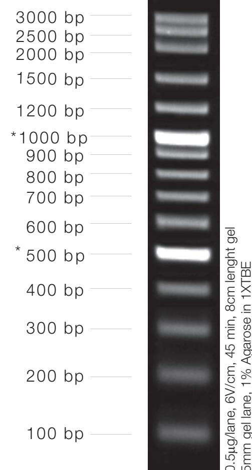
6X Loading Dye

Description:
Used for loading DNA markers and samples in agarose gel. Contains 2 dyes; bromophenol blue and xylene cyanol FF track DNA migration during electropheresis.

Bromophenol blue migrates with the 300bp fragment while xyelene cyanol FF migrates with the 4000bp fragment.

VC 100bp Plus DNA Ladder (*ready-to-use*)

Description:
Serves as molecular weight standard for electrophoresis for both agarose and polycarylamide gels. Suitable for sizing of PCR products or other double-stranded DNA fragments. Fragments with size **500bp** and **1000bp** are higher in intensity in comparison to other bands to serve as orientation points.



Usage recommendation:
Use 0,05-0.1µg of the DNA Marker per 1mm width of gel lane.

Storage Buffer:
10mM Tris-HCl (pH 8.0) and 1mM EDTA.

Product Use Limitation
This products is for research purpose and *in vitro* use only.

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DSPL8881_rev0_010311

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MY PCR KIT 1
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USER'S GUIDE

Catalog No. PL8881
100 applications

Component	Quantity	Lot	Concentration	Expiry Date
2X *Taq* Master Mix (Supplied with:- 4x 0.625ml **2X *Taq* Master Mix*** 3ml of Nuclease-free Water 1ml of 50mM $MgCl_2$)	100rxn	2034	-	November 2016
6X Loading Dye	1ml	4018	6X	January 2017
VC 100bp Plus DNA Ladder (ready-to-use)	25µg	4056	0.1µg/µl	June 2017

*** Store all component at-20ºC**

*** 2X *Taq* Master Mix consists of *Taq* DNA Polymerase (0.05u/µl), 2X ViBuffer A, 0.4mM dNTPs and 3.0 mM $MgCl_2$.**

DNA Amplification HandBook

2X *Taq* Master Mix

Description:

2X *Taq* Master Mix is an optimized ready-to-use 2X concentrated DNA amplification mixture containing *Taq* DNA Polymerase, reaction buffer, dNTPs and $MgCl_2$. It contains all the components required for routine DNA amplification except template and primers

Features:

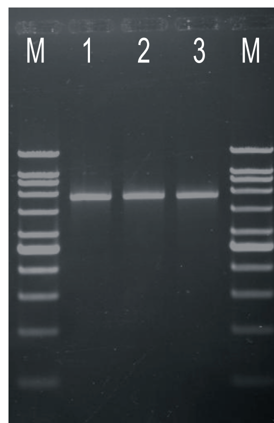
- Saves time and reduces contamination due to reduced number of pipetting steps.
- Stable at 4°C for 6 months, allowing immediate reaction setup without the time-consuming thawing of reagents.
- Suitable for all routine DNA amplification applications.
- Generates mostly 3' dA overhang PCR product which are suitable for TA cloning.

Storage and Stability:

- 2X *Taq* master Mix is stable at -20°C for one year or at 4°C for 6 months if properly stored.
- 2X *Taq* Master Mix is stable for 20 freeze-thaw cycles. To avoid frequent freeze-thaw, keeping small aliquot at-20°C is recommended.
- For daily use, keeping an aliquot at 4°C is recommended.

Quality Control :

All preparations are assayed for contaminating endonuclease, exonuclease, and non-spesific Dnase activities. Functionally tested in DNA amplification



Amplification of 5kb DNA fragment from lambda DNA using 2X Taq Master Mix in a 50µl reaction mixture.

Lane M : VC 1kb DNA Ladder
Lane 1 : DNA amplification product generated with 1.25u of *Taq* DNA Polymerase.
Lane 2 : DNA amplification product generated with 2X *Taq* Master Mix (store at -20°C)
Lane 3 : DNA amplification product generated with 2X *Taq* master Mix (after 20 freezer-thaw cycles)

0.7% TAE agarose gel

RECOMMENDED PROTOCOL FOR 2X *Taq* Master Mix:

Gently mix all solution after thawing. Spin down briefly and keep on ice.
Add the following components in a 0.2ml thin walled PCR tube on ice:

For 50µl reaction volume :

Reagent:	Volume	Final Concentration
2X *Taq* Master Mix	25µl	*1X
$MgCl_2$ (50mM)	Refer to Table (A)	**For more than 1.5mM $MgCl_2$
Primer (Fwd / Rev)	Variable	0.1 - 1µM each
DNA Template	Variable	0.02 - 5µg
Water, nuclease-free	Adjust final volume to 50µl	

* 1.25 unit Taq DNA Polymerase, 1X ViBuffer A, 0.2mM dNTPs and 1.5mM $MgCl_2$.
** 2X Taq master Mix contains a fixed final $MgCl_2$ concentration of 1.5mM. However, higher concentration may be achieved by adding addtional $MgCl_2$. Please refer to Table (A) if higher $MgCl_2$ concentration is preferred.

Note : Smaller reaction volume may be achieved provided that the same final concentration of each reaction component is maintained.

CYCLING CONDITIONS (100bp - 5kb)		
Denaturation	94 °C for 2 minutes	
Denaturation	94 °C for 20 seconds	25 - 38 cycles
Annealing	50 - 68 °C for 30 seconds	25 - 38 cycles
Extension / 1kb	72 °C for 30 seconds	25 - 38 cycles
Final Extension	72 °C for 7 minutes	

* **This protocol may change depending on the template DNA and primers used.**

Table (A): For more than 1.5mM final $MgCl_2$ concentration

Volume of $MgCl_2$ (50mM) stock to add into 50µl reaction mixture (µl)	Final $MgCl_2$ concentration (mM)
0.5	2.0
1.0	2.5
1.5	3.0
2.0	3.5
2.5	4.0

2mM dNTP Mix

Description:
dNTP Mix is an aqueous solution containing dATP, dCTP, dGTP and dTTP, each in a final concentration of 2mM.

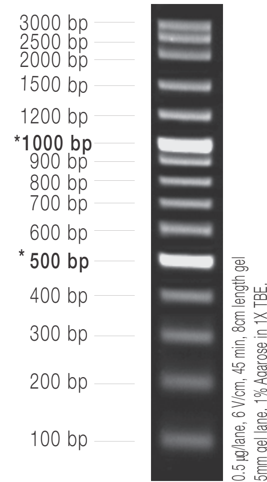
Quality Control: Functionally tested in PCR with *Taq* and *Pfu* DNA Polymerases, Purity of each dNTP >98%by HPLC.

VC 100bp Plus DNA Ladder *(ready-to-use)*

Description :
Serves as molecular weight standart for electrophoresis for both agarose and polyacrylamide gels. Suitable for sizing of PCR products or otherdouble-stranded DNA fragments. Fragments withsize **500bp** and **1000bp** are higher in intensity incomparison to other bands to serve as oreintation points.

Usage recommendation:
Use 0.5µg of the DNA marker per 1mm width of gel lane.

Storage Buffer :
10mM Tris-HCl (pH 8.0) and 1mM EDTA.



Product Use Limitation
This product is for research purposes and *in vitro* use only

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DSPL8882_rev0_010312

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MY PCR KIT 2
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USER'S GUIDE

Catalog No. PL8882
100 applications

Component	Quantity	Lot	Concentration	Expiry Date
Chromo *Taq* DNA Polymerase (Supplied with:- 2ml of 10X ViBuffer A, 1ml of 10X ViBuffer S, 1ml of 50mM $MgCl_2$)	200u	2020	1µl/µl	December 2016
2mM dNTP Mix	1ml	4035	2mM	May 2017
VC 100bp Plus DNA Ladder (ready-to-use)	25µg	4056	0.1µg/µl	June 2017

*** Store all component at-20°C**

DNA Amplification HandBook

Chromo*Taq* DNA Polymerase (recombinant)

Description:

Chromo*Taq* DNA Polymerase is a thermostable DNA polymerase. It is suitable for applications requiring high temperature synthesis of DNA. *Taq* DNA Polymerase catalyzes the polymerization of nucleotides into duplex DNA in the 5' to 3' direction with the presence of Mg^{2+} but maintains the 5' to 3' exonuclease activity. The enzyme is supplemented with indicators for ease of visualization of the addition of polymerase to the reaction.

Features:

- Color tracer dyes for ease of visualization of the addition of polymerase to the reaction.
- Ultra pure recombinant protein.
- Replicates DNA at 74°C and exhibits a half-life 40 minutes at 95°C.
- Generates mostly 3' dA overhang PCR products which are suitable for TA cloning.

Unit Definition:

1u is defined as amount of enzyme that required to catalyze the incorporation of 10nmoles of dNTP into acid-insoluble material in 30 minutes at 74°C.

Reaction Buffer:

10X ViBuffer A *(without $MgCl_2$)*:

500mM KCl, 100mM Tris-HCl (pH 9.1 at 20°C) and 0.1% Triton™X-100. The buffer is optimized for use with 0.1 - 0.2mM of each dNTP.

Storage Buffer:

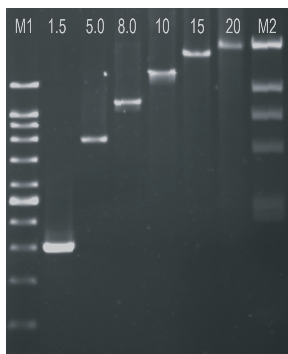
20mM Tris-HCl (pH 8.0 at 22°C), 100mM KCl, 0.5% Tween™ 20, 0.5% Nonidet-P40, 0.1mM EDTA, 1mM DTT and 50% glycerol.

10X ViBuffer S:

160mM $(NH_4)_2SO_4$, 500mM Tris-HCl (pH 9.2 at 22°C), 17.5mM $MgCl_2$ and 0.1% Triton™X-100. The buffer is optimized for use with 0.35mM of each dNTP.

Quality Control:

All preparations are assayed for contaminating endonuclease, exonuclease, and non-specific DNase activities. Functionally tested in DNA amplification.



Amplification Using Vivantis Chromo*Taq* DNA Polymerase

Lane M1 : VC 1kb DNA Ladder

Lane 1.5kb : 1.5kb PCR product generated using 0.2mM dNTPs and 2.0u Vivantis *Taq* DNA Polymerase.

Lane 5kb and 8kb : 5kb and 8kb PCR products generated using 0.25mM dNTPs, 2.5u Vivantis *Taq* DNA Polymerase and 3% formamide.

Lane 10kb-20kb : 10kb, 15kb and 20kb PCR products generated using 0.36mM dNTPs, 2.5u Vivantis *Taq* DNA Polymerase and 3% formamide.

Lane M2 : VC Lambda / *Hind*III Marker

0.5% TAE agarose gel, 5V/cm

SUGGESTED INITIAL PCR CONDITIONS FOR VARIOUS PCR PRODUCT SIZES WITH CHROMO *TAQ* DNA POLYMERASE

REACTION MIX (FINAL CONCENTRATION):

Primers: 0.2 -1µM

Template: Plasmid (0.02 - 2 ng)
Lambda (0.1 - 150 ng)
Genomic (0.05 - 5 µg)

Product Size	100bp – 5kb	5kb – 8kb	8kb – 20kb
dNTP Mix	100 µM	200 µM	360 µM
ViBuffer (1X)	A	A	S
Ultrapure DMSO or formamide	--	3%	3%
DNA Polymerase	Refer to the below Table (A)		

Product Size	100bp – 5kb	5kb – 8kb	8kb – 20kb
Denaturation	94°C, 2 min	94°C, 2 min	94°C, 2 min
Denaturation	94°C, 30 s	94°C, 12s	94°C, 12s
Annealing*	50 - 68°C, 30 s	50 - 68°C, 30 s	50 - 68°C, 30 s
Extension / 1kb	72°C, 30 s	72°C, 45 s	68°C, 1 min
Cycles	25 - 35	25 - 35	25 - 35
Final Extension	72°C, 7 min	72°C, 7 min	68°C, 7 min

*Primer dependent

TABLE (A) - RECOMMENDED UNITS FOR SPECIFIC CHROMO*TAQ* DNA POLYMERASES PER 50µL REACTION VOLUME:

Product Size	Chromo*Taq* DNA Polymerase
0.1 - 5.0kb	2.0
5.0 - 8.0kb	2.5
8.0 - 20.0kb	2.5
+20.0kb	--

* This protocol is subjected to changes depending on the template DNA.

6X Loading Dye

Description:
Used for loading DNA markers and samples in agarose gel. Contains 2 dyes; bromophenol blueand xylene cyanol FF track DNA migration during electropheresis.

Bromophenol blue migrates with the 300bp fragment while xyelene cyanol FF migrates with the 4000bp fragment.

2mM dNTP Mix

Description:
dNTP Mix is an aqueous solution containing dATP, dCTP, dGTP and dTTP, each in a final concentration of 2mM.

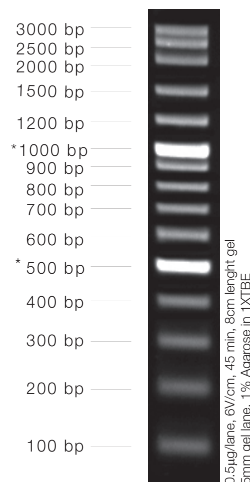
Quality Control:
Functionally tested in PCR with Taq and Pfu DNA Polymerases, Purity of each dNTP >98%by HPLC.

VC 100bp Plus DNA Ladder (*ready-to-use*)

Description:
Serves as molecular weight standard for electrophoresis for both agarose and polycarylamide gels. Suitable for sizing of PCR products or other double-stranded DNA fragments. Fragments with size **500bp** and **1000bp** are higher in intensity in comparison to other bands to serve as orientation points.

Usage recommendation:
Use 0,05-0.1µg of the DNA Marker per 1mm width of gel lane.

Storage Buffer:
10mM Tris-HCl (pH 8.0) and 1mM EDTA.



Product Use Limitation
This products is for research purpose and *in vitro* use only.

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MY PCR KIT 3
(Fast - Convenient - Value)
USER'S GUIDE

Catalog No. PL8883

100 applications

Component	Quantity	Lot	Concentration	Expiry Date
Taq DNA Polymerase (Supplied with:- 2ml of 10X ViBuffer A 1ml of 10X ViBuffer S 1ml of 50mM $MgCl_2$)	200u	2225	5u/µl	January 2017
6X Loading Dye	1ml	4018	6X	January 2017
2mM dNTP Mix	1ml	4037	-	April 2016
VC 100bp Plus DNA Ladder (ready-to-use)	25µg	4052	0.1µg/µl	February 2017

*** Store all components at -20°C**

DNA Amplification HandBook

Taq DNA Polymerase (recombinant)

Description:
Taq DNA Polymerase is a thermostable DNA polymerase. It is suitable for applications requiring high temperature synthesis of DNA. *Taq* DNA Polymerase catalyzes the polymerization of nucleotides into duplex DNA in the 5' to 3' direction with the presence of Mg^{2+} but maintains the 5' to 3' exonuclease activity. The enzyme is supplemented with indicators for ease of visualization of the addition of polymerase to the reaction.

Features:
- Color tracer dyes for ease of visualization of the addition of polymerase to the reaction.
- Ultra pure recombinant protein.
- Replicates DNA at 74°C and exhibits a half-life 40 minutes at 95°C.
- Generates mostly 3' dA overhang PCR products which are suitable for TA cloning.

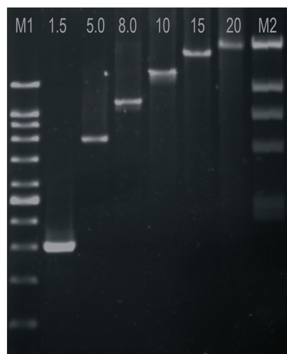
Unit Definition:
1u is defined as amount of enzyme that required to catalyze the incorporation of 10nmoles of dNTP into acid-insoluble material in 30 minutes at 74°C.

Reaction Buffer:
10X ViBuffer A *(without $MgCl_2$):*
500mM KCl, 100mM Tris-HCl (pH 9.1 at 20°C) and 0.1% Triton™X-100. The buffer is optimized for use with 0.1 - 0.2mM of each dNTP.

10X ViBuffer S:
160mM $(NH_4)_2SO_4$, 500mM Tris-HCl (pH 9.2 at 22°C), 17.5mM $MgCl_2$ and 0.1% Triton™ X-100. The buffer is optimized for use with 0.35mM of each dNTP.

Storage Buffer:
20mM Tris-HCl (pH 8.0 at 22°C), 100mM KCl, 0.5% Tween™ 20,0.5% Nonidet-P40, 0.1mM EDTA, 1mM DTT and 50% glycerol.

Quality Control:
All preparations are assayed for contaminating endonuclease, exonuclease, and non-specific DNase activities. Functionally tested in DNA amplification.



Amplification Using Vivantis *Taq* DNA Polymerase

Lane M1	:	VC 1kb DNA Ladder
Lane 1.5kb	:	1.5kb PCR product generated using 0.2mM dNTPs and 2.0u Vivantis *Taq* DNA Polymerase.
Lane 5kb and 8kb	:	5kb and 8kb PCR products generated using 0.25mM dNTPs, 2.5u Vivantis *Taq* DNA Polymerase and 3% formamide.
Lane 10kb-20kb	:	10kb, 15kb and 20kb PCR products generated using 0.36mM dNTPs, 2.5u Vivantis *Taq* DNA Polymerase and 3% formamide.
Lane M2	:	VC Lambda / *Hind*III Marker

0.5% TAE agarose gel, 5V/cm

SUGGESTED INITIAL PCR CONDITIONS FOR VARIOUS PCR PRODUCT SIZES WITH *TAQ* DNA POLYMERASE

REACTION MIX (FINAL CONCENTRATION):

Primers: 0.2 -1μM Template: Plasmid (0.02 - 2 ng) Lambda (0.1 - 150 ng) Genomic (0.05 - 5 μg)	Product Size	100bp – 5kb	5kb – 8kb	8kb – 20kb
	dNTP Mix	100 μM	200 μM	360 μM
	ViBuffer (1X)	A	A	S
	Ultrapure DMSO or formamide	--	3%	3%
	DNA Polymerase	Refer to the below Table (A)		

Product Size	100bp – 5kb	5kb – 8kb	8kb – 20kb
Denaturation	94°C, 2 min	94°C, 2 min	94°C, 2 min
Denaturation	94°C, 30 s	94°C, 12s	94°C, 12s
Annealing*	50 - 68°C, 30 s	50 - 68°C, 30 s	50 - 68°C, 30 s
Extension / 1kb	72°C, 30 s	72°C, 45 s	68°C, 1 min
Cycles	25 - 35	25 - 35	25 - 35
Final Extension	72°C, 7 min	72°C, 7 min	68°C, 7 min

*Primer dependent

TABLE (A) - RECOMMENDED UNITS FOR SPECIFIC *TAQ* DNA POLYMERASES PER 50μL REACTION VOLUME:

Product Size	*ChromoTaq* DNA Polymerase
0.1 - 5.0kb	2.0
5.0 - 8.0kb	2.5
8.0 - 20.0kb	2.5
+20.0kb	--

* This protocol is subjected to changes depending on the template DNA.