NeoTaq HS DNA Polymerase

#Cat: NB-67-00004 Size: 250units

Product description

NeoTaq HS DNA Polymerase uses advanced antibody-mediated hot start technology for high specificity and sensitivity. The enzyme and buffer system allow for superior PCR performance on complex templates such as mammalian genomic DNA.

NeoTaq HS DNA Polymerase is a robust enzyme for all your everyday PCR applications including genotyping, screening, library construction and multiplex PCR. The enzyme is particularly resistant to PCR inhibitors and is suitable for direct PCR from unprocessed samples including bacterial cultures, bacterial colonies, blood and urine.

NeoTaq HS DNA Polymerase has an error rate of approximately 1 error per 2.0 x 10^5 nucleotides incorporated. PCR products generated with NeoTaq HS DNA Polymerase are A-tailed and may be cloned into TA cloning vectors.

High throughput screening has resulted in a buffer system that allows efficient amplification from GC- rich and AT-rich templates, under both fast and standard cycling conditions.

Quality control

Neo biotech operates under an ISO 13485 certified Quality Management System. Our products are extensively tested and undergo a comprehensive, multi-step quality control process according to ISO 13485 standards, to ensure optimum performance, consistency and traceability.

Pack size	NeoTaq HS DNA Polymerase (5 U/µL)	5x NeoTaq Reaction Buffer
250 units	1 x 50 µL	2 x 1 mL
1000 units	4 x 50 µL	8 x 1 mL
5000 units	20 x 50 µL	40 x 1 mL

Shipping and storage

On arrival the kit should be stored between -30 °C and -20 °C. If stored correctly, the kit will retain full activity until the indicated expiry date. The kit can be stored at 4 °C for 1 month

Technical support

For further technical support, please email info@neo-biotech.com with the following information:

- Amplicon size
- Reaction setup
- Cycling conditions
- Screen grabs of amplification traces and melting profile

Important considerations

5x NeoTaq Reaction Buffer: This buffer contains 15 mM MgCl2, 5 mM dNTPs, enhancers and stabilizers. Further addition of PCR enhancers or $MgCl_2$to the reaction is not recommended. The buffer's composition has been optimised to maximise PCR success rates.

Template: For eukaryotic DNA use between 5 ng and 500 ng per reaction, for cDNA use below 100 ng per reaction.

Primer design: Primers should have an approximate Tm of ~60 °C using default Primer 3 settings (https:// bioinfo.ut.ee/primer3/). The final primer concentration in the reaction should be between 0.2 µM and 0.6 µM.

Annealing: To verify the best annealing temperature for your primers in our products, please visit www.neo-biotech.com. If troubleshooting indicates issues with primer annealing, we recommend performing a temperature gradient to experimentally determine the optimal annealing temperature. Alternatively, we recommend a 55 °C annealing temperature then increase in 2 °C increments if non-specific products are present.

Extension: Optimal extension is achieved at 72 °C. The optimal extension time is dependent on amplicon length and complexity of template. 20 seconds per kilobase (kb) is recommended for amplification from eukaryotic DNA for amplicons between 1 kb and 6 kb. For shorter amplicons, faster cycling is possible.

Multiplex PCR: When first performing multiplex PCR it is recommended to run an annealing temperature gradient from 55 °C to 65 °C. The annealing temperature that results in the best specificity should be used in subsequent experiments. Fast cycling conditions should not be used for multiplex PCR. Initially, we recommend a 90 second extension time. This time may be further extended to increase yield.

Colony PCR: For bacterial colonies use a sterile tip to pick a colony and resuspend into a 50 µL reaction as described below. For liquid cultures add 5 µL of overnight culture to the final mix. Increase initial denaturation time to 10 minutes.

Direct blood/urine PCR: Add 2 µL mammalian blood or urine to a 50 µL reaction as described below.

Reaction setup

1.Prepare a master mix based on the following table:

Reagent	50 µL reaction	Final concentration	Notes
5x NeoTaq Reaction Buffer	10 µL	1x	
Forward primer (10 µM)	2 µL	400 nM	See above for optimal primer design
Reverse primer (10 µM)	2 µL	400 nM	
Template DNA	<100 ng cDNA, <500 ng genomic	variable	See above for template considerations
NeoTaq HS DNA Polymerase (5 U/µL)	0.25 µL - 1 µL		
PCR grade dH_2O	Up to 50 µL final volume		

2.Cycle using conditions based on the following table:

Cycles	Temperature	Time	Notes
1	95 °C	1 - 2 min	Initial denaturation and enzyme activation. For colony PCR increase denaturation time to 10 minutes
40	95 °C 55 °C - 65 °C 72 °C	15 seconds 15 seconds 1 - 120 seconds	Denaturation Anneal Extension (20 seconds per kb). For multiplex PCR use 90 seconds

Product Use: Unless we agree otherwise in writing, the Goods we supply are provided:

1. For research purposes only and you should not use or rely on the Goods for diagnostic purposes. If you wish to use the Goods in a regulatory approved medical device, please contact us so that we may consider this and discuss it further with you.
2. Subject to our standard terms and conditions found at www.neo-biotech.com