Nextera® DNA Library Preparation Kits

The fastest and easiest sequencing library preparation workflow, delivering libraries in 90 minutes.

Highlights

- **Fastest Time to Results**
  Go from DNA to data in less than 8 hours with MiSeq® System
- **Easiest to Use**
  Prepare sequencing-ready samples in 1.5 hours with 15 minutes hands-on time
- **Lowest DNA Input**
  Use just 50 ng DNA per sample, enabling use with samples in limited supply
- **Highest Throughput**
  Index up to 96 samples and use master-mixed reagents to process > 500 samples per week

Figure 1: Nextera DNA Library Prep Kit—The Nextera DNA Library Preparation Kit (96 samples) provides a fast and easy library preparation workflow, delivering libraries in 90 minutes.

DNA to Data in Record Time

Nextera DNA Library Preparation Kits provide the fastest and easiest workflow, enabling sequencing-ready libraries to be generated in less than 90 minutes, with less than 15 minutes of hands-on time. DNA is simultaneously fragmented and tagged with sequencing adapters in a single step, using standard lab equipment. Libraries prepared with Nextera kits are compatible with Illumina sequencing systems (Table 1).

Table 1: Nextera DNA Library Prep Specifications

Specification	Value
Input DNA	50 ng
Available indexes	Up to 96
Compatible Sequencers	MiniSeq™, MiSeq®, NextSeq®, and HiSeq® Systems
Supported Read Lengths	Supports all read lengths on any Illumina sequencing system
Median Insert Size	~250 bp
Sample DNA Input Type	Genomic DNA and PCR amplicons

Breakthrough Chemistry

Nextera technology employs a single “tagmentation” reaction to simultaneously fragment and tag DNA with adapters (Figure 2). This process occurs in a single step using master-mixed reagents to provide PCR-ready templates in as little as 15 minutes. Sequencing adapters and indexes are then added to the gDNA fragment by PCR. The optimized Nextera PCR protocol leads to improved performance with GC regions. From start to finish, the complete Nextera library preparation protocol is over 80% faster than any other method available.

Improved Multiplexing

Nextera DNA Library Preparation Kits feature an innovative indexing solution for processing and uniquely barcoding up to 96 samples. Multisample studies can be conveniently managed using the Illumina Experiment Manager, a freely available software tool that provides easy reaction setup for plate-based processing.

Following the addition of 2 indexes to each gDNA fragment, up to 96 uniquely indexed samples can be pooled and sequenced together in a single lane on an Illumina sequencing system. After sequencing, the unique combination of the 2 indexes is used to demultiplex the data and assign reads to the proper sample in the pool. Using this dual barcode approach, Nextera Index Kits only require 20 unique index oligos to process up to 96 samples, providing an easily scalable approach for sample indexing.

Accelerated Applications

Nextera DNA Library Preparation Kits are ideal for experiments where speed and ease are paramount. The low 50 ng DNA input also makes this method amenable to precious samples available in limited quantity. This library preparation workflow can shorten the overall sequencing workflow time for a wide variety of established applications[1-7] and can be automated for even greater throughput. The combination of the MiSeq System and Nextera DNA Library Preparation Kits provide rapid DNA to data in as little as 8 hours. These kits enable rapid applications such as small genome and amplicon sequencing, as well as large genome sequencing on any Illumina platform (Table 2).

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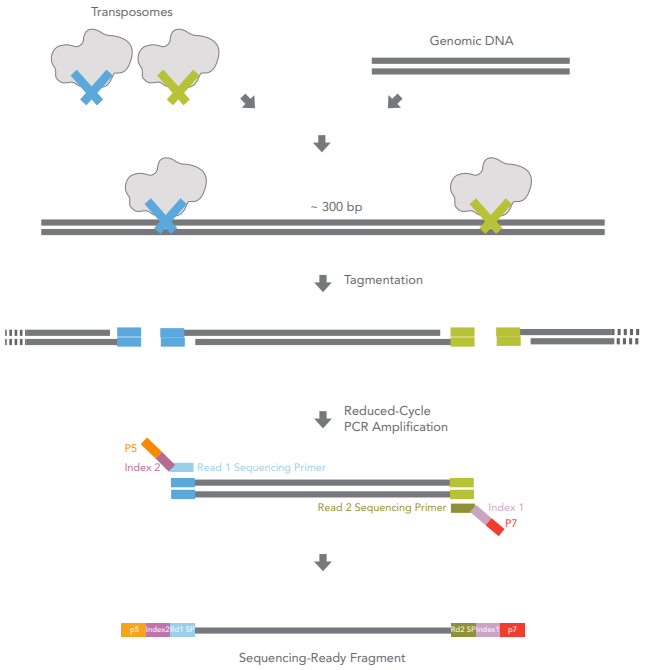

Figure 2: Nextera Library Preparation Biochemistry—Nextera chemistry simultaneously fragments and tags DNA in a single step. A simple PCR amplification then appends sequencing adapters and sample indexes to each fragment.

Summary

The Nextera DNA Library Preparation Kit provides the fastest and easiest sequencing library preparation workflow, delivering completed libraries in 90 minutes that are compatible with all Illumina sequencing systems. Nextera enables high-throughput studies with a built-in solution for indexing up to 96 samples with ultra low DNA input. Combined with the MiSeq System, Nextera DNA Library Preparation Kits enable the fastest DNA to data—all in a single day.

Table 2: Representative Nextera Applications

Nextera Applications
Large-genome resequencing
Small-genome resequencing
Amplicon resequencing
Clone or plasmid sequencing

Ordering Information

Product Name	Catalog No.
Nextera DNA Library Preparation Kit (96 samples)	FC-121-1031
Nextera DNA Library Preparation Kit (24 samples)	FC-121-1030
Nextera Index Kit (96 indexes, 384 samples)	FC-121-1012
Nextera Index Kit (24 indexes, 96 samples)	FC-121-1011
TruSeq Dual Index Sequencing Primer Kit, Single Read (single-use kit)	FC-121-1003
TruSeq Dual Index Sequencing Primer Kit, Paired-End Read (single-use kit)	PE-121-1003

References

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4. Kitzman JO, Mackenzie AP, Adey A, Hiatt JB, Patwardhan RP, et al. (2010) Haplotype-resolved genome sequencing of a Gujarati Indian individual. Nat Biotechnol 29: 59–63.
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7. Voelkerding KV, Dames S, and JD Durtschi (2010) Next generation sequencing for clinical diagnostics-Principles and application to targeted resequencing for hypertrophic cardiomyopathy. J Mol Diagn 12: 539–551.

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