

### PCR with a smile



## Life can be simple PCR too!

PCR is an invaluable tool in molecular biology research, and at the heart of this application is the DNA polymerase. At Vivantis Technologies, we believe that a successful PCR starts with quality Polymerases. You can choose from a premium selection of our polymerases, for standard PCR or Multiplex PCR, to Hot-Start PCR applications. It is our goal to make PCR a simple and easy process for researchers around the world. With Vivantis Technologies, PCR will be a walk in the park.

#### **Taq DNA Polymerase**

Highly purified *Taq* for standard PCR applications

**Chromo Taq DNA Polymerase**

#### **MaxTaq DNA Polymerase**

Modified and optimized *Taq* for difficult template and improve yield.

**Chromo MaxTaq DNA Polymerase**

#### **AtTaq DNA Polymerase**

Antibody based Hot-Start *Taq* for amplification with enhanced specificity and sensitivity.

**Chromo AtTaq DNA Polymerase**

#### **AtMax Taq DNA Polymerase**

High fidelity antibody based Hot-Start *Taq* for long amplicon.

#### **Pfu DNA Polymerase**

High fidelity polymerase exhibits 3' to 5' proofreading properties.

**Chromo Pfu DNA Polymerase**

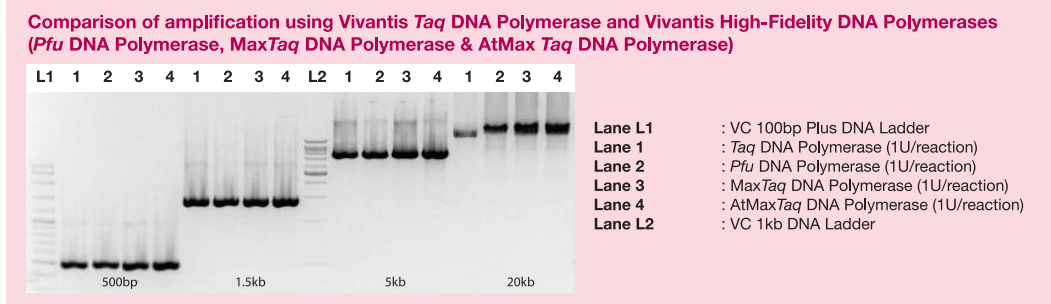
The Chromo DNA Polymerase series is a blend of polymerase with inert colour tracer dyes for easy visualization of the addition of polymerase to the reaction and serve as tracking dye during PCR.

## High Fidelity DNA Polymerases

High-Fidelity DNA Polymerases are DNA polymerases which have thermostable properties with 5' to 3' polymerase activity as well as 3' to 5' exonuclease activity which are important for proofreading amplification (the DNA sequence needs to be correct after amplification).

DNA Polymerases available:

- **Pfu DNA Polymerase**
- **MaxTaq DNA Polymerase**
- **AtMax Taq DNA Polymerase**



### Pfu DNA Polymerase (*Pyrococcus furiosus*)

Pfu DNA Polymerase is an extremely thermostable proofreading DNA polymerase, suitable for applications requiring high temperatures synthesis of DNA. Pfu DNA Polymerase catalyzes the polymerization of nucleotides into duplex DNA in the 5' to 3' direction with the presence of  $Mg^{2+}$ . It exhibits the 3' to 5' proofreading activity.

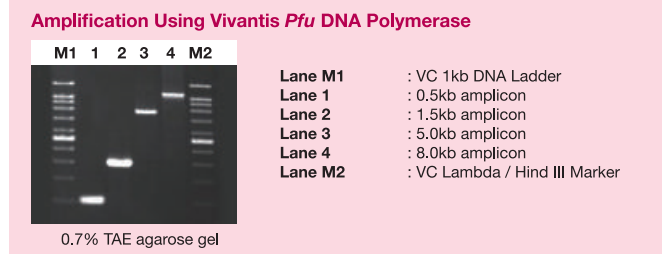


#### Features

- Ultra pure recombinant protein allows amplification up to 8kb.
- 10X ViBuffer S provided for amplification of more than 5kb amplicon.

#### Ordering information:

Catalogue No.	Description	Pack Size
PL5201	Pfu DNA Polymerase	100u, 5u/μl
PL5202	Pfu DNA Polymerase	500u, 5u/μl



### MaxTaq DNA Polymerase

MaxTaq DNA Polymerase is a modified and optimized thermostable enzyme blend containing Taq DNA Polymerase, Pfu DNA Polymerase and enhancing factors. It exhibits the 3' to 5' proofreading activity, resulting in considerably higher amplification fidelity than possible with unmodified Taq DNA Polymerase. Recommended for use in amplification to obtain DNA products up to 20kb.

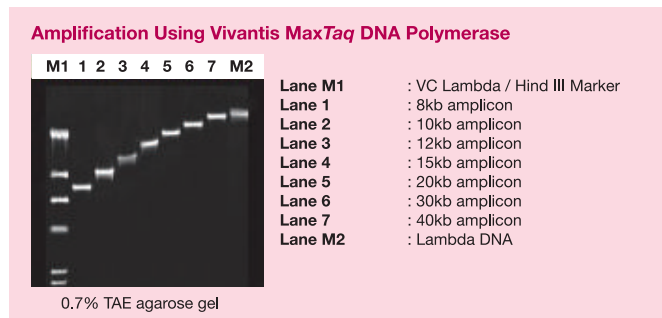


#### Features

- Ultra pure recombinant protein allows amplification up to 20kb.
- 10X ViBuffer S provided for amplification of more than 5kb amplicon.
- Excellent for multiplex amplification as it exhibits wider tolerance for  $Mg^{2+}$  and salt concentrations.
- Improves amplification result with critical templates, such as those containing GC-rich regions, palindromes or multiple repeats.
- Increased amplification product yields and purify.
- Generates a mixture of blunt end and 3' dA overhang amplification products, majority of the products are blunt ended.

#### Ordering information:

Catalogue No.	Description	Pack Size
PL2201	MaxTaq DNA Polymerase	200u, 5u/μl
PL2202	MaxTaq DNA Polymerase	500u, 5u/μl

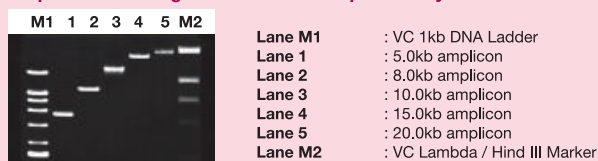


## AtMax Taq DNA Polymerase (Hot Start Long Amplification)

AtMax Taq DNA Polymerase is a mixture of thermostable Taq DNA Polymerase, proofreading Pfu DNA Polymerase, anti-Taq DNA Polymerase antibodies, reversible inhibitors and enhancers for automatic "Hot Start" amplification. It exhibits the 3' to 5' proofreading activity, resulting in considerably higher amplification fidelity than possible with unmodified Taq DNA Polymerase. Recommended for use in amplification to obtain DNA products up to 20kb with stringent amplification specificity, sensitivity, fidelity and yield.



### Amplification Using Vivantis AtMax Taq DNA Polymerase



### Ordering information:

Catalogue No.	Description	Pack Size
PL4201	AtMax Taq DNA Polymerase	200u, 5u/μl
PL4202	AtMax Taq DNA Polymerase	500u, 5u/μl

### Features

- Ultra pure recombinant protein is reversibly complexed with an anti-Taq monoclonal antibody that blocks replication activity of the enzyme at moderate temperatures.
- Excellent for multiplex amplification as it exhibits wider tolerance for Mg<sup>2+</sup> and salt concentrations.
- Improves amplification results with critical templates, such as those containing GC-rich regions, palindromes or multiple repeats.
- 10X ViBuffer S provided for amplification of more than 5kb amplicon.

## Selection Chart

DNA Polymerases Selection Chart					
Properties	Taq DNA Polymerase	MaxTaq DNA Polymerase	AtTaq DNA Polymerase	AtMax Taq DNA Polymerase	Pfu DNA Polymerase
Half Life	50 cycles	> 50 cycles	50 cycles	> 50 cycles	50 cycles
Target Length	Up to 8kb	Up to 40kb	Up to 15kb	Up to 20kb	Up to 8kb
Error Rate	1-2 x 10 <sup>-5</sup>	1 x 10 <sup>-6</sup>	1-2 x 10 <sup>-5</sup>	1 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>
Units / 50μl Reaction	2.0U	0.5-2.0U	2.0U	0.5-2.0U	0.5-1.0U
Hot Start			Yes	Yes	
Proofreading Activity		Yes		Yes	Yes
Fidelity vs Taq	1X	8-10X	1X	8-10X	2-3X
PCR Product End	3'A	Blunt / 3'A	3'A	Blunt / 3'A	Blunt
High Yield		Yes		Yes	
High Fidelity		Yes		Yes	Yes
High Throughput				Yes	
Applications					
Routine PCR	Yes	Yes	Yes	Yes	Yes
Long PCR		Yes		Yes	
Colony PCR	Yes		Yes		
TA Cloning	Yes		Yes		
GC-rich Targets	Yes	Yes		Yes	
Long Amplicon		Yes		Yes	
DNA-labeling			Yes		
Palindrome / Multiple Repeats		Yes		Yes	
Multiplex Amplification		Yes	Yes	Yes	
Ordering Information					
Catalog No / Pack size	PL1202 – 500u	PL2201 – 200u	PL3201 – 200u	PL4201 – 200u	PL5201 – 100u
Catalog No / Pack size	PL1204 – 2 x 1000u	PL2202 – 500u	PL3202 – 500u	PL4202 – 500u	PL5202 – 500u
Chromo DNA Polymerases Selection Chart					
Ordering Information					
Catalog No / Pack size	PL1205 – 200u	PL2205 – 200u	PL3205 – 200u		PL5205 – 100u
Catalog No / Pack size	PL1206 – 500u	PL2206 – 500u	PL3206 – 500u		PL5206 – 500u

## 2X ViRed Taq Master Mix **New!**

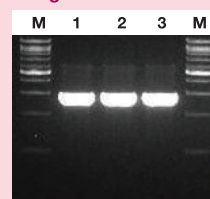
### Features

- Suitable for all routine DNA amplification applications
- Stable at 4°C for 6 months, allowing immediate reaction setup without the time-consuming thawing of reagents
- Reduces set-up time and buffer-dye mixing
- Minimizes potential contamination by eliminating several pipetting steps
- Easy confirmation of complete mixing
- No additional loading dye needed – direct loading of final products onto gels
- Generates mostly 3'dA overhang PCR products which are suitable for TA cloning

### Ordering information:

Catalogue No.	Description	Pack Size
CLMM01	2X ViRed Taq Master Mix	100 applications

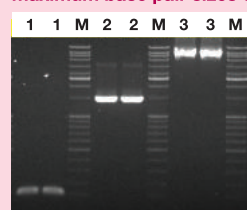
### Amplification of 1.5kb DNA fragment from pTZ region DNA using Vivantis 2X ViRed Taq Master Mix



1.0 % TBE agarose gel

- 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 ViRed Taq Master Mix (stored at -20°C)  
**Lane 3** : DNA amplification product generated with 2X ViRed Taq Master Mix (after 20 freeze-thaw cycles)

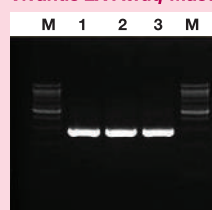
### Efficiency analysis of Vivantis 2X ViRed Taq Master Mix – minimum & maximum base pair sizes of PCR products generated



1.0 % TBE agarose gel

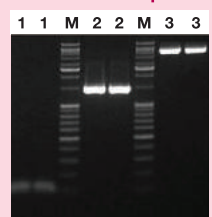
- Lane M** : VC DNA Ladder Mix  
**Lane 1** : DNA amplification product at 100bp generated with 2X ViRed Taq Master Mix  
**Lane 2** : DNA amplification product at 1.5kb generated with 2X ViRed Taq Master Mix  
**Lane 3** : DNA amplification product at 5kb generated with 2X ViRed Taq Master Mix

### Amplification of 1.5kb DNA fragment from pTZ region using Vivantis 2X AtTaq Master Mix



- Lane M** : VC 1kb DNA Ladder  
**Lane 1** : DNA amplification product generated with 1.25U of AtTaq DNA Polymerase  
**Lane 2** : DNA amplification product generated with 2X AtTaq Master Mix (stored at -20°C)  
**Lane 3** : DNA amplification product generated with 2X AtTaq Master Mix after 20 freeze-thaw cycles)

### Efficiency analysis of Vivantis 2X AtTaq Master Mix - minimum and maximum base pair size of PCR product generated



- Lane M** : VC DNA Ladder Mix  
**Lane 1** : DNA amplification 100bp product generated with 2X AtTaq Master Mix  
**Lane 2** : DNA amplification 1.5kb product generated with 2X AtTaq Master Mix  
**Lane 3** : DNA amplification 5kb product generated with 2X AtTaq Master Mix

## 2X AtTaq Master Mix (Hot Start) **New!**

### 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
- Amplification with enhanced specificity, sensitivity and yield
- Amplification with reduced artifacts, such as primer-dimer formation and mispriming in multiplex amplification

### Ordering information:

Catalogue No.	Description	Pack Size
PLMM02	2X AtTaq Master Mix	100 applications

## 2X Taq Master Mix

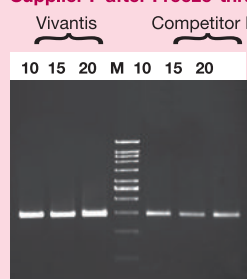
### Features

- Convenient: Ready to Use
- TA cloning Compatible: Generates 3'dA overhangs
- Saves time: Reduced number of pipetting steps
- Stable: Freeze-thaw up to 20 cycles
- Reproductive: Decreases contamination & error rate

### Ordering information:

Catalogue No.	Description	Pack Size
PLMM01	2X Taq Master Mix	100 applications

### Comparison of Efficiency between Vivantis 2X Taq Master Mix with Supplier F after Freeze-thaw cycles



- Lane M** : VC 1kb DNA Ladder  
**Lane 1** : DNA amplification product generated with 2X Taq Master Mix (after 10 freeze-thaw cycles)  
**Lane 2** : DNA amplification product generated with 2X Taq Master Mix (after 15 freeze-thaw cycles)  
**Lane 3** : DNA amplification product generated with 2X Taq Master Mix (after 20 freeze-thaw cycles)

### Amplification of 5Kb DNA Fragment from lambda DNA Using Vivantis 2X Taq Master Mix



- 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 (stored at -20°C)  
**Lane 3** : DNA amplification product generated with 2X Taq Master Mix (after 20 freeze-thaw cycles)

Vivantis  
 2X ViRed Taq Master Mix  
 2X AtTaq Master Mix/  
 2X Taq Master Mix



Primers & Template