

Red Hot *Taq* DNA Polymerase

Description: Red Hot® *Taq* DNA Polymerase is the original ‘red’ thermostable DNA polymerase. It consists of ThermoPrime *Taq* DNA Polymerase containing an inert red dye to facilitate accurate low volume pipetting and as an indicator of enzyme addition. This dye has no adverse effect on the outcome of PCR. The enzyme exhibits enhanced thermal stability at DNA denaturation temperatures and can be shipped at ambient temperature with no loss of activity. It is licensed and optimized for use in the Polymerase Chain Reaction (PCR) process.

Concentration: 5 units/µl

Unit Definition: One unit of enzyme is defined as the amount that will incorporate 10nmoles of dNTPs into acid insoluble material in 30 minutes at 74°C under the analysis conditions below.

Associated Activities: Red Hot® *Taq* DNA Polymerase has 5' to 3' polymerization and exonuclease activity but lacks 3' to 5' exonuclease activity (proofreading).

Kit Contents

| Vial (cap color) | Pack Size | | |
|--|-----------|------------|-------------|
| | A | B | C |
| Red Hot DNA Polymerase (clear) | 20µl | 100µl | 10 x 100µl |
| Reaction Buffer IV with 15mM MgCl ₂ (red) | 1.25ml | 2 x 1.25ml | 20 x 1.25ml |

| | | |
|-------------------|-----------|--|
| <u>Polymerase</u> | 100mM | KCl |
| <u>Buffer:</u> | 20mM | Tris-HCl, pH 8.0 (at 25°C) |
| | 0.1mM | EDTA (ethylenediaminetetraacetic acid) |
| | 1mM | DTT (dithiothreitol) |
| | 0.5% | Tween® 20 |
| | 0.5% | Nonidet® P40 |
| | 50% (v/v) | Glycerol |

| | | |
|---------------------|------------|---|
| <u>10X Reaction</u> | 750mM | Tris-HCl, pH 8.8 (at 25°C) |
| <u>Buffer IV:</u> | 200mM | (NH ₄) ₂ SO ₄ |
| | 0.1% (v/v) | Tween® 20 |
| | 15mM | MgCl ₂ |

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**Storage
Conditions:**

Store Red Hot *Taq* DNA polymerase at -20°C. Shipped on ice within the UK and on dry ice for international and within the US.

**Example of
Protocol:**

Mix and spin down the solutions prior to use

| | Volume | Final Concentration 1X |
|---|------------|--------------------------|
| Red Hot DNA Polymerase (5U/µl) | 0.125µl | 0.625 U |
| 10X Reaction Buffer with MgCl ₂ (15mM) | 2.5µl | 1X |
| dNTP Mix (20mM) | 1µl | 0.2mM of each nucleotide |
| Primer forward (10µM each) | 1.25µl* | 0.5µM* |
| Primer reverse (10µM each) | 1.25µl* | 0.5µM* |
| Water (PCR Grade) | Variable | |
| DNA Template | 0.5 - 10µl | 0.5 - 125ng |
| Total volume | 25µl | |

*Scale up or down the volume and concentration as appropriate

**Example of
Program:**

| | Temp. | Time | Number of cycle |
|----------------------|---------|--------|-----------------|
| Initial Denaturation | 94°C | 2 min | 1 cycle |
| Denaturation | 94°C | 20 sec | 30 to 40 cycles |
| Annealing | 50-65°C | 30 sec | |
| Extension** | 72°C | 60 sec | |
| Final Extension | 72°C | 5 min | 1 cycle |

** Increase length of time in proportion to size of amplicon, *Taq* DNA Polymerase extends at approximately 1000 bp/min.

| | | |
|--------------------|--|--|
| Analysis | 25mM | TAPS, pH 9.3 (at 25°C) |
| Conditions: | 50mM | [tris-(hydroxymethyl)-methyl-amino-propane sulfonic acid, sodium salt] |
| | 2mM | KCl |
| | 1mM | MgCl ₂ |
| | 250µM | β-mercaptoethanol |
| | 250µM | of each: dCTP, dGTP, dTTP |
| | 1.25µg/µl | [³ H] dATP (0.05 Ci/mmol) |
| | | activated salmon sperm DNA |
| | Water added to a total volume of 50µl. Incubated at 74°C for 10 minutes. | |

| | | | |
|------------------------------|-----------|-----------------------------------|----------------|
| Ordering Information: | AB-1406/A | Red Hot <i>Taq</i> DNA Polymerase | 100 units |
| | AB-1406/B | Red Hot <i>Taq</i> DNA Polymerase | 500 units |
| | AB-1406/C | Red Hot <i>Taq</i> DNA Polymerase | 10 x 500 units |

All sizes are supplied with 10X Reaction Buffer IV and 25mM MgCl₂.

Troubleshooting

For troubleshooting, see www.abgene.com/troubleshoot.asp or contact Thermo Fisher Scientific (ABgene) TechSupport at abgene.techsupport@thermofisher.com

UK TechSupport, call +44 (0) 1372 840 410

For all other regions, please contact your local Thermo Fisher Scientific (ABgene) office / distributor.

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