

Sulfolobus DNA Polymerase IV



M0327S



100 units **2,000 U/ml** **Lot: 0011405**
RECOMBINANT **Store at -20°C** **Exp: 5/16**

Description: *Sulfolobus* DNA Polymerase IV is a thermostable Y-family **lesion-bypass** DNA Polymerase that efficiently synthesizes DNA across a variety of DNA template lesions.

Source: An *E. coli* strain that carries the gene encoding DNA polymerase IV from *Sulfolobus islandicus*.

Applications:

- Synthesis of DNA through DNA lesions (1,2)
- Repair of DNA (1)

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

Reagents Supplied with Enzyme:
10X ThermoPol® Reaction Buffer.

Reaction Conditions: 1X ThermoPol Reaction Buffer. Incubate at 55°C.

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 dNTPs into acid insoluble material in 30 minutes at 55°C.

Unit Assay Conditions: 1X ThermoPol Reaction Buffer, 200 µM dNTPs including [³H]-dTTP and 15 nM primed M13mp18.

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

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Quality Control Assays

Exonuclease Activity: Incubation of a 50 µl reaction in ThermoPol Reaction Buffer containing a minimum of 20 units of *Sulfolobus* DNA Polymerase IV and 1 µg of a mixture of single and double-stranded [³H] *E. coli* DNA for 4 hours at either 37°C or 55°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 *Sulfolobus* DNA Polymerase IV with 1 µg of supercoiled φX174 DNA for 4 hours at either 37°C or 55°C results in < 10% conversion to the nicked form as determined by agarose gel electrophoresis.

Enzyme Properties

3' → 5' Exonuclease: No
5' → 3' Exonuclease: No
Strand displacement: No

Heat inactivation: No

Molecular Weight: 40,000 daltons (theoretical)

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Activity in NEBuffers:

NEBuffer 1	25%
NEBuffer 2	100%
NEBuffer 3	100%
NEBuffer 4	100%

Notes:

Activity at Different Temperatures:

30°C	< 5%
37°C	20%
45°C	40%
55°C	95%
65°C	90%
72°C	70%

Half-life @ 95°C: 6 minutes

References:

1. Boudsocq, F. et al. (2001) *Nucleic Acids Res.* 29, 4607-4616.
2. McDonald, J.P. et al. (2006) *Nucleic Acids Res.* 34, 1102-1111.

(see other side)

CERTIFICATE OF ANALYSIS

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Companion Products Sold Separately:

Magnesium Sulfate (MgSO ₄) 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



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