

## T4 gp32 Protein

## Manual

Catalog #	3511	3512	3515	3518	3516
Package Size	100µg	200µg	500µg	1000µg	500µg
Volume	20µl	40µl	100µl	200µl	50µl
Concentration	5µg/µl				10µg/µl



### Important!

#### -20°C Storage Required

- \* Immediately inspect packages
- \* Freeze upon receipt

India Contact:  
 Life Technologies (India) Pvt. Ltd.  
 Ph: +91-11-42208000, 42208111, 42208222  
 Mobile: +91-9810521400  
 Email: customerservice@lifetechindia.com  
 www.lifetechindia.com

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T4 gp32 Protein

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### Description:

Intact Genomics (ig®) T4 gp32 is a single-stranded DNA binding protein required for T4 DNA replication, recombination, and repair (1, 2). It improves the efficiency of reverse transcriptase (RT) during RT-PCR (3), enhances T4 DNA polymerase activity (4), as well as increases the yield of PCR products (5).

### Protein Purity:

The physical purity of this enzyme is  $\geq 98\%$  as assessed by SDS-PAGE with Coomassie® blue staining (Fig. 1).

### Product Source:

*E. coli* BL21 (DE3) strain expressing T4 gp32 gene.

### Product Components:

- T4 gp32 protein
- 10X gp32 reaction buffer

### 1x GP 32 Reaction Buffer Composition:

20 mM Tris-acetate 100 mM Potassium acetate 10 mM Magnesium acetate, 1 mM DTT pH 7.8 @ 25°C

### Storage:

50 mM Tris-HCl, 50 mM KCl, 1 mM DTT, 0.1 mM EDTA 50% Glycerol, pH 7.5 @ 25°C

### Heat Inactivation:

65°C for 20 min

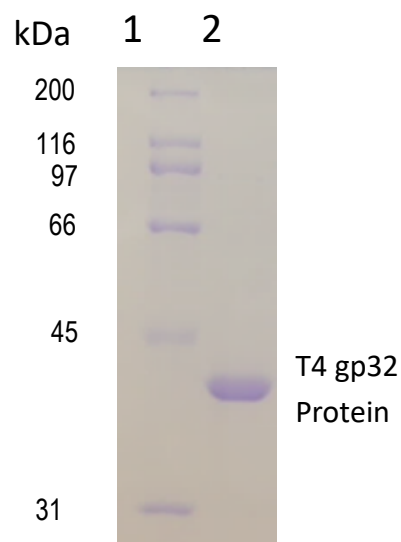


Fig. 1: Lane 1. Protein Marker  
Lane 2. gp32 Protein

## Enzyme Concentration:

IG uses orthogonal, 3-part approaches to determine the enzyme concentration to provide you with consistent and reliable enzymes for your needs. The quantity of a protein sample is assessed using densitometry with polyacrylamide gel electrophoresis (PAGE), UV absorbance spectra of native protein, and using a protein standard assay such as bicinchoninic acid assay (BCA) using bovine serum albumin (BSA) as a standard (Figure 1).

### Why does IG use all three approaches?

1. Each method above has limitations. The limitations include experimental noise, accuracy, and susceptibility to buffer and/or enzyme conditions.
2. Each enzyme has unique physical properties that make a single approach to analyzing proteins a challenge. Each enzyme has a different protein sequence, different requirements to be stable in solution, and different requirements to retain its maximal activity. These differences can interfere with or convolute results, especially when compared to other enzymes. When used together, however, each method provides the scientist with independent measures of both enzyme and buffer purity and quality.

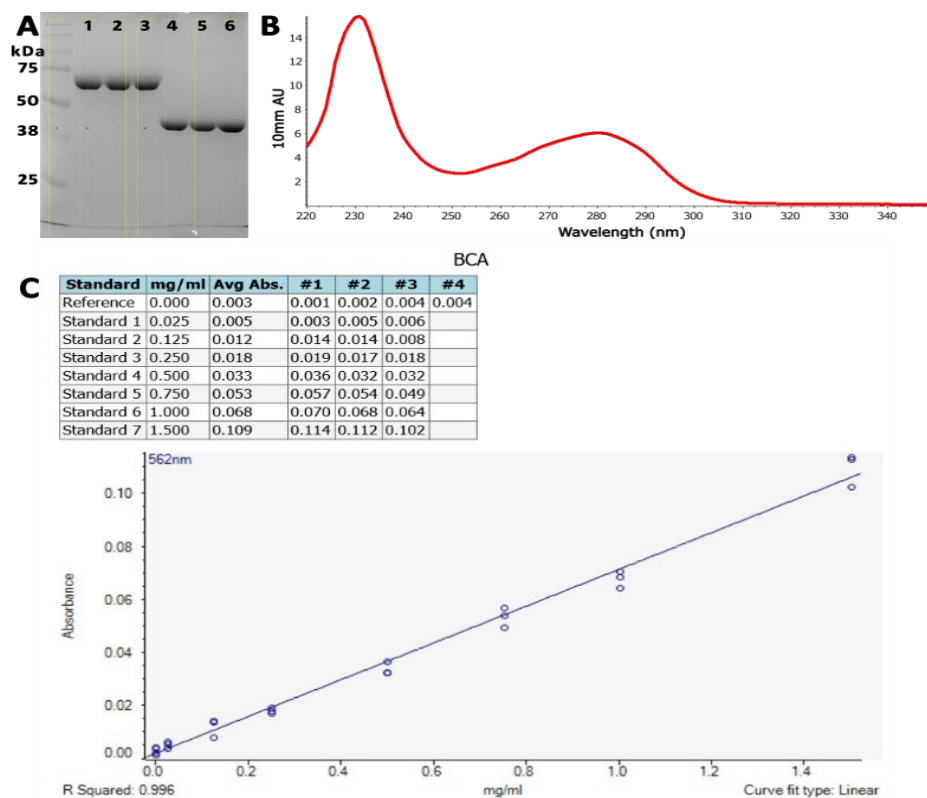


Figure 1: Enzyme quantitation methods used by IG. A) SDS-polyacrylamide gel electrophoresis. Ladder in 1<sup>st</sup> lane, 2 µg BSA (~67 kDa) as a standard in lanes

1-3, and IG enzymes (~40 kDa) in lanes 4-6. The yellow boxes are the areas evaluated by densitometry. The integrated band intensities of IG enzymes are compared with integrated band intensities from BSA to assay concentration. B) UV spectrum of a clean IG enzyme with protein peaks at 230 nm and at 280 nm. An extinction coefficient at 280 nm is typically used to quantify protein using these spectra with buffer subtraction at 330 nm. C) BCA standard curve for BSA. The curve is used to calculate an IG enzyme concentration using BSA as the standard.

### Quality Control:

T4 gp32 Protein is free from detectable nuclease activities.

### References:

1. Chase, J. W. and Williams, K. R. (1986) Ann. Rev. Biochem. 55, 103-136
2. Sinha, N. K. and Snustad, D. P. (1971) J. Mol. Biol. 62, 267-271.
3. Baugh, L.R. et al. (2001). Nucl. Acids Res. 29, e29.
4. Topal, M.D. and Sinha, N.K. (1983). J. Biol. Chem. 258, 12274-12279.
5. Schwartz, K. et al. (1990). Nucl. Acids Res. 18, 1079.

### Related Products:

- T4 UvsX DNA Recombinase (Cat.# 3562)
- T4 UvsY Protein (Cat.# 3572)
- Bsu DNA Polymerase (Cat.# 3585)
- *Sau* DNA Polymerase (Cat.# 3595)
- Exonuclease III (Cat.# 3415)
- Exonuclease IV (Nfo) (Cat.# 3425)

### Ordering Information:

- Order online within the USA. Place orders on **www.intactgenomics.com** using our secure Shopping Cart.
- Order by email, phone, or fax.  
Email: **sales@intactgenomics.com**  
Phone: (314) 942-3655 | Toll-free : 855-835-7172 | Fax: (314) 942-3656
- Order via our distributors.

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Our hours are Monday - Friday, 8AM to 5PM, U.S. Central Standard Time.

### Intact Genomics, Inc.

11840 Westline Industrial Drive, Suite 120,  
St. Louis, MO. 63146, USA

**Phone:** (314) 942-3655 | **Toll-free :** 855-835-7172 | **Fax:** (314) 942-3656

**Email:** sales@intactgenomics.com | ig@intactgenomics.com

**Website:** www.intactgenomics.com

India Contact:  
Life Technologies (India) Pvt. Ltd.  
Ph: +91-11-42208000, 42208111, 42208222  
Mobile: +91-9810521400  
Email: customerservice@lifetechindia.com  
www.lifetechindia.comType your text

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