Methylation Reference Set (human, BDXXP4) (SID-000130) – Instructions for use

For Research Use Only

SensID - High-Quality Reference Materials

R&D needs references and controls. SensID GmbH manufactures High Quality Reference Materials / Controls for Molecular Diagnostic R&D.
Our mission is to provide certified standards ready for your needs in the highest quality to ease your processes.
For more information visit www.sens-id.com.

Content

Product	Catalog No.	
Methylation Reference Set (human, BDXXP4)	SID-000130	
Consisting of	**Catalog No.**	**Target Quantity**
Methylated DNA (human)	SID-000131	5,000 ng dsDNA
Native methylated, matched DNA (human)	SID-000132	5,000 ng dsDNA
Unmethylated DNA (human)	SID-000133	5,000 ng dsDNA
Target concentration 20 ng/µl dsDNA. For exact amount and concentration of each batch measured by QC, refer to the Certificate of Analysis (CoA) of the respective lot.		

Symbols

REF	Catalog number
LOT	Lot number
	Use by
	Legal manufacturer
	Not for reuse
	Temperature limitations

Storage

The product should be stored at -20 °C upon arrival. The product is solved in TE buffer (Tris-EDTA (10 mM Tris, 1 mM EDTA), pH 8.0, and stable until the expiration date when stored under these conditions.

Intended Use

Methylation Reference Set is a multi-vial reference material derived from a single master lot of human genomic DNA (gDNA) extracted from a human cell line, derived from an apparently healthy donor. The set is designed to provide defined methylation states while maintaining an identical genetic background across vials ("matched background"). It is intended for use in, but not limited to:

1. Conversion control: Verification of bisulfite/enzymatic conversion efficiency and conversion bias.
2. Positive/negative controls for methylation-specific PCR.
3. Matched components may be combined to prepare nominal methylation mixtures for exploratory assay development.
4. Sequencing run control (NGS) to monitor library preparation, alignment, and methylation calling consistency.
5. Specificity/background assessment using a true normal baseline (helps detect false positives, contamination, and pipeline artifacts)

This product is for research use only and is not intended for clinical or diagnostic use.

Protocol: Methylation Reference Set (human, BDXXP4)

Important information to note prior to product use:

- Centrifuge SID-000131-SID-000133 briefly to avoid liquid holding back in the lid of the vial!
- To avoid repeated freeze-thaw cycles, consider aliquoting the product before use.
- Work in a clean environment (e.g. laminar flow hood) to avoid contamination of the product.
- Do not vortex! Mix by pipetting up and down 10 times to obtain a homogeneous suspension.
- DNA purified from a proprietary cell line. No further purification or DNA isolation steps needed.
- The purified DNA is present in gDNA (human) at a fragment size of ≥ 20 kb (SID-000131, SID-000132) or ≥ 10 kb (SID-000133)
- While the genome-wide CpG methylation (%) is evaluated during manufacture using NGS, there may be differences in observed genome-wide CpG methylation due to specific assay and/or platform characteristics.

Technical Assistance

Our Technical Service Assistance is staffed by experienced scientists with extensive practical and theoretical expertise with our products. If you have any questions or experience any difficulties regarding the Methylation Reference Set (human, BDXXP4) or SensID GmbH products in general, please do not hesitate to contact us.
SensID GmbH customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other scientists as well as to the researchers at SensID GmbH. We therefore encourage you to contact us if you have any suggestions about product performance or new applications and techniques.
For technical assistance and more information, please see our Website www.sens-id.com or call one of the SensID GmbH Technical Service Assistance.

Product Use limitations

Attention should be paid to expiration dates and storage conditions printed on the box and labels of all components. Do not use expired or incorrectly stored components. Check primary packaging before first opening. Do not use products from damaged primary packaging.

Quality Control

In accordance with SensID's Quality Management System, each set of lots of Methylation Reference Set (human, BDXXP4) is tested against predetermined specifications to ensure consistent product quality.
The product should appear as a clear liquid. Alterations in this appearance may indicate instability or deterioration of the product and vials should be discarded.

Warnings and precautions

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles.
Avoid contamination of the product when opening and closing the vial.
CAUTION: Handle as though it is capable of transmitting infectious agents. This product is formulated using a proprietary B-lymphatic, female cell line.

Equipment and Reagents to Be Supplied by User

- Pipets (adjustable)[1]
- Sterile pipet tips with filters

[1]Ensure that instruments have been checked and calibrated according to the manufacturer's recommendations.

Table 1 General information about CpG motif methylation

Official Symbol	CpG methylation
Organism	Homo sapiens
Summary	DNA methylation is a natural and dynamic epigenetic process that plays an important role in development, cell differentiation, and pathogen recognition. In humans, methylation occurs primarily at cytosine residues within specific CpG sequence motifs. Complete (100 %) methylation means that every cytosine within a CpG motif carries an additional methyl group ($-CH_3$) at the 5-carbon position, resulting in the formation of 5-methylcytosine (5-mC). DNA methylation occurs enzymatically both in vivo and in vitro through the action of DNA methyltransferases (DNMTs), which methylate cytosine residues in a sequence-specific manner. For example, the *M.SssI* DNA methyltransferase specifically methylates cytosines within CpG motifs.