# T4 Gene 32 Protein (10 mg/mL)

## Product Description

T4 Gene 32 Protein (GP32) is a specific single-stranded DNA (ssDNA) binding protein that is involved in T4 bacteriophage replication and repair.[1] GP32 binds and stabilizes ssDNA and is utilized as an additive in molecular biology assays to increase DNA yield.[2]

## Table of Contents

**Product Description** . . . . . 1
**Kit Contents** . . . . . 1
**Product Applications** . . . . . 2
**Functionality** . . . . . 2
**Storage and Handling** . . . . . 2
**Heat Inactivation** . . . . . 2
**References** . . . . . 2
**Revision History** . . . . . 2

## Kit Contents

| Kit | Kit Code | Description | Component Volumes | |
|---|---|---|---|---|
| | | | 50 µL | 500 µL |
| T4 Gene 32 Protein (10 mg/mL) | **7K0071-50UL**<br>**7K0071-500UL** | T4 Gene 32 Protein (10 mg/mL) | 500 µg | 5000 µg |

For custom formats, contact the **Sales Team** at sales@watchmakergenomics.com.

## Product Applications*

- PCR[2]
- Electron microscopy[3]
- Restriction enzyme digests[4]
- RT-PCR[5]
- Whole genome amplification (WGA)[6]
- Helicase-dependent amplification[7]

*Watchmaker Genomics has not tested or validated T4 Gene 32 Protein in all applications listed.

## Functionality

- T4 Gene 32 Protein is supplied at a concentration of 10 mg/mL. The ssDNA binding affinity of GP32 (reported as $K_d$) is determined by incubating a dilution series of GP32 with a constant amount of fluorescently labeled ssDNA. The resulting signal change in fluorescence polarization is used to determine the binding affinity ($K_d$).
- T4 Gene 32 Protein storage buffer: 20 mM Tris-HCl, pH 8.0, 1 mM EDTA, 100 mM NaCl, 50% Glycerol

## Storage and Handling

T4 Gene 32 Protein is shipped on ice packs. Upon receipt, store at -20°C±5°C. Keep solutions on ice and avoid vortexing any enzyme during regular use. When stored at the above temperature, the product has a shelf life of 3 years.

## Heat Inactivation

65°C for 20 minutes

## References


1. Alberts B and Frey L. T4 bacteriophage Gene 32: A structural protein in the replication and recombination of DNA. *Nature*. 1970; 227:1313 – 1318
2. Villalva C, et al. Increased yield of PCR products by addition of T4 gene 32 protein to the SMART PCR cDNA synthesis system. *Biotechniques*. 2001; 86:81-3. doi: 10.2144/01311st04
3. Kornberg A and Baker T. 2005. *DNA Replication*. 2nd Ed. University Science Books, Melville USA.
4. Delius H. et al. Characterization by electron microscopy of the complex formed between T4 bacteriophage gene 32-protein and DNA. *J. Mol. Biol*. 1972; 67:341 – 350. doi: 10.1016/0022-2836(72)90454-8
5. Dombroski DF and Morgan AR. Restriction nuclease digestions driven to completion by Escherichia coli RNA polymerase and T4 gene 32 protein. *J. Biol. Chem*. 1985; 260: 415 – 447
6. Schaerli Y, et al. Isothermal DNA amplification using the T4 replisome: circular nicking endonuclease-dependent amplification and primase-based whole-genome amplification. *Nucleic Acids Research*. 2010; 38:e201. doi: 10.1093/nar/gkq795
7. Vincent M, et al. Helicase-dependent isothermal DNA amplification. *EMBO Rep*. 2004; 5:795 – 800. doi: 10.1038/sj.embor.7400200


## Revision History

| Version | Description | Date |
|---|---|---|
| 1.0 | • First protocol release | 1/2024 |


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