

CUTANA™ Fiber-seq Kit

Catalog No	14-2001-24rxn	Pack Size	24 Reactions
Lot No	26019002-70	Kit Version	v1

DESCRIPTION

The CUTANA™ Fiber-seq Kit provides key reagents and a comprehensive manual to perform Fiber-seq. Key advantages include:

- **Multiomic insights in one assay** – Fiber-seq simultaneously profiles chromatin accessibility, DNA methylation, and genetic variants, consolidating what typically requires three or more separate assays into one long-read sequencing (LRS) assay [1].
- **Comprehensive solution** – This kit includes key reagents needed to go from cells to library prep-ready DNA.
- **User-friendly resources** – The User Manual is complete with a detailed protocol, QC checks, FAQs, and expert tips to get you started, while the bench-proof Quick-Start Card provides a concise protocol for convenient reference.
- **Easy workflow integration** – Fiber-seq can be performed in <2 hours directly upstream of routine long-read sequencing library preparation and uses reagents vetted for compatibility with library prep kits from major LRS platforms.
- **Powered by Hia5 6mA methyltransferase** – Hia5 is the highest activity 6mA-methyltransferase available and is exclusive to CUTANA Fiber-seq Kits. This more active enzyme enables faster incubations, which results in better resolution of protein footprints [2-4].
- **Stringent quality control** – Each new lot undergoes rigorous quality control checks to ensure components yield consistent results in your research.

Fiber-seq is a breakthrough approach that simultaneously maps genetic and epigenetic features from individual chromatin fibers. This single assay delivers insights that would normally require integrating data from multiple methods such as ATAC-seq, ChIP-seq, and bisulfite sequencing. This kit includes reagents to go from cells to purified genomic DNA that can be used directly in either Pacific Biosciences® (PacBio® HiFi Sequencing) or Oxford Nanopore Technologies® (ONT® Nanopore Sequencing) library preparation workflows. The recommended input for Fiber-seq is 1,000,000 native human nuclei per reaction. The Fiber-seq Kit has been successfully applied to cryopreserved and lightly cross-linked nuclei (refer to the Tech Support Center at support.epicypher.com for the most up-to-date recommendations).

KIT CONTENTS

<u>Item</u>	<u>Cat No</u>	<u>Item</u>	<u>Cat No</u>
gDNA Spin Columns	10-0016-10	Pre-Nuclei Extraction Buffer	21-1021-10
gDNA Collection Tubes	10-0017-10	1 M Spermidine	21-1005-10
gDNA Cell Lysis Buffer	21-1029-10	Proteinase K	15-1033-10
gDNA Binding Buffer	21-1030-10	RNase A	15-1034-10
gDNA Wash Buffer	21-1031-10	SAM	21-1034-10
gDNA Elution Buffer	21-1032-10	Hia5 for Fiber-seq	15-1032-10
Pre-1X Reaction Buffer	21-1033-10		

TECHNICAL INFORMATION

Storage	OPEN KIT IMMEDIATELY and store components at room temperature, 4°C, -20°C, and -80°C as indicated (see Kit Version 1 User Manual). Stable for 6 months upon date of receipt.
Instructions for Use	See User Manual corresponding to Kit Version 1.

SAFETY INFORMATION

Item	Cat No	Chemical	Signal Word	Pictogram
gDNA Cell Lysis Buffer	21-1029-10	Guanidine Hydrochloride	Warning	
gDNA Binding Buffer	21-1030-10	Guanidine Thiocyanate	Warning	
1 M Spermidine	21-1005-10	Spermidine	Warning	
Proteinase K	15-1033-10	Proteinase K	Danger	
SAM	21-1034-10	Ethanol	Warning	

QUALITY CONTROL METRICS

Functional Testing (Fiber-seq) Each lot of CUTANA™ Fiber-seq Kits is functionally validated using the CUTANA™ Fiber-seq workflow using 1,000,000 native K562 nuclei and compared to a qualified reference lot. In this assay, Hia5 labels accessible chromatin with N6-methyladenine (6mA) in the presence of S-adenosylmethionine (SAM). Following long-read sequencing, data are aligned to the hg38 genome, and analysis and QC are performed using Fiber-seq data processing tools (https://github.com/fiberseq). Performance is evaluated on metrics including overall percent 6mA labeling, 6mA distribution, and quantity and quality of purified genomic DNA.	Pass
Functional Testing (gDNA Purification) gDNA purification components (Spin Columns, Collection Tubes, Cell Lysis Buffer, Binding Buffer, Wash Buffer, Elution Buffer, Proteinase K, and RNase A) are functionally validated by comparison to previous lot and established internal controls. 1M nuclei are lysed to release gDNA. gDNA is bound to columns, washed, and eluted. Assessment of purified gDNA is based on metrics including DNA yield and DNA quality/length.	Pass

PUBLISH DATE

04/07/2026

APPROVED BY


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SENIOR DIRECTOR OF PRODUCT MANAGEMENT

REFERENCES

[1] Stergachis et al. Science (2020). PMID: 32587015
[2] Tullius et al. Mol. Cell (2024). PMID: 39191261
[3] Dubocanin et al. Cell Genom. (2025). PMID: 40147439
[4] Vollger et al. bioRxiv (2024). DOI: 10.1101/2024.06.14.599122

This product is covered by one or more patents, including CN Pat. No. CN115715321B and related U.S. and foreign patents and pending applications. Pending Fiber-seq applications include, but are not limited to, PCT/US2020/017597 and PCT/US2021/025644, and related patents and patent applications worldwide.

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