Ultra DNA Polymerase

Cat#: orb611229 (Protocol)

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 70 °C.

For *in vitro* use only!
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: 2.0 units/µl

Description:
Ultra DNA Polymerase is a genetically optimized DNA polymerase for robust, fast and accurate amplification, even with difficult or GC-rich DNA templates.

The polymerase is based on Pfu with a fused DNA binding domain. The polymerase is tolerant against various inhibitors allowing stable amplification with minimized assay optimization. The enhanced processivity guarantees highly efficient amplification and makes the enzyme the ideal choice for routine applications in analytical or diagnostic assays, cloning and PCR with long or difficult templates.

With a 2x increased extension rate and a 50x increased fidelity compared to Taq, Ultra DNA Polymerase generates improved product yields at high speed without compromising accuracy.

Content:

Ultra DNA Polymerase
2.0 units/µl High Fidelity Polymerase in 20 mM Tris-HCl, 100 mM KCl, 0.1 mM EDTA, 1 mM DTT, 0.5 % Tween-20, 0.5 % Nonidet P-40, 50% (v/v) Glycerol, pH 8.0 (25 °C) and 0.2 mg/ml BSA

Ultra DNA Buffer
5x conc.

PCR Reaction Setup
The PCR procedure below shows appropriate volumes for a single 50 µl reaction. For multiple reactions, prepare a master mix of components common to all and then dispense appropriate volumes into each PCR reaction tube prior to adding template DNA and primers.

Thaw, mix, and briefly centrifuge each component before use.
Add the following components to a microcentrifuge tube:

Recommended 50 µl PCR assay

comp.	stock conc.	final conc.	1 assay @ 20 µl	1 assay @ 50 µl
PCR-grade Water			fill up to 20 µl	fill up to 50 µl
Ultra DNA Buffer	5x	1x	4 µl	10 µl
dNTP Mix / 10 mM #NU-1006	10 mM	200 µM	0.4 µl	1 µl
Ultra DNA Poly-merase	2 units/µl	0.025 units/µl	0.2 µl	0.5 µl
primer mix or each primer	10 µM each primer	200 - 400 nM each primer	0.4 - 0.8 µl	1 - 2 µl
template /sample DNA			< 10 ng DNA	< 20 ng DNA

Mix and briefly centrifuge the components.

Recommended cycling conditions:

initial denaturation	98 °C	30 sec	1x
denaturation annealing[1)] elongation[2)]	98 °C 45-68 °C 68-72 °C	5-10 sec 10-30 sec 15-30 sec/kb	25-35x
final elongation	72 °C	5-10 min	1x

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

2) For fragments higher than 7 kbp use 68 °C 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

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