CpG Methylase (M.Sssl)

Cat. Nos. E2010 (200 Units)

E2011 (400 Units)

Storage: -20 °C

Description:

The CpG Methylase (EC 2.1.1.37)¹ from Zymo Research <u>completely</u> <u>methylates</u> all cytosine residues (C⁵) in double-stranded, nonmethylated and hemi-methylated DNA having the dinucleotide sequence 5'...CpG...3'. The recombinant CpG Methylase is isolated from an *E. coli* strain that expresses the methyltransferase gene from *Spiroplasma* sp. strain MQ1. The reaction conditions are optimized to maximize the processivity of the enzyme to ensure *rapid*, *complete*, and *reproducible* methylation of DNA for accurate DNA methylation analysis.

Recognition Site:

Applications:

- For complete *in vitro* methylation of DNA for methylation analysis.
- Methylation of chromatin DNA for DNA accessibility studies.
- Inhibition of endonucleases with overlapping CpG sequence recognition.
- [³H]-labeling of DNA.

Product Contents:

	Cat. # E2010	Cat. # E2011	Storage
CpG Methylase	200 units	400 units	-20 °C
10X CpG Reaction Buffer (E2010-2)	1 ml	1 ml	-20 °C
20X SAM (S-adenosylmethionine), 12 mM (E2010-3)	200 µl	200 µl	-20 °C

Storage: Store reagents at -20 °C for up to 12 months. Avoid repeated freeze/thawing. Prolonged storage should be \leq -70 °C.

Enzyme Concentration: 4 units/µl

Unit Definition: One unit is defined as the amount of enzyme required to "protect" 1 μ g of λ DNA against cleavage by BstUI restriction endonuclease in a total reaction volume of 20 μ l for 1 hour at 37 °C.

Reaction Conditions: CpG Methylase in 1X CpG Reaction Buffer w/ 600 μ M SAM. Incubate reaction mixtures at 30 °C (Performing the Methylase reaction at 30 °C rather than 37 °C promotes optimal reaction kinetics).

Inactivation: Heat-inactivate the enzyme at 65 °C for 20 minutes.

Standard Reaction Setup: The setup (below) is an example of a typical CpG methylase reaction in a 20 μ I final reaction volume. The reaction volumes can be adjusted accordingly depending on experimental requirements (see Notes 1 & 2).

- 2 µl 10X CpG Reaction Buffer
- 1 µl 20X SAM (S-adenosylmethionine), 12 mM
- 4 µl DNA at 100-250 ng/µl
- 1 µl CpG Methylase (4 units/µl)
- 12 µl Water

Incubate at 30 °C for 2 hours.



Product Information

Notes:

1. SAM Concentration

SAM is supplied as a 20X stock solution (12 mM SAM in a low pH buffer) and is 600 μ M at 1X. Although we recommend using SAM at 600 μ M, the concentration can be adjusted from 150 μ M to 800 μ M depending on experimental requirements. The recommended SAM concentration of 600 μ M will be adequate for most reactions with DNA concentrations up to 0.4 μ g/ μ l) containing high CpG content.

SAM is sensitive to degradation at elevated pH. It should be thawed on ice prior to use and stored at -20 $^{\circ}$ C.

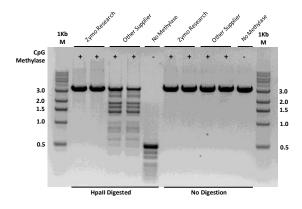
2. Complete Methylation of All CpG Dinucleotides.

For complete methylation of all CpG sites in DNA, we recommend increasing reaction times to 4 hours to overnight at 30 °C. Re-addition of CpG Methylase after 2 to 4 hours of initial incubation is helpful to drive the methylation of DNA to completion.

Also, supercoiled, circular DNA is slightly more resistant to methylation than linearized DNA. Therefore, linearization of circular DNA is recommended whenever possible for complete CpG methylation.

Finally, the methylation reaction can be sensitive to contaminants (i.e., salts) from the DNA sample. It is recommended that impure preparations of DNA be "cleaned" prior to manipulation (e.g., DNA Clean and Concentrator[™] from Zymo Research).

The unique formulation of the 10X CpG Reaction Buffer ensures optimal activity of the CpG Methylase. A comparison of the methylase activity of the CpG Methylase from Zymo Research versus that of another supplier is demonstrated in the figure below.



The CpG Methylase from Zymo Research catalyzes complete methylation of the CpG sites in DNA. Methylase activities of CpG Methylase from Zymo Research versus that of another supplier were tested for complete methylation of equivalent amounts of a linearized plasmid DNA using reaction conditions recommended by the supplier. "Completion" of CpG methylation was assessed by resistance to digestion with a methylation-specific endonuclease (Hpall) and subsequently analyzed in an agarose gel. As shown in the figure above, the CpG Methylase from Zymo Research completely methylated the CpG sites in the DNA whereas that of the other supplier did not. Samples were assayed in duplicate.

Continued on reverse side...

ZYMO RESEARCH CORP.

CpG Methylase (M.Sssl)

Cat. Nos. E2010 (200 Units) E2011 (400 Units)

Storage: -20 °C

Notes (continued...):

3. Factors That Influence Methylase Activity

- a. Reaction Buffers: Although supplied with a 10X CpG Reaction Buffer for maximal activity, the CpG Methylase is compatible, with limited activity (i.e., 10 to 70%), with most restriction enzyme digestion buffers. When using these buffers, increasing the enzyme concentration and incubation time at 30 °C may be necessary for complete methylation of all CpG sites in DNA.
- b. Magnesium and EDTA Concentration: The CpG Methylase does not require magnesium as a cofactor for its activity and works well in the presence of EDTA. The enzyme is more distributive and less processive in the presence of magnesium.²
- c. The presence of free nucleotides, oligonucleotide primers and/or small amounts of RNA has no significant effect on CpG Methylase activity.

References:

- 1. Nur, I. et al. J. Bacteriol., 164, 19-24 (1985).
- 2. Renbaum, P. et al. Nucl. Acids Res., 18, 1145-1152 (1990).



Product Information

Also Available:

EZ DNA Methylation™ Kit 50 200 2 × 96 D5002 2 × 96 D5004 D5002 D5003 2 × 96 D5006 EZ DNA Methylation-Gold™ Kit 50 D5006 D5006 2 × 96 D5007 D5006 EZ DNA Methylation-Direct™ Kit 200 D5020 D5020 EZ DNA Methylation-Direct™ Kit 1 Kit D5022 EZ DNA Methylation-Startup™ Kit 1 Kit D5024 EZ DNA Methylation-Startup™ Kit 1 Kit D5025 EZ Bisulfite DNA Clean-up Kit™ 200 D5026 D5027 Z × 96 D5027 D5028 D5028 Universal Methylated DNA Standard 1 set D5010 Universal Methylated Mouse DNA Standard 1 set D5012 Human HCT116 DKO Non-methylated DNA Standard 1 set D5014-1 Human HCT116 DKO Methylated DNA Standard 5 µg D5014-2 Bisulfite Converted Universal Methylated Human DNA Standard 5 µg D5014-2 Bisulfite Converted Universal Methylated Genomic DNA 5 µg D5014-2 Bisulfite Converted Universal Methylated Human DNA Standard 5 µg D5016 Methylated-DNA IP Kit 10 D5101 D5205 Anti-5-Methyl	Product Name	Size	Catalog number
EZ DNA Methylation TM Kit 200 2×96 5003 2×96 5003 2×96 50004 EZ DNA Methylation-Gold TM Kit 50 200 2×96 5007 2×96 2×96 5008 EZ DNA Methylation-Direct TM Kit 200 2×96 500202 2×96 2×96 500202 2×96 50020222 2×96 500202222×96 500262222×96 50027222×96 50028282200 2×96 50027222×96 50028282282200 Universal Methylated DNA Standard $1 \sec 50110$ Universal Methylated Mouse DNA Standard Human HCT116 DKO Methylation Standard Non-methylated DNA Standard Human HCT116 DKO Methylation Standard Human HCT116 DKO Methylated Human HCT116 DKO Methylated 		50	
E2 DNA Methylation ^{IM} Kit 2×96 D5003 EZ DNA Methylation-Gold TM Kit 50 D5004 EZ DNA Methylation-Gold TM Kit 50 D5007 2×96 D5008 2×96 D5008 EZ DNA Methylation-Direct TM Kit 50 D5020 EZ DNA Methylation-Direct TM Kit 1 Kit D5022 Z × 96 D5023 EZ DNA Methylation-Startup TM Kit 1 Kit D5024 EZ DNA Methylation-Startup TM Kit 1 Kit D5025 200 D5026 EZ Bisulfite DNA Clean-up Kit TM 2×96 D5027 2×96 D5027 Universal Methylated DNA Standard 1 set D5010 Universal Methylated Mouse DNA Standard 1 set D5012 Human HCT116 DKO Methylation Standards 1 set D5014 1 Human HCT116 DKO $5 \mu g$ D5014-1 Human HCT116 DKO Methylated Mouse DNA $5 \mu g$ D5014-2 Bisulfite Converted Universal Methylated 1 set D5015 E. coli Non-methylated Genomic DNA $5 \mu g$ D5016 Methylated-DNA Standard 1 s	EZ DNA Methylation™ Kit		
2 x 96 D5004 EZ DNA Methylation-Gold TM Kit 50 D5006 2 x 96 D5007 2 x 96 D5007 EZ DNA Methylation-Direct TM Kit 50 D5020 200 D5021 EZ DNA Methylation-Startup TM Kit 1 Kit D5023 EZ DNA Methylation-Startup TM Kit 1 Kit D5024 EZ Bisulfite DNA Clean-up Kit TM 200 D5025 D5026 2 x 96 D5027 EZ NA Methylated DNA Standard 1 set D5012 D5026 2 x 96 D5026 EZ niversal Methylated DNA Standard 1 set D5010 Universal Methylated Mouse DNA Standard 1 set D5011 Universal Methylated Mouse DNA Standard 1 set D5012 Human HCT116 DKO S µg D5014-1 Non-methylated DNA Standard 5 µg D5014-1 D5015 E. coli Non-methylated Genomic DNA 5 µg D5014-1 Human HCT116 DKO S µg D5014-1 D5015 E. coli Non-methylated Genomic DNA 5 µg D5015 E. coli Non-methylated Genomic DNA 5 µg D5016 D5205			
EZ DNA Methylation-Gold TM Kit50 200 2 × 96 D5008D5006 D5007 2 × 96 D5020EZ DNA Methylation-Direct M Kit50 200 2 × 96 2 × 96 D5022 2 × 96 D5023D5022 2 × 96 D5023EZ DNA Methylation-Startup M Kit1 Kit 50 200 2 × 96 D5025 200 2 × 96 D5026 2 × 96 D5027 2 × 96 D5028EZ Bisulfite DNA Clean-up Kit M50 200 2 × 96 D5028Universal Methylated DNA Standard1 set D5010Universal Methylated Human DNA Standard1 set D5011Universal Methylated Human DNA Standard1 set D5012Human HCT116 DKO Mon-methylated DNA Standard5 µg D5014-1Human HCT116 DKO Methylated DNA Standard5 µg D5014-1Human HCT116 DKO Methylated DNA Standard5 µg D5014-1Human HCT116 DKO Methylated DNA Standard5 µg D5014-2Bisulfite Converted Universal Methylated Human DNA Standard5 µg D5014-2Bisulfite Converted Universal Methylated Human DNA Standard5 µg D5014-2Methylated-DNA IP Kit10 D5101ChIP DNA Clean & Concentrator M S0 Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 200 µg A3001-50Zymo Taq TM DNA Polymerase50 20 200 200 20050 E2002Zymo Taq TM PreMix (2X concentrated)50 E2003			
EZ DNA Methylation-Gold TM Kit 200 2×96 2×96 2×96 $2 \otimes 96$ $D5006$ $2 \otimes 96$ $2 \otimes 96$ $2 \otimes 96$ EZ DNA Methylation-Direct TM Kit 200 $2 \otimes 96$ $2 \otimes 96$ $2 \otimes 96$ $D5022$ 2×96 $2 \otimes 96$ $2 \otimes 96$ EZ DNA Methylation-Startup TM Kit1 Kit $D5024$ EZ Bisulfite DNA Clean-up Kit TM 50 200 2×96 $2 \otimes 96$ $D5025$ 200 2×96 $D5026$ 2×96 $D5027$ 2×96 $D5028$ Universal Methylated DNA Standard1 set $D5010$ Universal Methylated Human DNA Standard1 set $D5011$ Universal Methylated Mouse DNA Standard1 set $D5012$ Human HCT116 DKO Non-methylated DNA Standard5 μg $D5014-1$ Human HCT116 DKO Methylated DNA Standard5 μg $D5014-2$ Bisulfite Converted Universal Methylated Human DNA Standard1 set $D5015$ <i>E. coli</i> Non-methylated Genomic DNA $5 \mu g$ $D5014-2$ Methylated-DNA IP Kit10 $D5101$ ChIP DNA Clean & Concentrator TM 50 $200 \mu g$ $A3001-200$ Zymo Taq TM DNA Polymerase 50 200 $E2001$ 200 Zymo Taq TM DNA Polymerase 50 200 $E2001$ 2002			
E2 DNA Methylation-Gold TM Kit 2×96 2×96 D5007 D5008EZ DNA Methylation-Direct TM Kit 50 2×96 D5023 50 D5021 2×96 D5023EZ DNA Methylation-Startup TM Kit1 KitD5024 2×96 D5025EZ Bisulfite DNA Clean-up Kit TM 1 KitD5025 200 D5026 2×96 D5027 2×96 D5028Universal Methylated DNA Standard1 setD5010 D5010Universal Methylated Human DNA Standard1 setD5012 D5014Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1 D5014Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 E. coli Non-methylated Genomic DNAE. coli Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101 D5016ChIP DNA Clean & Concentrator TM Antibody (clone 10G4)50 µg 200 µgA3001-50 A001-200 200 µgZymo Taq TM DNA Polymerase 50 200 E2003E2003	EZ DNA Methylation-Gold™ Kit		
2 x 96D5008EZ DNA Methylation-Direct TM Kit50D50202 x 96D50222 x 96D50222 x 96D5023EZD5023EZ DNA Methylation-Startup TM Kit1 KitD5024EZ Bisulfite DNA Clean-up Kit TM 200D5026200D50262002 x 96D50272 x 96D5028Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014-1Human HCT116 DKO5 µgD5014-1Human HCT116 DKO5 µgD5014-2Bisulfite Converted Universal Methylated1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM 50D5205Anti-5-Methylcytosine Monoclonal50 µgA3001-50Antibody (clone 10G4)200 µgA3001-50Zymo Taq TM DNA Polymerase50E2001Zymo Taq TM PreMix (2X concentrated)50E2003			
EZ DNA Methylation-Direct™ Kit 50 200 2×96 20020 2×96 2×96 2×96 D5022 2×96 2×96 EZ DNA Methylation-Startup™ Kit1 KitD5024EZ Bisulfite DNA Clean-up Kit™ 50 2×96 2×96 2×96 D5027 2×96 2×96 Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Human DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014-1Human HCT116 DKO Methylated DNA Standard5 μgD5014-1Bisulfite Converted Universal Methylated Human HCT116 DKO Methylated DNA Standard5 μgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard5 μgD5016 <i>E. coli</i> Non-methylated Genomic DNA5 μgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™ Antibody (clone 10G4)50 μg 200 μgA3001-500 A3001-200Zymo Taq™ DNA Polymerase50 200 2002E2001 2002Zymo Taq™ PreMix (2X concentrated)50E2003			
EZ DNA Methylation-Direct TM Kit 200 2 x 96 2 x 96 2 x 96D5021 D5022 D5023EZ DNA Methylation-Startup TM Kit1 KitD5024EZ Bisulfite DNA Clean-up Kit TM 200 2 00 2 x 96 D5026 2 x 96 D5027 2 x 96 D5028D5027 D5028Universal Methylated DNA Standard1 setD5011Universal Methylated Human DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 μgD5014-1Human HCT116 DKO Methylated DNA Standard5 μgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 μgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM50 200 200 μgD5205Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 μg 200 μgA3001-50 A3001-50Zymo Taq TM DNA Polymerase50 200 200E2003	EZ DNA Methylation-Direct™ Kit		
E2 DNA Methylation-Direct [™] Kit 2 x 96 2 x 96 D5022 2 x 96 D5023 EZ DNA Methylation-Startup [™] Kit 1 Kit D50 EZ Bisulfite DNA Clean-up Kit [™] 2 x 96 D5026 2 x 96 D5027 2 x 96 D5027 2 x 96 D5028 Universal Methylated DNA Standard 1 set D5010 Universal Methylated Human DNA Standard 1 set D5011 Universal Methylated Mouse DNA Standard 1 set D5012 Human HCT116 DKO Methylation Standards 1 set D5014 Human HCT116 DKO Non-methylated DNA Standard 1 set D5014-1 Human HCT116 DKO Methylated DNA Standard 1 set D5014-2 Bisulfite Converted Universal Methylated Human DNA Standard 1 set D5015 <i>E. coli</i> Non-methylated Genomic DNA 5 μg D5016 Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator [™] 50 D5205 Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4) Zymo Taq [™] DNA Polymerase 200 E2003 Zymo Taq [™] DrA Polymerase 200 E2003			
2×96 D5023EZ DNA Methylation-Startup TM Kit1 KitD5024EZ Bisulfite DNA Clean-up Kit TM 50 D5026 2×96 D5027 2×96 D5028Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO5 µgD5014-1Human HCT116 DKO5 µgD5015E. coli Non-methylated Genomic DNA5 µgD5015E. coli Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM 50 µgA3001-50Anti-5-Methylcytosine Monoclonal 50 µgA3001-50Antibody (clone 10G4) 50 µgC2001Zymo Taq TM DNA Polymerase 50 E2003Zymo Taq TM PreMix (2X concentrated) 50 E2003			
EZ DNA Methylation-Startup TM Kit1 KitD5024EZ Bisulfite DNA Clean-up Kit TM 50D5025 200 D5026 2×96 D5027 2×96 D5028Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Methylation Standards5 µgD5014-1Human HCT116 DKO5 µgD5014-2Bisulfite Converted Universal Methylated1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM 50D5201Anti-5-Methylcytosine Monoclonal50 µgA3001-50Antibody (clone 10G4)50E2001Zymo Taq TM DNA Polymerase50E2001Zymo Taq TM PreMix (2X concentrated)50E2003			
EZ Bisulfite DNA Clean-up Kit TM 50 200 2×96 2×96 $D5027$ 2×96 $D5028$ Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM 50 µg 200 µgA3001-50 A001-50Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4) 50 µg 200 µgA3001-50 200 Zymo Taq TM DNA Polymerase 50 200 E2003	EZ DNA Methylation-Startun™ Kit		
EZ Bisulfite DNA Clean-up Kit TM 200 2×96 2×96 2×96 D5026 D5027 D5028Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM50 200 µgD5205Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 200 µgA3001-50 200 µgZymo Taq TM DNA Polymerase50 200 200 E2003E2003			
E2 Bisulfite DNA Clean-up Kit IM 2×96 2×96 D5027 2×96 D5027 D5028Universal Methylated DNA Standard1 setD5010Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM50 200 µgA3001-50 A001-50Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50E2001 200 µgZymo Taq TM DNA Polymerase50 200E2003Zymo Taq TM PreMix (2X concentrated)50E2003	EZ Bisulfite DNA Clean-un Kit™		
2×96 $D5027$ 2×96 Universal Methylated DNA Standard1 set $D5010$ Universal Methylated Human DNA Standard1 set $D5011$ Universal Methylated Human DNA Standard1 set $D5012$ Human HCT116 DKO Methylation Standards1 set $D5014$ Human HCT116 DKO Methylation Standards1 set $D5014$ Human HCT116 DKO $5 \mu g$ $D5014-1$ Human HCT116 DKO $5 \mu g$ $D5014-2$ Bisulfite Converted Universal Methylated1 set $D5015$ <i>E. coli</i> Non-methylated Genomic DNA $5 \mu g$ $D5016$ Methylated-DNA IP Kit10 $D5101$ ChIP DNA Clean & Concentrator TM $50 \mu g$ $200 \mu g$ $A3001-50$ $A3001-200$ Zymo Taq TM DNA Polymerase 50 $E2001$ 200 Zymo Taq TM PreMix (2X concentrated) 50 $E2003$			
Universal Methylated DNA Standard 1 set D5010 Universal Methylated Human DNA Standard 1 set D5011 Universal Methylated House DNA Standard 1 set D5012 Human HCT116 DKO Methylation Standards 1 set D5014 Human HCT116 DKO 5 µg D5014-1 Human HCT116 DKO 5 µg D5014-2 Bisulfite Converted Universal Methylated 1 set D5015 <i>E. coli</i> Non-methylated Genomic DNA 5 µg D5016 Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator™ 50 µg A3001-50 Anti-5-Methylcytosine Monoclonal 50 µg A3001-50 Antibody (clone 10G4) 200 µg A3001-50 Zymo Taq TM DNA Polymerase 50 E2001 Zymo Taq TM PreMix (2X concentrated) 50 E2003	Ez bloame britt bloan ap the		
Universal Methylated Human DNA Standard1 setD5011Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 μ gD5014-1Human HCT116 DKO Methylated DNA Standard5 μ gD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 μ gD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™50 200 μ gA3001-50 A001-50Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 200 μ gE2001 200 200Zymo Taq™ DNA Polymerase50 200E2003		2 x 96	D5028
Universal Methylated Mouse DNA Standard1 setD5012Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 μ gD5014-1Human HCT116 DKO Methylated DNA Standard5 μ gD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 μ gD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM50 μ g 200 μ gA3001-50 A001-50Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 μ g 200 μ gA3001-200 E2002Zymo Tag TM DNA Polymerase50E2001 E2002	Universal Methylated DNA Standard	1 set	D5010
Human HCT116 DKO Methylation Standards1 setD5014Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™50 µg 50A3001-50 A001-500Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 µg 200 µgA3001-200 200 µgZymo Taq™ DNA Polymerase50 50E2001 2002Zymo Taq™ PreMix (2X concentrated)50E2003	Universal Methylated Human DNA Standard	1 set	D5011
Human HCT116 DKO Non-methylated DNA Standard5 µgD5014-1Human HCT116 DKO Methylated DNA Standard5 µgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 µgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™50 µg 50A3001-50Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 µg 200 µgA3001-200Zymo Taq™ DNA Polymerase50 200E2001 2002Zymo Taq™ PreMix (2X concentrated)50E2003	Universal Methylated Mouse DNA Standard	1 set	D5012
Non-methylated DNA Standard5 μgD5014-1Human HCT116 DKO Methylated DNA Standard5 μgD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 μgD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™50 200D5205Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 200E2001 E2002Zymo Taq™ DNA Polymerase50 50E2001 E2002	Human HCT116 DKO Methylation Standards	1 set	D5014
Non-methylated DNA Standard5 μ gD5014-2Human HCT116 DKO Methylated DNA Standard5 μ gD5014-2Bisulfite Converted Universal Methylated Human DNA Standard1 setD5015 <i>E. coli</i> Non-methylated Genomic DNA5 μ gD5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator™50 50D5201 D5205Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4)50 μ g 200 μ gA3001-50 A001-200Zymo Taq™ DNA Polymerase50 200 E2002E2003	Human HCT116 DKO	5 µq	D5014-1
Methylated DNA Standard 5 μg D5014-2 Bisulfite Converted Universal Methylated 1 set D5015 Human DNA Standard 1 set D5015 <i>E. coli</i> Non-methylated Genomic DNA 5 μg D5016 Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator™ 50 D5205 Anti-5-Methylcytosine Monoclonal 50 μg A3001-50 Antibody (clone 10G4) 200 μg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003		10	
Methylated DNA Standard 1 of 0 0 0 0 Bisulfite Converted Universal Methylated 1 set D5015 Human DNA Standard 1 set D5015 E. coli Non-methylated Genomic DNA 5 µg D5016 Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator™ 50 D5201 Anti-5-Methylcytosine Monoclonal 50 µg A3001-50 Antibody (clone 10G4) 200 µg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003		5 ug	D5014-2
Human DNA Standard I set D3013 E. coli Non-methylated Genomic DNA 5 μg D5016 Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator™ 50 D5201 Anti-5-Methylcytosine Monoclonal 50 μg A3001-50 Antibody (clone 10G4) 200 μg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003		υμg	000142
E. coli Non-methylated Genomic DNA $5 \ \mu g$ D5016Methylated-DNA IP Kit10D5101ChIP DNA Clean & Concentrator TM50D5201Anti-5-Methylcytosine Monoclonal50 \ \mu gA3001-50Antibody (clone 10G4)200 \ \mu gA3001-200Zymo Taq^TM DNA Polymerase50E2001Zymo TaqTM PreMix (2X concentrated)50E2003		1 set	D5015
Methylated-DNA IP Kit 10 D5101 ChIP DNA Clean & Concentrator™ 50 D5201 Anti-5-Methylcytosine Monoclonal 50 µg A3001-50 Antibody (clone 10G4) 200 µg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003		5.00	D5016
ChIP DNA Clean & Concentrator™ 50 50 D5201 D5205 Anti-5-Methylcytosine Monoclonal Antibody (clone 10G4) 50 µg 200 µg A3001-50 A3001-200 Zymo Taq™ DNA Polymerase 50 200 E2001 E2002 Zymo Taq™ PreMix (2X concentrated) 50 E2003			
ChiP DNA Clean & Concentrator ™ 50 D5205 Anti-5-Methylcytosine Monoclonal 50 μg A3001-50 Antibody (clone 10G4) 200 μg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003		10	DOTUT
Anti-5-Methylcytosine Monoclonal 50 µg A3001-50 Antibody (clone 10G4) 200 µg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003	ChIP DNA Clean & Concentrator™		
Antibody (clone 10G4) 200 µg A3001-200 Zymo Taq™ DNA Polymerase 50 E2001 Zymo Taq™ PreMix (2X concentrated) 50 E2003			
ZymoTaq™ DNA Polymerase 50 200 E2001 E2002 ZymoTaq™ PreMix (2X concentrated) 50 E2003			
Zymo Taq™ DNA Polymerase 200 E2002 Zymo Taq™ PreMix (2X concentrated) 50 E2003	Antibody (clone 10G4)	200 µg	A3001-200
Zumo Tag TM PreMix (2X concentrated) 50 E2003		50	E2001
ZVmo Lag Prelvix (2X concentrated)	zymo raq m DNA Polymerase	200	E2002
ZVmo Lag Prelvix (2X concentrated)		50	E2003
	Zymo <i>Taq</i> ™ PreMix (2X concentrated)	200	E2003

Trademarks and Disclaimers:

™ Trademarks of Zymo Research Corporation.

This product is for research use only and should only be used by trained professionals. Wear protective gloves and eye protection. Follow the safety guidelines and rules enacted by your research institution or facility. Products are protected by U.S. Patent No. 5,296,371

Version 1.0.2