



Product Information	
Manta 1.0 DNA Polymerase	
Part Number	P7140-LC-L
Concentration	40,000 U/mL
Unit Size	100,000 U
Storage Temperature	-25°C to -15°C
Lot Number	
Reference Number	

Product Description: Manta 1.0 DNA Polymerase (exo-) is a recombinant Bst DNA Polymerase (large fragment) from a thermostable strain of Bacillus (1). The protein has a strong strand-displacement activity, and deficient in both proofreading (3'→5') and nick-translation (5'→3') nuclease activities.

Product Specifications						
P7140						
Assay	SDS Purity	Specific Activity	SS Exonuclease	DS Exonuclease	DS Endonuclease	<i>E. coli</i> DNA Contamination
Units Tested	n/a	n/a	4000	4000	4000	4000
Specification	>99%	400,000 U/mg	<5.0% Releases	<1.0% Released	No Conversion	<10 copies

Source of Protein: A recombinant *E. coli* strain carrying the Manta 1.0 DNA Polymerase (exo-) gene.

Unit Definition: 1 unit is defined as the amount of polymerase required to convert 10 nmol of dNTPs into acid insoluble material in 30 minutes at 65°C.

Molecular weight: 66.2 kDa

Quality Control Analysis:

Unit Activity is measured using a 2-fold serial dilution method. Dilutions of enzyme batch were made in 1X reaction buffer and added to 50 µL reactions containing Calf Thymus DNA, 1X PCR Buffer II, ³H-dTTP, and 100 µM dNTPs. Reactions were incubated 10 minutes at 65°C, plunged on ice, and analyzed using the method of Sambrook and Russell (2).

Protein Concentration (OD₂₈₀) is determined by OD₂₈₀ absorbance.

Physical Purity is evaluated by SDS-PAGE of concentrated and diluted enzyme solutions followed by silver stain detection. Purity is assessed by comparing the aggregate mass of contaminant bands in the concentrated sample to the mass of the protein of interest band in the diluted sample.

Single-Stranded Exonuclease is determined in a 50 µL reaction containing a radiolabeled single-stranded DNA substrate and 10 µL of enzyme solution incubated for 4 hours at 37°C.

Double-Stranded Exonuclease is determined in a 50 µL reaction containing a radiolabeled double-stranded DNA substrate and 10 µL of enzyme solution incubated for 4 hours at 37°C.

Double-Stranded Endonuclease is determined in a 50 µL reaction containing 0.5 µg of plasmid DNA and 10 µL of enzyme solution incubated for 4 hours at 37°C.

***E. coli* 16S rDNA Contamination** is evaluated using 5 µL replicate samples of enzyme solution denatured and screened in a TaqMan qPCR assay for the presence of contaminating *E. coli* genomic DNA using oligonucleotide primers corresponding to the 16S rRNA locus.

Supplied in: 10 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA, < 0.1% Triton X-100, 50% glycerol (pH 7.5 at 25°C)

Supplied with:

10X PCR Buffer II (B7140): 200 mM Tris-HCl, 100 mM KCl, 100 mM (NH₄)₂SO₄, 20 mM MgSO₄, 1.0% Triton X-100 (pH 8.8 at 25°C)

Usage Instructions:

Manta 1.0 DNA Polymerase exhibits strong strand displacement activity and can be used in various nucleic acid amplification methods, such as isothermal, whole genome, and multiple displacement amplifications.

Reaction Conditions

Optimal reaction temperature is between 60-65°C.

10X Reaction Buffer contains 2 mM MgSO₄ at 1X. No dNTPs included in the buffer.

For optimization, add MgSO₄ up to 10 mM, and Manta 1.0 Polymerase up to 1.6 U/μL.

Notes:

Specific activity measured under above conditions is approximately 3X higher than cited by Kiefer et al. when using activated calf thymus DNA as a substrate.

References:

1. Kiefer, et al. Structure 15 January 1997. 5, 95-108.
2. Sambrook, J. et al. (1989) Cold Spring Harbor Laboratory Press, Molecular Cloning: A Laboratory Manual., (2nd ed.), 5.40-5.43.

Disclaimer:

Use of this enzyme in certain applications may be covered by patents and may require a license. Purchase of this product does not include a license to perform any patented application; therefore, it is the sole responsibility of the users of the product to determine whether they may be required to engage in a license agreement depending upon the particular application in which the product is used.

Limitations of Use

This product was developed, manufactured, and sold for *in vitro* use only. The product is not suitable for administration to humans or animals. SDS sheets relevant to this product are available upon request.