NZYTaq 5× Optimizer Solution

Catalogue number:

MB06001, 1 mL
MB06002, 3 × 1 mL

Description

NZYTaq 5× Optimizer Solution was developed to improve the efficacy and reduce the levels of non-specific amplifications of particular difficult PCR reactions using *Taq* DNA polymerase. The solution contains a proprietary range of additives and stabilizers that have proven particularly useful when attempting to amplify ancient DNA or templates contaminated with PCR inhibitors such as melanin, myoglobin or hemoglobin, for example. It is also useful for amplification of nucleic acids with high GC% (50-70%).

Storage conditions

NZYTaq 5× Optimizer Solution should be stored at -20 °C, in a constant temperature freezer. It may be stored at 4 °C for up to 7 weeks. The solution will remain stable up to 3 years if stored as specified.

Protocol

1. Prepare a standard PCR reaction mixture following the protocol of NZYTaq II DNA polymerase (MB354) and include NZYTaq 5× Optimizer Solution diluted 5× (e.g. add 10 µL to a 50 µL reaction).

2. Perform PCR cycles protocol using standard parameters. Annealing temperature may need to be optimized for each primer set based on the primers T_m.

3. Separate the PCR products by agarose gel electrophoresis and visualize bands with GreenSafe Premium (MB13201) or any other means.

Important notes

- NZYTaq 5× Optimizer Solution can be used in PCR amplifications using Supreme NZYTaq II DNA polymerase (MB355) to reduce primer-dimers.
- A mixture of NZYTaq 5× Optimizer Solution and NZYTaq 2× GC-Enhancer Solution (MB143) can be used to amplify highly GC-rich DNA templates.

Quality control assays

Nuclease assays

To test for DNase activity, 0.2-0.3 µg of pNZY28 plasmid DNA are incubated with 1 µL of NZYTaq 5× Optimizer Solution in a 15 µL reaction for 14-16 hours at 37 °C.

Following incubation, the DNA is visualized in a GreenSafe Premium-stained agarose gel. There must be no visible nicking or cutting of the DNA.

Functional assay

NZYTaq 5× Optimizer Solution is tested for performance in a PCR assay to supplement NZYTaq II DNA polymerase. A serial dilution series of *E. coli* genomic DNA is used as template to amplify a 1-kb fragment. The resulting PCR products are visualized as a single band in a GreenSafe Premium-stained agarose gel.

Data

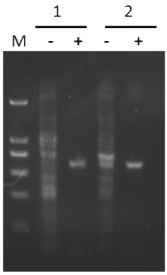

Figure 1. Agarose gel electrophoresis of PCR products generated using NZYTaq DNA polymerase supplemented with (+) or without (-) NZYTaq 5× Optimizer Solution. The two genes (1 and 2) have a GC content of 71.6% and 65.7%, respectively, and human genomic DNA was used as template. Genomic DNA was isolated from human blood which contains known PCR inhibitors. Lane M: NZYDNA Ladder I (MB041).

V2401

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Estrada do Paço do Lumiar, Campus do Lumiar - Edifício E, R/C, 1649-038 Lisboa, Portugal
Tel.: +351.213643514 Fax: +351.217151168
www.nzytech.com