**Therminator DNA Polymerase**

Description: Therminator DNA Polymerase is a genetically engineered form of the native DNA Polymerase gene, Thermococcus species 9°N-7.

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

**Applications:**
- DNA sequencing by partial ribosubstitution (3)
- DNA sequencing using dideoxy (4) or acyclo (5) chain terminators
- SNP analysis with dideoxy or acyclo chain terminators (6)

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 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 nM 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 20 units of Therminator DNA Polymerase and 1µg of mixture of single and double-stamped [³²P] E. coli DNA for 4 hours at 75°C releases < 0.1% of the total radioactivity.

**Endonuclease Activity:** Incubation of a 50 µl reaction in ThermoPol Reaction Buffer containing a minimum of 20 units of Therminator DNA Polymerase with 1µg of supercoiled φX174 DNA for 4 hours at 37°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
- Exonuclease Terminating Solution #B8005S 4.0 ml
- ThermoPol Reaction Buffer Pack #B9004S 6.0 ml
- ThermoPol II (Mg-free) Reaction Buffer Pack #B9005S 6.0 ml

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(see other side)
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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