DATA SHEET

Jena Bioscience

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 general laboratory use.

Shipping: shipped on gel packs

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 x 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 = amount of product / 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.

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Recommended cycling conditions:

initial denaturation	94 °C	2 min	1x
denaturation	94 °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