.1% Tween-20.

Unit Definition:

One unit of activity is the amount of enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble DNA fraction in 30 minutes at 72°C.

Supplied Reaction Buffers (10x) :

Incomplete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20 (Cat# 102001, 102002). supplied with 1ml MgCl₂ separately packed.

Complete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂

Recommended MgCl₂ Concentration: 1.5-8mM

Storage Conditions:

Recommended storage temperature is -20°C. The enzyme is stable at room temperature for at least 3 days without any loss of activity.

Reference: Kaledin, A.S., Sliusarenko, A.G. and Gorodetskii, S.I. (1980) *Biokhimiya* **45**, 644 (Rus).

Buffers for Taq DNA Polymerase (10x):

Description:

The buffer for *Taq* DNA polymerase may be used for PCR, primer extension and other application with the use of *Taq* DNA polymerase, *Taq*-red DNA polymerase, SuperHot *Taq* DNA Polymerase.

Composition (incomplete, without MgCl₂): 160mM (NH₄)₂SO₄, 670 mM Tris-HCl (pH 8.8), 0.1% Tween-20, supplied with 1ml MgCl₂ separately packed.

Composition (complete, with MgCl₂): 160mM (NH₄)₂SO₄, 670 mM Tris-HCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂.

Reaction buffer (10x) for Taq DNA Polymerase (without Mg²⁺) or with 25 mM MgCl₂

Cat #	Pack Size
102001	1 ml
102002	5 ml

Storage Conditions:

The buffer can be stored at ambient temperature. Meanwhile, we recommend to store the buffer aliquoted at -20°C.

100 mM MgCl₂ solution

Cat #	Pack Size
103001	1ml
103002	5 ml

Taq-red DNA Polymerase

Description:

Taq-red DNA Polymerase is *Taq* DNA Polymerase with a chemically attached chromogenic molecule. The enzyme is red stained. The stain facilitates visual control of mixing the enzyme with other components. The stain doesn't influence the enzyme activity and other general characteristics.

Concentration: 5000 units/ml.

Storage Buffer:

10 mM KPO₄(pH 7.4), 0.1 mM EDTA, 50% glycerol, 0.1% Triton X-100, 0.1% Tween-20.

Unit Definition:

One unit of activity is the amount of enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble DNA fraction in 30 minutes at 72°C.

Recommended MgCl₂ Concentration: 1.5 mM - 8mM.

Supplied Reaction Buffers (x10) :

Incomplete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20 (Cat# 102001, 102002), supplied with 1ml MgCl₂ seperately packed.

Complete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂

Storage Conditions: -20°C.

Taq-red DNA Polymerase

Cat#	Pack Size
117002	200 U
117010	1000 U

Thermus aquaticus DNA Polymerase, modified (Taq-T)

Description:

Taq DNA Polymerase, modified (*Taq-T*), is a modified form of the enzyme from the thermophilic eubacterium *Thermus aquaticus* strain YT-1. This enzyme has a modification at the dNTP binding site. Due to the modification, the enzyme incorporates dUTP and dideoxynucleotides more efficiently in comparison with *Taq* DNA Polymerase. Enzyme may be used for cycle sequencing, recommended for dUTP/Bio-dUTP incorporation reactions.

Concentration: 5000 units/ml.

Storage and Dilution Buffer:

10 mM KPO₄ (pH 7.4), 100 mM KCl, 0.1 mM EDTA, 50% glycerol, 0.1% Triton X-100, 0.1% Tween-20.

Unit Definition:

One unit of activity is the amount of enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble material in 30 minutes at 72°C.

Supplied Reaction Buffers (x10) :

Incomplete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20 (Cat# 102001, 102002), supplied with 1ml MgCl₂ seperately packed.

Complete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂

Recommended MgCl₂ Concentration: 1.5 mM - 6 mM.

Storage Conditions: -20°C.

Thermus aquaticus DNA Polymerase, modified (Taq-T)

Cat#	Pack Size
117005	500 U
117025	2500 U

PCR-related Products

Tth DNA Polymerase

Description:

Tth DNA Polymerase is a thermostable enzyme of approximately 94kDa isolated from eubacterium *Thermus thermophilus* strain HB8. This enzyme replicates DNA at 72°C. It reveals RNA-dependent DNA-polymerase activity in the presence of Mn²⁺ ions. The concentration of RNA template for effective reverse transcription with *Tth* DNA Polymerase should be higher than that for reactions directed by Reverse Transcriptases (M-MuLV, AMV).

Concentration: 5000 units/ml.

Tth DNA polymerase

Cat#	Pack Size
104005	500 U
104025	2500 U

Storage Buffer:

10 mM TrisHCl (pH 7.5), 300 mM KCl, 0.1 mM EDTA, 1 mM DTT, 50% glycerol.

Unit Definition:

One unit of activity is the amount of enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble DNA fraction in 30 minutes at 70°C.

Supplied Reaction Buffers (10x) without MgCl₂:

Incomplete: 100 mM Tris-HCl (pH 8.9), 900 mM KCl

Complete: 100 mM Tris-HCl (pH 8.9), 1 M KCl, 500 µg/ml BSA, 0.5 % Tween 20, 15 mM MgCl₂

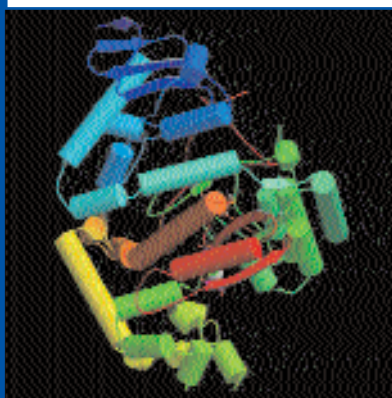
Recommended MgCl₂ concentration: 3-6 mM

(5x) RT-PCR-Buffer (one step reaction) 250mM biocine/KOH (pH 8,2), 575 mM K-acetate, 40% glycerol (v/v)

Mn²⁺: 1-2 mM for RNA-dependent cDNA synthesis. (supplied as MnCl₂ in a separate tube)

Storage Conditions: -20°C.

Klein-Taq DNA Polymerase



The schematic representation of the large fragment of *Taq* DNA Polymerase

Description:

Klein-Taq is a derivative of *Taq* DNA Polymerase. It is a 5'-exo-minus N-terminally truncated *Thermus aquaticus* DNA Polymerase. As expressed from a gene construct in *E.coli*, translation initiates at Met236, bypassing the 5'-3' exonuclease domain of the DNA polymerase-encoding gene. The enzyme is more active and heat-stable in comparison with *Taq* DNA polymerase. The optimal range of Mg²⁺ concentration for *Klein-Taq* is broader than that for the majority of thermostable polymerases. This feature allows to optimize reaction conditions easier than for other polymerases. Repeated exposure to 98°C does not diminish the enzyme activity. Significant activity remains even after exposure to 99°C.

The mutation rate during polymerization is twofold lower for *Klein-Taq* in comparison with full-length *Taq* DNA polymerase. *Klein-Taq* has a very low background ability to extend a mismatched 3'-oligonucleotide end, making it suitable for mutation analysis with mutation-specific oligonucleotides.

Concentration: 5000 -10000 units/ml.

Storage Buffer:

10 mM KPO₄(pH 7.0), 100 mM NaCl, 0.5 mM EDTA, 1 mM DTT, 0.01% Tween 20, 50% glycerol.

Unit Definition:

One unit is defined as the amount of enzyme that incorporates 10 nmoles of dNTPs into acid-insoluble form in 30 min at 72°C.

Supplied Reaction Buffers (10x) :

Incomplete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20 (Cat# 102001, 102002), supplied with 1ml MgCl₂ separately packed.

Complete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂

Recommended MgCl₂ Concentration: 2-10 mM.

Storage Conditions: -20°C.

Quality Control:

Activity, SDS-PAGE purity, absence of endonucleases/nickases and exonucleases.

Klein-Taq DNA polymerase

Cat#	Pack Size
118002	200 U
118010	1000 U

Pfu DNA Polymerase

Description:

Pfu DNA Polymerase is a thermostable enzyme isolated from *Pyrococcus furiosus*. The enzyme replicates DNA at 75°C, catalyzing the polymerization of nucleotides into duplex DNA in the 5'→3' direction. *Pfu* DNA polymerase possesses 3'→5' exonuclease (proofreading) activity. Nucleotide misinsertions that may occur during polymerization are rapidly excised by the proofreading activity of the polymerase. *Pfu* DNA polymerase is recommended for use in PCR and primer extension reactions that require high-fidelity synthesis. *Pfu* DNA polymerase-generated PCR fragments are blunt-ended.

Concentration: 5000 units/ml.

Storage Buffer:

50 mM TrisHCl (pH 8.2), 0.1 mM EDTA, 1 mM DTT, 0.1% Nonidet P40, 0.1% Tween-20, 50% glycerol.

Supplied Reaction Buffers (10x) :

Complete: 200 mM TrisHCl (pH 8.8 at 25°C), 100 mM KCl, 100 mM (NH₄)₂SO₄, 20 mM MgSO₄, 1.0% Triton X-100

Incomplete: 200 mM TrisHCl (pH 8.8 at 25°C), 100 mM KCl, 100 mM (NH₄)₂SO₄, 1.0% Triton X-100, supplied with 1 ml of 25 mM MgSO₄ separately packed.

Storage Conditions: -20°C

Pfu DNA Polymerase

Cat#	Pack Size
108105	500 U
108125	2500 U

Psp DNA Polymerase

Description:

Psp DNA Polymerase is a thermostable enzyme isolated from *Pyrococcus species*. The enzyme is quite similar to *Pfu* DNA Polymerase, it replicates DNA at 75°C, catalyzing the polymerization of nucleotides into duplex DNA in the 5'→3' direction. *Psp* DNA Polymerase possesses 3'→5' exonuclease (proofreading) activity. Nucleotide misinsertions that may occur during polymerization are excised by the proofreading activity of the enzyme. *Psp* DNA Polymerase is recommended for use in PCR and primer extension reactions that require high-fidelity synthesis. *Psp* DNA polymerase-generated PCR fragments are blunt-ended.

Concentration: 5000 units/ml.

Storage buffer: see at [Pfu DNA Polymerase](#)

Supplied Reaction Buffers (10x) :

Complete: 200 mM TrisHCl (pH 8.8 at 25°C), 100 mM KCl, 100 mM (NH₄)₂SO₄, 20 mM MgSO₄, 1.0% Triton X-100

Incomplete: 200 mM TrisHCl (pH 8.8 at 25°C), 100 mM KCl, 100 mM (NH₄)₂SO₄, 1.0% Triton X-100, supplied with 1 ml of 25 mM MgSO₄ separately packed.

Storage Conditions: -20°C

Psp DNA Polymerase

Cat#	Pack Size
108005	500 U
108025	2500 U

SuperHot Taq DNA Polymerase

Description:

SuperHot *Taq* DNA polymerase is an optimized mixture of *Taq* DNA polymerase and anti-*Taq* DNA polymerase monoclonal antibodies. Antibodies block polymerase activity during the set-up of the PCR reactions at ambient temperature (20-22°C). The inhibition of *Taq* DNA polymerase is completely reversed when the temperature is above 70°C. The PCR products obtained with SuperHot *Taq* are free from nonspecific products and from primer-dimers.

Unit Definition:

One unit is defined as the amount of the enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble DNA fraction in 30 minutes at 72°C.

Recommended Reaction Buffer (1x):

16 mM (NH₄)₂SO₄, 67 mM Tris-HCl (pH 8.8), 1.5-7 mM MgCl₂, 0.01% Tween-20.

Concentration: 5000 units/ml.

Supplied Reaction Buffers (x10) :

Incomplete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20 (Cat# 102001, 102002), supplied with 1ml MgCl₂ separately packed.

Complete: 160 mM (NH₄)₂SO₄, 670 mM TrisHCl (pH 8.8), 0.1% Tween-20, 25 mM MgCl₂

Storage Buffer:

10mM Tris-HCl (pH 7.0); 50mM KCl; 0.1mM EDTA, 50% glycerol.

Recommended PCR Conditions:

Use the PCR conditions optimized for *Taq* DNA polymerase. In the case of low amount of DNA template, additional cycles may be used.

Applications:

Complex genomic or cDNA templates, low copy numbers targets, large numbers of thermal cycles, multiplex PCR, QPCR.

Storage Conditions: -20°C.

SuperHot Taq DNA Polymerase

Cat#	Pack Size
119002	200 U
119010	1000 U

PCR-related Products

Monoclonal Anti *Taq* DNA Polymerase Antibodies

Description:

Monoclonal anti-*Taq* DNA Polymerase antibodies were derived from a hybridoma cell line. Anti-*Taq* antibodies are mouse IgG type.

Concentration: 0.1-1.5 mg/ml.

Storage Buffer:

10mM Tris-HCl (pH 7.0 at 22°C); 50mM KCl; 0.1mM EDTA; 50% glycerol

Unit Definition:

One unit is defined as the amount of anti-*Taq* antibodies required to block 50% of the activity of 1µg of *Taq* DNA polymerase at 37°C.

Storage Conditions: -20°C.

Purity:

More than 95% in SDS-PAGE.

Units/mg ratio:

2300 Units of specific activity are equal to 1 mg of antibodies.

Quality Control:

No conversion of the covalently closed circular DNA to the nicked or linear form was observed after incubation of 1µg of pUC19 with antibodies in final concentration of 2.5 mg/ml in 20 µl of reaction mixture containing 25mM Tris-HCl (pH 7.9); 100mM NaCl; 10mM MgCl₂ after 16 hours at 37°C.

Monoclonal Anti *Taq* DNA Polymerase Antibodies

Cat#	Pack Size
121001	0.1 mg
121005	0.5 mg

SuperHot *Taq* Master Mix

Description:

2x concentrated SuperHot PCR Master Mix is an optimized ready-to-use PCR mixture of *Taq* DNA Polymerase, antibodies to *Taq* DNA Polymerase, PCR buffer, MgCl₂ and dNTP's. PCR Master Mix(2x) contains all components for PCR, except DNA template and primers. The mixture was shown to be effective for Real Time PCR.

Quality Control:

The SuperHot PCR Master Mix (2x) is tested in the amplification of a single-copy gene of mouse genomic DNA.

Master Mix was tested for the absence of endo-deoxyribonucleases and exodeoxyribonucleases.

No detectable conversion of covalently closed circular DNA to nicked DNA was observed after incubation of 25µl of SuperHot PCR Master Mix (2x) with 1µg of pUC19 DNA in 50µl for 4 hours neither at 37°C nor at 70°C.

Storage Conditions: -20°C, repeated freezing and thawing do not influence the performance of the Master Mix.

SuperHot PCR Master Mix (2x) Composition:

- *Taq* DNA Polymerase (recombinant) in reaction buffer: 0.1 units/µl
- Antibodies to *Taq* DNA Polymerase, concentration adjusted for the effective inhibition of DNA polymerase activity at 37°C
- 32 mM (NH₄)₂SO₄
- 130mM TrisHCl, pH 8.8 at 25°C
- 0,02% Tween-20
- 3mM MgCl₂
- dNTPs (dATP, dCTP, dGTP, dTTP): 0.4mM of each

PCR reaction setting-up:

Mix 25µl of MasterMix, primers, template DNA and adjust the volume to 50 µl by water.

SuperHot *Taq* Master Mix

Cat#	Pack Size
119102	100 reactions
119110	500 reactions

Deoxynucleoside Triphosphates

dNTPs are the "building blocks" for any DNA. Purity and stability of dNTPs are the essential factors for the successful PCR. All dNTPs offered by Bioron were tested on the ability to synthesize amplicons at least 10 kb in length.

There is a special section "Nucleotides" in the catalog with the detailed description of dNTPs and modified dNTPs.

Bioron offers a complete range of high purity nucleoside-5'-triphosphates in powder and in ready-to-use solutions. dNTPs are available mixed, ready-to-use for PCR or other applications and in 100 mM solutions in water (pH 7.5) of sodium salts of dATP, dGTP, dCTP, dTTP, dUTP.

4you4 dNTP mix

4you4 dNTP mix is a premixed solution containing the sodium salts of dATP, dCTP, dGTP and dTTP, each at the concentration of 10mM in water (pH 7.5). This solution is ready for use and is optimized for PCR and other applications. Use one microliter of the mix for PCR amplification in 50µl reaction volume.

4you4 dNTPs mix

Cat#	Pack Size
110001	200 µl
110002	1000 µl

Set of 4 dNTPs (dATP, dGTP, dCTP, TTP)

Cat#	Pack Size
110011	4x200 µl, 100 mM
110012	4x1000 µl, 100 mM
110031	4x200 µl, 20 mM
110032	4x1000 µl, 20 mM

dATP, 100 mM

Cat#	Pack Size
110003	200 µl
110004	1000 µl

dATP, 20 mM

Cat#	Pack Size
110023	200 µl
110024	1000 µl

dCTP, 100 mM

Cat#	Pack Size
110005	200 µl
110006	1000 µl

dCTP, 20 mM

Cat#	Pack Size
110025	200 µl
110026	1000 µl

dGTP, 100 mM

Cat#	Pack Size
110007	200 µl
110008	1000 µl

dGTP, 20 mM

Cat#	Pack Size
110027	200 µl
110028	1000 µl

TTP, 100 mM

Cat#	Pack Size
110009	200 µl
110010	1000 µl

TTP, 20 mM

Cat#	Pack Size
110029	200 µl
110030	1000 µl

dUTP, 100mM solution (in water, pH 7.5)

Cat#	Pack Size
109001	200 µl
109004	1000 µl

Deoxyuridine Triphosphate (dUTP)

dUTP (2'-deoxyuridine 5'-triphosphate) can be used instead of dTTP in PCR and RT-PCR protocols to prevent carryover from previous amplifications. The substitution of dTTP with dUTP in PCR, results in uracil-containing PCR products that are suitable for most standard applications. The enzyme Uracil-DNA Glycosylase, UDG (see the next article), can be added to a PCR premix to excise uracil from any contaminating PCR product, thereby preventing false positives. Each lot of dUTP is tested in PCR reactions for specific DNA amplification.

PCR-related Products

Uracil-DNA Glycosylase (UDG)

Description:

E. coli Uracil-DNA Glycosylase (UDG) catalyzes the release of free uracil from uracil-containing DNA. UDG efficiently hydrolyzes uracil from single-stranded or double-stranded DNA, but not from oligomers (6 or less bases).

Concentration: 1000 units/ml.

Uracil-DNA Glycosylase (UDG)

Cat#	Pack size
111005	200 U
111025	1000 U

Storage Buffer:

20 mM Tris-HCl, pH 8.0, 50 mM NaCl, 0.1 mM EDTA, 50% glycerol.

Unit Definition:

One unit of activity is the amount of enzyme required to release 60 pmol of uracil per minute from double-stranded uracil-containing DNA.

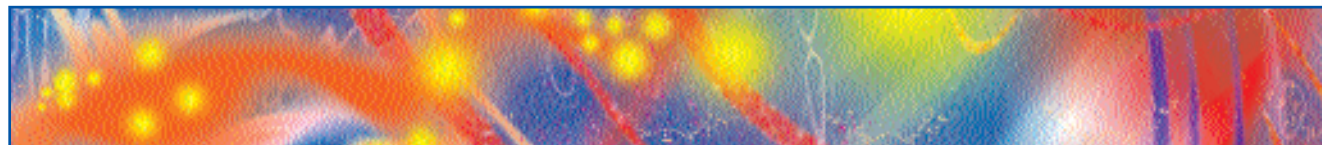
Reaction Buffer (1x):

20 mM Tris-HCl (pH 8.0), 1 mM EDTA.
The enzyme is active in water or TE buffer.

Storage Conditions: -20°C.



Beat the routine - make the future with BIORON



Reverase™

(M-MuLV Reverse Transcriptase, RNase H minus)

Description:

Reverase™ is M-MuLV Reverse Transcriptase purified from *E.coli* strain harbouring a plasmid that directs the synthesis of a modified form of Moloney Murine Leukemia virus (M-MuLV) Reverse Transcriptase. M-MuLV Reverse Transcriptase is an RNA or DNA directed DNA polymerase. The enzyme can synthesize a complementary DNA strand initiating from a primer using either RNA (cDNA synthesis) or single stranded DNA as a template. This enzyme has been genetically altered to remove associated RNase H activity. Removal of the RNase H activity resulted in an increase of full-length cDNA products. MW of Reverase™ is 69 kDa.

Concentration: 50000-200000 units/ml

Storage Buffer:

50 mM TrisHCl, pH 8.3, 100 mM NaCl, 1 mM EDTA, 0.1 mM DTT, 0.1% Triton X-100, 50% glycerol.

Recommended Reaction Buffer (1x):

50 mM TrisHCl (pH 8.3 at 25°C), 2-8 mM MgCl₂, 10 mM DTT, 100 mM KCl, 2 mM dNTPs.

Supplied Reaction Buffers (5x):

Incomplete: 250 mM TrisHCl (pH 8.3), 500mM KCl, 50mM DTT + 1 tube of 100mM MgCl₂.

Complete: 250 mM TrisHCl (pH 8.3), 500mM KCl, 50mM DTT, 15mM MgCl₂

Unit Definition:

One unit of activity is the amount of enzyme required to incorporate 1 nmole of dTTP into an acid-insoluble form in 10 minutes at 37°C using polyA-oligo(dT) as a template and primer.

Storage Conditions: -20°C.

Reverase™

Cat#	Pack Size
105100	10000 U
105250	50000 U

Reaction buffer for Reverase™ (5x)

Cat#	Pack Size
106001	1 ml
106002	5 ml

100 mM MnCl₂ solution

Cat#	Pack Size
107001	1 ml
107002	5 ml

One Tube RT-PCR Kit

The RT-PCR kit is especially designed for simple and effective one-tube RT-PCR. The reverse transcription step is directed by M-MuLV Reverse Transcriptase, as soon as cDNA is synthesized, Taq-star DNA polymerase (Taq DNA polymerase with chemically modified active center) is activated by heating up the reaction 10min at 95°C. As soon as the Taq-star enzyme is activated, regular PCR procedure is performed.

The kit contains:

1. Reaction buffer A (5x) (MgCl₂ 15mM)
2. dNTPs mixture, 5mM of each
3. Mixture of the enzymes
4. DNase-RNase free water

Protocol for one tube RT-PCR:

Mix thoroughly in a PCR-tube:

- | | |
|---------------------------|-------------|
| 1. Total RNA | 1-5 µl |
| 2. Reaction buffer A (5x) | 5,0 µl |
| 3. dNTP 5mM | 2,5 µl |
| 4. Primers: reverse | 20 pmoles |
| forward | 10 pmoles |
| 5. Enzyme mix | 1 µl |
| 6. Water | up to 25 µl |

Reverse transcription (30-60min) should be followed by PCR thermocycling.

One tube RT-PCR Kit

Cat#	Pack Size
122205	1kit for 50 reactions
122250	1kit for 500 reactions

Description:

Agarose, Molecular Biology Grade, is used for the electrophoretic separation of nucleic acids. The Agarose is free from DNase and RNase activities.

Agarose, Molecular Biology Grade

Cat#	Pack Size
604001	100 g
604005	500 g

Storage Conditions: 22-25°C.

Properties:

Gel Strength (1%): > 1,000 g/cm².
 Gelling Point (1.5%): 36-39°C.
 Melting Point (1.5%): 87-89°C.
 Sulfate: < 0.15%.
 Moisture: < 10

Proteinase K

Description:

Proteinase K is a broad-spectrum serine protease for general digestion of proteins in biological samples. The Enzyme is free from RNase and DNase activities. Proteinase K is stable in urea and SDS. Recommended working concentration for Proteinase K is 50-100µg/ml in the majority of applications.

Recommended Reaction Buffer:

50 mM Tris-HCl (pH 7.5), 10 mM CaCl₂.

Storage Conditions: -20°C.

Available both in liquid (in 50 mM Tris-HCl (pH 8.0), 10 mM CaCl₂) and powder form.

Proteinase K

QUALITY CONTROL

16-hour incubation: a 50 µl reaction solution containing 1 µg of lambda-DNA and 1.8 units enzyme incubated for 16 hours at 37°C resulted in the same DNA band pattern after gel electrophoresis as compared to the pattern produced without enzyme.

Cat#	Pack Size
405002	200 mg
405010	1g
405102	1ml, 20 mg/ml
405152	5 x 1 ml, 20 mg/ml

Exonuclease activity: Incubation of 6 units of the enzyme for 4 hours at 37°C in 50 µl assay buffer with 1 g sonicated 3H DNA (3 x 10⁵ cpm/µg) released less than 0.2% of radioactivity.

Endonuclease activity: Incubation of 1.8 units of enzyme with 1 µg PhiX174 RFI DNA in 50 µl assay buffer for 4 hours at 37°C gave less than 1.5% conversion of RFI.

RNase contamination: Incubation of 6 units of enzyme with 1 µg MS2 RNA in 50 µl assay buffer for 4 hours at 37°C resulted in the same RNA band pattern after gel electrophoresis as compared to the pattern produced without the enzyme.