

# USB® RubyTaq™ DNA Polymerase



## Streamlined convenience - easy-to-see, easy-to-load!

- Load directly to gel from thermal cycler.
- No additional loading buffer is needed.
- RubyTaq separates into 2 colors – magenta and yellow – during gel electrophoresis.

RubyTaq DNA Polymerase contains high-quality USB Taq DNA Polymerase with two inert dyes that serve as tracking dyes in gel electrophoresis. This greatly simplifies analysis of PCR reactions because no loading dye or compounds that increase sample density need to be added prior to gel electrophoresis. During gel electrophoresis, RubyTaq separates into 2 colors, magenta and yellow, for easy visualization (Fig. 1). The magenta dye runs in a range between 500 bp (2% gels) and 1500 bp (0.8% gels) and the yellow dye runs at less than 10 bp.

Because the dyes are inert during PCR, RubyTaq DNA Polymerase provides the same outstanding performance as standard USB Taq PCR Master Mix (Fig. 2). In addition, the dyes do not effect the migration rates of DNA and have no effect on the following procedures:

- PCR with co-solvents (e.g., betaine and DMSO)
- Restriction digestion
- Automated or manual DNA sequencing
- Ligation-based or topoisomerase-based (TOPO®) TA cloning
- ExoSAP-IT® PCR Cleanup

If the dyes must be removed prior to another application (e.g., *in vitro* transcription), use phenol/chloroform extraction and ethanol precipitation, or a commercially available dye removal purification product.

RubyTaq DNA Polymerase has been designed to streamline high-throughput PCR applications and provides for robust and reliable performance. RubyTaq DNA Polymerase is supplied with 10X PCR Buffer (without MgCl<sub>2</sub>) and a separate tube of 25 mM MgCl<sub>2</sub>.

## Source:

*E. coli* strain expressing a clone of Taq DNA Polymerase from *Thermus aquaticus*<sup>(1-3)</sup>.

## Properties:

Activator: Mg<sup>2+</sup>

## Purity:

Free from detectable non-specific nucleases.

## Storage buffer:

20 mM Tris-HCl, pH 8.5, 1 mM DTT, 0.1 mM EDTA, 50 mM KCl, 50% glycerol, inert dyes, and stabilizers.

## Unit definition:

One unit incorporates 10 nmol of total nucleotides into acid-insoluble material in 30 minutes at 74°C in a total volume of 50 µl.

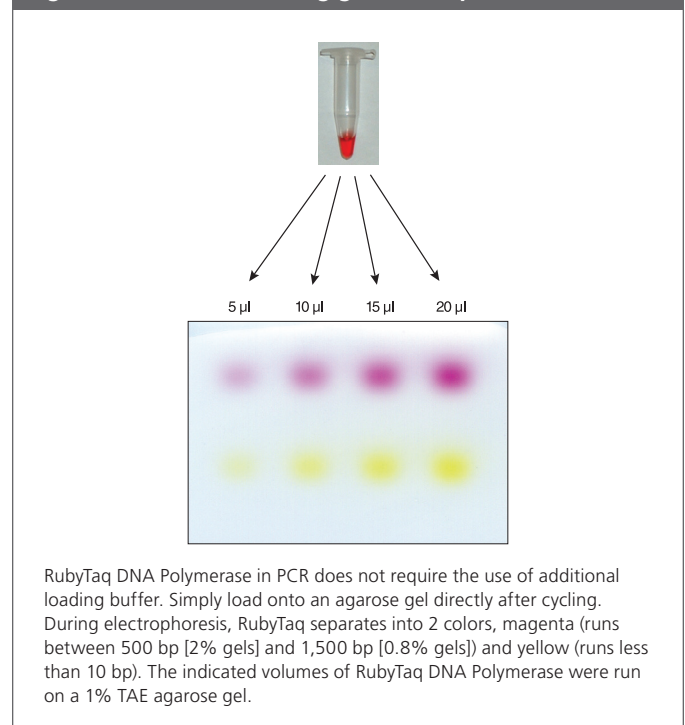
## Concentration:

1 unit/µl

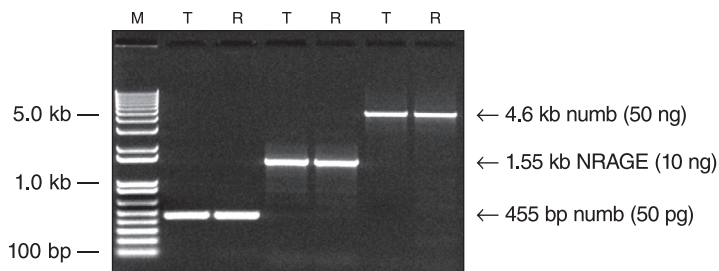
## Assay conditions:

The reaction mixture (50 µl) contains 25 mM TAPS, pH 9.3 (at 25°C), 50 mM KCl, 2 mM MgCl<sub>2</sub>, 1 mM 2-mercaptoethanol, 200 µM dNTPs, 250 µg/ml activated salmon sperm DNA and cloned RubyTaq DNA Polymerase. After incubation at 74°C for 10 minutes, acid-insoluble material is determined.

Fig. 1. Visualization during gel electrophoresis



**Fig. 2. Performance of RubyTaq DNA Polymerase versus Taq DNA Polymerase**



Single-copy targets were amplified from the indicated amounts of human genomic DNA. For the 455 bp numb amplicon, 50 pg of template represents about 30 total target copies in the reaction. T is Taq DNA Polymerase, R is RubyTaq DNA Polymerase, and M is the DNA marker.

**Tested User Friendly functional test:**

Functionally tested for PCR.

**Functionally tested 10X PCR Reaction Buffer without MgCl<sub>2</sub> (included, PN 71166):**

100 mM Tris-HCl (pH 8.6) and 500 mM KCl

**Functionally tested MgCl<sub>2</sub> (included, PN 71167):**

25 mM solution

**Shipping and storage:**

Shipped on dry ice. Store at -20°C.

**Applications:**

- Routine PCR amplification
- TA-vector cloning
- Amplification prior to *in vitro* transcription

**RubyTaq DNA Polymerase**

Product code	Pack size
71190	50 units
	250 units
	1,000 units
	5,000 units

**References:**

1. Innis, M. A., Myambo, K. B., Gelfand, D. H. and Brow, M. A. (1988) *Proc. Natl. Acad. Sci.* **85**, 9436-9440.
2. Lawyer, F. C., Stoffel, S., Saiki, R. K., Myambo, K., Drummond, R. and Gelfand, D. H. (1989) *J. Biol. Chem.* **264**, 6427-6437.
3. Innis, M. A. and Gelfand, D. H. (1990) *PCR Protocols: A Guide to Methods and Applications*, Academic Press.

For research use only. Not for use in diagnostic procedures.

Affymetrix, USB and ExoSAP-IT are registered trademarks of Affymetrix, Inc. RubyTaq, Tested User Friendly and Genetic Performance Certified are trademarks of Affymetrix, Inc. Exonuclease I/Shrimp Alkaline Phosphatase—This product is licensed under US Patent Nos. 5,741,676 and 5,756,285, and corresponding patents issued in other countries. Purchase of this product includes a license to use this product in a restricted way within the scope of rights granted to USB by GE Healthcare. No other license is granted to the purchaser either directly or by implication, estoppel or otherwise. ExoSAP-IT is covered by US Patent Nos. 6,379,940 and 6,387,634. Taq DNA Polymerase—sold under licensing arrangements with Applied Biosystems. Purchase is accompanied by a limited license to use it in the Polymerase Chain Reaction (PCR) process in conjunction with a thermal cycler whose use in the automated performance of the PCR process is covered by the up-front license fee, either by payment to Perkin-Elmer or as purchased, *i.e.*, an authorized thermal cycler.

**Related products:**

**Shrimp Alkaline Phosphatase, Recombinant (rSAP) [78390]**

- 500 units
- 1,000 units
- 5,000 units

**Agarose - Separation ≥ 500 bp [75817]**

*Genetic Performance Certified™*

- 25 gm
- 100 gm
- 250 gm
- 500 gm

**Agarose - LE [32802]**

- 25 gm
- 100 gm
- 250 gm
- 500 gm
- 1 kg

**PCR Nucleotide Mix, 10 mM [77212]**

500 µl

**ExoSAP-IT® PCR Product Cleanup**

- [78250] 20 reactions
- [78200] 100 reactions
- [78201] 500 reactions
- [78202] 2,000 reactions
- [78205] 5,000 reactions

**Affymetrix, Inc.**

**USB® Products**

26111 Miles Road  
Cleveland Ohio 44128  
Tel: 800-321-9322 | 216-765-5000  
Fax: 800-535-0898 | 216-464-5075  
USBcustomerserv@affymetrix.com  
[usb.affymetrix.com](http://usb.affymetrix.com)

**Affymetrix UK Ltd.**

**USB® Products**

Voyager, Mercury Park,  
Wycombe Lane, Wooburn Green,  
High Wycombe HP10 0HH, United Kingdom  
Tel: +44 (0)1628 55 2600  
Fax: +44 (0)1628 55 2675  
USBcustomerserveurope@affymetrix.com

**Affymetrix Pte Ltd**

**USB® Products**

7 Gul Circle, #2M-01  
Keppel Logistics Building  
Singapore 629563  
Tel: +65 63957301  
Fax: +65 63957300  
USBcustomerserv@affymetrix.com