



High Fidelity Core Kit

Kit of thermostable DNA polymerase for high accuracy, dNTPs and reaction buffer

| Cat. No. | Amount |
|----------|-----------|
| PCR-234S | 100 units |
| PCR-234L | 500 units |

Unit Definition: One unit is defined as the amount of the enzyme required to catalyze the incorporation of 10 nmol of dNTP into an acid-insoluble form in 30 minutes at 74 °C.

For *in vitro* use only!

Shipping: shipped on blue ice

Storage Conditions: store at -20 °C

Additional Storage Conditions: avoid freeze/thaw cycles

Shelf Life: 12 months

Form: liquid

Concentration: 2.5 units/μl

Description:

High Fidelity Core Kit contains all reagents required for PCR (except template and primer) in one box combining simple handling with high flexibility. The premium quality polymerase, ultrapure dNTPs and the optimized complete reaction buffer ensure superior amplification results.

High Fidelity Pol is based on a blend of Taq DNA polymerase and a proofreading enzyme specially designed for highly accurate and efficient amplification. It shows excellent results with extremely long (up to 30 kb), GC-rich or other difficult templates.

The enzyme blend includes a highly processive 5'→3' DNA polymerase and possesses a 5'→3' polymerization-dependent exonuclease replacement activity. Its inherent 3'→5' exonuclease proofreading activity results in a greatly increased fidelity of DNA synthesis compared to Taq polymerase.

The enzyme is highly purified and free of bacterial DNA.

Fidelity of the enzyme:

High Fidelity Pol is characterized by a 4-fold higher fidelity compared to Taq polymerase.

$$ER_{\text{High Fidelity Pol}} = 3.4 \times 10^{-6}$$

The error rate (ER) of a PCR reaction is calculated using the equation $ER = MF/(bp \times d)$, where MF is the mutation frequency, bp is the number of base pairs of the fragment and d is the number of doublings

($2^d = \text{amount of product} / \text{amount of template}$).

Content:

High Fidelity Pol (red cap)

2.5 units/μl High Fidelity Polymerase in storage buffer

dNTP Mix (white cap)

10 mM each dNTP (dATP, dCTP, dGTP, dTTP)

High Fidelity Buffer (green cap)

10x conc.

Recommended 50 μl PCR assay:

| | | |
|---------------------|--------------------------|-----------|
| 5 μl | 10x High Fidelity Buffer | green cap |
| 1 μl | dNTP Mix | white cap |
| 0.2 - 0.5 μM | each Primer | - |
| 1 - 100 ng | template DNA | - |
| 0.5 μl (1.25 units) | High Fidelity Pol | red cap |
| Fill up to 50 μl | PCR-grade water | - |

Please note that it is essential to add the polymerase as last component.

Recommended cycling conditions:



High Fidelity Core Kit

Kit of thermostable DNA polymerase for high accuracy, dNTPs and reaction buffer

| | | | |
|--------------------------|------------|----------|--------|
| initial denaturation | 95 °C | 2 min | 1x |
| denaturation | 95 °C | 20 sec | 20-30x |
| annealing ¹⁾ | 50 - 68 °C | 30 sec | 20-30x |
| elongation ²⁾ | 68 °C | 1 min/kb | 20-30x |
| final elongation | 68 °C | 1 min/kb | 1x |

¹⁾The annealing temperature depends on the melting temperature of the primers used.

²⁾The elongation time depends on the length of the fragments to be amplified. A time of 1 min/kb is recommended.

For optimal specificity and amplification an individual optimization of the recommended parameters may be necessary for each new template DNA and/or primer pair.

Related Products:

Ready-to-Use Mixes / direct gel loading

Ready-to-Use Mixes

Thermophilic Polymerases

Deoxynucleotides (dNTPs)

Supplements

Primers and Oligonucleotides

DNA Ladders

Exclusively distributed in Japan by Greiner BioOne