**Therminator™ II DNA Polymerase**

**Description:** Therminator II DNA Polymerase is a 9°N™ DNA Polymerase variant with an enhanced ability to incorporate modified substrates such as dideoxynucleotides, ribonucleotides and acyclo-nucleotides (1,2).

Therminator II DNA Polymerase was derived from Therminator DNA Polymerase and differs from Therminator DNA Polymerase and differs a total reaction volume of 100 µl.

Source: An *E. coli* strain that carries the 9°N (D141A / E143A / Y409V / A485L) DNA Polymerase gene, a genetically engineered form of the native DNA polymerase from *Thermococcus species* 9°N-7.

Supplied in: 100 mM KCl, 10 mM Tris-HCl (pH 7.4), 0.1 mM EDTA, 1 mM dithiothreitol and 50% glycerol.

Applications:
- DNA sequencing by partial ribosubstitution (4)
- DNA sequencing using dideoxy (5) or acyclo (6) chain terminators
- SNP analysis with dideoxy or acyclo chain terminators (7)

Reagents Supplied with Enzyme:
- 10X ThermoPol™ Reaction Buffer.

Reaction Conditions: 1X ThermoPol Reaction Buffer, DNA template, primer, 200 µM dNTPs and 0.5–2 units of Therminator II DNA polymerase in a total reaction volume of 100 µl.

1X ThermoPol Reaction Buffer:
- 20 mM Tris-HCl
- 10 mM (NH₄)₂SO₄
- 10 mM KCl
- 2 mM MgSO₄
- 0.1% Triton® X-100
- pH 8.8 @ 25°C

Unit Definition: One unit is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid insoluble material in 30 minutes at 75°C.

Unit Assay Conditions: 1X ThermoPol Reaction Buffer, 200 µM dNTPs including [³²P]-dTTP and 15 mM primed single-stranded M13mp18.

Heat Inactivation: No

Quality Control Assays

Exonuclease Activity: Incubation of a 50 µl reaction in ThermoPol Reaction Buffer containing a minimum of 8 units Therminator II DNA Polymerase with 1 µg of supercoiled φX174 DNA for 4 hours at 75°C results in < 10% conversion to the nicked form as determined by agarose gel electrophoresis.

References:
Companion Products Sold Separately:

Magnesium Sulfate (MgSO₄) Solution
#B1003S 6.0 ml

Diluent E
#B8005S 4.0 ml

ThermoPol Reaction Buffer Pack
#B9004S 6.0 ml

ThermoPol II (Mg-free) Reaction Buffer Pack
#B9005S 6.0 ml

ThermoPol DF (Detergent-free) Reaction Buffer Pack
#B9013S 6.0 ml

Deoxynucleotide Solution Set
#N0446S 25 µmol each

Deoxynucleotide Solution Mix
#N0447S 8 µmol each
#N0447L 40 µmol each

Acyclonucleotide Set
#N0460S 0.5 µmol each

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