5-hmC Glucosyltransferase

Cat. No. E2026 & E2027

Storage: -20 °C

Product Information

Highlights:

- Specific modification of 5-hydroxymethylcytosine with glucose moiety

Applications:
5-hmC Glucosyltransferase can be used for:

- Used in method for sequence and locus specfic detection of 5-hydroxymethylcytosine within DNA
- Global quantification of 5-hydroxymethylcytosine (Ref.1)

Description:
Overview
5-hmC Glucosyltransferase from Zymo Research is a highly active enzyme that specifically tags 5-hydroxymethylcytosine in DNA with a glucose moiety yielding glucosyl-5-hydroxymethylcytosine (Figure 1).

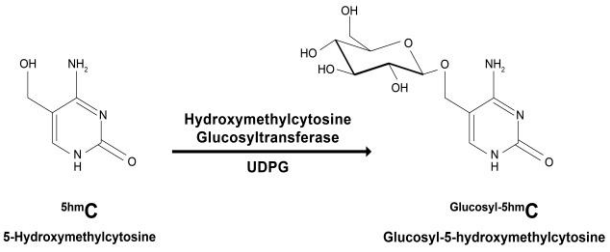

Figure 1: 5-hmC Glucosyltransferase transfers a glucose moiety from uridine diphosphoglucose (UDPG) onto preexisting 5-hydroxymethylcytosines within DNA.

Glucosylation of 5-hydroxymethylcytosine by ^{5hm}C Glucosyltransferase can be used for sequence specific (see Cat. Nos. D5410 & D5411), locus specific, as well as global quantification of 5-hydroxymethylcytosine.

Product Contents:

	Cat. No. E2026	Cat. No. E2027	Storage
5-hmC Glucosyltransferase	100 units	200 units	-20 °C
10X 5-hmC GT Reaction Buffer	1 ml	1 ml	-20 °C
10X UDPG (Uridine Diphosphoglucose), [1mM]	600 µl	600 µl	-20 °C

Storage Condition: 5-hmC Glucosyltransferase is guaranteed for 12 months at -20°C. Long term storage at -80°C is recommended. Avoid multiple freeze thawing.

Enzyme Concentration: 2 units/µl

Unit Definition: Amount of enzyme needed to "protect" 1µg of ^{5hm}C DNA Standard [D5405-3] from GlaI digestion via glucosylation in a reaction incubate at 30°C for 1 hour.

Protocol
^{5hm}C Glucosylation Reaction
Note: Can be used for global quantification of ^{5hm}C with use of Uridine Diphosphate Glucose [Glucose-^{14}C(U)] PerkinElmer (Ref.1)

1. Standard reaction setup shown below. Incubate at 30°C for ≥2 hours.

DNA [10-100ng/µl]	10 µl
10X ^{5hm}C GT Reaction Buffer	5 µl
10X UDPG [1mM]	5 µl
5hmC GT Enzyme (2 units/µl)	2 µl
ddH2O	28 µl
Total	**50 µl**

Notes:

1. To ensure glucosylation reaction is carried to completion it is recommended:
   a. Excess enzyme unit:DNA ratio is used. For example, if glucosylating 1 µg of DNA use 4 units of ^{5hm}C Glucosyltransferase.
   b. Extended incubation at 30°C for ≥2 hours.

References:

1. Szwagierczak A. *et al*, "Sensitive enzymatic quantification of 5-hydroxymethylcytosine in genomic DNA" Nucleic Acids Res. (2010)

Also Available:

Product Name	Size	Cat. No.
5-HYDROXYMETHYLCYTOSINE		
Quest 5-hmC Detection Kit™	25 Preps. 50 Preps.	D5410 D5411
Quest 5-hmC Detection Kit™ - Lite	25 Preps. 50 Preps.	D5415 D5416
Human Matched DNA Set	2 x 5 µg	D5018
Mouse 5hmC & 5mC DNA Set	4 x 5 µg	D5019
5-hmC Glucosyltransferase	100 units 200 units	E2026 E2027
5-Hydroxymethyl dCTP [100mM]	10 µmol	D1045
5-Methyl dCTP [10mM]	1 µmol	D1035
5-Methylcytosine & 5-Hydroxymethylcytosine DNA Standard Set	1 set	D5405
BISULFITE TREATMENT OF DNA		
EZ DNA Methylation-Direct™ Kit	50 rxns. 200 rxns. 2 x 96 rxns. 2 x 96 rxns.	D5020 D5021 D5022 D5023
METHYLATED/NON-METHYLATED DNA STANDARDS		
Universal Methylated DNA Standard	1 set	D5010
Universal Methylated Human DNA Standard	1 set	D5011
Universal Methylated Mouse DNA Standard	1 set	D5012
Human Methylated and Non-methylated DNA Set	1 set	D5014
AMPLIFICATION OF BISULFITE CONVERTED DNA		
Zymo*Taq*™ PreMix (2X concentrated)	50 rxns. 200 rxns.	E2003 E2004
ANTIBODIES & IMMUNOPRECIPITATION		
Methylated-DNA IP Kit	10 preps.	D5101
Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)	50 µg 200 µg	A3001-50 A3001-200
DNA FRAGMENTATION		
DNA Degradase™	500 U 2000 U	E2016 E2017
DNA Degradase Plus™	250 U 1000 U	E2020 E2021
DNA Shearase™	50 U 200 U 50 U & DCC™ 200 U & DCC™	E2018-50 E2018-200 E2019-50 E2019-200
NUCLEOSOME MAPPING		
EZ Nucleosomal DNA Prep Kit	20 preps	D5220

Version 1.0.2

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