

LexPrep DNA Library Preparation Module v2

Introduction

LexPrep DNA Library Preparation Module v2 is designed for the preparation of high-quality libraries from double-stranded DNA (dsDNA) on Illumina® & MGI platforms. This A-T ligation-based kit offers a stable and efficient library preparation solution for applications including whole genome sequencing of 1–500 ng DNA and hybridization capture based targeted sequencing. Compared to the v1 version, the upgraded kit has improved the library conversion efficiency and better tolerance for low-quality samples. Consequently, it can enhance library complexity while maintaining high fidelity.

Product Feature

Fast and Convenient

- Complete the entire process of whole-genome library preparation within 3 hr

Flexible Compatibility

- Compatible with input amounts ranging from 1 ng to 500 ng.
- Various sample types such as gDNA, FFPE DNA, cfDNA, etc
- Compatible with liquid-phase hybridization capture

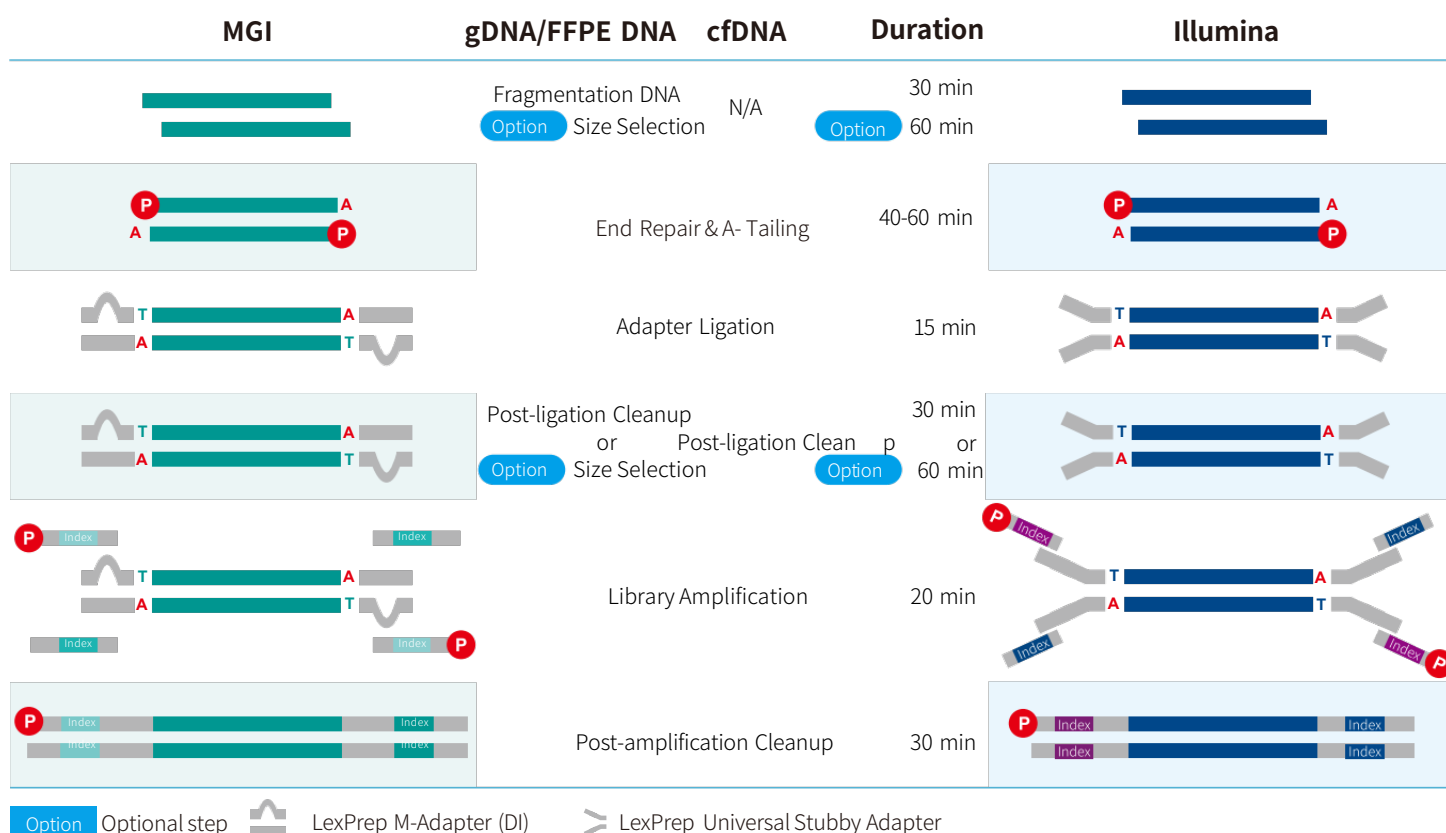
Versatility

- Flexible selection of multiple types of adapters to accommodate both MGI and Illumina platforms

Stable and Efficient

- Higher library yield
- Higher library conversion rate
- Low GC bias

Workflow



Note: The above schematic diagram are taking LexPrep M-Adapter (DI) and LexPrep Universal Stubby Adapter as an example, respectively.

Performance

Stable and Efficient Library Yield

Compatible with a wide range of input amounts

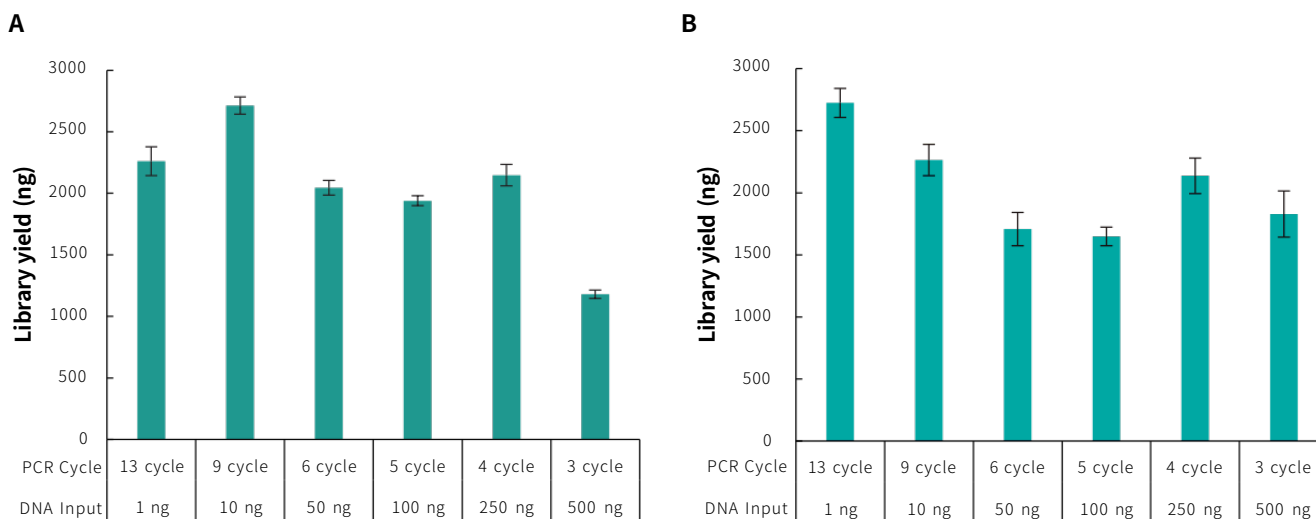


Figure 1. Library yield of LexPrep DNA Library Preparation Kit v2 for gDNA samples with different input amounts. The libraries were prepared by using LexPrep DNA Library Preparation Module v2 coupled with LexPrep Universal Adapter (MDI) Module (for MGI) and LexPrep Universal Stubby Adapter (UDI) Module. **A.** Library yield (MGI); **B.** Library yield (Illumina).

Note: gDNA samples are human genomic DNA standard (Promega, G1521).

Compatible with various types of samples

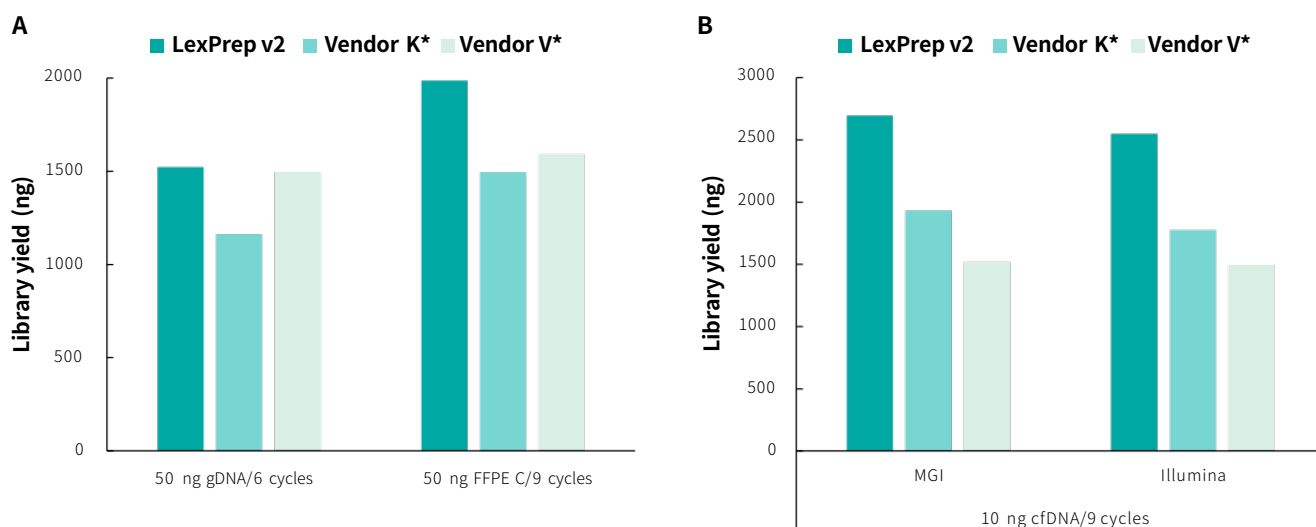


Figure 2. Library yield of LexPrep DNA Library Preparation Kit v2 for different types of samples. The libraries were prepared by using LexPrep DNA Library Preparation Module v2 coupled with **A.** LexPrep Universal Stubby Adapter (UDI) Module and **B.** LexPrep BMI Adapter (MDI) Module (for MGI), and LexPrep Adapter Kit (with 10 nt Index), respectively. The number of amplification cycles followed the corresponding user manuals.

Note: The grading standards by electrophoresis are as follows: gDNA: one bright and non-trailing stripe with about 15 kb in size; FFPE C: multiple stripes ranging from 200 bp to 2,500 bp, with severe diffusion.

Compatible with different types of adapters

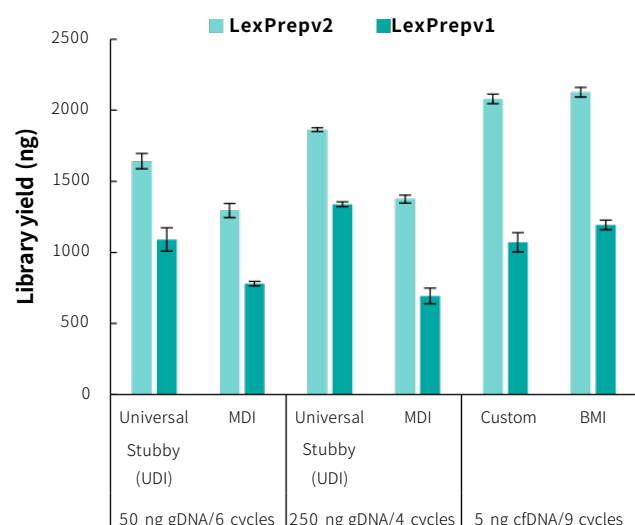


Figure 3. Library yield of LexPrep DNA Library Preparation Kit v2 with different types of adapters. The libraries were prepared from different input samples by using LexPrep DNA Library Preparation Kit/Module (for Illumina®/MGI) (LexPrep v1) and LexPrep DNA Library Preparation Module v2 (LexPrep v2), coupled with LexPrep Universal Stubby Adapter (UDI) Module [Universal Stubby (UDI)], LexPrep Universal Adapter (MDI) Module (for MGI) [MDI], LexPrep BMI Adapter (MDI) Module (for MGI) [BMI], and LexPrep Adapter Kit (with 10 nt Index).

Note: gDNA samples are human genomic DNA standard (Promega, G1471).

Low GC Bias

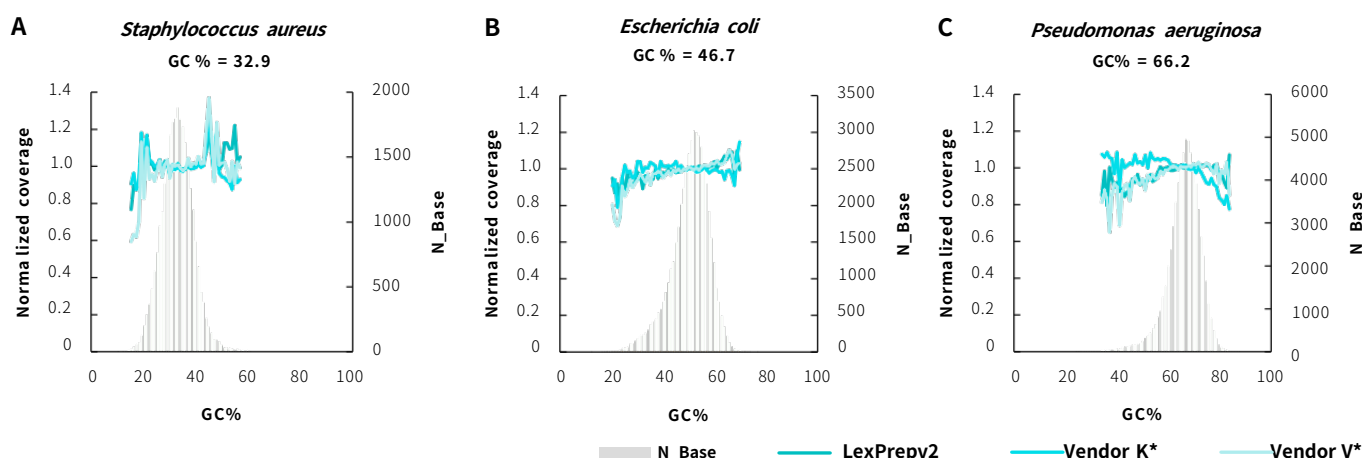


Figure 4. Low GC bias in metagenomic samples library preparation using LexPrep DNA Library Preparation Kit v2. GC bias of whole-genome libraries with various GC content such as **A.** *Staphylococcus aureus*, **B.** *Escherichia coli*, and **C.** *Pseudomonas aeruginosa*.

Higher Library Conversion Rate

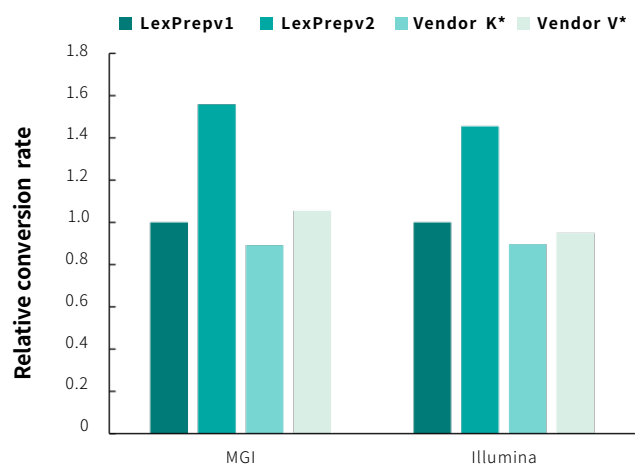


Figure 5. Library conversion rate of LexPrep DNA Library Preparation Kit v2. 10 ng plasma cfDNA were prepared by using LexPrep DNA Library Preparation Module v2 coupled with LexPrep BMI Adapter (MDI) Module (for MGI) and LexPrep Adapter Kit (with 10 nt Index). The capture was performed by using a 2 Kb Panel with Lexso Hybrid System. Sequencing platform: DNBSEQ-T7, PE150; Illumina Novaseq 6000, PE150. For each sample, 1.0 Gb of data was randomly selected for data analysis, and filtering was performed based on Duplex Consensus Sequences (DCS211).

Note: The relative library conversion rate refers to the ratio of library conversion rates achieved by LexPrep v2 and competitor library preparation kits to that of LexPrep DNA Library Preparation Kit/Module (for Illumina®/MGI) (LexPrep v1), with the library conversion rate of LexPrep v1 normalized to 1).

Higher Library Complexity

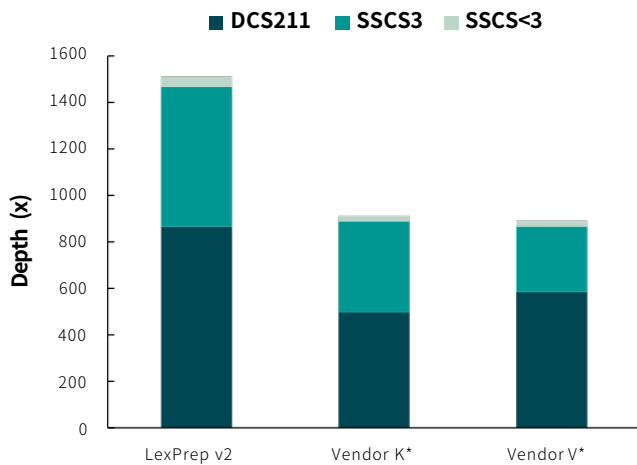


Figure 6. Library complexity of LexPrep DNA Library Preparation Kit v2. 10 ng plasma cfDNA were prepared by using LexPrep DNA Library Preparation Module v2 coupled with LexPrep Adapter Kit (with 10 nt Index). The capture was performed using a 2 Kb Panel with LeXso hybrid system. Sequencing platform: Illumina Novaseq 6000, PE150. For each sample, 1.0 Gb of data was randomly selected for data analysis, and filtering was performed based on Duplex Consensus Sequences (DCS211).

Compatible with Liquid-phase Hybridization Capture

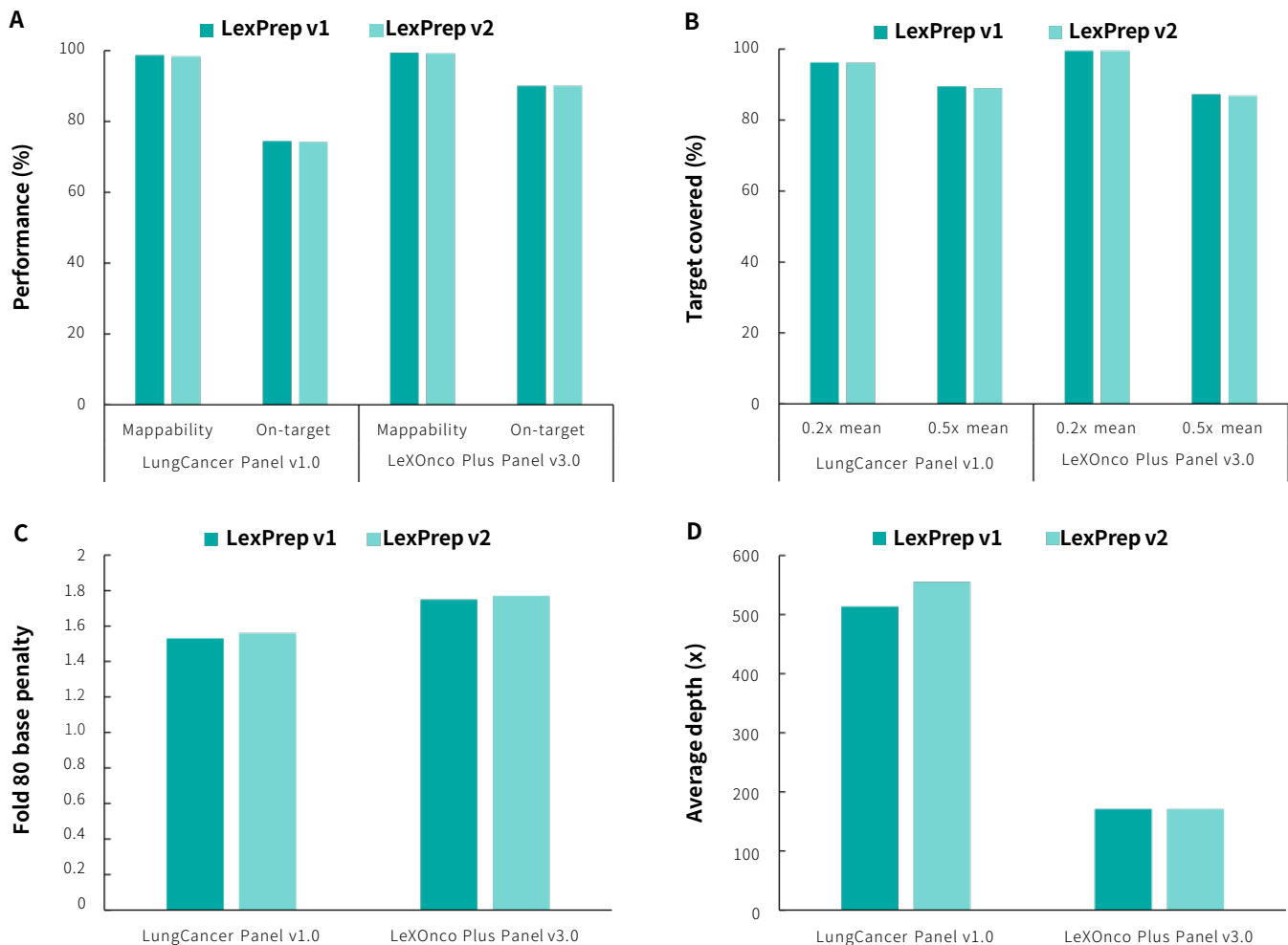


Figure 7. The capture performance of pre-libraries prepared by LexPrep DNA Library Preparation Kit v2. The libraries were prepared from 50 ng FFPE C-grade DNA samples by using LexPrep DNA Library Preparation Module v2, and the multi-hybridization reaction was initiated with 500 ng of each pre-library by using LungCancer Panel v1.0 (0.23 Mb) and LeXOnco Plus Panel v3.0 (2.4 Mb) coupled with LexPrep Hybrid Capture Reagents. **A.** Mappability and On-target rate; **B.** Target covered; **C.** Fold 80 base penalty; **D.** Average sequencing depth after deduplication.

Analysis of Mutation in Standard

Table 1. Consistency of the allele frequencies with the nominal frequencies of the standards in captured data from the libraries prepared by LexPrep DNA Library Preparation Kit v2.

Type	Variant	Expected allele frequency / copy number	Observed allele frequency / copy number		
			LexPrep v2	Vendor K*	Vendor V*
SNV	PIK3CAE545K	5%	5.31%	5.32%	4.98%
Insertion	EGFRV769_D770insASV	5%	5.52%	6.26%	7.15%
Deletion	EGFR Δ E746_A750	5%	4.16%	3.78%	4.33%
Fusion	EML4-ALK Fusion	5%	5.16%	4.47%	6.20%
Fusion	CD74-ROS1 Fusion	5%	5.17%	5.82%	5.00%
CNV	MET Amplification	3.5	4.14	3.81	3.75
CNV	ERBB2 Amplification	7	8.15	9.52	9.09

The libraries were prepared by using LexPrep DNA Library Preparation Module v2 coupled with LexPrep Universal Stubby Adapter (UDI) Module, with 6 cycles of amplification. The capture was performed using LexPrep Hybrid Capture Reagents with the LungCancer Panel v1.0 (0.23 Mb), with a hybridization time of 16 hr.

Sequencing platform: Illumina Novaseq 6000, PE 150.

Note: The samples used were Onco Structural Multiplex 5% aDNA (Genewell. GW-OGTM001), with an initial input of 50 ng.

Ordering Information

Type	Product	Detail	#Catalog
Lib Prep Module	LexPrep DNA Library Preparation Module v2, 24 rxn	24 rxn	LX02421
	LexPrep DNA Library Preparation Module v2, 96 rxn	96 rxn	LX02422
Universal Stubby Adapter (UDI) Module (for Illumina)	LexPrep Universal Stubby Adapter (UDI) Module Set A1, 24 rxn	1-12	LX03240
	LexPrep Universal Stubby Adapter (UDI) Module Set B1, 96 rxn	1-24	LX03241
	LexPrep Universal Stubby Adapter (UDI) Module Set B2, 96 rxn	25-48	LX03242
	LexPrep Universal Stubby Adapter (UDI) Module Set F1, 1152 rxn	1-96	LX03261
	LexPrep Universal Stubby Adapter (UDI) Module Set F2, 1152 rxn	97-192	LX03262
	LexPrep Universal Stubby Adapter (UDI) Module Set F3, 1152 rxn	193-288	LX03263
	LexPrep Universal Stubby Adapter (UDI) Module Set F4, 1152 rxn	289-384	LX03264
	LexPrep Universal Adapter (MDI) Module Set A1 (for MGI), 24 rxn	MDI 1-12	LX03711
Universal Adapter (MDI) Module (for MGI)	LexPrep Universal Adapter (MDI) Module Set B1 (for MGI), 96 rxn	MDI 1-24	LX03721
	LexPrep Universal Adapter (MDI) Module Set B2 (for MGI), 96 rxn	MDI 25-48	LX03722
	LexPrep Universal Adapter (MDI) Module Set B3 (for MGI), 96 rxn	MDI 49-72	LX03725
	LexPrep Universal Adapter (MDI) Module Set B4 (for MGI), 96 rxn	MDI 73-96	LX03726
	LexPrep Universal Adapter (MDI) Module Set F1 (for MGI), 1152 rxn	MDI 1-96	LX03761
	LexPrep Universal Adapter (MDI) Module Set F2 (for MGI), 1152 rxn	MDI 97-192	LX03762
	LexPrep Universal Adapter (MDI) Module Set F3 (for MGI), 1152 rxn	MDI 193-288	LX03763
	LexPrep Universal Adapter (MDI) Module Set F4 (for MGI), 1152 rxn	MDI 289-384	LX03764

(To be continued)

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Type	Product	Scale	Catalog#
Custom Adapter Module	LexPrep Adapter Kit Set A1 (customized), 24 rxn	1-12	Contact
	LexPrep Adapter Kit Set B1 (customized), 96 rxn	1-24	Contact
	LexPrep Adapter Kit Set B2 (customized), 96 rxn	25-48	Contact
	LexPrep BMI Adapter (MDI) Module Set A1 (for MGI), 24 rxn	MDI 1-12	LX03911
	LexPrep BMI Adapter (MDI) Module Set B1 (for MGI), 96 rxn	MDI 1-24	LX03921
	LexPrep BMI Adapter (MDI) Module Set B2 (for MGI), 96 rxn	MDI 25-48	LX03922
	LexPrep BMI Adapter (MDI) Module Set B3 (for MGI), 96 rxn	MDI 49-72	LX03925
	LexPrep BMI Adapter (MDI) Module Set B4 (for MGI), 96 rxn	MDI 73-96	LX03926

Statement

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