

Notices

Limitations of use

For research use only. Not for use in diagnostic procedures. Unless otherwise agreed to in writing, IDT does not intend these products to be used in clinical applications and does not warrant their fitness or suitability for any clinical diagnostic use. Purchaser is solely responsible for all decisions regarding the use of these products and any associated regulatory or legal obligations.

Revision history

Version	Release date	Description of changes
1	July 2026	<i>Initial release</i>

Overview

The xGen NGS cfDNA & FFPE Workflow Base Kit (PN 10035695) provides a complete workflow for preparing sequencing-ready libraries from cfDNA or FFPE DNA and performing hybridization-based target enrichment for 96 samples that are multiplexed at 6-plex.

The workflow includes:

Workflow step	Product	How to set up samples
Library construction with dual in line UMIs	xGen cfDNA and FFPE DNA Library Prep v2 MC kit 96 rxns	96 samples
Sample indexing using unique dual index (UDI) primers	xGen UDI Primers Plate 1, 8 nt	96 samples
Hybridization capture using xGen panels (not included)	xGen Hyb and Wash Reagents v3 Kit 16 rxn and xGen Universal Blockers TS, 16 rxn	96 samples that are multiplexed in 16 different reactions with 6 samples in each reaction
Post-capture amplification for sequencing on Illumina® platforms	xGen Library Amplification Primer Mix, 16 rxn	96 samples that are multiplexed in 16 different reactions with 6 samples in each reaction

Refer to full protocols for detailed instructions and optimization guidance.

Link to [IDT xGen cfDNA and FFPE DNA Library Prep v2 MC Kit Protocol \(RUO21-0382_002.1 05/24\)](#)

Link to [IDT xGen Hyb and Wash Reagents v3 Kit \(: RA-DOC-076 Rev 03\)](#)

xGen Hybridization Capture Panels (not included)

IDT xGen hybridization capture panels are individually synthesized and deliver >90% on-target rates. We have both stocked predesigned panels and custom made to order panels.

Stocked panels for target enrichment across human targets for reliable, cost-effective sequencing, and they can be ordered on idtdna.com at [xGen Predesigned Hyb Capture Panels | IDT](#)

xGen Custom Hyb Panels include your choice of high-fidelity probes for targeted NGS research. These panels can be ordered on the website via our xGen Hyb Panel Design tool or by requesting a design consultation. [xGen Custom NGS Hybridization Capture Panels | IDT](#)

Components included in kit:

Product Name	Stand Alone Part Number*	Role in Workflow
xGen cfDNA & FFPE DNA Library Prep v2 MC, 96 rxn	10010207	Library construction (end repair, ligation, PCR)
xGen Hyb and Wash Beads v3, 16 rxn	10025272	Streptavidin capture of hybridized targets
xGen Hyb and Wash Reagents v3, 16 rxn	10028311	Hybridization, wash, and capture buffers
xGen Library Amplification Primer Mix, 16 rxn	1077675	Post-capture PCR amplification
xGen UDI Primers Plate 1, 8 nt	10005922	Sample indexing during PCR
xGen Universal Blockers TS, 16 rxn	1075474	Prevent adapter-mediated off-target hybridization

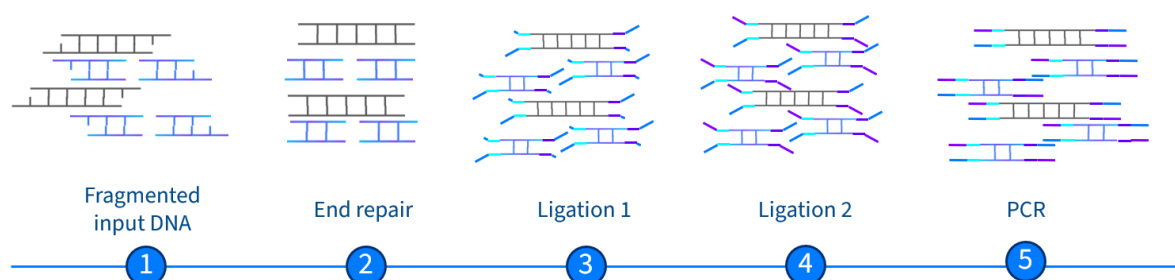
*In addition to being a part of this kit, each of the parts listed above can be purchased individually. To request documentation, please reference the catalog number and lot number for each component.

Other materials are required to run the workflow and are described in detail in each of the protocols linked above. Quality documentation is available for individual components.

Workflow Summary

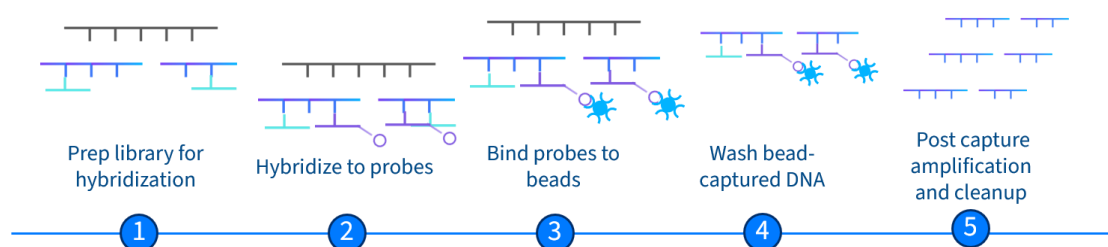
End-to-end process

1. Library Preparation



- Starting material 96 samples with **1–250 ng DNA input**
- Products Needed from bundle:
 - i. xGen cfDNA & FFPE DNA Library Prep v2 MC, 96 rxn PN 10010207
 - ii. xGen UDI Primers Plate 1, 8 nt PN 10005922
- End repair → ligation → PCR (indexing with UDI Primer Plate)
- **Library Cleanup & QC**
 - i. Bead-based cleanup and quantification

2. Hybridization & Wash



- Starting material 100ng-6 µg of 96 libraries
- Products Needed from bundle:
 - i. xGen Hyb and Wash Beads v3, 16 rxn PN 10025272
 - ii. xGen Hyb and Wash Reagents v3, 16 rxn PN 10028311

iii. xGen Library Amplification Primer Mix, 16 rxn PN 1077675

iv. xGen Universal Blockers TS, 16 rxn PN 1075474

- **Hybridization Setup**

- i. Multiplex up to 12 samples from Library Prep step

- ii. Combine libraries with xGen Universal Blockers TS and capture probes

- **Hybridization & Capture**

- i. Incubate libraries with probes and xGen Hyb and Wash Beads v3

- **Post-capture Processing**

- i. Wash captured DNA → amplify with xGen Library Prep Amplification mix → cleanup

3. Sequencing-ready Library

Key Tips & Best Practices

Workflow & Handling

- Keep enzymes on ice; store reagents at **-20°C unless specified**
- Use **separate pre- and post-PCR workspaces** to prevent contamination
- Always **mix thoroughly and spin down** when indicated

Critical Steps

- Avoid cross-contamination between **Ligation 1 and Ligation 2 adapters**
- Do not over-dry magnetic beads (>5 min) to prevent yield loss
- Ensure buffers are **fully equilibrated to room temperature** before hybridization

Hybridization & Capture

- Use **xGen Universal Blockers** to reduce adapter-driven artifacts
- Hybridization time significantly impacts performance (longer = higher sensitivity) find what works best for your panel and samples
- Thorough bead mixing is critical for consistent capture efficiency

PCR Optimization

- Adjust PCR cycles with guidance in protocols based on:
 - Input DNA amount
 - Panel size
 - Sample quality (e.g., FFPE)

Storage & Handling

- **Library prep kit reagents:**
 - –20°C (PEG/NaCl may be RT or –20°C)
- **Hybridization buffers:**
 - Store at –20°C or 4°C per component
 - Bring to RT before use
- **Beads:**
 - Store at 4°C (do not freeze)
 - Will be shipped in a separate box due to temperature requirements

Final Output

- Indexed and enriched libraries compatible with **Illumina® sequencing platforms**
- Suitable for:
 - Targeted sequencing
 - Low-input cfDNA workflows
 - Challenging FFPE samples

Technical support

Visit <https://www.idtdna.com/pages/support> for helpful answers to frequently asked questions or contact us directly at applicationsupport@idtdna.com.

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