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# T4 Beta-glucosyltransferase

Cat. Nos. GT11500 and GT112500

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## 1. Introduction

T4 Beta-glucosyltransferase is a DNA-modifying enzyme encoded by bacteriophage T4 that catalyzes the transfer of glucose (Glc) from uridine diphosphoglucose (UDP-Glc) to 5- hydroxymethylcytosine (5-hmC) residues in double-stranded DNA, resulting in the formation of beta-glucosyl-5hmC.[1]

The enzyme is available in 500- and 2,500-unit sizes at a concentration of 10 U/µl. The enzyme is supplied with a 10X Reaction Buffer and 10 mM UDP-Glucose.

## 2. Applications

- Glucosylation or immunodetection of 5-hmC DNA.
- Differentiation of 5-hmC from 5-mC.
- Labeling of 5-hmC residues by incorporating a [$^{14}$C]-UDP-glucose donor into 5-hmC residues.

## 3. Product Specifications

**Storage:** Store only at –20°C in a freezer without a defrost cycle.

**Storage Buffer:** 50% glycerol containing 50 mM Tris-HCl (pH 7.5), 0.1 M NaCl, 0.1 mM EDTA, 1 mM DTT, and 0.1% Triton® X-100.

**Unit Definition:** One unit of T4 Beta-glucosyltransferase is the amount of enzyme required to protect 1 µg of T2 gt$^-$ DNA against cleavage by *Eco*R I.

**T4 Beta-glucosyltransferase 10X Reaction Buffer:** 330 mM Tris-acetate (pH 7.5), 660 mM potassium acetate, 100 mM magnesium acetate, and 5 mM DTT.

**Contaminating Activity Assays:** T4 Beta-glucosyltransferase is free of detectable exonuclease, endonuclease, and RNase activities.

## 4. Example Reaction

| | |
|---|---|
| Sterile water | 37 µl |
| 10X Reaction buffer | 5 µl |
| 10 mM UDP-Glucose | 5 µl |
| Sample DNA | 2 µl |
| T4 Beta-glucosyltransferase (10 U/µl) | 1 µl |
| Total | 50 µl |

Incubate at 37°C for 60 minutes.

## 5. References

1. Josse, J. and Kornberg, A. (1962) *J. Biol. Chem*. **237**, 1968.

## 6. Related Products

**Pvu Rts1I Endonuclease**
RTS11100 100 Units

*Triton is a registered trademark of Rohm & Haas, Philadelphia, Pennsylvania.*

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