Eurolone®

serving science through innovation

Enzymes & Reagents

...for PCR, Real Time PCR and RT-PCR

DNA Polymerases

EuroClone recombinant DNA Polymerases are produced and purified from E.coli. Severe and rigorous production procedures ensure the highest quality and the best batch-to-batch consistency. Our Polymerases are always supplied with the specific reaction Buffer. A separate $MgCl_2$ solution is provided with EuroTaq and @Taq.

Choose the right enzyme for PCR

Use the table below to easy find the better enzyme for most PCR applications, including special PCR: High Fidelity PCR, "Fast"-PCR or "Direct-Blood" PCR.

	EuroTaq	@Taq	Red@Taq	SMART DNA Polymerase
Properties				
5'->3' activity	+	+	+	+
3'->5' exo activity	-	-	-	+
5'->3' exo activity	+	+	+	-
Amplicon Size	<3Kb	<3Kb	<3Kb	>7Kb
Resulting Ends	A-tail	A-tail	A-tail	blunt
Units per reaction (50 µl)	1.25-2.5	1.25-2.5	1.25-2.5	0.5-1
Application				
Hot-Start PCR	-	+	+	-
Fast PCR	-	-	-	+
Direct-blood PCR	-	-	-	+
LD PCR	-	-	-	+
GC–rich templates	-	+	+	+
AT-rich templates	+	+	+	+
High Fidelity PCR	-	-	-	+
High Yield	-	+/-	+/-	+
Presentation				
Enzyme in Glycerol Buffer	+	+	+	+
2X Master Mix	-	+	-	-
5X Ready-to-load Master Mix	-	+	-	-

EuroTaq Thermostable DNA Polymerase

EuroTaq is a traditional thermostable DNA Polymerase for standard PCR reactions.
The enzyme is purified from E.Coli PVG-A1 recombinant strain expressing Thermus aquaticus YT1 DNA Polymerase gene.

Features

- *Ideal for routine PCR*
- *High activity*
- *Maximum flexibility for reaction conditions*
- *Higher thermostability*

Cat.	Description	Size
EME010250	EuroTaq*	1 x 250 units
EME010001	EuroTaq*	1 x 1000 units

** 10X Reaction Buffer and $MgCl_2$ Buffer included*

@Taq Hot Start Thermostable DNA Polymerase

@Taq is a recombinant Hot Start Taq DNA Polymerase purified from E.coli PVG-A1. This enzyme is complexed with a monoclonal antibody blocking the polymerase activity at room temperature. The enzyme shows improved specificity and high yield amplification, even with low copy number and complex DNA templates, when compared to standard DNA polymerases. @Taq can eliminate amplification artifacts, such as primer-dimer formation and miss priming. An advantage of @Taq is the absence of additional heating step for polymerase activation: heat activation of enzyme occurs during the first denaturation step. @Taq is available also in a "coloured formulation" (Red@taq) where the polymerase buffer contains a red inhert dye that enables the user to simply verify the addiction of the enzyme to the reaction mix.

Features

- *Hot Start Taq Polymerase: activation occours at 70°C, during the first denaturation step*
- *Dramatic artefact decrease*
- *No primer-dimer formation*
- *No mispriming*
- *No need for wet ice incubation during master mix assembling*

Cat.	Description	Size
EME013500	@Taq*	500 units
EME014500	Red@Taq*	500 units

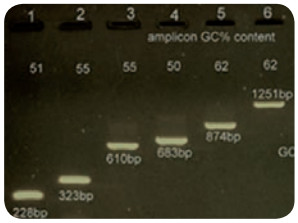
** 10X Reaction Buffer and $MgCl_2$ Buffer included*

SMART DNA Polymerase

SMART DNA polymerase is a robust thermostable polymerase with high fidelity features.
This recombinant enzyme contains a Pfu modified domain for proof-reading and a DNA binding domain for high processivity. The use of SMART DNA polymerase in PCR reactions results in higher yield, shorter amplification time and amplification of long (up to 10 kb) and difficult templates (i.e. GC-rich). The enzyme has the 5'->3' DNA polymerase activity, 3'->5' exonuclease activity, temperature-dependent strand-displacement activity and generates blunt ends in the amplification products.

Features

- *Superior fidelity*
- *Excellent performance across a wide range of "difficult" templates*
- *Long range amplification of complex targets: up to 10 kb from genomic DNA*
- *High speed: reduced reaction times*
- *Resistance to blood containing DNA samples (up to 20% of blood)*



High product yield with routine PCR application and GC-rich targets
10 ng of human DNA were amplified with 1 U/50 µl of SMART DNA Polymerase. On top of each lane the amplicon GC% content is specified.

Cat.	Description	Size
EME012500	SMART DNA Polymerase ◊	500 units

◊ 5X Reaction Buffer included

Master Mix for PCR

@Taq Master Mix
Hot Start PCR Master Mix

This Master mix for Hot Start PCR includes @Taq, the immuno-blocked Taq from EuroClone. It comes in a convenient format of 4 x 50 µl reaction vials, 2X concentrated, for a better handling of the amplification solution. @Taq Master Mix includes all the reagents needed for PCR (Taq Polymerase, reaction Buffer, dNTPs, $MgCl_2$), but not the specific primers.

Features

- *Hot Start effect*
- *Excellent specificity*
- *High activity level with the benefits of a ready-to-use amplification solution*
- *Highly reproducible PCR*
- *Strong reduction of pipetting errors and miscalculation*
- *Minimum hands-on time*

Cat.	Description	Size
EMX013200	@Taq Master Mix*	200 rxns

* *$MgCl_2$ Buffer included*

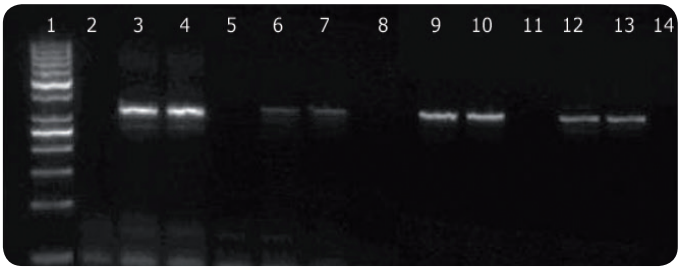
Redy@Taq Master Mix Ready-to-load
Master Mix for Hot Start PCR

Redy@Taq Master Mix is a 5X ready-to-load master mix for Hot Start PCR. The master mix contains @Taq Hot-Start DNA Polymerase and the Redy buffer.The buffer includes a dense compound for easy loading and two inhert dyes for the evaluation of the sample run during electrophoresis. The buffer proprietary formulation includes also specific additives that increase the polymerase thermostability giving higher yield.

Features

- *Higher yield*
- *No need of gel loading Buffer*
- *Direct load on the gel after PCR reaction*

Cat.	Description	Size
EMX016100	Redy@Taq Master Mix	100 rxns



Redy@Taq Master Mix and 3 different competitors Ready-to load master mix were used to amplify a fragment of 312 bp

Lane 1: marker Sharpmass 50 bp
Lane 3 and 4: Redy@Taq Master Mix
Lane 5: blank
Lane 6 and 7: competitor (S) HS ready-to-load Master Mix
Lane 9 and 10: competitor (P) HS ready-to-load Master Mix
Lane 11: blank
Lane 12 and 13: competitor (P) ready-to-load Master Mix
Lane 14: blank

Master Mix for Real Time PCR

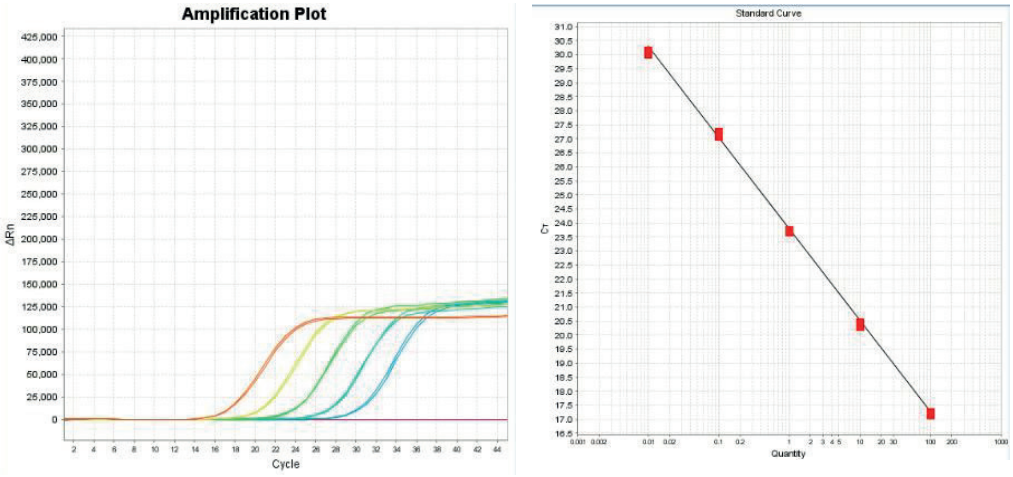
EuroClone qPCR master mixes are ready-to-use 2X solutions optimized for Real Time PCR. The master mixes include Hot Start @Taq DNA Polymerase and dNTPs in an optimized buffer. The SYBR® Master Mix contains the green intercalating dye allowing DNA detection and analysis without using sequence-specific probes. Only template and primers need to be added. The Master Mix for Probe has been formulated for the detection of amplification products with sequence specific fluorogenic probes. Primers, probe and template must be added before use.

Features

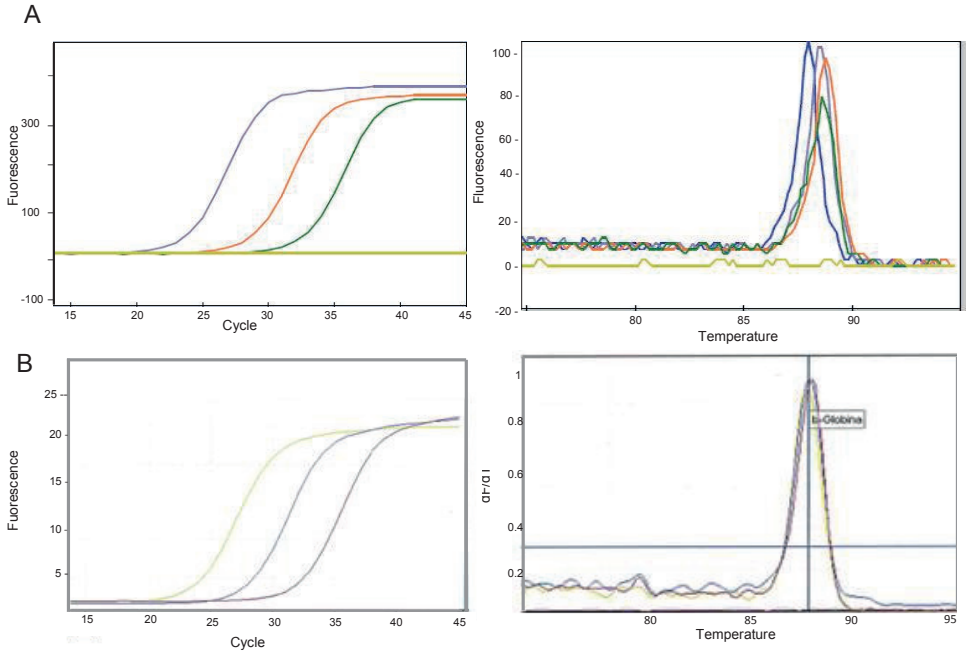
- *Specificity: @Taq Hot Start Polymerase and the optimized buffer eliminate non-specific amplification and formation of primer-dimers*
- *Detection of low copy number targets*
- *Highly reproducibility and minimum hands-on time*
- *Wide linear range*

Cat.	Description	Size
ERD001100BIM	FluoCycle II™ Master Mix for Probe	100 rxns*
ERD001250BIM	FluoCycle II™ Master Mix for Probe	250 rxns*
ERD002100BIM	FluoCycle II™ SYBR® Master Mix	100 rxns*
ERD002250BIM	FluoCycle II™ SYBR® Master Mix	250 rxns*

* Considering a final reaction volume of 50 µl



Linear target amplification with a dynamic range across 5 orders of magnitude of input template.
Amplification plot and standard curve from real-time PCR of a dilution series of human CLUSTERIN cDNA amplified in 3 replicate reactions using the Step One Plus Real-Time PCR System, FluoCycle II Master Mix for Probe and specific clusterin probe.



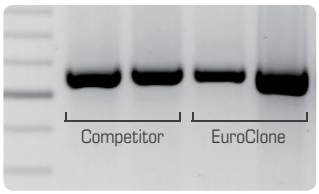
Specific and repoducible qPCR with 2 different instruments using EuroClone FluoCycle II™ Master Mix.
Amplification of the human ß-globin gene gene was performed on serial dilutions of genomic DNA.
A: Cepheid® SmartCycler®
B: Qiagen RotorGene®

EuroScript M-MLV Reverse Transcriptase (RNase H -)
NOT FOR USA MARKET

EuroScript is a genetically modified M-MuLV RT. The enzyme possesses a RNA-dependent and DNA-dependent Polymerase activity, but lacks RNase H activity due to point mutation in the RNase H domain. It does not degrade RNA in RNA-DNA hybrids during synthesis of the first strand cDNA and therefore high yields of full-length cDNA from long templates are obtained. EuroScript maintains activity over a wide temperature range (42-55°C), which makes the enzyme an ideal tool for reverse transcription of RNAs having a high degree of secondary structure. The enzyme is available also in the kit format including oligo dT primer (EMR433200), random hexamers (EMR428200), RNase inhibitor (EMR436050) and dNTP mix (EMR416200).

Features

- *High yields of full-length first strand cDNA up to 13 kb*
- *Optimum activity at 42-45°C*
- *Active up to 55°C*
- *Incorporates modified nucleotides (e.g., Cy3-, Cy5-, rhodamine-, aminoallyl-, fluorescein-labeled nucleotides)*



High Yield of cDNA with EuroSCRIPT
500 ng of total RNA from human myoblasts were denatured at 70°C (lanes 2 and 4) or 65°C (lanes 3 and 5) and incubated with EuroScript or a competitor. Reverse Transcriptase at 50°C (lanes 2 and 4) or 42°C (lanes 3 and 5) according to the product protocol.

Cat.	Description	Size
EMR437050	EuroScript	10.000 units (50 µl)
EMR437250	EuroScript	50.000 units (5 x 50 µl)
EMR435050	EuroScript RT-PCR Kit	50 rxns
EMR435200	EuroScript RT-PCR Kit	200 rxns

EuroRT M-MLV Reverse Transcriptase

EuroRT is a genetically modified M-MLV RT.
It differs from the M-MLV RT by its structure and catalytic properties. The enzyme possesses an RNA-dependent and DNA-dependent polymerase activity and a RNase H activity specific to RNA in RNA-DNA hybrids which is significantly lower than that of Avian Myeloblastosis Virus (AMV) reverse transcriptase. The enzyme is available also in the kit format including oligo dT primer (EMR433200), random hexamers (EMR428200), RNase inhibitor (EMR436050) and dNTP mix (EMR416200).

Features

- *Efficient synthesis of full-length first strand cDNA up to 13 kb*
- *Optimum activity at 42°C*
- *Active up to 50°C*
- *Incorporates modified nucleotides (e.g., Cy3-, Cy5-, rhodamine-, aminoallyl-, fluorescein-labeled nucleotides)*

Cat.	Description	Size
EMR438050	EuroRT	10.000 units (50 µl)
EMR438250	EuroRT	50.000 units (5 x 50 µl)
EMR439050	EuroRT-PCR Kit	50 rxns
EMR439200	EuroRT-PCR Kit	200 rxns

RNase Inhibitor

RNase Inhibitor completely inhibits the activity of RNases A, B and C by non-covalent binding. It binds the RNases in a 1:1 ratio. It does not inhibit the RNases I, T1, T2, H, U1, U2 and CL3.

Cat.	Description	Size
EMR436050	RNase Inhibitor	2.000 units (50 µl)
EMR436250	RNase Inhibitor	10.000 units (250 µl)

Oligo $(dT)_{20}$ Primer and Random Hexamers

Oligo (dT) Primer hybridizes to the poly(A) tail of mRNA and is used as primer for first stand cDNA synthesis with reverse transcriptases. Random Hexamers are a mixture of oligonucleotides representing all possible sequences for an hexamer. Random Hexamers are used in DNA labelling by PCR (DOP-PCR) or cDNA synthesis by RT-PCR.

Cat.	Description	Size
EMR433200	Oligo (dT) Primer 100 µM	200 µl
EMR433001	Oligo (dT) Primer 100 µM	1 ml
EMR428200	Random Hexamers 100 µM	200 µl
EMR428001	Random Hexamers 100 µM	1 ml

dNTPs and NTPs

EuroClone's enzymatic nucleotides manufacturing process and refined purification protocols ensure the highest quality.
All our dNTPs and NTPs are ultrapure (> 99%) and quality checked by a set of PCR, RT-PCR and Klenow reactions.
EuroClone dNTPs and NTPs have the highest purity, are free of strong PCR inhibiting contaminants as tetraphosphates and pyrophosphates.
All lots are checked on HPLC for their purity using a sensitive acetonitrile gradient in 20 mM KH_2PO_4, 2 mM TBA-SO_4 on a Eurospher-100 C18 RP-column (4 x 250 mm). Detection occurs at 254 nm.
EuroClone dNTPs are available as single bases, set or as dNTPs mix.
Individual nucleotides are supplied as single ready-to-use 100 mM solutions or as a 4 x 250 ml set. The dNTP mix consist of a mixture of dATP, dCTP, dGTP and dTTP (final concentration of each nucleotide 10 or 25 mM).

Nucleotide Triphosphates (NTPs) are available as 100 mM ready-to-use solution. Our NTP solutions are optimized for in vitro transcription with the common Polymerases and the major commercially available transcription kits.

Cat.	Description	Size
EMR272025	dATP 100 mM Solution	250 µl (25 µmol)
EMR273025	dCTP 100 mM Solution	250 µl (25 µmol)
EMR274025	dGTP 100 mM Solution	250 µl (25 µmol)
EMR275025	dTTP 100 mM Solution	250 µl (25 µmol)
EMR276425	dNTP set	4 x 250 µl (4 x 25 µmol)
EMR276001	dNTP set	4 x 1 ml (4 x 100 µmol)
EMR415500	dNTP Mix 25 mM solution	500 µl (12.5 µmol)
EMR415001	dNTP Mix 25 mM solution	1 ml (25 µmol)
EMR416200	dNTP Mix 10 mM solution	200 µl (2 µmol)
EMR416001	dNTP Mix 10 mM solution	1 ml (10 µmol)
EMR423001	ATP 100 mM solution	1 ml (100 µmol)
EMR424001	CTP 100 mM solution	1 ml (100 µmol)
EMR425001	GTP 100 mM solution	1 ml (100 µmol)
EMR426001	UTP 100 mM solution	1 ml (100 µmol)

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Quality Management Systems certified according to ISO 9001 and ISO 13485 international standards

Ed0/1114/PR 991 Brochure PCR RT-PCR