創世紀季刊 for NGS

Epicentre (solution based extraction)

DNA

- ★ MasterPure complete DNA and RNA Purification kit
- ★ MasterPure DNA Purification kit for Blood Version II
- ★ MasterPure Gram Positive DNA Purification kit
- ★ MasterPure Yeast DNA Purification kit
- ★ FoxmidMAX DNA Purification kit

RNA

- ★ MasterPure complete DNA and RNA Purification kit
- ★ MasterPure Yeast RNA Purification kit

epicentre
Exclusively available thru Lucigen.

MACHEREY-NAGEL (silica column)

DNA

- ★ Blood and biological fluids
- ★ Plasma
- ★ Tissue and cells
- ★ FFPE samples
- ★ Forensic samples
- ★ Plant and fungi
- ★ Soil, sludge, and sediment
- ★ Food and feed

RNA

- ★ RNA from cells and tissue
- ★ MicroRNA
- ★ RNA, DNA, and protein
- ★ RNA from blood
- ★ RNA and microRNA from FFPE samples
- ★ RNA from plant
- ★ Poly(A) mRNA from total RNA

Virus DNA/RNA

- ★ Cell-free body fluids
- ★ Blood, tissue, feces
- ★ Blood and biological fluids

Swift BIOSCIENCES™

- ★ Accel-Amplicon™ 56G Oncology Panel v2
- ★ Accel-Amplicon™ BRCA1/2, and PALB2 Panel
- ★ Accel-Amplicon™ CFTR Panel
- ★ Accel-Amplicon™ Comprehensive TP53 Panel
- ★ Accel-Amplicon™ EGFR Pathway Panel
- ★ Accel-Amplicon™ Sample_ID Panel
- ★ Accel-NGS® 1S Plus DNA Library Kit
- ★ Accel-NGS® 2S Plus DNA Library Kit
- ★ Accel-NGS® Methyl-Seq DNA Library Kit
- ★ Accel-NGS™ DNA library Kit for Ion Torrent

BIOO SCIENTIFIC®
a PerkinElmer company

- ★ NEXTflex™ Rapid DNA-Seq kit
- ★ NEXTflex™ Cell Free DNA-Seq kit
- ★ NEXTflex™ ChIP-Seq kit
- ★ NEXTflex™ Rapid RNA-Seq kit
- ★ NEXTflex™ Small RNA-Seq kitv3
- ★ NEXTflex Rapid Directional RNA-Seq Kit
- ★ NEXTflex™ Methyl-Seq Library Kit
- ★ NEXTflex™ Bisulfite-Seq kit
- ★ NEXTflex™ 16S V1 – V3 Amplicon-Seq Kit
- ★ NEXTflex™ 16S V5 – V6Amplicon-Seq Kit
- ★ NEXTflex® Amplicon Panel Kits

Soar Above. Discover More.

Accel-Amplicon™ Panels for Illumina® Platforms

Accel-Amplicon panels are based on a unique molecular biology that provides powerful solutions for detecting and screening clinically relevant mutations. Swift Biosciences' multiplex amplicon panels are comprised of 10's to 100's of primer pairs in a single-tube format which are optimized for sequencing on Illumina platforms. Primer pairs in the panels are designed for compatibility with the short DNA fragments from both formalin-fixed, paraffin-embedded (FFPE) and circulating, cell-free DNA (cfDNA) samples. A fast and easy single-tube workflow produces the best-in-class performance for on-target percentage and coverage uniformity, enabling variant discovery and confirmation.

針對基因中特定 amplicon 進行觀察

Features

- Single-tube, 2-hour workflow
- Inputs as low as 10 ng
- Amplicons sized 120-160 bp for compatibility with cfDNA and FFPE
- Limit of detection as low as 1%
- On-target specificity and coverage uniformity > 95%
- Leverages the high fidelity performance of the Illumina platform
- Includes sequencing adapters

Supported Panels

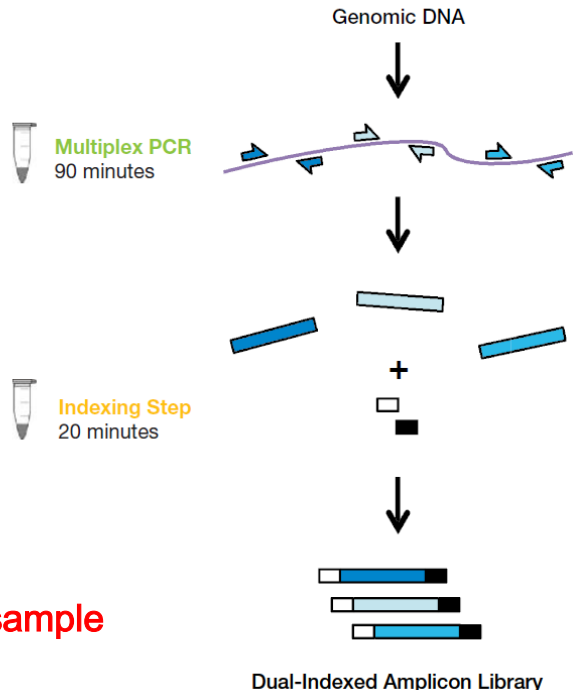
- 56G Oncology Panel
- Comprehensive TP53 Panel
- Custom panels

Sample Types

- FFPE
- cfDNA
- Fresh frozen
- Genomic DNA

適用許多不同來源 sample

Single-Tube, 2-Hour Workflow



The single-tube workflow includes two brief incubations to generate the multiplex amplicon targets and add a unique combination of Illumina-compatible indexed adapters, creating up to 96 uniquely-indexed libraries for multiplexing on a single sequencing run.

Accel-Amplicon™ 56G Oncology Panel v2

ABL1	5	CSF1R	2	FBXW7	6	GNAS	2	KIT	14	NPM1	1	STK11	5
AKT1	2	CTNNB1	1	FGFR1	2	HNF1A	4	KRAS	3	NRAS	3	SMAD4	10
ALK	2	DDR2	1	FGFR2	4	HRAS	2	MAP2K1	5	PDGFRA	4	SMARCB1	4
APC	9	DNMT3A	1	FGFR3	6	IDH1	1	MET	6	PIK3CA	11	SMO	5
ATM	19	EGFR	9	FLT3	4	IDH2	2	MLH1	1	PTEN	14	SRC	1
BRAF	2	ERBB2	4	FOXL2	1	JAK2	2	MPL	1	PTPN11	2	TP53	21
CDH1	3	ERBB4	8	GNA11	2	JAK3	3	MSH6	4	RB1	12	TSC1	1
CDKN2A	2	EZH2	1	GNAQ	2	KDR	9	NOTCH1	3	RET	6	VHL	3

Soar Above. Discover More.

Accel-Amplicon™ BRCA1、BRCA2 and PALB2 Panel

All-in-One Amplicon Solution

The Accel-Amplicon BRCA1, BRCA2, and PALB2 Panel offers comprehensive coverage of the entire coding sequence of the *BRCA1* and *BRCA2* genes, as well as coverage of all coding exons and 5' and 3' UTR regions of *PALB2* (partner and localizer of BRCA2). Utilizing 302 amplicons with an average size of 149 bp, this panel generates targeted libraries compatible with Illumina® and Ion Torrent™ sequencing platforms. The unique design of the Accel-Amplicon BRCA1, BRCA2, and PALB2 Panel enables compatibility with **FFPE** and **cfDNA** samples.

Features:

Single-tube assay
Ready-to-sequence libraries in 2 hours
Inputs as low as 10 ng

Benefits:

- Average amplicon size of 149 bp for compatibility with FFPE and cfDNA
- Limit of detection as low as 1-5% for somatic mutations
- On-target specificity and coverage uniformity > 95%
- Leverages the high fidelity performance of the Illumina platform
- Complete library generation in a single kit

Input	Sample Type	Reads Aligned	% Bases on Target Aligned	Mean Coverage	% Coverage Uniformity
NA12878	Coriell	464,833	98.4	97.6	98.2
HD701	Horizon Diagnostics	462,032	98.5	97.9	98.0

The Accel-Amplicon BRCA1, BRCA2, and PALB2 Panel was used to prepare libraries from 10 ng inputs of high quality Coriell NA12878 gDNA and Horizon Diagnostics Quantitative Multiplex DNA Reference Standards HD701. Sequencing was performed using MiniSeq® Reagents

Soar Above. Discover More.

Accel-Amplicon™ CTFR Panel

Comprehensive. Fast. Lowest Input.

The Accel-Amplicon CFTR Panel offers a comprehensive approach to screen disease-relevant mutations and variants in the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) gene. This unique panel utilizes 87 amplicons covering all exons, including 5' and 3' UTRs and regions of interest in introns 1, 12, 22, and 25. It also captures all ACMG-recommended mutations, as well as offers a standardized solution to identify additional variants.

Features and Benefits:

Single-tube assay
Ready-to-sequence libraries in 2 hours
Inputs as low as 10 ng
Covers 100% ACMG-recommended mutations
Captures poly-T tracts in concordance with the Sanger sequencing method
Standardized for gDNA from whole blood, dried blood spot, saliva and buccal swabs.

Mutation (Legacy Name)	Sanger Sequencing "The Gold Standard"	Accel-Amplicon™ CFTR Panel	AmpliSeq™ CFTR Community Panel	CF 139-Variant Assay
F508del	+	+	+	+
I507del	+	+	+	+
G542X	+	+	+	+
G85E	+	+	+	+
R117H	+	+	+	+
621+1G>T	+	+	+	+
711+1G->T	+	+	+	+
R334W	+	+	+	+
R347P	+	+	+	+
A455E	+	+	+	+
1717-1G>A	+	+	+	+
R560T	+	+	+	+
R553X	+	+	+	+
G551D	+	+	+	+
1898+1G>A	+	+	+	+
2184delA	+	+	+*	+
2789+5G>A	+	+	+	+
3120+1G>A	+	+	+	+
R1162X	+	+	+	+
3659delC	+	+	+	+
3849+10kbC>T	+	+	+	+
W1282X	+	+	+	+
N1303K	+	+	+	+
F508C	+	+	+	CR
T5	+	+	+	CR
T7	+	+	ND	CR
T9	+	+	ND	CR

The Accel-Amplicon CFTR Panel detected ACMG-recommended variants (in bold) and other key variants in libraries prepared from 10-30 ng of DNA from DBS. The variants were called by FreeBays and GATK HaplotypeCaller (Broad Institute). The Accel-Amplicon CFTR Panel covers all exons, 5' and 3' UTRs, and regions of interest in introns 1, 12, 22, and 25 for the CFTR gene. Abbreviations: ACMG, American College of Medical Genetics; CF, cystic fibrosis; CFTR, CF transmembrane regulator; CR, conditionally reported with an R117H present; ND, not distinguishable. +* mutations assayed but detectable by method. Boldface entries indicate ACMG mutations.

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Accel-Amplicon™ Comprehensive TP53 Panel

All-in-One Amplicon Solution

The Accel-Amplicon™ Comprehensive TP53 Panel offers comprehensive coverage of all coding regions of the TP53 gene, using a 21-amplicon design to generate multiplex libraries compatible with Illumina sequencing platforms. Accel-Amplicon Comprehensive TP53 Panel is compatible with short DNA fragments from both **FFPE** and **cfDNA**. This is especially well-suited for research focused on detecting clinically-relevant allele variants in DNA from circulating tumor cells (CTCs).

Features:

Single-tube assay
Ready-to-sequence libraries in 2 hours
Inputs as low as 10 ng

Benefits:

- Average amplicon size of 140 bp for compatibility with cfDNA and FFPE
- Limit of detection as low as 1%
- On-target specificity and coverage uniformity > 95%
- Leverages the high fidelity performance of the Illumina platform

NCI TP53 Mutation	Accel-Amplicon TP53 Panel	Ion AmpliSeq Custom Panel
V225I	✓	✓
R248Q	✓	✓
L130F	✓	✓
G244D	✓	✓
R273H	✓	✓
E286K	✓	✓
M246I	✓	✓
R306*	✓	✓
Y107*	✓	✓
E180K	✓	✓
D148H	✓	✓
R248W	✓	✓
E204G	Wild Type	False Positive
Y205H	Wild Type	False Positive
Del	Wild Type	False Positive

The Accel-Amplicon Comprehensive TP53 Panel was compared with an Ion AmpliSeq Panel on cervical tumor FFPE samples and matched normal blood reference samples. 10 ng input DNA was used per sample and the libraries were sequenced to an average depth of 2000X on an Illumina MiSeq. The AmpliSeq assay called mutations across TP53 coding exons in 15 tumor samples. Somatic mutations were called using LoFreq 2.1.1 (Genome Institute of Singapore) and GATK HaplotypeCaller (Broad Institute). The discrepant calls were subsequently determined to be AmpliSeq false positives (indicated in red). Samples and AmpliSeq data were obtained from the National Cancer Institute (NCI).

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Accel-Amplicon™ EGFR Pathway Panel

All-in-One Amplicon Solution

The Accel-Amplicon™ EGFR Pathway Panel offers contiguous coverage of **EGFR** and hotspot coverage of **BRAF, KRAS**, and **NRAS**, using a 17-amplicon design to generate multiplex libraries compatible with Illumina sequencing platforms. The Accel-Amplicon EGFR Pathway Panel is compatible with short DNA fragments from both **FFPE** and **cfDNA** samples. This is especially well-suited for research focused on detecting clinically-relevant allele variants in DNA from circulating tumor cells (CTCs).

Features:

Single-tube assay
Ready-to-sequence libraries in 2 hours
Inputs as low as 10 ng

Benefits:

- Average amplicon size of 136 bp for compatibility with cfDNA and FFPE
- Limit of detection as low as 1%
- On-target specificity and coverage uniformity > 95%

Gene	AA	CHR	POS	REF	ALT	Expected Allele Frequency	Detected Allele Frequency (N=12)	Standard Deviation
EGFR	G719S	7	55241707	G	A	24.5	24.2	0.6
KRAS	G13D	12	25398281	C	T	15.0	14.6	0.5
NRAS	Q61K	1	115256530	G	T	12.5	11.9	1.4
BRAF	V600E	7	140453136	A	T	10.5	10.0	1.2
KRAS	G12D	12	25398284	C	T	6.0	6.2	0.6
EGFR	L858R	7	55259515	T	G	3.0	2.7	0.5
EGFR	ΔE746-A750	7	55242465-55242479	Del15bp		2.0	1.3	0.3
EGFR	T790M	7	55249071	C	T	1.0	0.8	0.2

The Accel-Amplicon EGFR Pathway Panel consistently detected validated variants at the expected frequency in replicates from 10 ng of the Horizon Diagnostics Quantitative Multiplex DNA Reference Standards HD701. The variants were called by LoFreq 2.1.1 (Genome Institute of Singapore) and GATK HaplotypeCaller (Broad Institute). When examining uncommon variants between the 10 replicates, the majority of background variants were present at less than 0.6%. No sporadic variants greater than 0.6% were detected.

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Accel-Amplicon™ Sample_ID Panel

Track and Manage Samples, Including Matched Pairs

The Accel-Amplicon™ Sample_ID Panel presents 95 primer pairs targeting exonic single nucleotide polymorphisms (SNPs) with high minor allele frequency (MAF) and 9 amplicons to determine gender. With the advent of liquid biopsy assays to monitor treatment response of oncology patients in research studies, proper tracking of samples has become more and more critical.

Features:

- Single-tube assay
- Ready-to-sequence libraries in 2 hours
- Inputs as low as 10 ng
- 104 amplicons: 95 for exonic SNPs and 9 for gender ID

Benefits:

- Power of discrimination over 1 in 85,000
- Compliments WGS or exome sequencing for sample tracking
- On-target specificity and coverage uniformity > 95%

The data below demonstrate the performance of the Accel-Amplicon Sample_ID Panel on three Coriell reference samples:

Sample	Coverage Uniformity at > 20% of Mean	On Target
Coriell NA12878 Female Caucasian	100%	96.5%
Coriell NA00897 Male Caucasian	100%	95.4%
Coriell 11496 Male Caucasian	100%	96.2%

Soar Above. Discover More.

Accel-NGS™ 1S Plus DNA Library Kit

The Accel-NGS 1S Plus DNA Library Kit for Illumina® and Ion Torrent™ platforms utilizes innovative Swift technology, which allows DNA library construction from single-stranded DNA (ssDNA), as well as double-stranded DNA (dsDNA) which is nicked, damaged, or contains short fragments.

Features

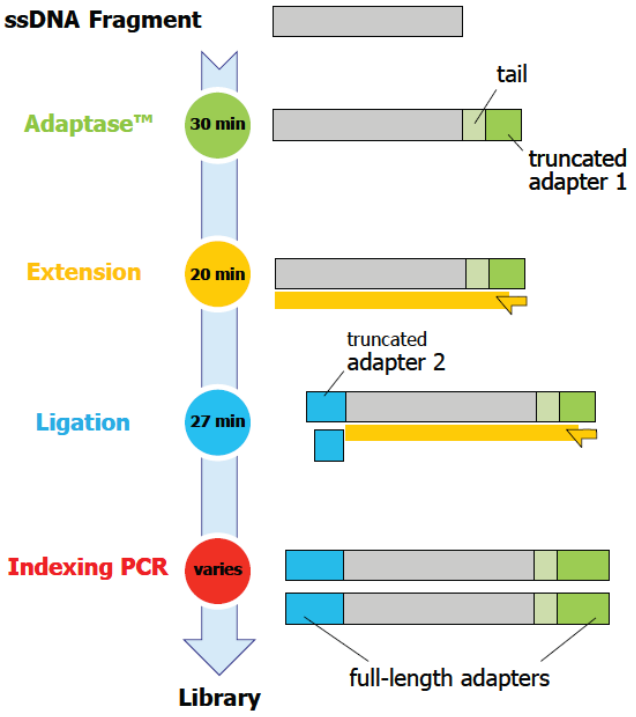
- Does not require intact dsDNA
- Highly efficient adapter ligation
- Inputs as low as 10 pg
- Simple, 2-hour protocol
- High sequence quality and even coverage

Applications

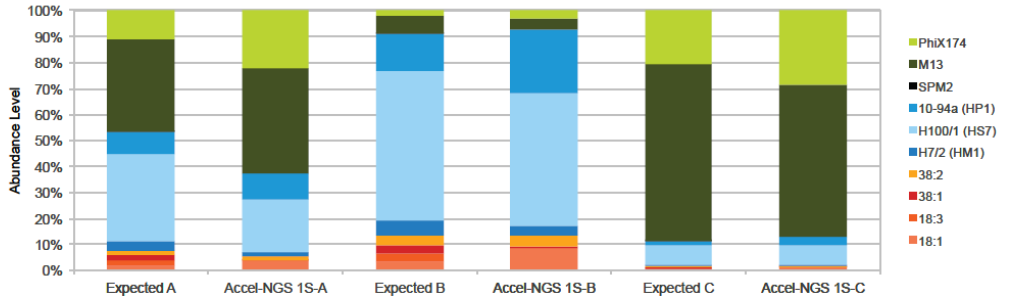
- ssDNA samples
- ChIP-seq
- Damaged samples, including nicked DNA
- Metagenomics
- Viromics
- Difficult-to-extract organisms
- Heat-denatured pathogenic samples
- Synthetic DNA, oligonucleotides
- NimbleGen™ and IDT xGen® Lock-down® captures

Simple Workflow

需先自行將 RNA 轉成 cDNA



Accurate Detection of Both ssDNA and dsDNA Phage



Accel-NGS 1S Plus DNA Library Kit was used to prepare and sequence three artificial viromes containing different proportions of the ssDNA phage PhiX174 and M13 mixed with dsDNA phage. In all cases, the proportions were preserved when sequenced with the Accel-NGS 1S Plus Kit without any prior whole genome amplification for detection of ssDNA phage.

Swift BIOSCIENCES

Soar Above. Discover More.

Accel-NGS™ 2S DNA Library Kit for Illumina® Platforms

The Accel-NGS 2S DNA Library Kit utilizes a proprietary adapter ligation chemistry which provides complex libraries from low abundance inputs and delivers excellent coverage across a range of inputs.

Features

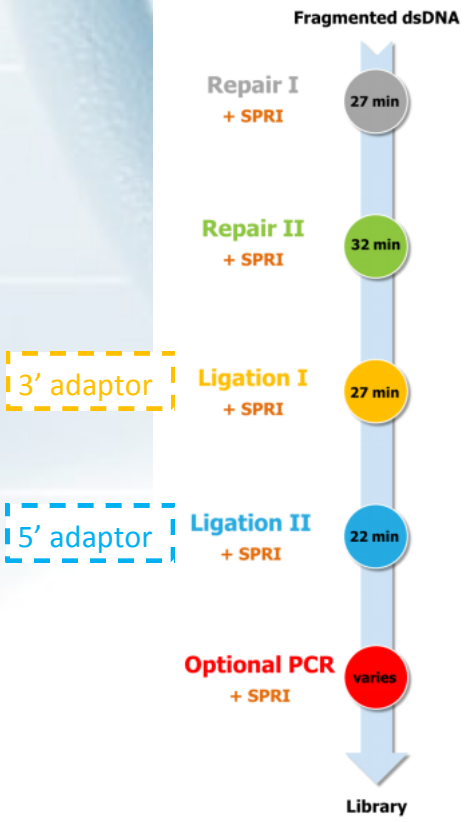
- Broad input range: 10 pg to 1 µg
- PCR-free libraries from 10 ng
- Sequential repair and ligation steps
- Increased library complexity
- Balanced coverage of AT-rich and GC-rich genomes

Applications

- Human WGS
- ChIP-seq
- Metagenomics
- Amplicon sequencing
- Clinical samples such as FFPE and plasma*
- SureSelect^{XT}, IDT xGen Lockdown, and NimbleGen captures

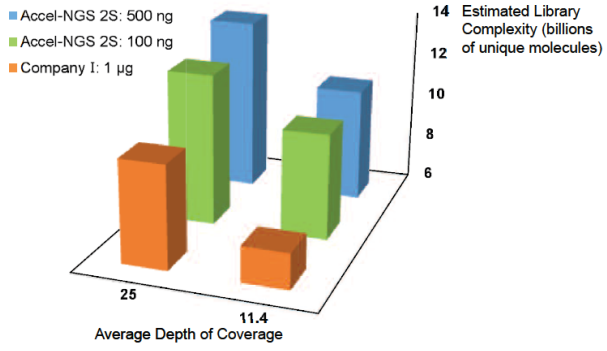
**This product is for Research Use Only. Not for use in diagnostic procedures.*

Protocol Overview



Performance Data

Generate Higher Complexity Libraries than the Leading Kit



Library complexity was obtained at various sequencing depths for Accel-NGS 2S libraries compared to libraries made with the leading kit.

- Using four incubations, this protocol repairs both 5' and 3' termini and sequentially attaches Illumina adapter sequences to the ends of fragmented dsDNA.
- Bead-based SPRI clean-ups are used to remove oligonucleotides and small fragments, and to change enzymatic buffer composition between steps. Different SPRIselect bead-to-sample ratios are utilized for different input quantities and insert sizes.
- For PCR-free applications, the resulting functional library is ready for library quantification and sequencing on the Illumina platform.
- Alternatively, an optional PCR step may be used to increase yield of indexed libraries, which then may be quantified and sequenced. Please refer to the table on Page 6 for recommended library sizes and input requirements.

Soar Above. Discover More.

Accel-NGS™ Methyl-Seq Library Kit for Illumina® Platforms

The Accel-NGS Methyl-Seq Library Kit maximizes DNA recovery of bisulfite-converted samples and constructs libraries that accurately represent sample composition. The Accel-NGS Methyl-Seq workflow maximizes DNA recovery through a post-bisulfite library preparation, utilizing a highly efficient adapter attachment that is compatible with single-stranded, bisulfite-converted DNA. Library yields from this kit are up to 100x greater than those from methods that bisulfite convert after library construction. Additionally, the template-independent adapter attachment chemistry of the Accel-NGS Methyl-Seq Kit provides a more complete, less biased library as observed from comprehensive methylome coverage by Whole Genome Bisulfite Sequencing (WGBS).

Features

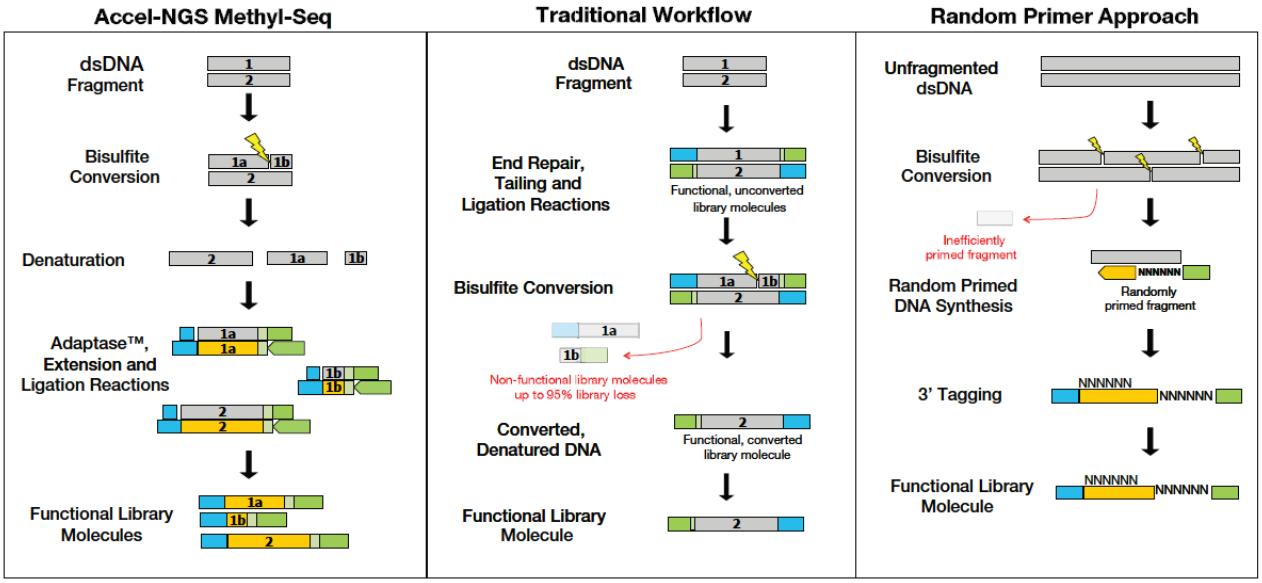
- High recovery of input DNA
- Low bias library preparation
- Simple, 2-hour library prep
- Minimal PCR cycles required
  - 4 cycles for 100 ng
  - 7 cycles for 10 ng
  - 10 cycles for 1 ng
  - 14 cycles for 100 pg

Applications

- WGBS
- Reduced Representation Bisulfite Sequencing (RRBS)
- Circulating, cell-free DNA
- Hybridization capture using NimbleGen™ SeqCap™ Epi Enrichment System
- Bisulfite-converted DNA enriched by MeDIP, ChIP or other methods
- Applications requiring uracil tolerance

不同 cycle 對應不同 input

Workflow Superior to the Leading Kits



The Accel-NGS Methyl-Seq workflow utilizes post-bisulfite library construction and template-independent adapter attachment chemistry, which result in high recovery and low bias, respectively. Traditional workflow's pre-bisulfite library construction and random primer DNA synthesis account for their low recovery and high bias, respectively.

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Accel-NGS™ DNA Library Kit for Ion Torrent

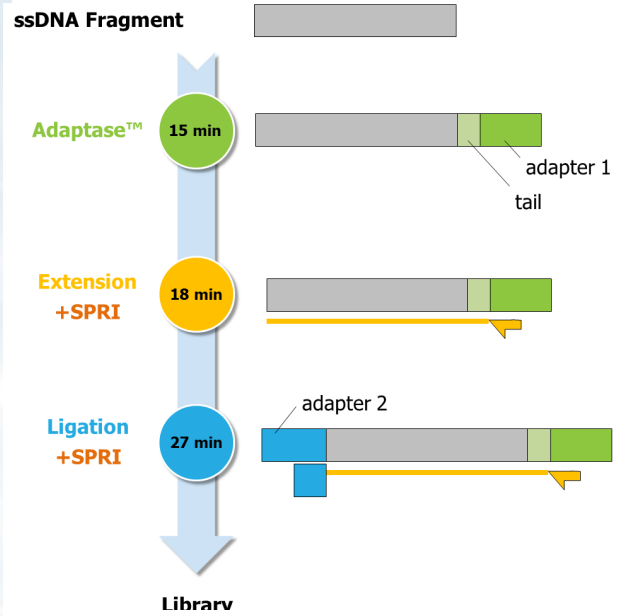
DNA Library Preparation for Next Generation Sequencing (NGS) on Ion Torrent Platforms

Innovative Swift technology improves sample prep for next gen sequencing by expediting the process and delivering higher quality data. The Accel-NGS DNA Library Kit for Ion Torrent platforms is the only commercially available kit capable of producing PCR-free libraries with as little as 5 ng of input DNA. PCR-free capability minimizes base composition bias and fidelity issues, while a highly efficient adapter ligation process reduces the input requirements.

- PCR-free to minimize base composition bias and fidelity issues
- Low input requirements: as little as 5 ng of DNA
- Fast - only 75 minutes start-to-finish
- Streamlined, 3-step protocol
- Reduces adapter dimer formation to maximize sequencing output
- Compatible with nicked, damaged, and denatured samples

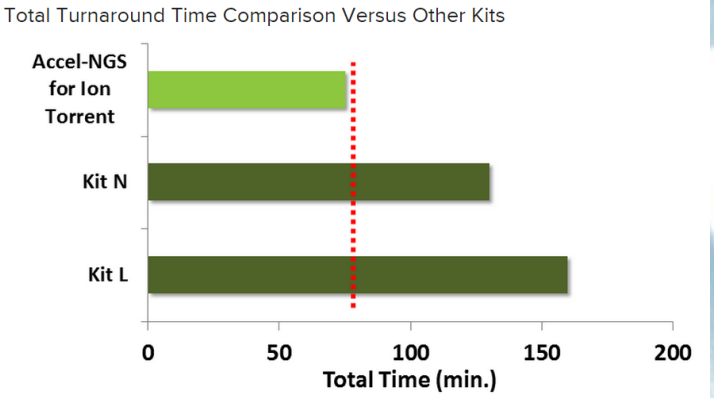
Sample Types

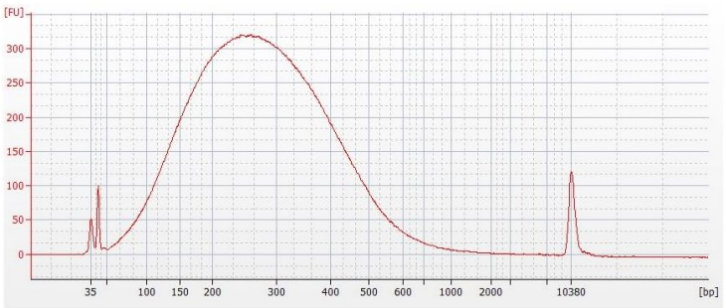
Single-stranded DNA
Double-stranded DNA
Heat-denatured samples
Amplicons
Nicked DNA
ChIP DNA
FFPE DNA
cDNA
Extremely AT/GC-rich Genomes



Instrument Compatibility

Ion Proton System
Ion PGM System





Example Library Size Distribution by Agilent Bioanalyzer for a 150 bp Insert Size Library Prepared from E. coli DNA .

Product Manuel

★ Accel-Amplicon™ 56G Oncology Panel v2

CAT. NO.	DESCRIPTION	RXN
AL-56248	Accel-Amplicon 56G Oncology Panel v2	48

★ Accel-Amplicon™ BRCA1/2, and PALB2 Panel

CAT. NO.	DESCRIPTION	RXN
AL-57048	Accel-Amplicon BRCA1, BRCA2, and PALB2 Panel	48

★ Accel-Amplicon™ CFTR Panel

CAT. NO.	DESCRIPTION	RXN
AL-55048	Accel-Amplicon CFTR Panel	48

★ Accel-Amplicon™ Comprehensive TP53 Panel

CAT. NO	DESCRIPTION	RXN
AL-53048	Accel-Amplicon Comprehensive TP53 Panel	48

★ Accel-Amplicon™ EGFR Pathway Panel

CAT. NO.	DESCRIPTION	RXN
AL-51048	Accel-Amplicon EGFR Pathway Panel	48

★ Accel-Amplicon™ Sample_ID Panel

CAT. NO.	DESCRIPTION	RXN
AL-50048	Accel-Amplicon Sample_ID Panel	48

Product Manuel

★ Accel-NGS® 1S Plus DNA Library Kit

CAT. NO.	DESCRIPTION	RXN
10024	Accel-NGS 1S Plus DNA Library Kit	24
10096	Accel-NGS 1S Plus DNA Library Kit	96
16024	1S Plus Set A Indexing Kit (12 indices)	24
18096	1S Plus Dual Indexing Kit (96 unique combinations)	

★ Accel-NGS® 2S Plus DNA Library Kit

CAT. NO.	DESCRIPTION	PRICE
21024	Accel-NGS 2S Plus DNA Library Kit	24
21096	Accel-NGS 2S Plus DNA Library Kit	96
26148	2S Set A Indexing Kit (12 indices)	48
26248	2S Set B Indexing Kit (12 indices)	48
26396	2S Set A+B Indexing Kit (24 indices)	96
27148	2S Set A MID Indexing Kit (12 indices)	48
27248	2S Set B MID Indexing Kit (12 indices)	48
27396	2S Set A+B MID Indexing Kit (24 indices)	96
28096	2S Dual Indexing Kit (96 unique combinations)	

Product Manuel

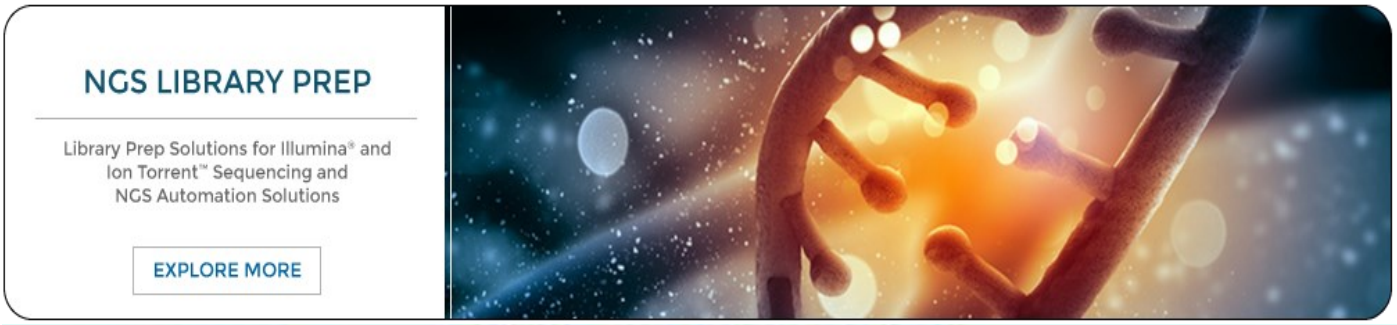
★ Accel-NGS® Methyl-Seq DNA Library Kit

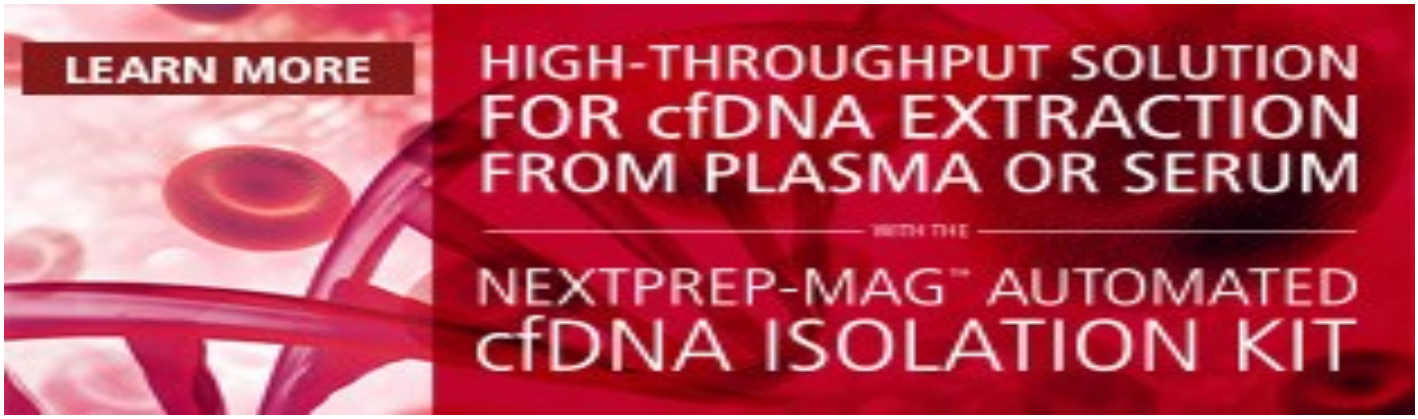
CAT. NO.	DESCRIPTION	RXN
30024	Accel-NGS Methyl-Seq DNA Library Kit (24 rxns)	24
30096	Accel-NGS Methyl-Seq DNA Library Kit (96 rxns)	96
36024	Methyl-Seq Set A Indexing Kit (12 indices, 24 rxns)	24
38096	Methyl-Seq Dual Indexing Kit (96 unique combinations)	

★ Accel-NGS™ DNA library Kit for Ion Torrent

CAT. NO.	DESCRIPTION	RXN
11010	Accel-NGS DNA Library Kit for Ion Torrent	10
11050	Accel-NGS DNA Library Kit for Ion Torrent	50
16110	Ion Set A Barcoding Kit (10 barcodes)	10
16150	Ion Set A Barcoding Kit (10 barcodes)	50
16210	Ion Set B Barcoding Kit (10 barcodes)	10
16250	Ion Set B Barcoding Kit (10 barcodes)	50

DNA library preparation kit





Select Institutions Using NEXTflex™ Sequencing Kits & Reagents

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Children's Hospital Boston
Cold Spring Harbor Lab
Columbia Medical Center
Dartmouth Medical School
Fred Hutchison Cancer Research Inst
Harvard Medical School
J. Craig Venter Institute
Johns Hopkins Univ
MD Anderson Medical Center
Medical Neurogenetics
Memorial Sloan Kettering Cancer Center
MIT
Mount Sinai School of Medicine
National Cancer Institute
National Institute of Health
New York Univ
Northern Arizona Univ
Oklahoma Medical Research Foundation
Rockefeller Univ
St Jude Children's Research Hospital
Stowers Institute
Translational Genomics Research Institute (TGEN)
Univ of British Columbia
Univ of California – Berkeley
Univ of California – Davis
Univ of California – Riverside
Univ of California - San Diego
Univ of California – Riverside
Univ of Illinois
Univ of Massachusetts
Univ of Massachusetts Med School
Univ of Montana
Univ of N. Carolina
University of Texas Health Science Center
Univ of Washington
University of Wisconsin, Madison
USDA
Vanderbilt University

創世紀生技
Bio-genesis Technology

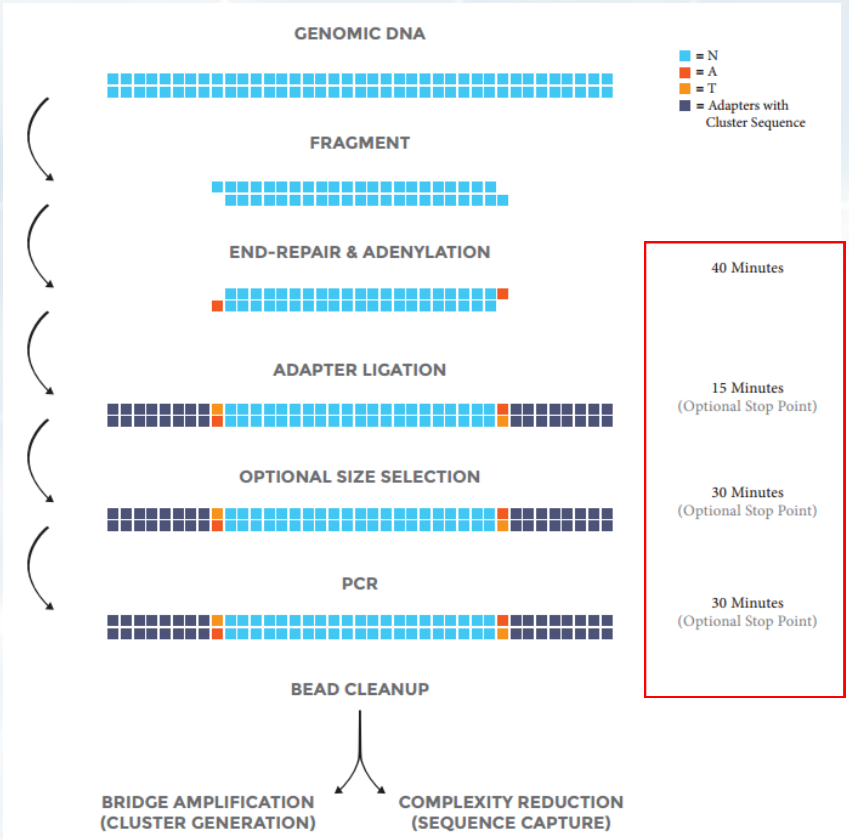
BIOO SCIENTIFIC NGS KITS

NEXTflex™ Rapid DNA Sequencing Kit
(1 ng – 1 µg)

(Illumina Compatible)
Catalog #5144-01 (8 reactions)

- Flexible amounts of input DNA from 1 ng to 1 µg
- Fast workflow requiring 2 hours or less, with minimal hands-on time.
- Enhanced Adapter Ligation Technology offers a larger number of unique sequencing reads
- Automation-friendly workflow
- Flexible barcode options – up to 192 barcodes available
- Compatible with Illumina® sequencing platforms including

Sample flow chart with approximate times necessary for each step.



約 2 小時

End Polishing
↓
Adapter Ligation
↓
PCR

1 ng – 1 µg

2 hours or less

The NEXTflex Rapid DNA-Seq Kit features a streamlined library prep protocol to help you meet your research goals faster than you thought possible.

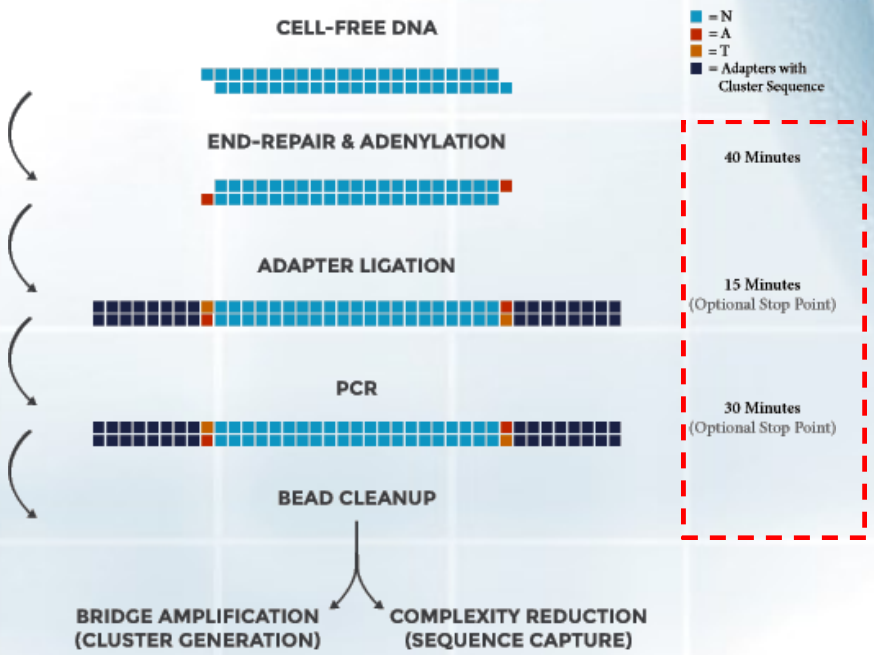
BIOO SCIENTIFIC NGS KITS

NEXTflex™ Cell Free DNA-Seq Kit

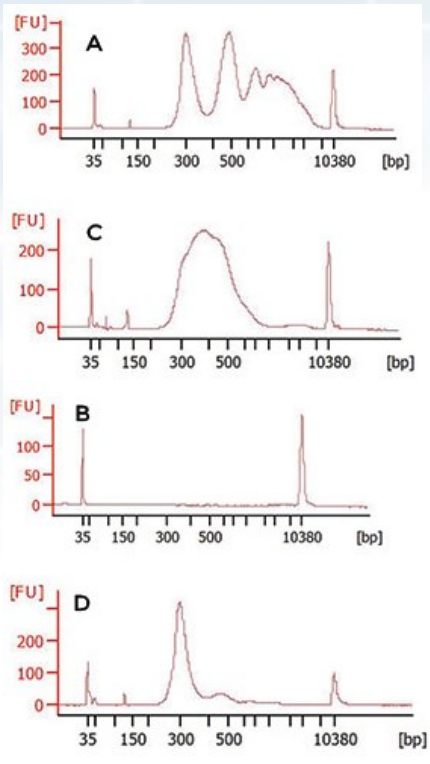
(Illumina Compatible)

針對游離 DNA 進行觀察

- Designed for low sample input - Only 1 ng of input DNA required
- Accelerated workflow requiring 2 hours or less, with minimal hands-on time
- Enhanced Adapter Ligation Technology offers a larger number of unique sequencing
- Flexible adapter barcode options – Kits containing up to 192 unique barcodes



約 90 min



Panel A: Library from 32 µL (64% of prep) of cell-free DNA from a male donor amplified for 15 cycles. Note the broad size distribution, which reflects the discrete sizes of cell-free DNA fragments. The cell-free DNA was not fragmented prior to use.

Panel B: Analysis of the corresponding input cell-free DNA used to make the library shown in Panel A. Note, the concentration of cell-free DNA is too low to be detected, which is typical.

Panel C: Library made from 1 ng of sheared human genomic DNA, amplified for 15 cycles. Note the much different size distribution compared to the library made from cell-free DNA.

Panel D: Library made from cell-free DNA size-selected prior to library construction, using Ampure magnetic beads to enrich for small cell-free DNA. Library was amplified for 12 cycles. Sample

BIOO SCIENTIFIC NGS KITS

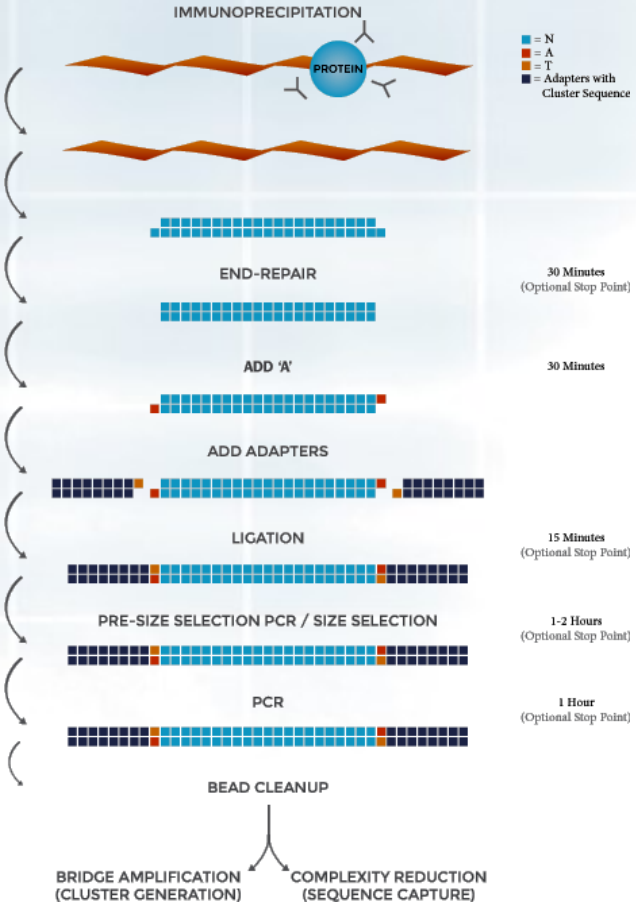
NEXTflex™ ChIP-Seq Kit

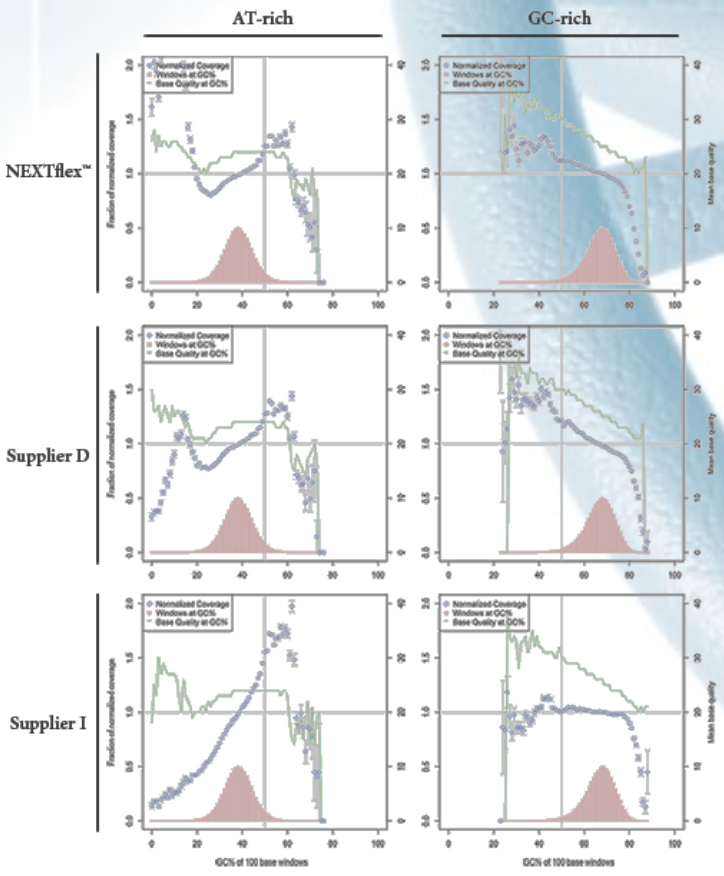
(Illumina Compatible)

Catalog #5143-01 (8 reactions)

- Optimized for down to 1 ng of DNA input
- For use with ChIP or genomic DNA samples
- Optimized for low DNA input with NanoQ™ enzymes and buffers
- Enhanced Adapter Ligation Technology offers optimal coverage and unique reads
- Flexible barcode options – up to 96 unique, single-index barcoded adapters available

	NEXTflex PCR Polymerase		Supplier D		Supplier I	
	AT-rich	GC-rich	AT-rich	GC-rich	AT-rich	GC-rich
Total Paired-End Reads	2363781	1725421	2094505	1824620	1575501	1698010
Total Alignments	1964864	1599803	1755982	1688314	1340286	1587546
Non-Duplicated Fragments	1926568	1528556	1727176	1590569	1321802	1541873





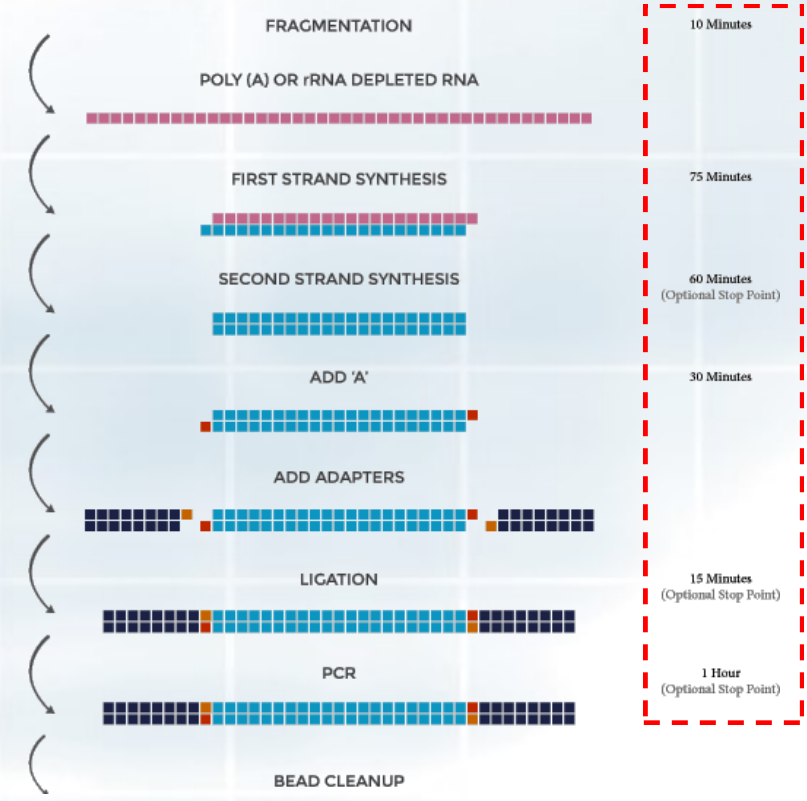
BIOO SCIENTIFIC NGS KITS

NEXTflex™ Rapid RNA-Seq Kit

(Illumina Compatible)

Catalog #5138-01 (8 reactions)

- Faster than traditional Illumina RNA library prep protocols
- Complete solution includes thermostable NEXTflex Rapid Reverse Transcriptase
- Input - 10 ng – 1 µg total RNA for enrichment by NEXTflex™ Poly(A) Beads or ~ 1 ng - 100 ng isolated mRNA or rRNA-depleted RNA
- Up to 96 barcodes available for multiplexing



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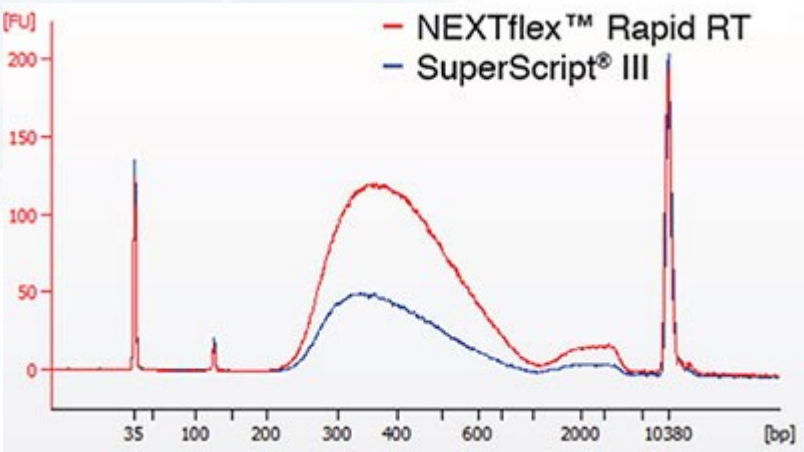


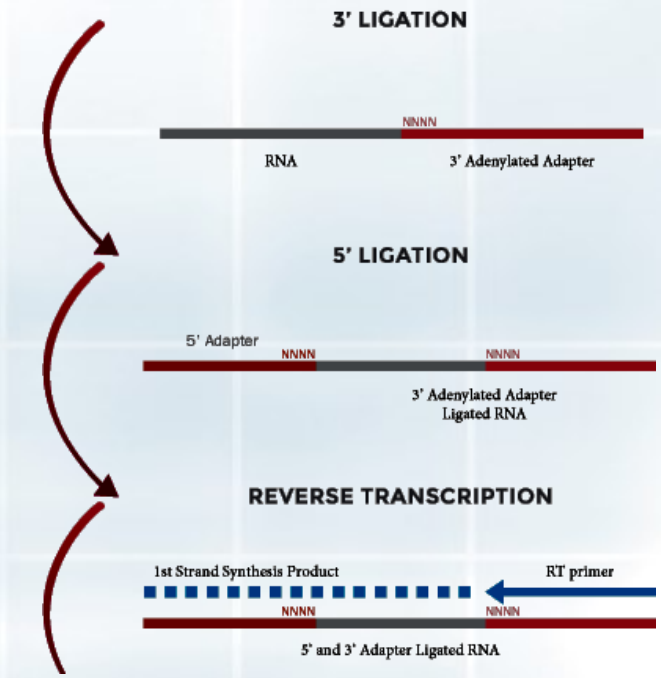
Improved library yield using NEXTflex Rapid RT. High Sensitivity DNA Bioanalyzer traces of RNA-Seq libraries constructed with NEXTflex Rapid RNA-Seq Kits. Libraries were constructed using 10 ng of fragmented, Poly (A)+ mRNA converted to cDNA using either NEXTflex Rapid RT (blue) or SuperScript® III (red).

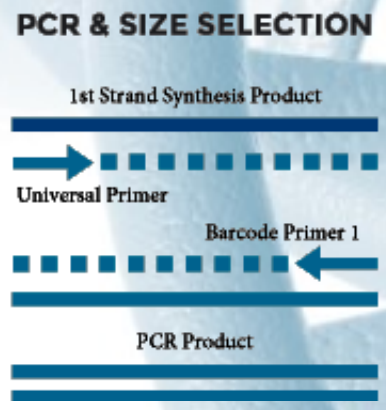
BIOO SCIENTIFIC NGS KITS

NEXTflex™ Small RNA-Seq Kit v3

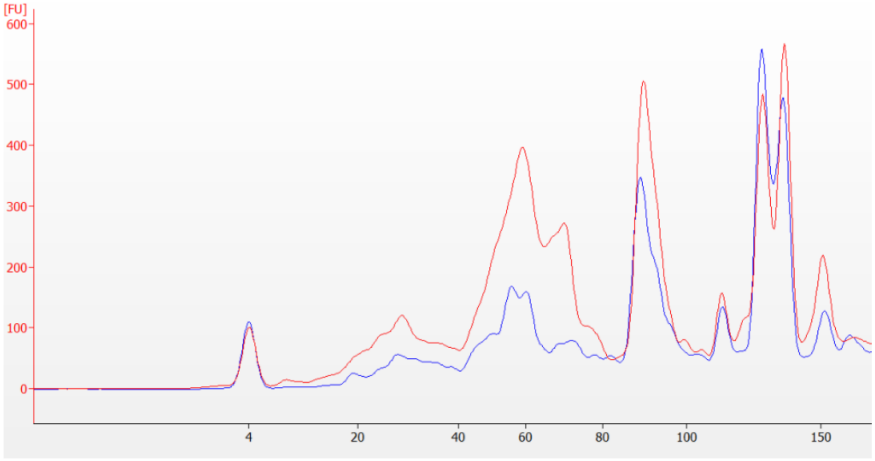
(Illumina® Compatible)

- Incorporates patent pending randomized adapters which reduce ligation bias, resulting in more accurate data than can be obtained using traditional Illumina small RNA-seq library prep protocols
- Utilizes AIR™ Ligase, a highly efficient truncated T4 RNA Ligase for greater sequencing depth
- Simplified workflow reduces hands-on time 48 barcoded PCR Primers for multiplexing available





Small RNA Traces from Agilent Bioanalyzer



Bioanalyzer Small RNA assay results from 100 ng of human brain total RNA (red line) and MCF-7 total RNA (blue line). Mi-croRNAs are shown in the region from ~10 to 40 nts. Both of these RNA samples are suitable for library preparation with the NEXTflex™ Small RNA Sequencing Kit v2, but greater input amount or more PCR cy-cles will be required for library preparation from the MCF-7 RNA sample versus the human brain RNA sample.

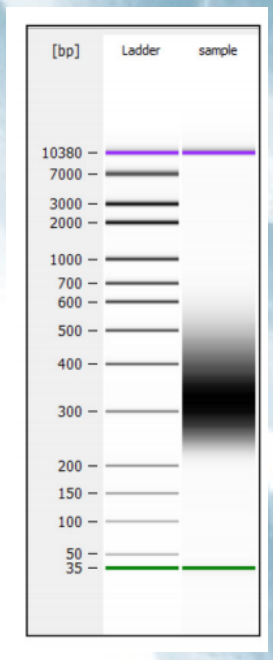
BIOO SCIENTIFIC NGS KITS

NEXTflex™ Rapid Directional RNA-Seq Kit

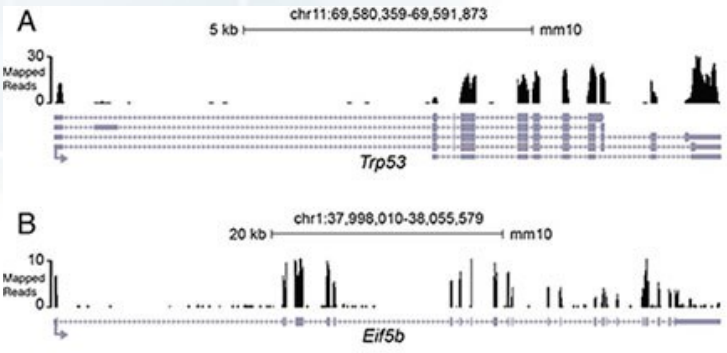
(Illumina Compatible)

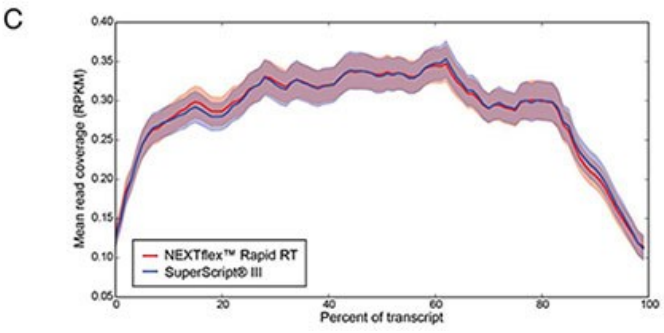
- 2 hours faster than traditional Illumina stranded RNA-Seq.
- Provides precise measurement of strand orientation (>99%)
- >10 ng – 1 µg total RNA for enrichment by NEXTflex™ Poly(A) Beads or ~ 1 ng - 100 ng isolated mRNA or rRNA-depleted RNA
- Minimal hands-on time required
- Streamlined protocol reduces sample loss
- **Utilizes dUTP-based methodology**
- Robust, reliable performance
- Up to 96 barcodes available for multiplexing

約 4 小時



Example of mRNA library size distribution. 1 µL of the library was run on an Agilent High Sensitivity DNA chip to verify size.



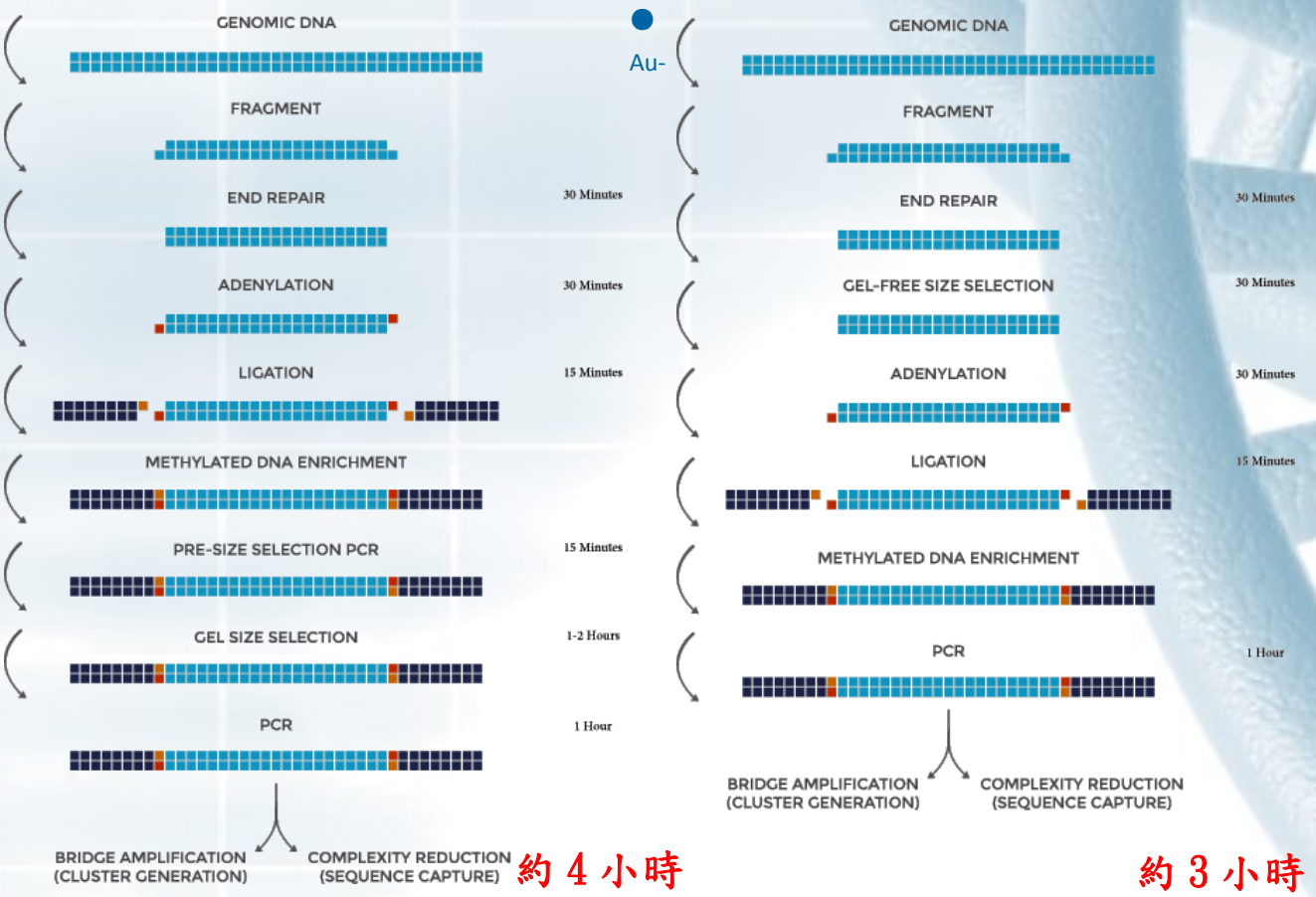


Read coverage across gene bodies. Mapped reads at the (A) Trp53 and (B) Eif5b loci scaled to read density as indicated. (C) Meta-gene plot of read density across all annotated loci. All gene bodies and mapped read densities are scaled to 100 bin segments; mean read density is shown in reads per kilobase per million mapped reads (RPKM; solid line) +/- standard error across replicates (faded bands). Shown is read signal corresponding to libraries made with either NEXTflex Rapid RT (red) or SuperScript III (blue).

BIOO SCIENTIFIC NGS KITS

NEXTflex™ Methyl-Seq 1 Kit
MeDIP/MeCAP
(Illumina Compatible)

- Methylome-level assessment with broad genome coverage
- Make methyl rich libraries using methylated DNA immunoprecipitation (MeDIP) or MBD capture (MeCAP)
- Quantify absolute DNA methylation levels
- Identify differentially methylated regions (DMRs)
- Enhanced adapter ligation technology with NEXTflex™ Ligation
- Flexible barcode options– 6, 12, 24, 48, 96 unique adapters and 192 dual-indexed adapters
- Gel-Free and bead-based cleanup protocols



(Left) is for users who are interested in size selecting a specific range of DNA fragments post ligation with an agarose gel. Proceed to Option 2 for the gel-free protocol.

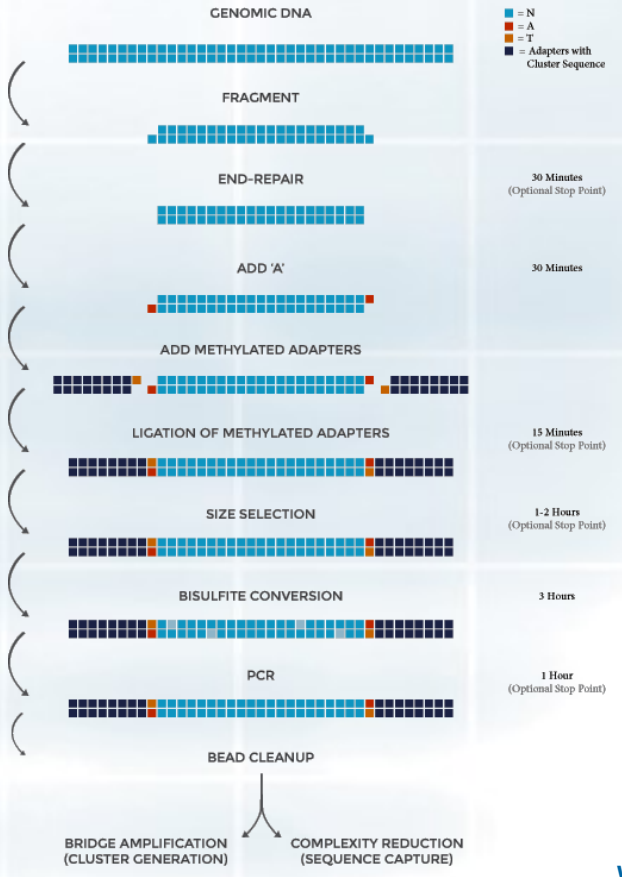
(Right) Option 2 is a completely gel-free protocol that utilizes a magnetic bead based cleanup to size select DNA insert fragments between 300 – 400 bps.

BIOO SCIENTIFIC NGS KITS

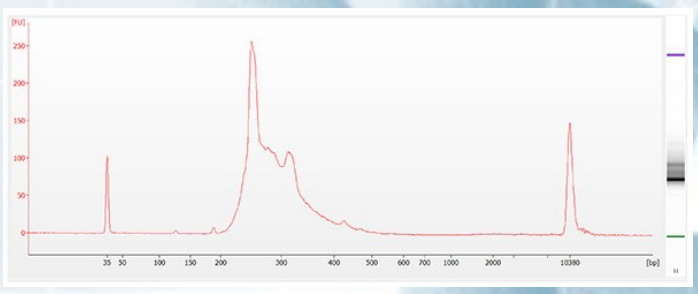
NEXTflex™ Bisulfite-Seq Kit

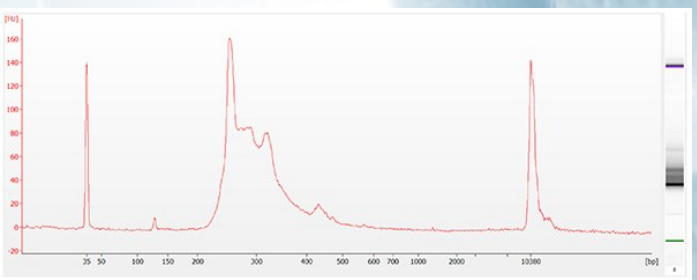
(Illumina Compatible)

- Compatible with total Bisulfite sequencing and reduced representation
- Single nucleotide resolution of methylation sites
- Uracil insensitive polymerase designed for bisulfite-converted DNA
- Methylome-level assessment with broad genome coverage
- Enhanced adapter ligation technology with NEXTflex™ Ligation
- Bead-based clean-up
- Automation-friendly workflow is compatible with liquid handlers



RRBS

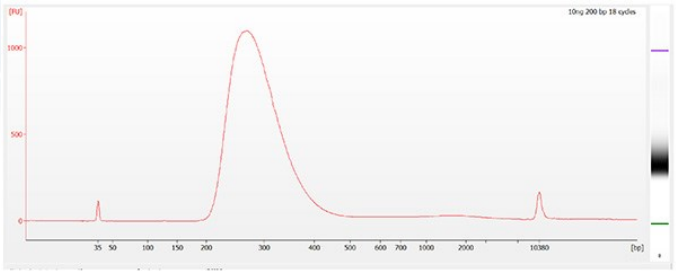


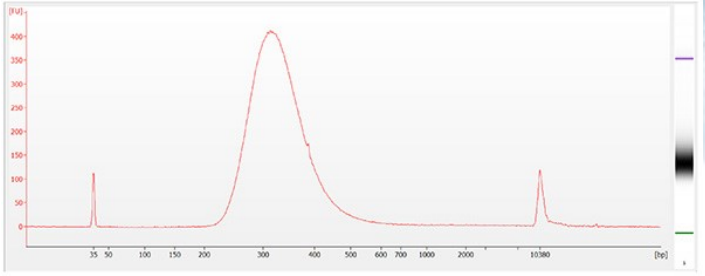


10 ng of Msp1 digested DNA input, 18 PCR cycles, 10 nm yield (upper)

1 ug Msp1 digested DNA input, 18 PCR cycles, 32 nm yield (bottom)

WGBS



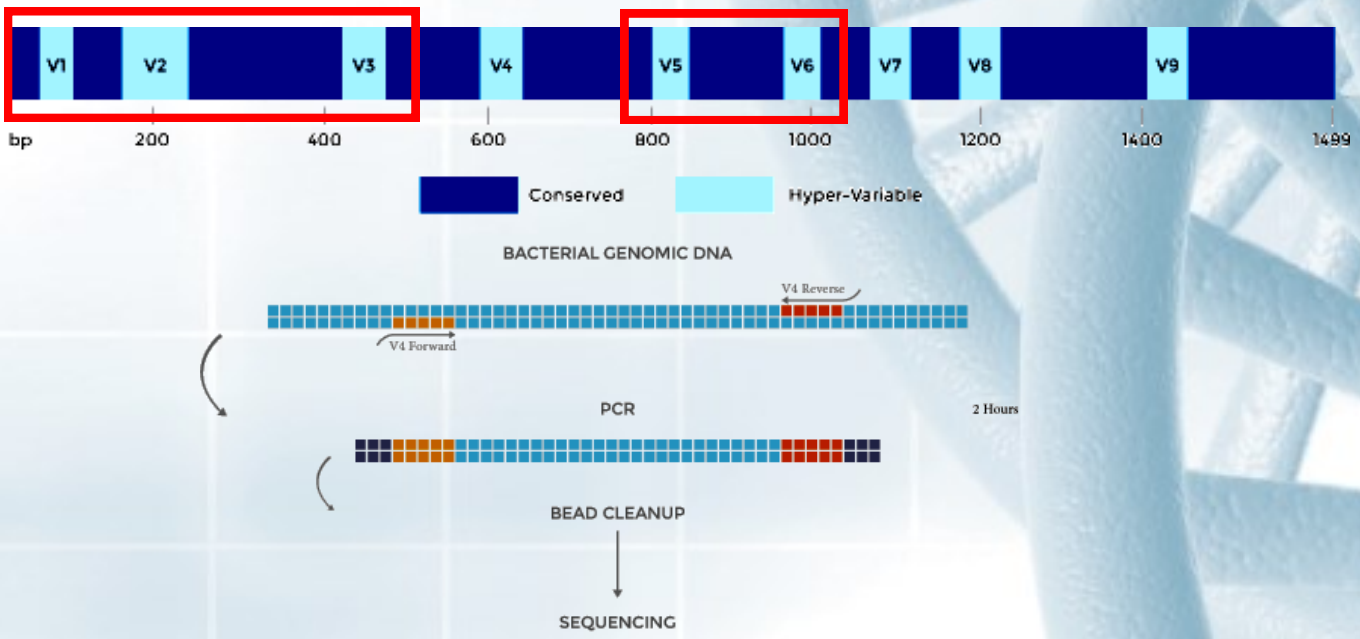


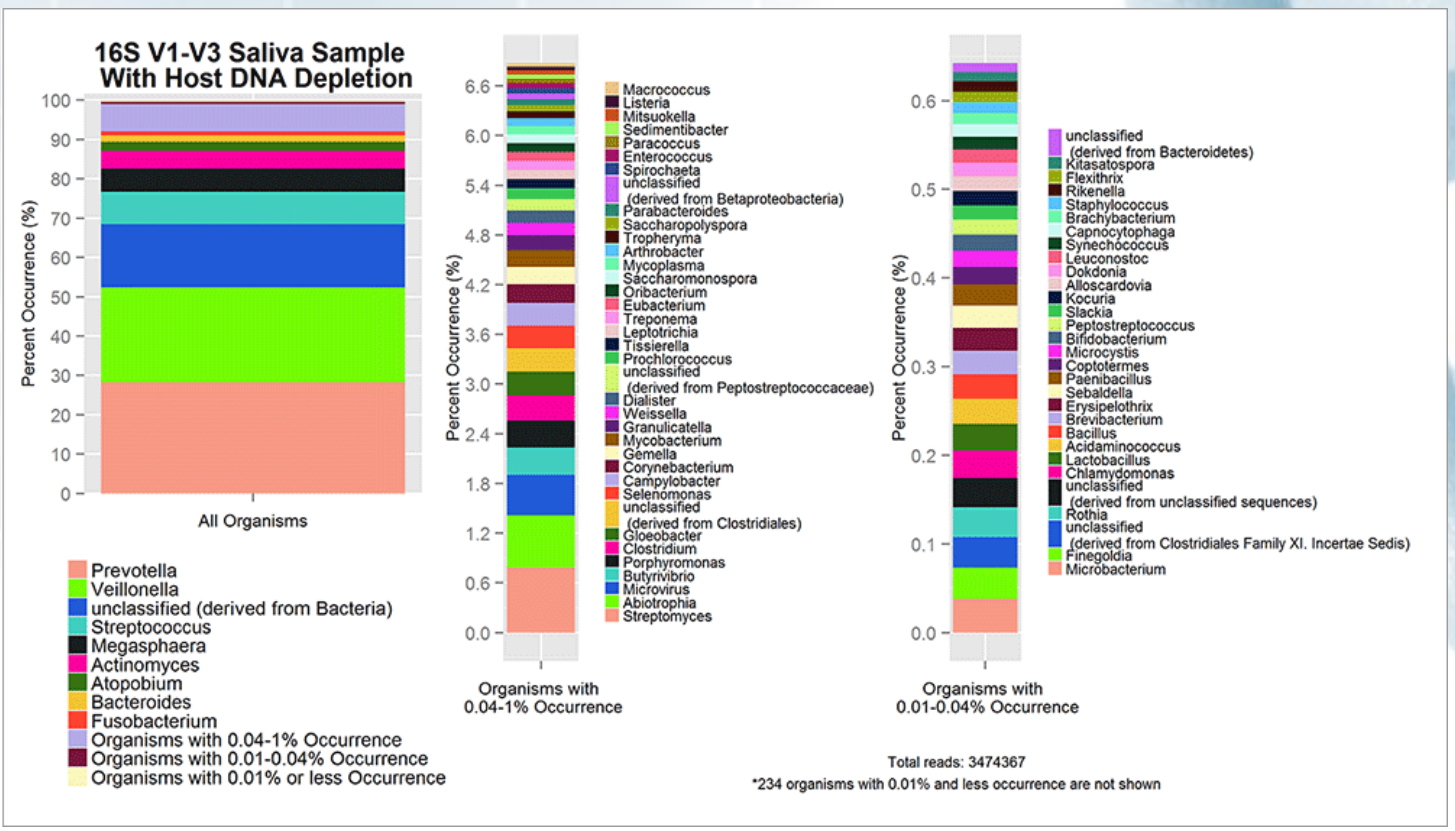
10 ng of 200 bp sheared DNA input, 18 PCR cycles, 58 nm yield ; 1 ug 200 bp sheared DNA input, 15 PCR cycles, 28 nm yield

BIOO SCIENTIFIC NGS KITS

NEXTflex™ 16S V1-V3 Amplicon-Seq / NEXTflex™ V5-V6 Amplicon-Seq Library Prep Kit

- Optimized protocol offers lower PCR bias and fewer off-target reads
- Fast library prep protocol
- Flexible barcode options
- Low input
- Automation-friendly workflow is compatible with liquid handlers
- Functionally validated with Illumina MiSeq





NEXTflex® Amplicon Panel Kits

NEXTflex® Amplicon Panels for use with Genomic DNA	Genes Covered
Autism Spectrum Disorders	PDE8B, EN2, NLGN4X, CDKL5,
Cystic Fibrosis	CFTR
Duchenne Muscular Dystrophy	DMD
Epilepsy-2	SCN2A, SCN9A
Female Infertility	FSHB, FSHR, LHB, LHCGR
Lysosomal Storage Diseases	SUMF1, GLB1, IDUA, ARSB, GUSB, SMPD1, GALC, GALNS, GAA, GLA, IDS
Male Infertility	AR, CATSPER1, CFTR, FSHR,
Marfan Syndrome	FBN1
Mediterranean Fever	MEFV
Nephrotic Syndrome-1	NPSH1, NPSH2, WT1
Nephrotic Syndrome-2	ARHGDIA, DGKE, LAMB2,
Neurofibromatosis	NF1, NF2
Neuronal Ceroid Lipofuscinoses	CLN3, CLN5, CLN6, CLN8,
Periodic Fever-1	TNFRSF1A, NLRP3, MVK
Periodic Fever-2	ELANE, LPIN2, PSTPIP1
Phenylketonuria	PAH
Myeloid	Selected CDS from 21 genes

Cancer

NEXTflex® Amplicon Panels for use with Genomic DNA	Genes Covered
BRCA1/2 XP	BRCA1, BRCA2
BRCA1/2 Plus-1	BRCA1, BRCA2, PALB2, CHEK2
CEBPA	CEBPA
Colorectal Cancer -1	MLH1, MSH2
Colorectal Cancer-2	MSH6, PMS2
TP53	TP53
HBOC-1	RAD51D, RAD51C, BRIP1
HBOC-2	PALB2, BARD1, TP53

FFPE sample

NEXTflex® Amplicon Panels for Use with FFPE sample DNA	Genes Covered
BRCA FFPE	BRCA1, BRCA2
TP53 FFPE	TP53

Metabolic disease

NEXTflex® Amplicon Panels for use with gDNA	Genes Covered
Congenital Adrenal Hyperplasia	CYP21A2
Congenital Hyperinsulism	ABCC8, GLUD1, KCNJ11, GCK, HADH, HNF4A, INS, INSR, PDX1, SLC16A1 & UCP2
CVD	22 hot spots for cardi-ovascular disease: MTHFR, F5, AGT, APOB, AGTR1, FGB, F13A1, LTA, SER-PINE1, NOS3, JAK2, F2, ITGB3, APOE,
MODY-1	HNF1A, GCK
MODY-2	HNF1B, HNF4A
MODY-3	PDX1, NEUROD1,
MODY-4	PAX4, INS, BLK
MODY-5	GCK, HNF1A,
Obesity-1	LEP, LEPR, POMC,
Obesity-2	KSR2, SH2B1, SIM1

BIOO SCIENTIFIC NGS KITS

★ NEXTflex™ Rapid DNA-Seq kit

Catalog#	Product Name	Quantity
5144-01	NEXTflex™ Rapid DNA Sequencing Kit	8 rxns
5144-02	NEXTflex™ Rapid DNA Sequencing Kit	48 rxns
5144-03	NEXTflex™ Rapid DNA-Seq Kit Bundle with DNA Barcodes 1 - 24	48 rxns
5144-04	NEXTflex™ Rapid DNA-Seq Kit Bundle with DNA Barcodes 25 - 48	48 rxns
514101	NEXTflex™ DNA Barcodes - 6	48 rxns
514102	NEXTflex™ DNA Barcodes - 12	96 rxns
514103	NEXTflex™ DNA Barcodes - 24	192 rxns
514104	NEXTflex™ DNA Barcodes - 48	384 rxns
514105	NEXTflex™ DNA Barcodes - 96	768 rxns

★ NEXTflex™ Cell Free DNA-Seq kit

Catalog#	Product Name	Quantity
NOVA-5150-01	NEXTflex® Cell Free DNA-Seq Kit	8 rxns
NOVA-5150-02	NEXTflex® Cell Free DNA-Seq Kit	48 rxns
NOVA-514101	NEXTflex® DNA Barcodes - 6	48 rxns
NOVA-514102	NEXTflex® DNA Barcodes - 12	96 rxns
NOVA-514103	NEXTflex® DNA Barcodes - 24	192 rxns
NOVA-514104	NEXTflex® DNA Barcodes - 48	384 rxns
NOVA-514105	NEXTflex-96™ DNA Barcodes - 96	768 rxns
NOVA-514160	NEXTflex® Dual-Indexed DNA Barcodes	768 rxns
NOVA-514161	NEXTflex® Dual-Indexed DNA Barcodes	768 rxns

★ NEXTflex™ ChIP-Seq kit

Catalog#	Product Name	Quantity
NOVA-5143-01	NEXTflex® ChIP-Seq Kit	8 rxns
NOVA-5143-02	NEXTflex® ChIP-Seq Kit	48 rxns
NOVA-514120	NEXTflex® ChIP-Seq Barcodes - 6	48 rxns
NOVA-514121	NEXTflex® ChIP-Seq Barcodes - 12	96 rxns
NOVA-514122	NEXTflex® ChIP-Seq Barcodes - 24	192 rxns

BIOO SCIENTIFIC NGS KITS

★ NEXTflex™ Rapid DNA-Seq kit

Catalog#	Product Name	Quantity
NOVA-5144-01	NEXTflex® Rapid DNA Sequencing Kit	8 rxns
NOVA-5144-02	NEXTflex® Rapid DNA Sequencing Kit	48 rxns
NOVA-5144-03	NEXTflex® Rapid DNA-Seq Kit Bundle with DNA Barcodes 1 - 24	48 rxns
NOVA-5144-04	NEXTflex® Rapid DNA-Seq Kit Bundle with DNA Barcodes 25 - 48	48 rxns

NOVA-514101	NEXTflex® DNA Barcodes - 6	48 rxns
NOVA-514102	NEXTflex® DNA Barcodes - 12	96 rxns
NOVA-514103	NEXTflex® DNA Barcodes - 24	192 rxns
NOVA-514104	NEXTflex® DNA Barcodes - 48	384 rxns
NOVA-514105	NEXTflex® DNA Barcodes - 96	768 rxns

★ NEXTflex™ Cell Free DNA-Seq kit

Catalog#	Product Name	Quantity
NOVA-5150-01	NEXTflex® Cell Free DNA-Seq Kit	8 rxns
NOVA-5150-02	NEXTflex® Cell Free DNA-Seq Kit	48 rxns
NOVA-514101	NEXTflex® DNA Barcodes - 6	48 rxns
NOVA-514102	NEXTflex® DNA Barcodes - 12	96 rxns
NOVA-514103	NEXTflex® DNA Barcodes - 24	192 rxns
NOVA-514104	NEXTflex® DNA Barcodes - 48	384 rxns
NOVA-514105	NEXTflex-96™ DNA Barcodes - 96	768 rxns
NOVA-514160	NEXTflex® Dual-Indexed DNA Barcodes	768 rxns

★ NEXTflex™ ChIP-Seq kit

Catalog#	Product Name	Quantity
NOVA-5143-01	NEXTflex® ChIP-Seq Kit	8 rxns
NOVA-5143-02	NEXTflex® ChIP-Seq Kit	48 rxns
NOVA-514120	NEXTflex® ChIP-Seq Barcodes - 6	48 rxns
NOVA-514121	NEXTflex® ChIP-Seq Barcodes - 12	96 rxns
NOVA-514122	NEXTflex® ChIP-Seq Barcodes - 24	192 rxns
NOVA-514123	NEXTflex® ChIP-Seq Barcodes - 48	384 rxns
NOVA-514124	NEXTflex® ChIP-Seq Barcodes - 96	768 rxns

BIOO SCIENTIFIC NGS KITS

★ NEXTflex™ Rapid RNA-Seq kit

Catalog#	Product Name	Quantity
NOVA-5138-01	NEXTflex® Rapid RNA Sequencing Kit	8 rxns
NOVA-5138-02	NEXTflex® Rapid RNA Sequencing Kit	48 rxns
NOVA-512911	NEXTflex® RNA-Seq Barcodes - 6	48 rxns
NOVA-512912	NEXTflex® RNA-Seq Barcodes - 12	96 rxns
NOVA-512913	NEXTflex® RNA-Seq Barcodes - 24	192 rxns
NOVA-512914	NEXTflex® RNA-Seq Barcodes - 48	384 rxns
NOVA-512915	NEXTflex-96™ RNA-Seq Barcodes - 96	768 rxns

★ NEXTflex Rapid Directional RNA-Seq Kit

Catalog#	Product Name	Quantity
NOVA-5138-07	NEXTflex® Rapid Directional RNA-Seq Kit	8 rxns
NOVA-5138-08	NEXTflex® Rapid Directional RNA-Seq Kit	48 rxns
NOVA-5138-10	NEXTflex® Rapid Directional mRNA-Seq Kit Bundle with RNA-Seq	48 rxns
NOVA-5138-11	NEXTflex® Rapid Directional mRNA-Seq Kit Bundle with RNA-Seq	48 rxns
Barcode 選擇同上		

★ NEXTflex™ Small RNA-Seq kit v3

Catalog#	Product Name	Quantity
NOVA-5132-05	NEXTflex® Small RNA-Seq Kit v3 (8 barcodes)	8 rxns
NOVA-5132-06	NEXTflex® Small RNA-Seq Kit v3 (48 barcodes)	48 rxns

★ NEXTflex™ Methyl-Seq Library Kit

Catalog#	Product Name	Quantity
NOVA-5118-01	NEXTflex® Methyl Sequencing 1 Kit	8 rxns
NOVA-5118-02	NEXTflex® Methyl Sequencing 1 Kit	48 rxns
NOVA-514101	NEXTflex® DNA Barcodes - 6	48 rxns
NOVA-514102	NEXTflex® DNA Barcodes - 12	96 rxns
NOVA-514103	NEXTflex® DNA Barcodes - 24	192 rxns
NOVA-514104	NEXTflex® DNA Barcodes - 48	384 rxns

BIOO SCIENTIFIC NGS KITS

★ NXTflex™ Bisulfite-Seq kit

Catalog#	Product Name	Quantity
NOVA-5119-01	NEXTflex® Bisulfite Sequencing Kit	8 rxns
NOVA-5119-02	NEXTflex® Bisulfite Sequencing Kit	48 rxns
NOVA-511911	NEXTflex® Bisulfite-Seq Barcodes - 6	48 rxns
NOVA-511912	NEXTflex® Bisulfite-Seq Barcodes - 12	96 rxns
NOVA-511913	NEXTflex® Bisulfite-Seq Barcodes - 24	192 rxns
NOVA-511921	NEXTflex® Msp1 Restriction Enzyme	8 rxns
NOVA-511922	NEXTflex® Msp1 Restriction Enzyme	48 rxns

★ NEXTflex™ 16S V1 – V3 Amplicon-Seq Kit

Catalog#	Product Name	Quantity
NOVA-4202-01	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (4 Barcodes)	8 rxns
NOVA-4202-02	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (12 Barcodes)	24 rxns
NOVA-4202-03	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (48 Barcodes)	96 rxns
NOVA-4202-04	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (Barcodes 1- 96)	192 rxns
NOVA-4202-05	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (Barcodes 97 - 192)	192 rxns
NOVA-4202-06	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (Barcodes 193 - 288)	192 rxns
NOVA-4202-07	NEXTflex® 16S V1-V3 Amplicon-Seq Kit (Barcodes 289 - 384)	192 rxns

★ NEXTflex™ 16S V5 – V6Amplicon-Seq Kit

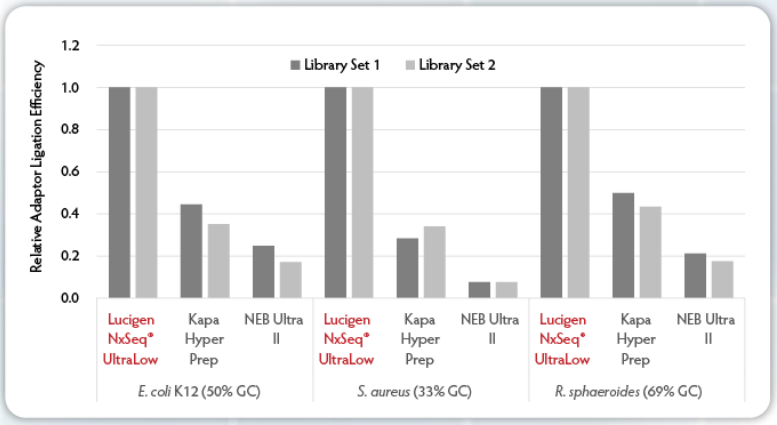
Catalog#	Product Name	Quantity
NOVA-4205-01	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (4 Barcodes)	8 rxns
NOVA-4205-02	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (12 Barcodes)	24 rxns
NOVA-4205-03	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (48 Barcodes)	96 rxns
NOVA-4205-04	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (Barcodes 1- 96)	192 rxns
NOVA-4205-05	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (Barcodes 97 - 192)	192 rxns
NOVA-4205-06	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (Barcodes 193 - 288)	192 rxns
NOVA-4205-07	NEXTflex® 16S V5 – V6 Amplicon-Seq Kit (Barcodes 289 - 384)	192 rxns

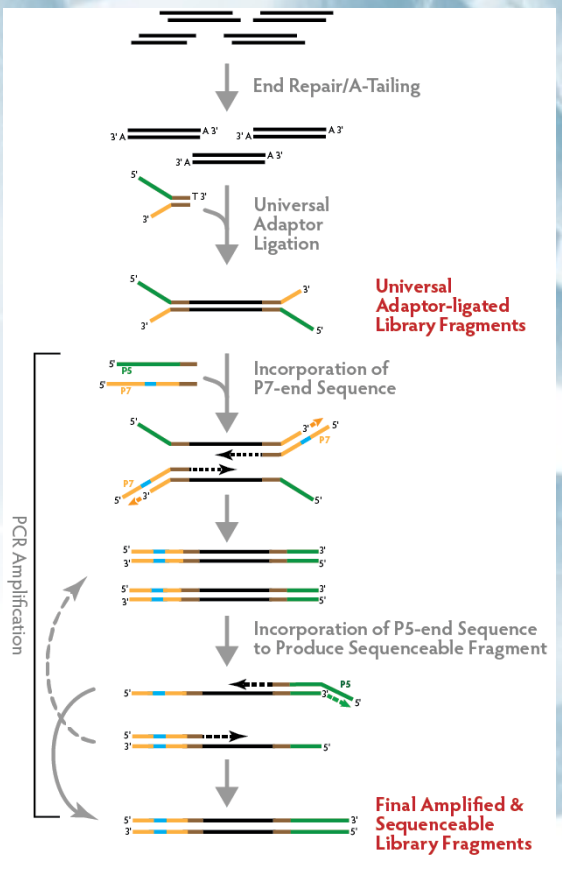
Lucigen®
Simplifying Genomics

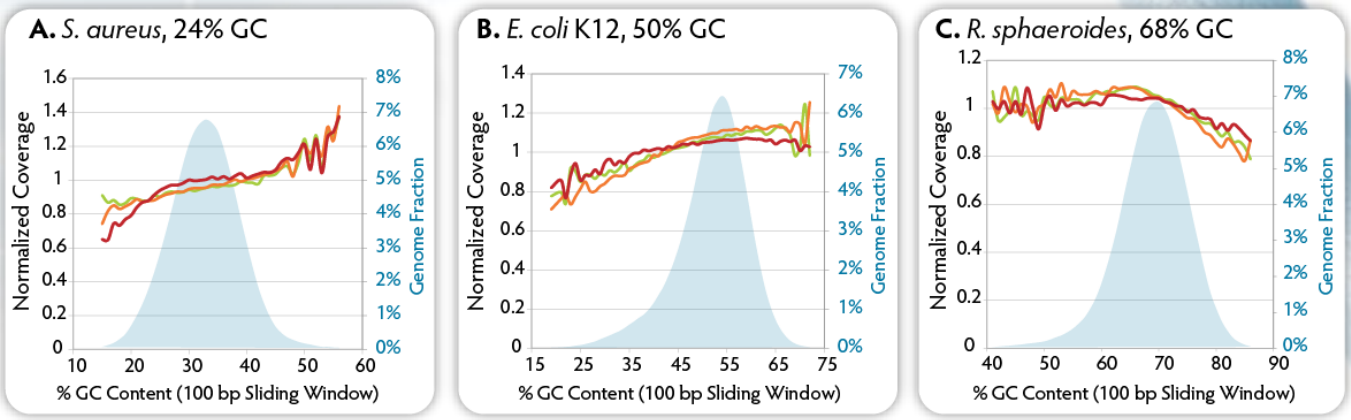
NxSeq® UltraLow DNA Library Kit

- **High Quality Data**: High efficiency adaptor ligation produces complex libraries.
- **Sensitive: 50 pg to as much 75 ng** of sheared/fragmented DNA.
- **Minimal Bias**: Robust, uniform PCR amplification improves coverage uniformity.
- **Fast**: **3 hour protocol** gets your samples on the sequencer quicker.
- **Flexible:** De novo whole genome sequencing, exome-seq, ChIP-seq and FFPE DNA samples.

Adaptor ligation







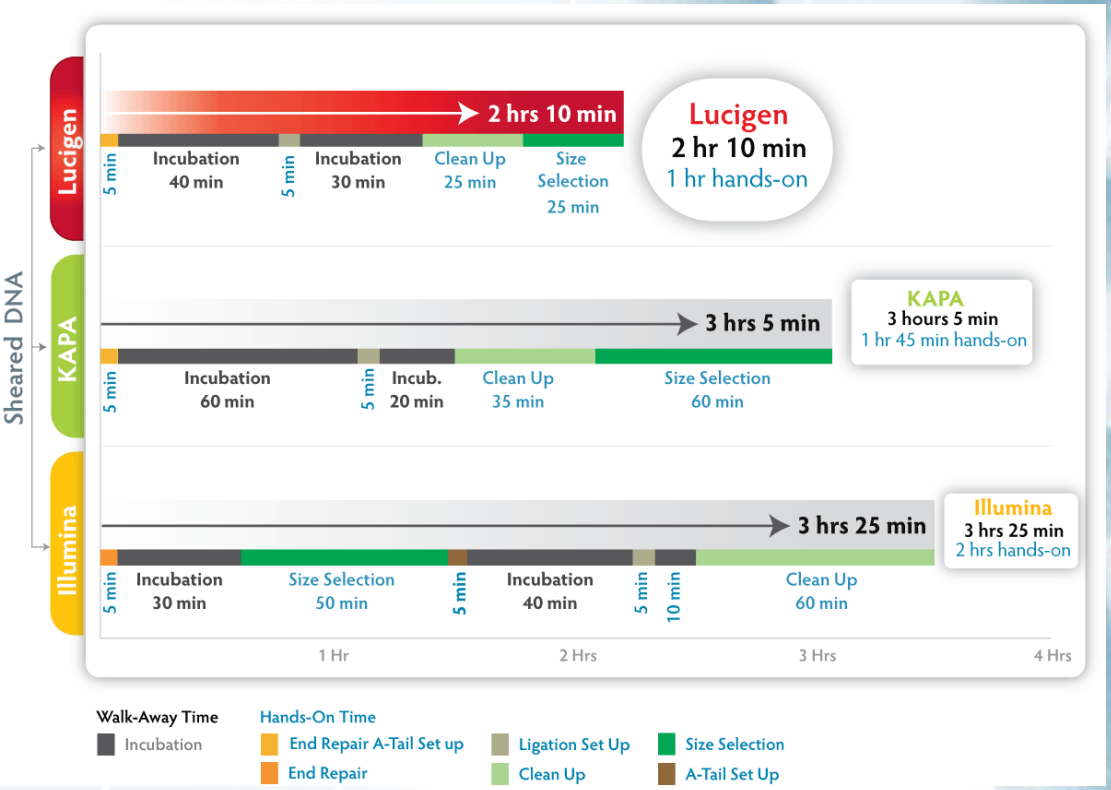
Legend

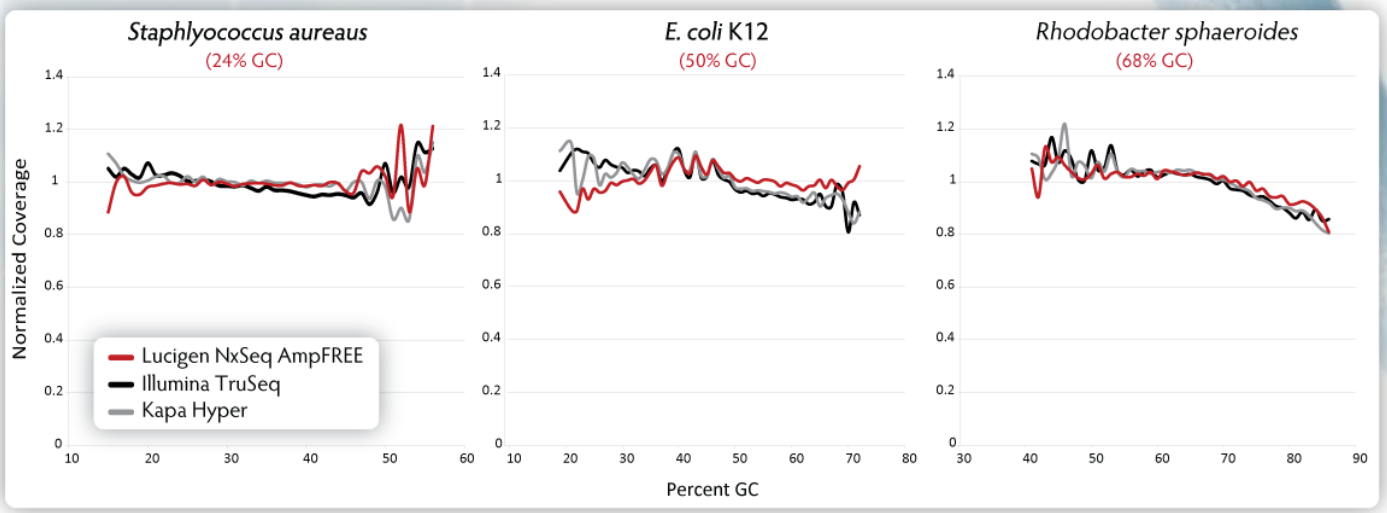
Lucigen NxSeq® UltraLow Kit — Kapa Hyper Prep Kit — NEB NEBNext® Ultra™ II Kit — Genome Fraction

Lucigen®
Simplifying Genomics

NxSeq® AmpFREE Low DNA Library Kits

- **Low Input**: as little as 75 ng of sheared input DNA ..
- **High Efficiency:** Optimized high efficiency adaptor ligation produces .
- **PCR-free:** Prevents the introduction of **PCR-bias**.
- **Fast: 2 hour,** 10 minute protocol saves you time.





Lucigen®
Simplifying Genomics

★ NxSeq® UltraLow DNA Library Kit

Product Description	Cat. No.	Size
NxSeq® UltraLow DNA Library Kit	15012-1	12 rxn
NxSeq® Single Indexing Kit, Set A	15100-1	48 rxn (12 x 4 rxn)
NxSeq® Single Indexing Kit, Set B	15200-1	48 rxn (12 x 4 rxn)

★ NxSeq® UltraLow DNA Library Kit

(for High Throughput and Dual indexing)

Product Description	Cat. No.	Size
NxSeq® UltraLow DNA Library Kit	15096-1	96 rxn
NxSeq® HT Dual Indexing Kit	15300-1	96 rxn

★ NxSeq® AmpFREE Low DNA Library Kits

Product Description	Cat. No.	Size
NxSeq® AmpFREE Low DNA Library Kit-1	14000-1	12 rxns
NxSeq® AmpFREE Low DNA Library Kit-2	14000-2	48 rxns
NxSeq® Adaptors, Box 1 (adaptors 1-12)	14300-1	48 rxn (12 x 4 rxn)
NxSeq® Adaptors, Box 2 (adaptors 13-24)	14400-1	48 rxn (12 x 4 rxn)