Next Generation Sequencing

Next Generation Sequencing

CONTENTS

TRANSGEN

DNA Library Prep

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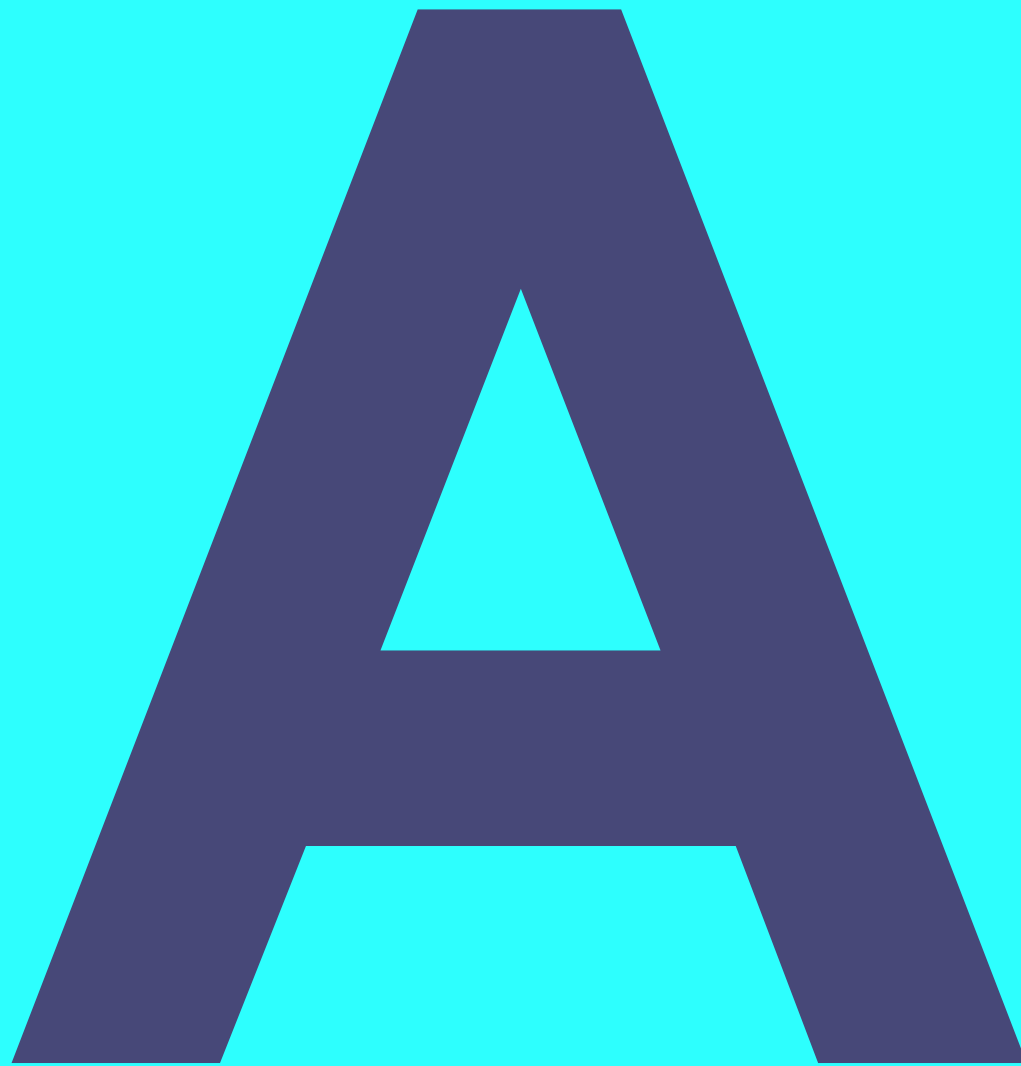
01 Library Preparation using Transposase

*Trans*NGS® Tn5 DNA Library Prep Kit for Illumina® (for 5 ng/50 ng/1 ng DNA) (Patent Pended)

Features

• User-friendly and fast with minimal hands-on time .

• High efficiency with minimal amount of input DNA.

Product Details

*Trans*NGS® Tn5 DNA Library Prep Kit for Illumina® contains buffers and enzymes to generate next generation sequencing libraries for Illumina® SE or PE sequencing platform from 1ng to50ng fragmented double-stranded DNA. This kit is suitable for fragmented genome DNA, plasmid DNA or amplification DNA products (> 300bp).

Schematic Diagram of the Metagenome Library Preparation

Digestion Site

Adapter Insertion and Digestion

Strand Displacement

N5xx

N7xx

Reduced Cycle PCR Amplification

P5 i5   i7 P7
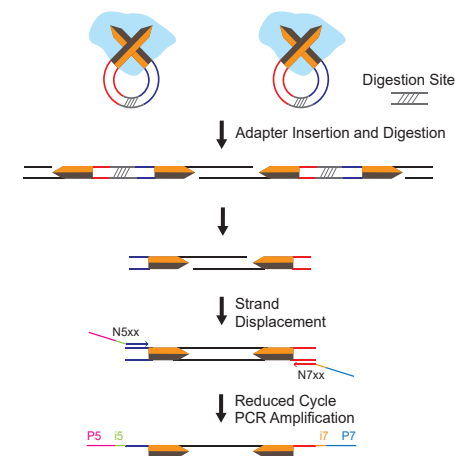
Stability of the Product

TransGen products were used to construct whole genome library using 5ng human genome DNA. Samples were amplified 9 runs and purified using MagicPure® Size Selection DNA Beads (TransGen, EC401). Sequence length in the library gives a uniform distribution between 200-2000bp under Agilent High-Sensitive DNA chip, Concentration and production of the library were detected and calculated by Qubit. The consistency of peak and productivity indicates a good stability among different TransGen product batches.

Peak and Productivity of the library
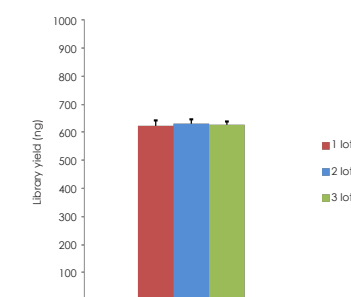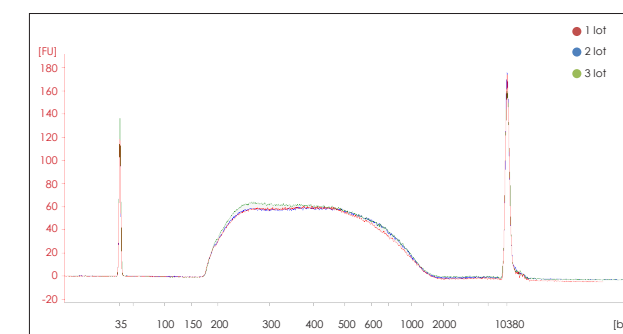
Library Preparation Profile from Various Samples

TransGen and Company V products were used for library construction and sequencing analysis using 5ng of human genome. The result indicates that the peak and productivity of the library, the quality of sequencing result, and GC distribution generated by TransGen is as good as competing products

Library peak type and yield

Quality of Sequencing Result

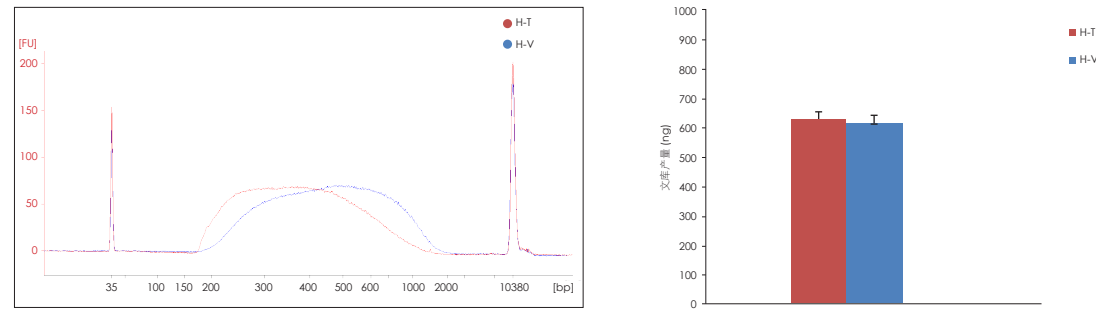| Sample	Q20 (%)	Q30 (%)	GC content (%)	Total Mapped	Coverage-1× (%)	Coverage-4× (%)	Duplication Rate (%)	Depth (×)
H-T	98.14	94.42	39.51	99.8	90.67	53.04	16.67	4.62
H-V	97.84	93.68	40.8	99.74	90.7	53.64	17.48	4.68

GC Distribution
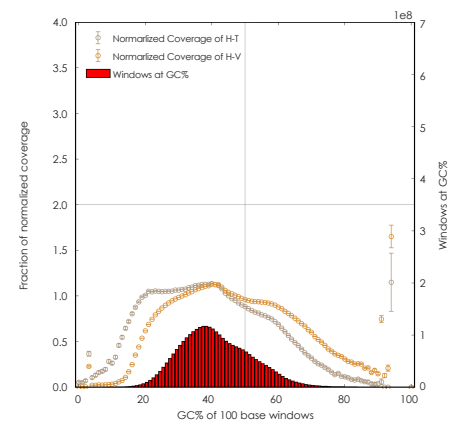
Relativity
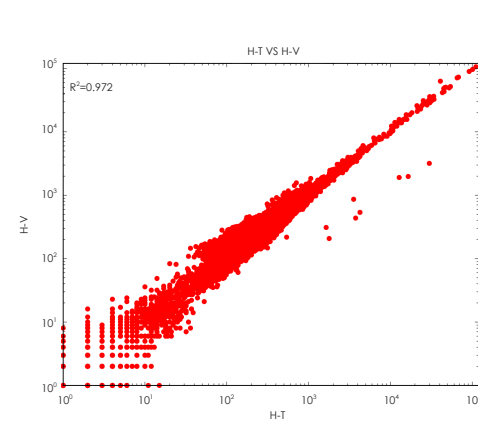
*Trans*NGS® Tn5 Plasmid DNA Library Prep Kit for Illumina® (for ≤3 ng Plasmid DNA)

Features

- Next Generation Sequencing.
- Fast library preparation.
- User friendly.
- High-through, 96×96 plasmids sequencing at once.

Product Detail

*Trans*NGS® Tn5 Plasmid DNA Library Prep Kit for Illumina® contains buffers and enzymes to generate next generation sequencing libraries for Illumina® high-throughput sequencing platform for purified plasmid DNA. This kit is suitable for vector construction and screening of point mutation.

Schematic Diagram of Library Preparation

Plasmid+ fragment insertion

Digestion Site

Adapter Insertion and Digestion

Strand Displacement

N5xx

N7xx

Reduced Cycle PCR Amplification

P5 i5   i7 P7

Bioinformatic analysis: Sequence assemble

CTCCTTTCGCTTTCTTCCCTTCCTTTCTC
GCCACGTTCGCCGGCTTTCCCCGTCAAG
CTGTAAATCGGGGGCTCCCTTTAGGGTT
CCGATTTAGTGCTTTACGGCACCTCGAC
CCCAAAAAACTTGATTAGGGTGATGGTT
CACGTAGTGGGCCATCGCCCTGATAGAC

02 Common Library Preparation

TransNGS® DNA Library Prep Kit for Illumina® (KP201)

Features

- High library conversion rate.
- Suitable for wide range of sequencing methods: whole genome sequencing, target gene sequencing, meta-genomic sequencing, immunoprecipitation sequencing, exome sequencing, or other targeted capture sequencing.

Applications

- Whole genome sequencing.
- Target gene sequencing.
- Exon sequencing / other targeted capture sequencing.

- Metagenomic sequencing.
- Co-immunoprecipitation sequencing.

Schematic Diagram of Library Preparation

Fragmented dsDNA
terminal repair
binding
proliferation
Sequencing-ready Library

The i5 position is indicated by a dotted line, which means that some libraries do not have this Index

Operation flow chart

Fragmented dsDNA
End repair and A-tailing — 30 min
Adapter ligation — 15 min
Purification — ~20 min
Library amplification — 10-40 min
Product purification — ~20 min
target capture

☐ not included in the kit

★ Locations where clip sorting can be done

Comparision Between Competing Products

TransGen (KI341) and Company V products were used for DNA library construction using 1ng, 10ng, 100ng, and 1000ng Hela cell and smear DNA. The results showed that the peak and productivity of the library, the quality of sequencing result, and GC distribution generated by TransGen is as good as competing products.

Library yield

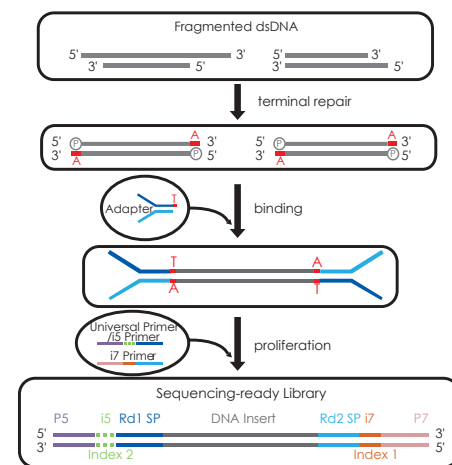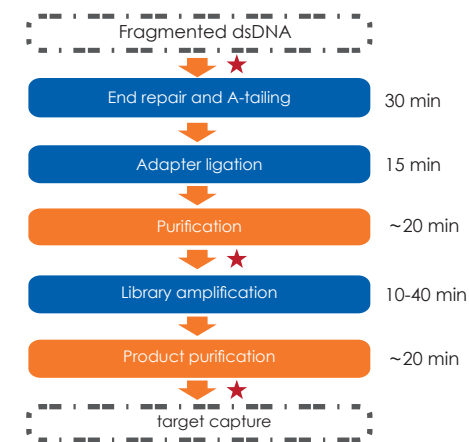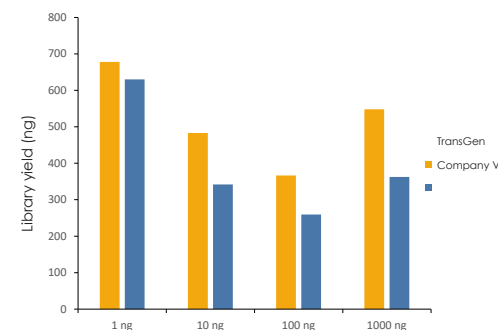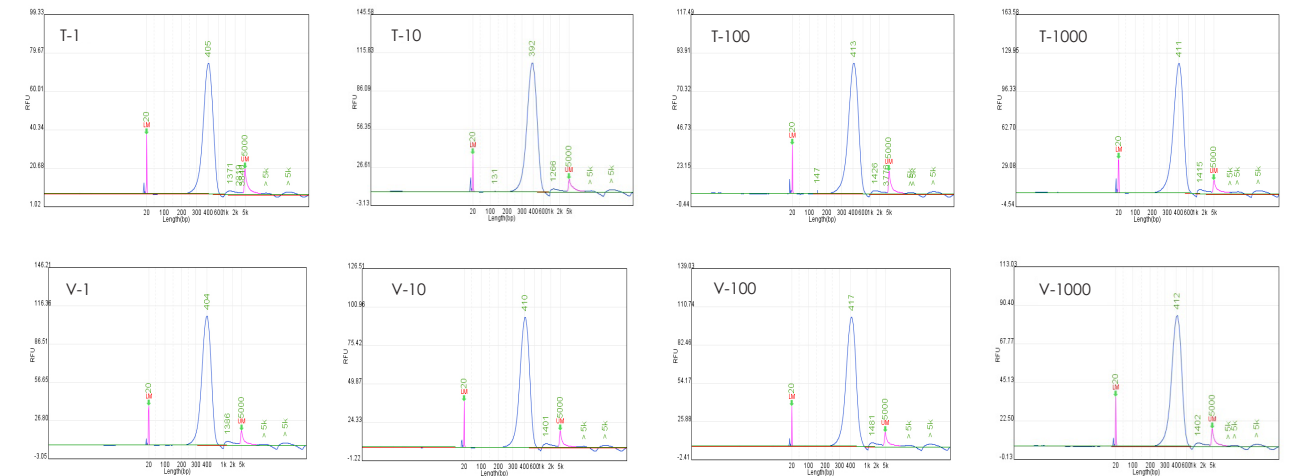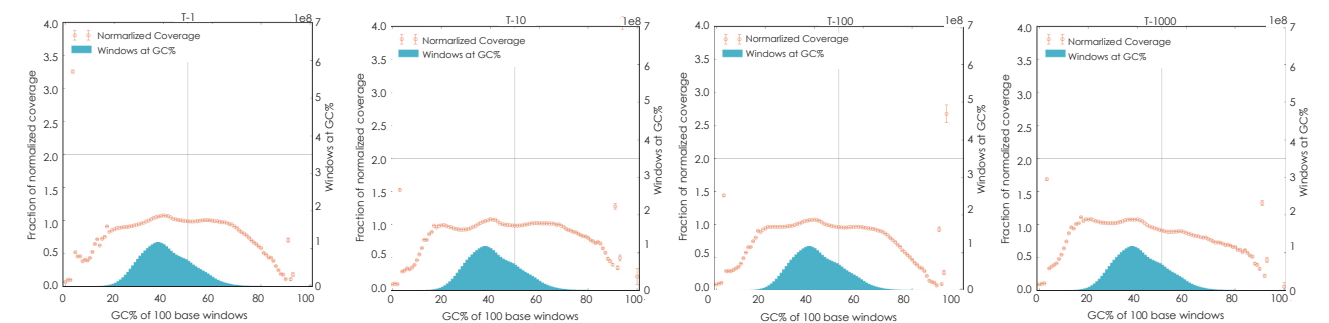## Library peak pattern

Sequencing data quality

Sample	Raw reads	Clean reads	Effective Rate(%)	Error Rate(%)	Q20(%)	Q30(%)	GC Content(%)
T-1	162024748	153782002	94.91	0.03	96.17	91.18	42.11
T-10	162024748	154921836	95.62	0.03	97.85	92.78	43.26
T-100	162024748	157370662	97.13	0.03	97.93	93.71	40.63
T-1000	162024748	158685938	97.94	0.03	97.67	92.14	40.2
V-1	162024748	158473152	97.81	0.03	96.45	90.79	42.82
V-10	162024748	158371574	97.75	0.03	97.33	92.86	43.42
V-100	162024748	158742128	97.97	0.03	97.6	93.22	41
V-1000	162024748	159029382	98.15	0.03	97.45	92.83	40.92

Sample name	Clean reads	Optical/PCR duplicate:	Unmapped reads:	Total mapped	Uniquely mapped	Average depth(X)	Coverage_at_ least_1X(%)	Coverage_at_ least_4X(%)
T-1	153782002	39022950 (25.38%)	1856324 (1.21%)	112902728 (73.42%)	103278748 (67.16%)	5.38	92.13	61.32
T-10	154921836	31328626 (20.22%)	981921 (0.63%)	122611289 (79.14%)	113816737 (73.47%)	6.04	92.44	65.52
T-100	157370662	29733483 (18.89%)	841402 (0.53%)	126795777 (80.57%)	117990902 (74.98%)	6.15	94.61	72.17
T-1000	158685938	30462223 (19.20%)	1070225 (0.67%)	127153490 (80.13%)	116148077 (73.19%)	5.94	94.54	70.71
V-1	158473152	38619248 (24.37%)	1009004 (0.64%)	118844900 (74.99%)	110511798 (69.74%)	5.71	93.59	65.88
V-10	158371574	32042078 (20.23%)	855095 (0.54%)	125474401 (79.23%)	116888800 (73.81%)	6.11	93.57	68.04
V-100	158742128	25962879 (16.36%)	727321 (0.46%)	132051928 (83.19%)	123571752 (77.84%)	6.43	95.07	75.46
V-1000	159029382	27823753 (17.50%)	711773 (0.45%)	130493856 (82.06%)	122082643 (76.77%)	6.33	95.12	75.03

GC distribution

V-1   V-10   V-100   V-1000

correlation analysis

T-1 VS V-1 (R²=0.989)   T-10 VS V-10 (R²=0.993)   T-100 VS V-100 (R²=0.993)   T-1000 VS V-1000 (R²=0.989)

# *TransNGS*® DNA Library Prep Kit for MGI® (KP221)

Features

- High library conversion rate.
- Suitable for wide range of sequencing methods: whole genome sequencing, target gene sequencing, exosome sequencing, meta-genomic sequencing, and immunoprecipitation sequencing.
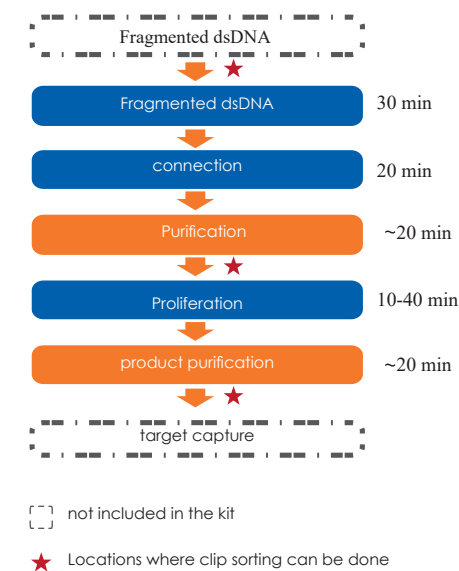- Great data quality

Applications

- Whole genome sequencing.
- Target gene sequencing.
- Metagenomic sequencing.
- Co-immunoprecipitation sequencing.
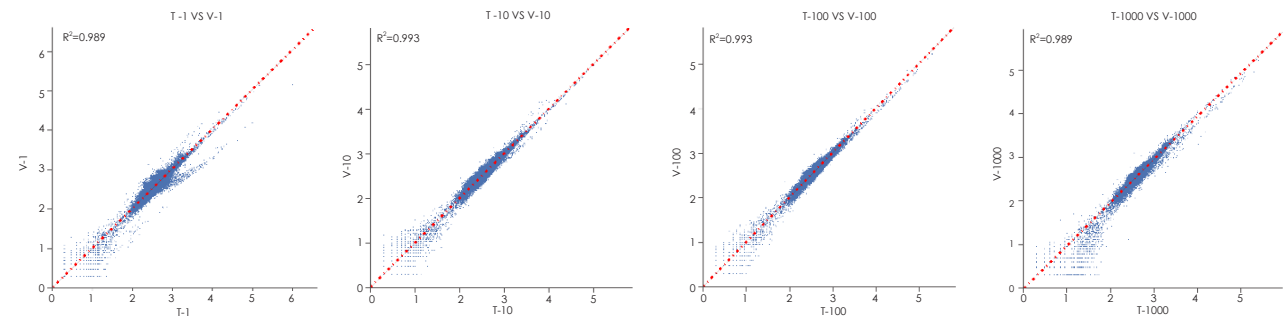- Exon sequencing / other targeted capture sequencing.

Schematic Diagram of Library Preparation

Operation flow chart

- [ ] not included in the kit
- ★ Locations where clip sorting can be done
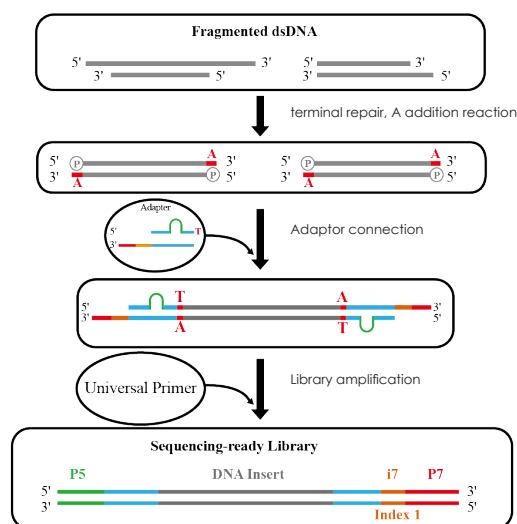
Comparison Between Competing Products

(1) comparison of library yield using different amount of samples

TransGen and Company V products were used for dsDNA library construction using different amount of fragmented Hela cell DNA. The results showed that TransGen product generates higher efficiency in library construction than competing products.

Library yield
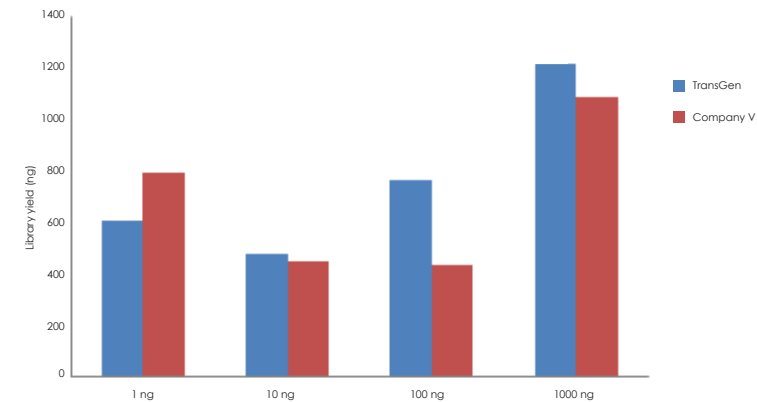
(2) comparison of sequencing result

TransGen and Company V products were used for dsDNA library construction using different amount of fragmented Hela cell DNA. The results showed that the quality of sequencing result, GC distribution and correlation generated by TransGen is as good as competing products.

Comparison of sequencing results

Sample	Clean reads	Optical/PCR duplicate	Unmapped reads	Total mapped	Multiple mapped	Uniquely mapped	Q20(%)	Q30(%)	GC Content(%)
T-1	42720938	684528 (1.60%)	230611 (0.54%)	41805799 (97.86%)	2456018 (5.75%)	39349781 (92.11%)	96.12	90.99	43.11
T-10	42715766	123735 (0.29%)	215356 (0.50%)	42376675 (99.21%)	2474022 (5.79%)	39902653 (93.41%)	96.19	91.14	43.19
T-100	42720042	40336 (0.09%)	395135 (0.92%)	42284571 (98.98%)	2191110 (5.13%)	40093461 (93.85%)	96.43	91.66	40.78
T-1000	42720058	48045 (0.11%)	363641 (0.85%)	42308372 (99.04%)	2225122 (5.21%)	40083250 (93.83%)	96.54	91.89	41.02
V-1	42711428	914214 (2.14%)	205217 (0.48%)	41591997 (97.38%)	2560892 (6.00%)	39031105 (91.38%)	96.27	91.34	44.00
V-10	42710566	124841 (0.29%)	189493 (0.44%)	42396232 (99.26%)	2599217 (6.09%)	39797015 (93.18%)	95.96	90.63	43.90
V-100	42710232	41899 (0.10%)	418119 (0.98%)	42250214 (98.92%)	2176671 (5.10%)	40073543 (93.83%)	96.15	91.04	40.49
V-1000	42704112	40522 (0.09%)	420547 (0.98%)	42243043 (98.92%)	2159708 (5.06%)	40083335 (93.86%)	96.06	90.82	40.48

GC distribution

T-1   T-10   T-100   T-1000   V-1   V-10   V-100   V-1000
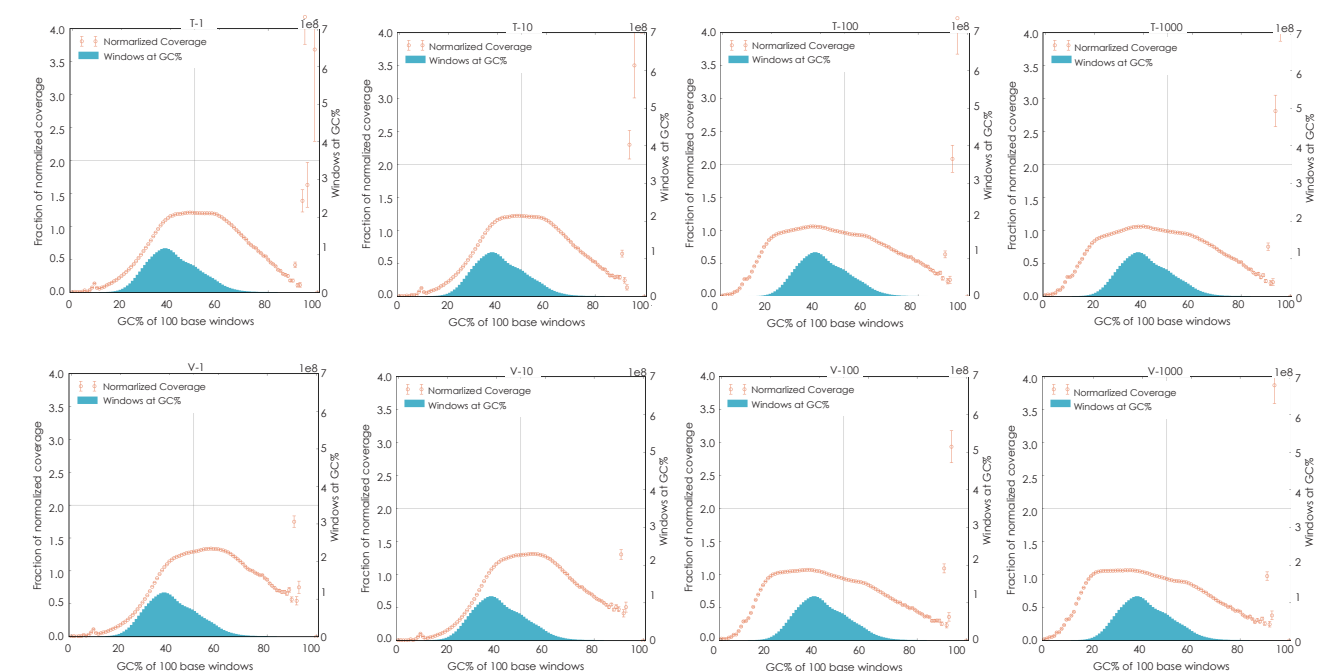
Fragmentase Library Preparation

*Trans*NGS® Fragmentase DNA Library Prep Kit for Illumina® (KP231)

Features

- High library conversion rate.
- Suitable for wide range of sequencing methods: whole genome sequencing, target gene sequencing, meta-genomic sequencing, and exome sequencing.

Applications

- Whole genome sequencing.
- Target gene sequencing.
- Metagenomic sequencing.
- Co-immunoprecipitation sequencing.
- Exon sequencing / other targeted capture sequencing.

Schematic Diagram of Library Preparation

The i5 position is indicated by a dotted line, which means that some libraries do not have this Index

Operation flow chart

dsDNA library preparation

DNA fragmentation terminal repair — 40 min

connection — 15 min

purification — ~20 min ★

Proliferation — 10-40 min

Product purification — ~20 min ★

target capture

⌐ ¬ not included in the kit
∟ ⌡

★ Locations where clip sorting can be done

Experimental data display

(1) Comparison of library yields with different starting sample amounts
DNA library was constructed using TransGen UDI long adapter (KI341) with 1 ng, 10 ng, 100 ng and 500 ng restricted HeLa cell genomic DNA. The results showed that the average library yields is 1 μg.
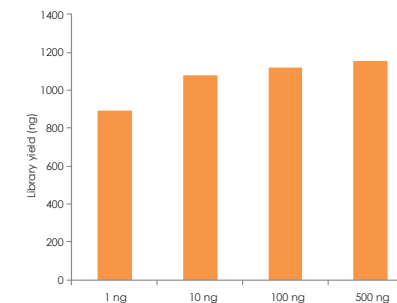
(2) library yield of different species
TransGen products were used to construct libraries for different sample species, including corn, Staphylococcus aureus, and soil microorganisms. The results showed that the average library yields is 1 μg.
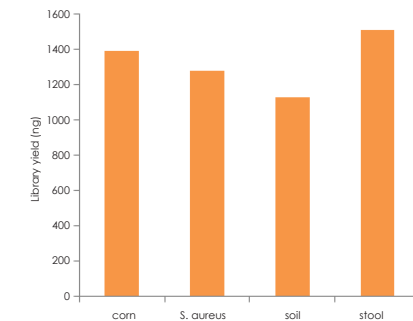
(3) Sequencing result
The results show that TransGen products construct DNA libraries efficiently with 1-500 ng samples.

Sequencing data quality

Sample	Q20 (%)	Q30 (%)	GC Content (%)	Total mapped (%)	Coverage at-1X (%)	Coverage at-4X (%)	Duplication Rate (%)	Depth (×)
T-1	95.85	90.35	40.95	72.88	93.48	69.88	25.68	6.26
T-10	96.49	91.26	40.71	83.26	94.75	78.81	15.53	7.29
T-100	96.15	90.65	40.77	78.27	96.41	85.81	20.61	8.64
T-500	96.97	92.33	40.74	80.66	95.55	85.76	18.28	8.63

GC distribution
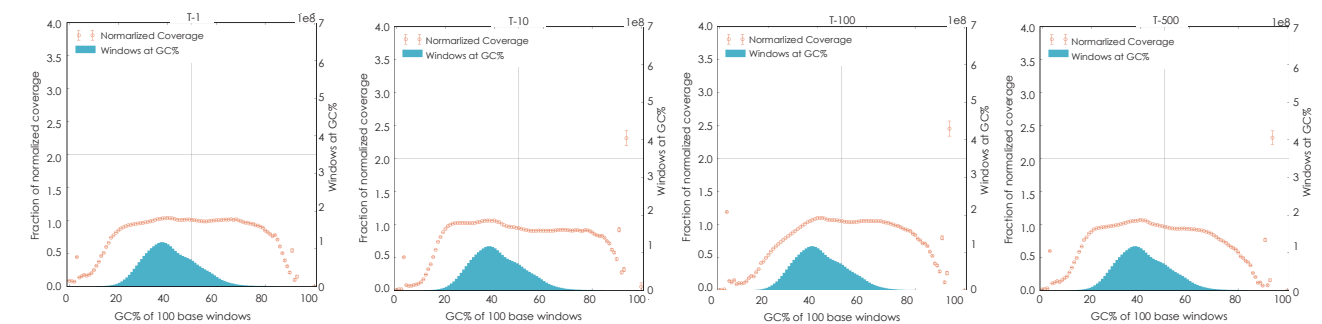
*Trans*NGS® Fragmentase DNA Library Prep Kit for *MGI*® (KP241)
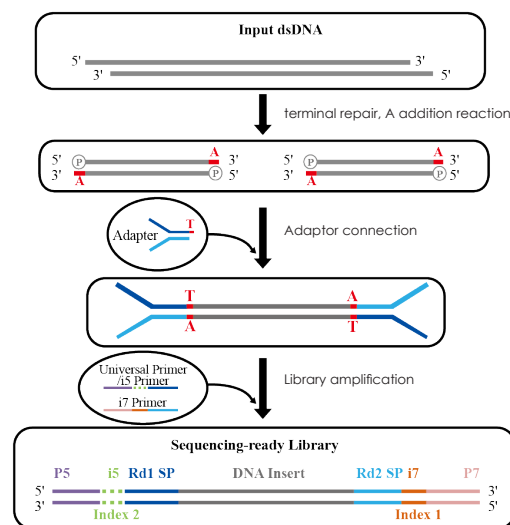
Features

• High library conversion rate.

• Suitable for wide range of sequencing methods: whole genome sequencing, target gene sequencing, meta-genomic sequencing, and exome sequencing.
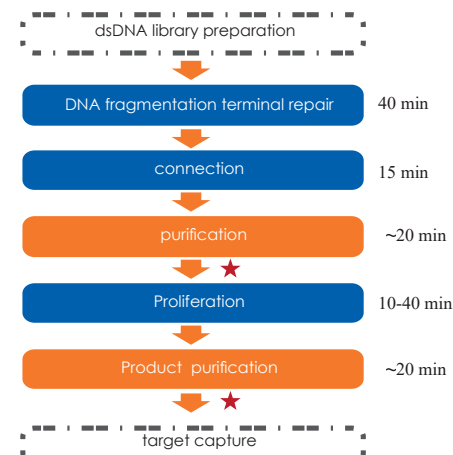
Applications

• Whole genome sequencing.

• Target gene sequencing.

• Metagenomic sequencing.

• Co-immunoprecipitation sequencing.

• Exon sequencing / other targeted capture sequencing.

Schematic Diagram of Library Preparation

Operation flow chart

⬚ not included in the kit

★ Locations where clip sorting can be done

Comparison Between Competing Products

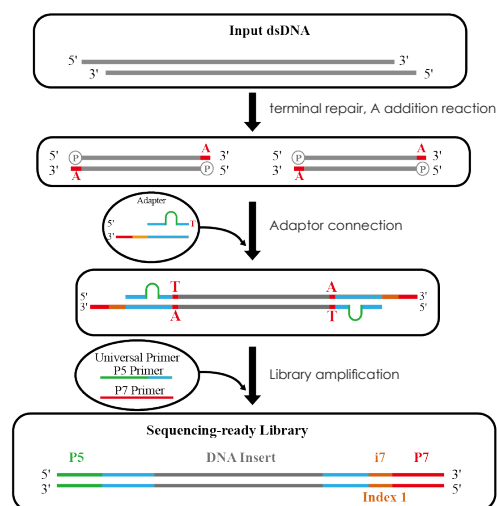200 ng standard NA12878 human genome was treated by TransGen and Company A products to construct a DNA library. The results showed that the TransGen product was better than competing products in terms of sequencing data quality, alignment rate, SNP and InDel detection.

Sequencing data quality

Sample	Q20 (%)	Q30 (%)	GC Content (%)	Total mapped (%)	Coverage at-4X (%)	Coverage at-10X (%)	Duplication Rate (%)	Depth (×)
T-200-1	97.24	93.05	40.43	99.99	98.62	97.34	1.24	30.31
T-200-2	97.82	94.04	40.67	99.99	98.78	97.58	1.24	30.34
A-200-1	97.41	94.16	39.45	99.99	98.54	96.00	1.22	30.63
A-200-2	97.38	93.74	39.45	99.99	98.88	96.75	0.96	30.85

SNP and InDel detection

Sample	Total SNPs	Ti/Tv	Precision (%)	Consistency (%)	Total InDels	Precision (%)	Consistency (%)
T-200-1	3717711	2.04	99.73	95.49	827247	96.00	74.26
T-200-2	3723268	2.04	99.74		837459	96.03	
A-200-1	3700900	2.04	99.78	95.77	813681	96.79	74.76
A-200-2	3705928	2.04	99.83		823616	96.03	

*Trans*NGS® Circularization Kit For *MGI*® (KC101)

Features

• Short operation time

• high circularization efficiency

Applications

• Applicable for dsDNA library preparation using MGI high-throughput sequencing platform

Schematic Diagram of Library Preparation
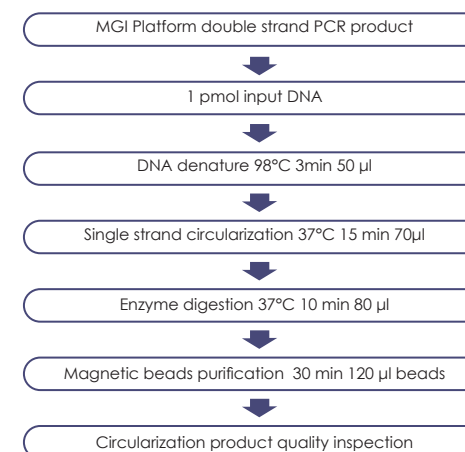
Comparison Between Competing Products

100pmol double strand DNA library was generated by TransGen library preparation kit under MGI platform. Single-stranded circularized libraries were prepared using TransGen and Company V products respectively, and the circularization efficiency and amplification fold were calculated using products of the same quantity. The results showed that the TransGen product was better than competing products in terms of efficiency.
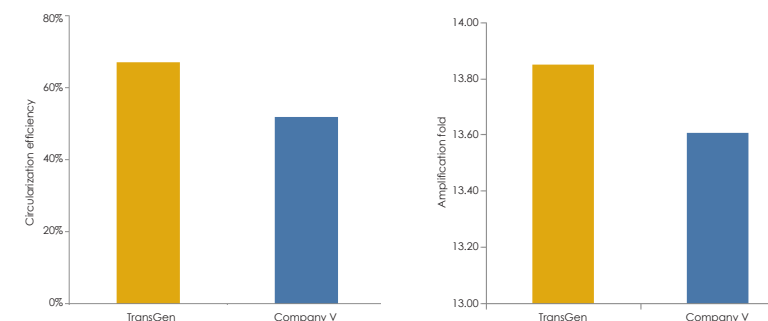
Stability of the Product

Circularization efficiency was calculated using 1 pmol MGI double-stranded DNA library and fragments with MGI adapters, circularized by TransGen products in different production batches. The consistency of circularization efficiency shows that TransGen products have good batch-to-batch stability.
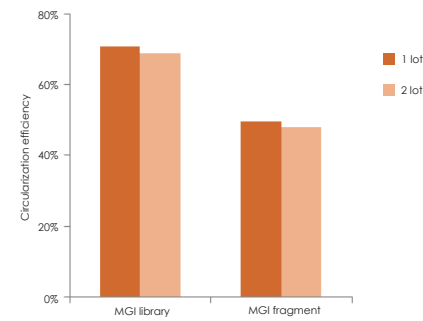
MagicPure® Size Selection DNA Beads (EC401)

Features

• Easy operation, designed for automated workstations.

Applications

• DNA purification
• DNA condensation
• DNA fragment sorting in high-throughput sequencing library construction

DNA purification and size selection
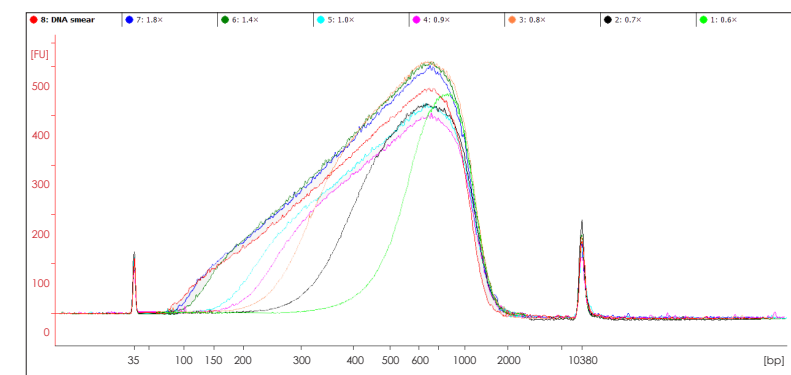
DNA samples were purified and sorted by TransGen products. Purified DNA product was identified by Agilent's high-sensitivity DNA chip, and TransGen's product shows high efficiency and accuracy.
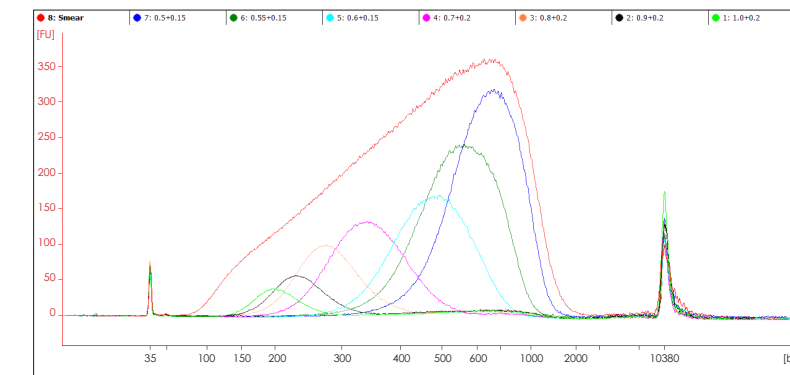
DNA Purification

Agilent high-sensitivity DNA electropherogram

Smear - Control dissolved in Nuclease-free Water; 0.6×~1.8× - DNA sample purified by the corresponding magnetic bead ratio

DNA size selection

Average length of sorted fragments (bp)						
190~220	220~250	250~300	300~400	400~500	500~600	600~750
1st volume ratio (DNA Beads:DNA)						
1.0×	0.9×	0.80×	0.70×	0.60×	0.55×	0.50×
2nd volume ratio (DNA Beads:DNA)						
0.20×	0.20×	0.20×	0.20×	0.15×	0.15×	0.15×

Agilent high-sensitivity DNA electropherogram

Smear - Control dissolved in Nuclease-free Water; 1.0+0.2~0.5+0.15 - DNA sample purified by the corresponding magnetic bead ratio

Comparison Between Competing Products

(1) Size selection

DNA samples with same length were sorted using products from TransGen and Company B respectively. Selected fragments were analyzed by Agilent high-sensitivity DNA chips and the concentration was measured using Qubit. The results showed that under same conditions, the length and recovery amount of the product gives no significant difference.
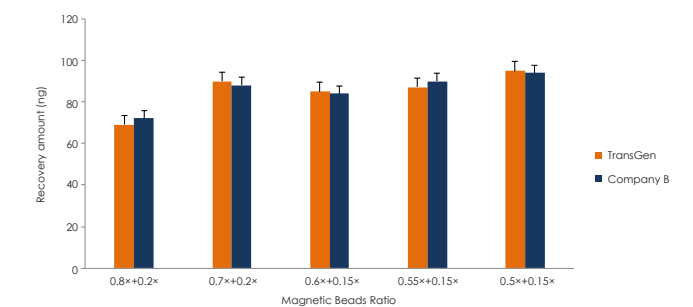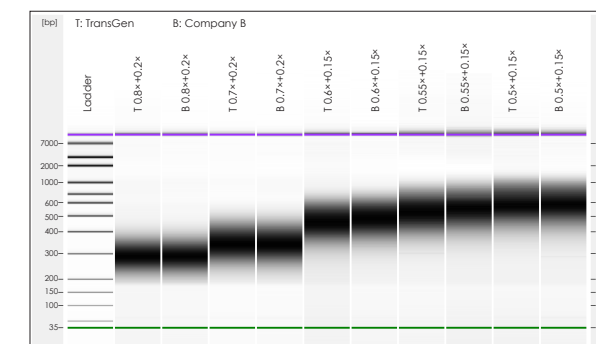
(2) Stability of the Product

After stored in 37℃ for 3 weeks/6 weeks, products from TransGen and Company B (2-8℃ as a control), DNA samples were fragmented (0.6×+0.1×) and analyzed by Agilent high-sensitivity DNA chips. Qubit was used to calculate the product concentration. The results showed that after high-temperature destructive experiments, the fragment length distribution and recovery amount are not significantly different from competing products, which shows good stability of the product.
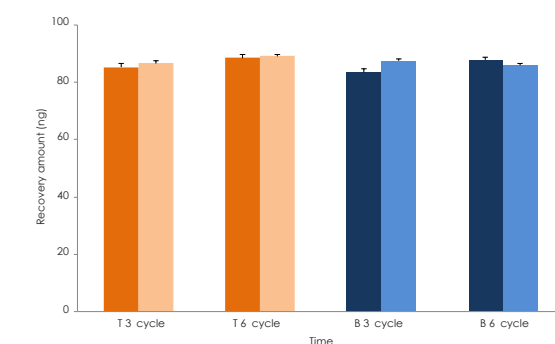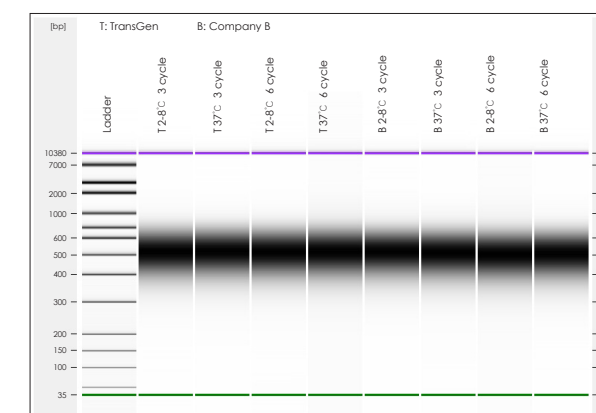
TRANSGEN

RNA Library Prep

01 rRNA Removal mRNA Capture

TransNGS® rRNA Depletion Kit (Human/Mouse/Rat) (KD101)

Features

• Removes up to 99% of rRNA in humans/mouse/rats effectively .
• Control qPCR Primer Sets included. Able to detect changes in rRNA and non-ribosomal RNA content before and after removal

Applications

• Human/mouse/rat total RNA (100 ng-1 μg) samples
• Completely or partially degraded (e.g. FFPE RNA) RNA samples

Stability of the product

Different batches of products were used to remove rRNA from 1 μg of total RNA (HepG2 cells), and rRNA Primer and non-rRNA Primer were used to perform qRT-PCR before and after rRNA removal. Since ΔCq values of different primers among different batches maintain relatively constant, the stability of the product is good.

Comparison Between Competing Products

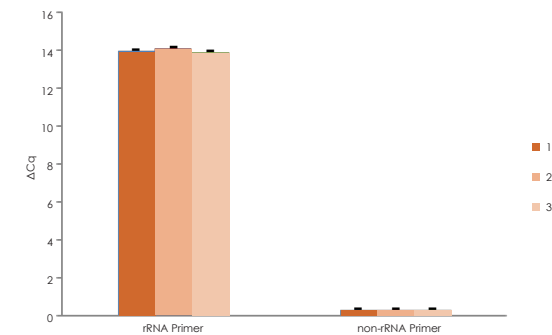Products from TransGen and Company K were used to remove rRNA in 1 μg of human (H), mouse (M) and rat (R) total RNA samples respectively, and then library construction (TransGen, KP601) was performed for sequencing and data analysis. The result shows that the performance of TransGen products is consistent with, or even better than, competing products in terms of sequencing quality, rRNA removal rate, circRNA and lncRNA detection rate.

Sequencing Quality

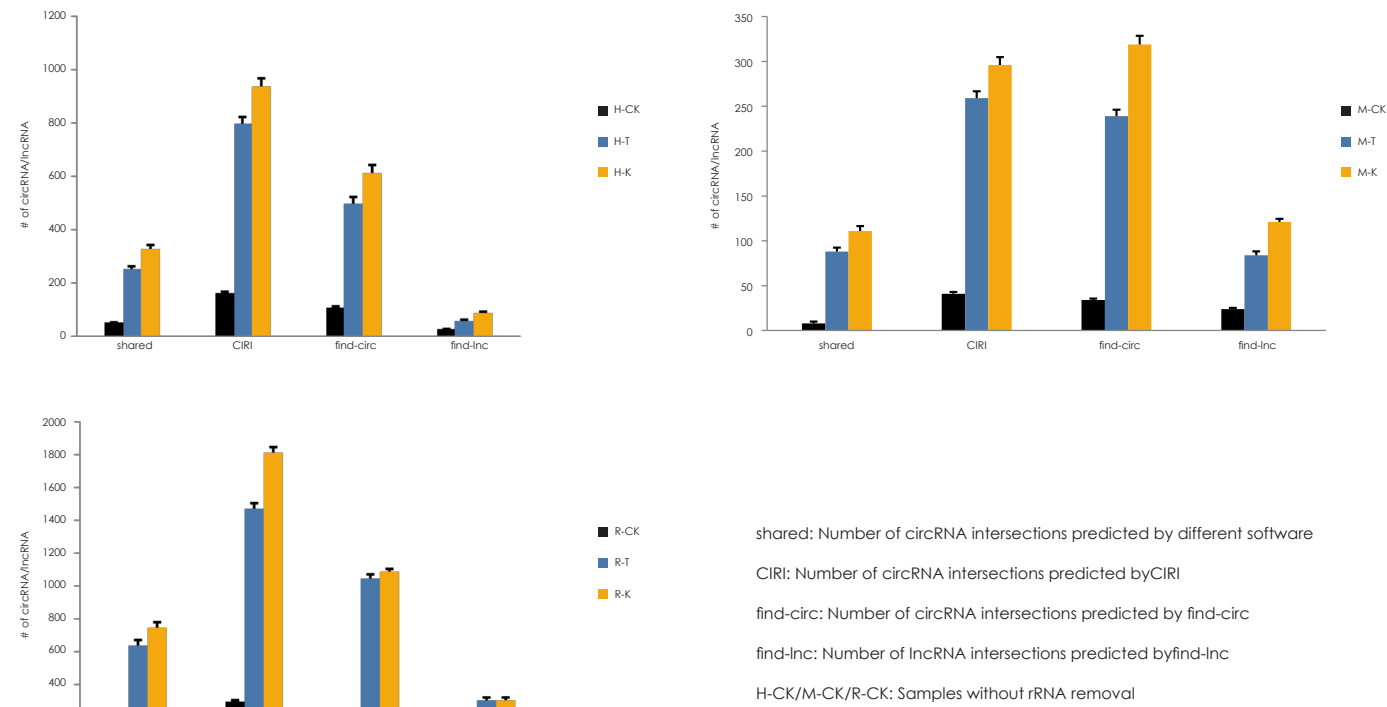| Sample	rRNA Rate(%)	Clean reads	Q20 (%)	Q30 (%)	GC content (%)	Total Mapped	Uniquely Mapped
H-CK	76.4	30611582	96.36	90.37	48.1	24914766 (81.39%)	21400556 (69.91%)
H-T	3.13	33860104	97.28	91.69	44.52	30467321 (89.98%)	29898471 (88.3%)
H-K	4.1	25323776	96.97	87.72	45.3	22631858 (89.37%)	22135512 (87.41%)
M-CK	82.2	31734716	96.37	90.39	50.52	26266824 (82.77%)	23902588 (75.32%)
M-T	3.37	26782378	97.13	89.71	44.91	23541710 (87.9%)	21366981 (79.78%)
M-K	5.7	28705540	97.05	88.71	45.11	25039842 (87.23%)	22829515 (79.53%)
R-CK	76.1	29980720	96.92	91.45	47.73	23828676 (79.48%)	20344916 (67.86%)
R-T	0.6	36024365	97.09	89.21	45.01	31315980 (86.93%)	28981601 (80.45%)
R-K	1.47	38587178	97.07	88.96	45.06	33566986 (86.99%)	30862024 (79.98%)

H-CK/M-CK/R-CK：Samples without rRNA removal

rRNA removal rate

Species	Sample	rRNA Removal (%)	rRNA Rate (%)
Human	H-T	99.88	3.13
	H-K	99.54	4.1
Mouse	M-T	99.79	3.37
	M-K	98.82	5.7
Rat	R-T	99.58	0.6
	R-K	99.03	1.47

rRNA Removal is analyzed by Mirabait software, rRNA Rate is compared using nt library, where Mirabait software is more accurate.

circRNA/lncRNA Analysis

shared: Number of circRNA intersections predicted by different software

CIRI: Number of circRNA intersections predicted by CIRI

find-circ: Number of circRNA intersections predicted by find-circ

find-lnc: Number of lncRNA intersections predicted by find-lnc

H-CK/M-CK/R-CK: Samples without rRNA removal

TransNGS® Magic rRNA Depletion Kit (Bacteria) (KD401)

Features

- Removes more than 95% of bacterial rRNA effectively.
- Suitable for single or mixed bacteria.
- Suitable for feces, soil, oral cavity and other samples.
- Little damage to mRNA.

Applications

- Suitable for both Gram-positive and Gram-negative bacteria (removal efficiency may vary for different bacterial species).
- Suitable for 500 ng~2 μg total RNA samples.
- Suitable for RNA samples with good integrity or moderate degradation (RIN value >4)

Schematic diagram

1. Total RNA

2. Probe hybridizes to RNA

3. Magnetic beads capture

rRNA ——— RNA of interest
probe ——— Beads ●

Operation flow chart

Total RNA

beads preparation — 10 min

Probe hybridizes to RNA — ~25 min

rRNA/probe complex binds to beads — ~25 min

RNA purification — ~20 min

Total 80 min
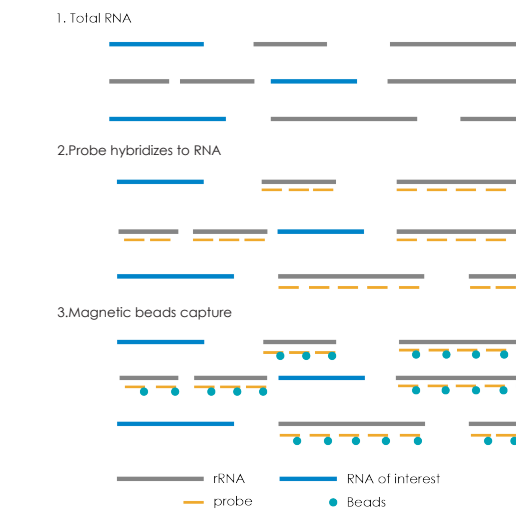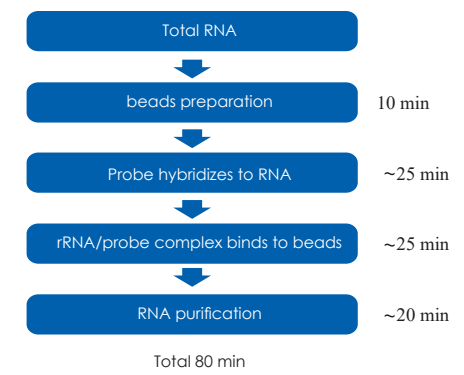
Gram-positive bacteria and Gram-negative bacteria rRNA removal efficiency

qPCR and sequencing of S. aureus and E. coli RNA samples treated by TransGen product were used to detect rRNA removal efficiency. The results showed that rRNA removal rate of TransGen product is more than 98%.

Changes in Cq values before and after rRNA removal based on qPCR

Sequencing of residual rRNA reads

Strain compatibility

Products from TransGen were used to remove rRNA and construct RNA library and RNA sequencing of 500 ng~1 μg bacterial total RNA sample. Sequencing data was compared with the Silva database to calculate the residual ratio of rRNA. The results showed that in most of tested species, rRNA residues were within 5%, which indicate that TransGen products have good compatibility and removal efficiency.
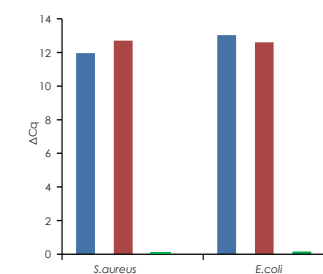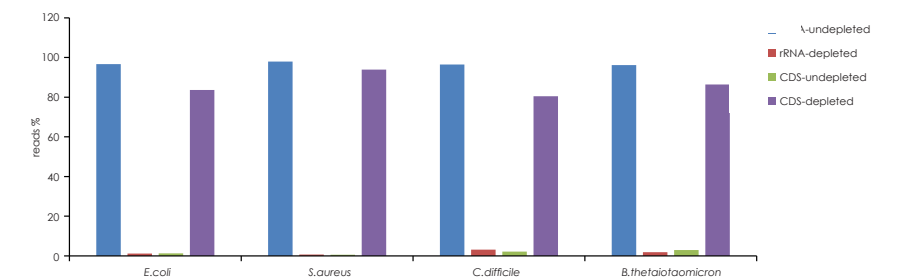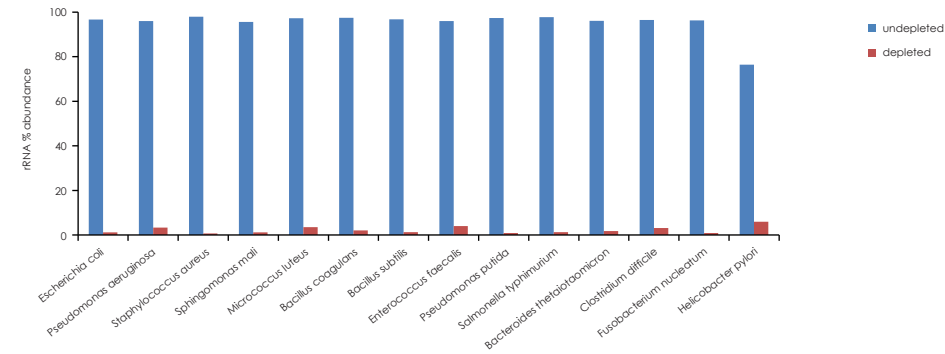

rRNA removal effect on complex samples

TransGen products were used to remove rRNA from soil, saliva, and fecal samples respectively, and then RNA libraries were constructed and sequenced. The result were compared with Silva database to calculate the ratio of rRNA reads. The results showed that after removal, the proportion of rRNA in complex samples was significantly reduced.
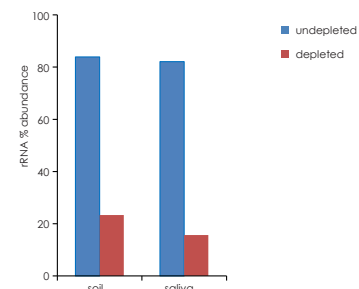
rRNA removal performance on degraded RNA sample

Products from TransGen were used to remove rRNA and construct RNA library on 1 μg of Staphylococcus aureus RNA samples under different degradation (RNA samples after high temperature treatment were tested by Agilent 2100, and the RIN values were in the intervals of 4~5, 5~6, 6~7, 7~8 and >8 respectively). The result was compared with the Silva database to calculate the residual rate of rRNA reads, which shows that TransGen products are suitable for intact or moderately degraded RNA with RIN values >4.
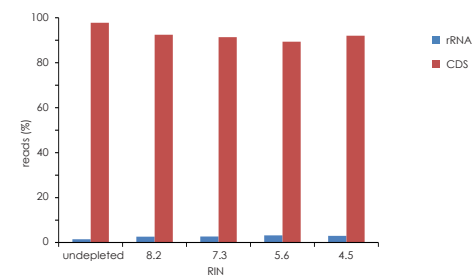
MagicPure® mRNA Kit (EC511)

Features

• Easy Operation.
• High yield and purity.
• Suitable for magnetic high-throughput nucleic acid extraction equipment.

Sample Requirement

• 0.1-10 μg purified total RNA with good integrity (RIN value ≥8).

Applications

• Products are suitable for RT-PCR, qRT-PCR, second-generation sequencing, etc.

Comparison Between Competing Products

Capture and Libraries Construction of Samples from Different Species
TransGen and Company V products were used to capture the total RNA of human, rat, mouse, tobacco, lily, tomato, soybean, arabidopsis, wheat and rice respectively, where 200 ng of total RNA input to human, rat and mouse; 1000 of total RNA input to other species. Library construction kit (TransGen, KP701) was used to construct RNA library, where library yield and peak pattern were analyzed with sequencing. Results show that TransGen products perform consistently with Company V products.

Library Yield
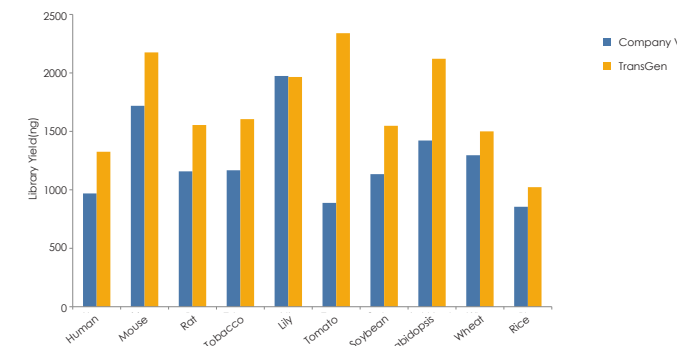
Peak Pattern of Library Construction
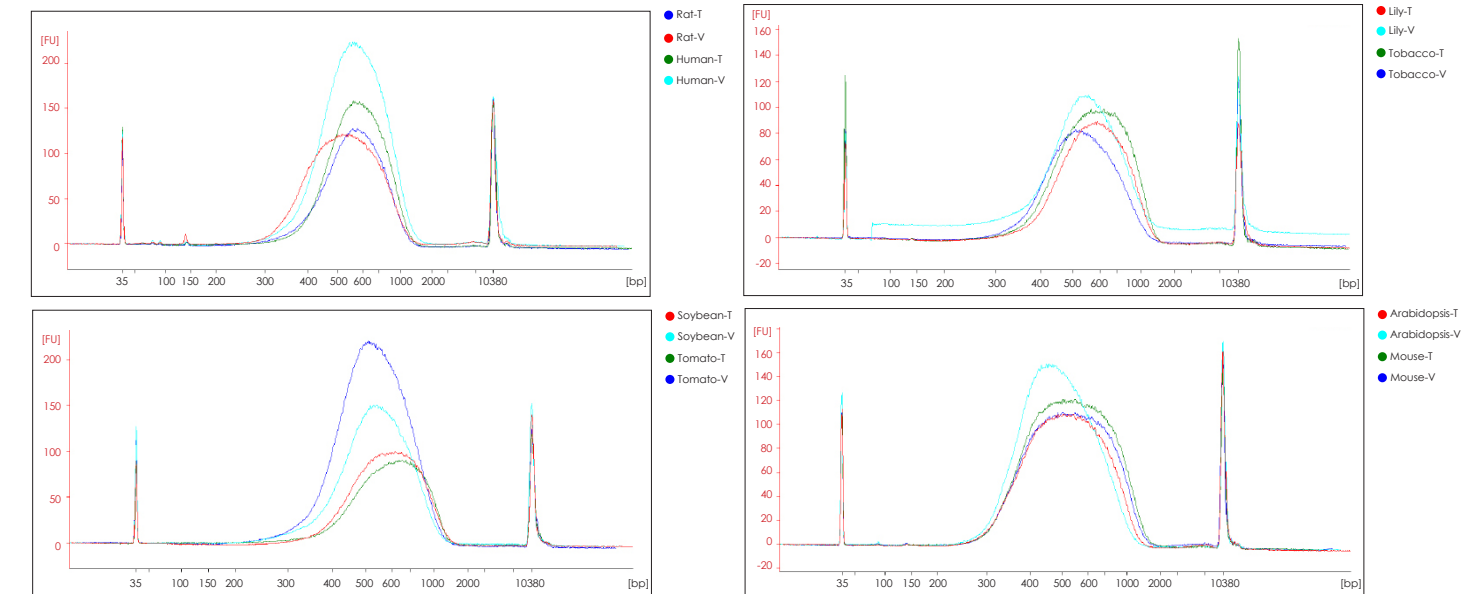
02 Library Preparation

TransNGS® RNA-Seq Library Prep Kit for Illumina® (KP601)

Features

- High library conversion rate.
- High data quality.

Applications

- Whole transcriptome sequencing.
- Gene expression analysis.
- Single nucleotide variation analysis.
- Variable shear detection.
- Fusion gene detection.
- Non-coding RNA and RNA precursor analysis

Schematic Diagram of Library Construction Principle

1. mRNA Capture or rRNA Depletion
2. RNA Fragmentation
3. First-Strand cDNA Synthesis
4. Second-Strand cDNA Synthesis
5. End Repair and A-Tailing
6. Adapter Ligation
7. Second-Strand cDNA digestion
8. Library Amplification

Principle chart of strand-specific library construction
(No dUTP incorporation and UDG digestion steps in second-strand synthesis of non-strand-specific library)

Operation Flow Chart

Total RNA
mRNA capture or rRNA removal
RNA fragmentation — 14 min
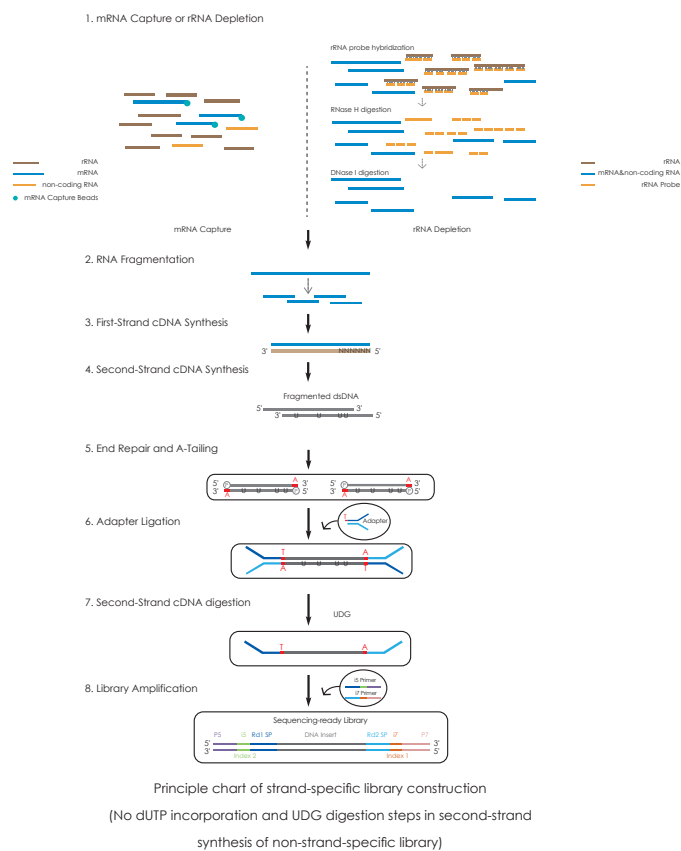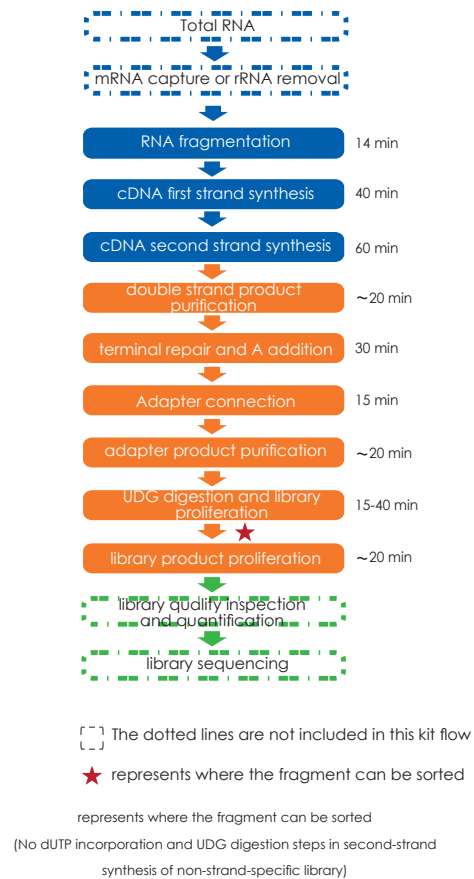cDNA first strand synthesis — 40 min
cDNA second strand synthesis — 60 min
double strand product purification — ~20 min
terminal repair and A addition — 30 min
Adapter connection — 15 min
adapter product purification — ~20 min
UDG digestion and library proliferation — 15-40 min ★
library product proliferation — ~20 min
library qualify inspection and quantification
library sequencing

⌐ ¬ The dotted lines are not included in this kit flow

★ represents where the fragment can be sorted

represents where the fragment can be sorted
(No dUTP incorporation and UDG digestion steps in second-strand synthesis of non-strand-specific library)

Comparison with Competing Products

TransGen, Company V, and Company products were used for library construction from 1 μg, 100 ng of total human blood RNA samples after rRNA removal (TransGen, KD101). The results show that TransGen products perform consistently with competitors in terms of sequencing data quality, gene expression levels, and correlation.
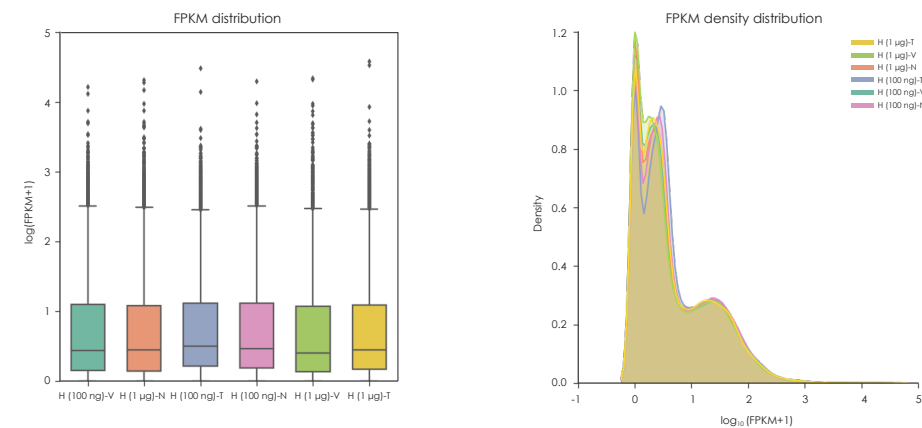
Sequencing quality

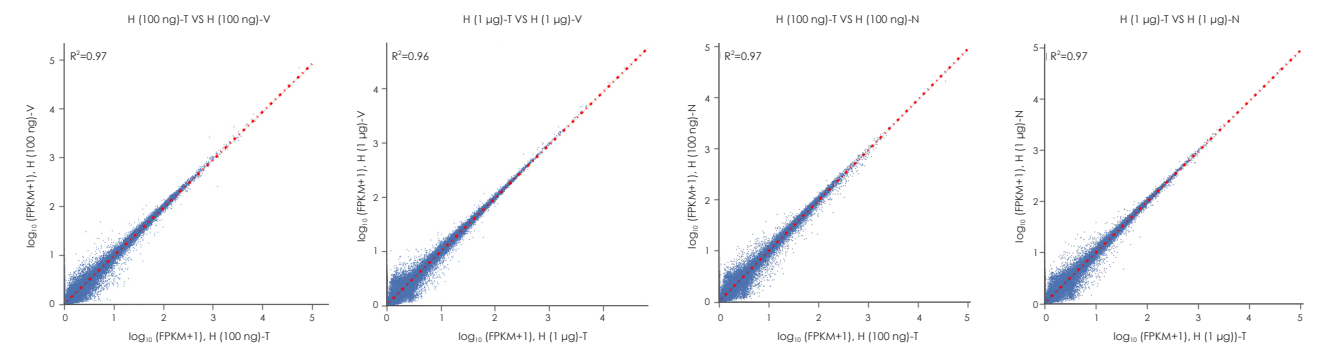| Sample	rRNA Rate (%)	Clean reads	Q20 (%)	Q30 (%)	GC content (%)	Total Mapped	Uniquely Mapped
H (1 μg)-T	0.78	27709932	98.85	95.67	49.03	25146763 (90.75%)	23079602 (83.29%)
H (100 ng)-T	2.31	24376592	98.96	95.99	48.57	21702480 (89.03%)	20093625 (82.43%)
H (1 μg)-V	0.88	24545480	98.92	95.85	46.92	22486114 (91.61%)	20961840 (85.40%)
H (100 ng)-V	2.91	26241828	98.94	95.57	49.11	23575658 (89.84%)	21841073 (83.23%)
H (1 μg)-N	0.69	19833710	98.72	95.22	50.75	17,980,295 (90.66%)	16,545,319 (83.42%)
H (100 ng)-N	2.55	20951360	98.65	95.00	47.95	19,036,259 (90.86%)	17,730,696 (84.63%)

Compare regional distributions
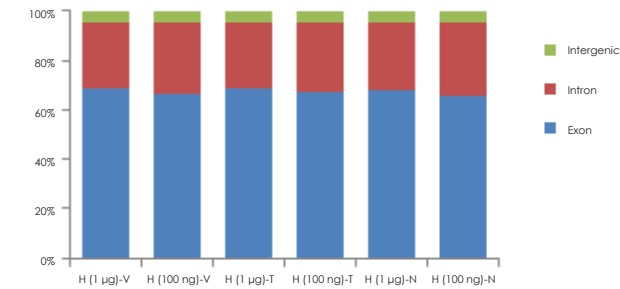
Gene expression and differential analysis

FPKM interval	H (1 μg)-T	H (100 ng)-T	H (1 μg)-V	H (100 ng)-V	H (1 μg)-N	H (100 ng)-N
0~1	52,346 (71.27%)	52,782 (71.86%)	51,114 (69.59%)	50,586 (68.87%)	51,300 (70.95%)	50,587 (69.96%)
1~3	6,098 (8.30%)	5,929 (8.07%)	8,588 (11.69%)	8,842 (12.04%)	8,161 (11.29%)	8,606 (11.90%)
3~5	3,784 (5.15%)	3,470 (4.72%)	3,397 (4.62%)	3,347 (4.56%)	1,893 (2.62%)	1,975 (2.73%)
5~15	4,043 (5.50%)	4,133 (5.63%)	3,765 (5.13%)	3,640 (4.96%)	3,679 (5.09%)	3,595 (4.97%)
15~60	4,870 (6.63%)	4,830 (6.58%)	4,582 (6.24%)	4,715 (6.42%)	5,031 (6.96%)	5,185 (7.17%)
>60	2,309 (3.14%)	2,306 (3.14%)	2,004 (2.73%)	2,320 (3.16%)	2,245 (3.10%)	2,361 (3.27%)

FPKM distribution

FPKM density distribution

Correlation analysis

H (100 ng)-T VS H (100 ng)-V — R²=0.97
H (1 μg)-T VS H (1 μg)-V — R²=0.96
H (100 ng)-T VS H (100 ng)-N — R²=0.97
H (1 μg)-T VS H (1 μg)-N — R²=0.97

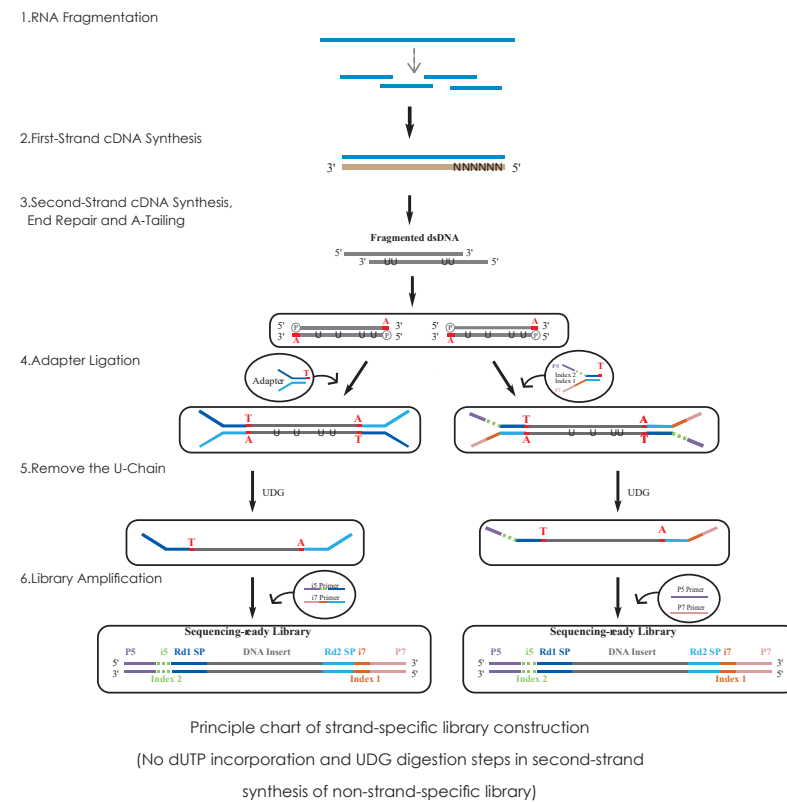# TransNGS® Fast RNA-Seq Library Prep Kit for Illumina® (KP701)

Features

- Fast library preparation
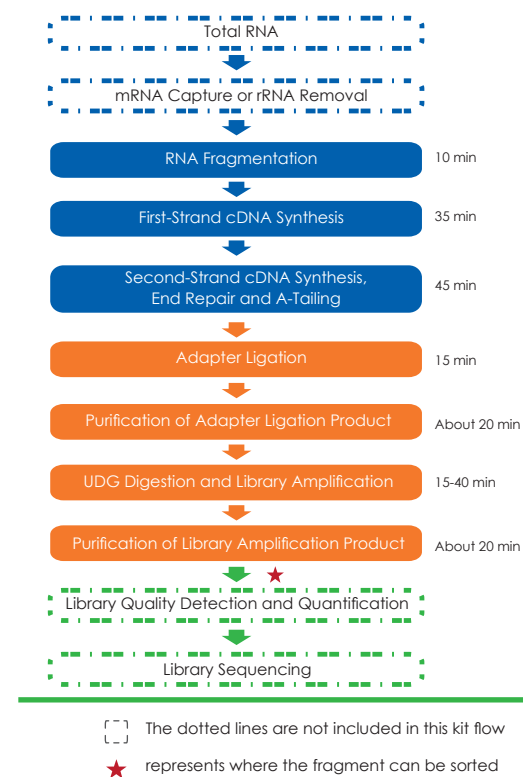- High library conversion rate
- High data quality

Applications

- Whole transcriptome sequencing
- Gene expression analysis
- Single nucleotide variation analysis
- Variable splicing testing
- Fusion genetic testing
- Analysis of non-coding RNA and RNA precursor

Schematic Diagram of Library Preparation

1.RNA Fragmentation

2.First-Strand cDNA Synthesis

3' NNNNNN 5'

3.Second-Strand cDNA Synthesis, End Repair and A-Tailing

Fragmented dsDNA

4.Adapter Ligation

5.Remove the U-Chain

UDG

UDG

6.Library Amplification

Sequencing-ready Library

Sequencing-ready Library

Principle chart of strand-specific library construction
(No dUTP incorporation and UDG digestion steps in second-strand synthesis of non-strand-specific library)

Operation Flow Chart

Total RNA

mRNA Capture or rRNA Removal

RNA Fragmentation — 10 min

First-Strand cDNA Synthesis — 35 min

Second-Strand cDNA Synthesis, End Repair and A-Tailing — 45 min

Adapter Ligation — 15 min

Purification of Adapter Ligation Product — About 20 min

UDG Digestion and Library Amplification — 15-40 min

Purification of Library Amplification Product — About 20 min ★

Library Quality Detection and Quantification

Library Sequencing

⌐ ¬ The dotted lines are not included in this kit flow
★ represents where the fragment can be sorted

Flow chart of strand-specific library construction
(No dUTP incorporation and UDG digestion steps in second-strand synthesis of non-strand-specific library)

Comparison with Competing Products

mRNA purification kit was used to capture mRNA from total RNA of human, mouse, wheat and tobacco, in which 200 ng total RNA is input for human and mouse, and 1000 ng total RNA is input for wheat and tobacco. TransGen and Company V products were used for RNA library construction. After library sorting, the library yield, library peak shape, and sequencing analysis is performed. Results show that TransGen products perform consistently with Company V products.

Library yield
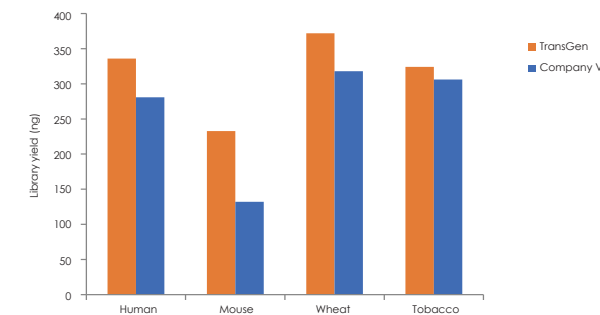
Library peak type
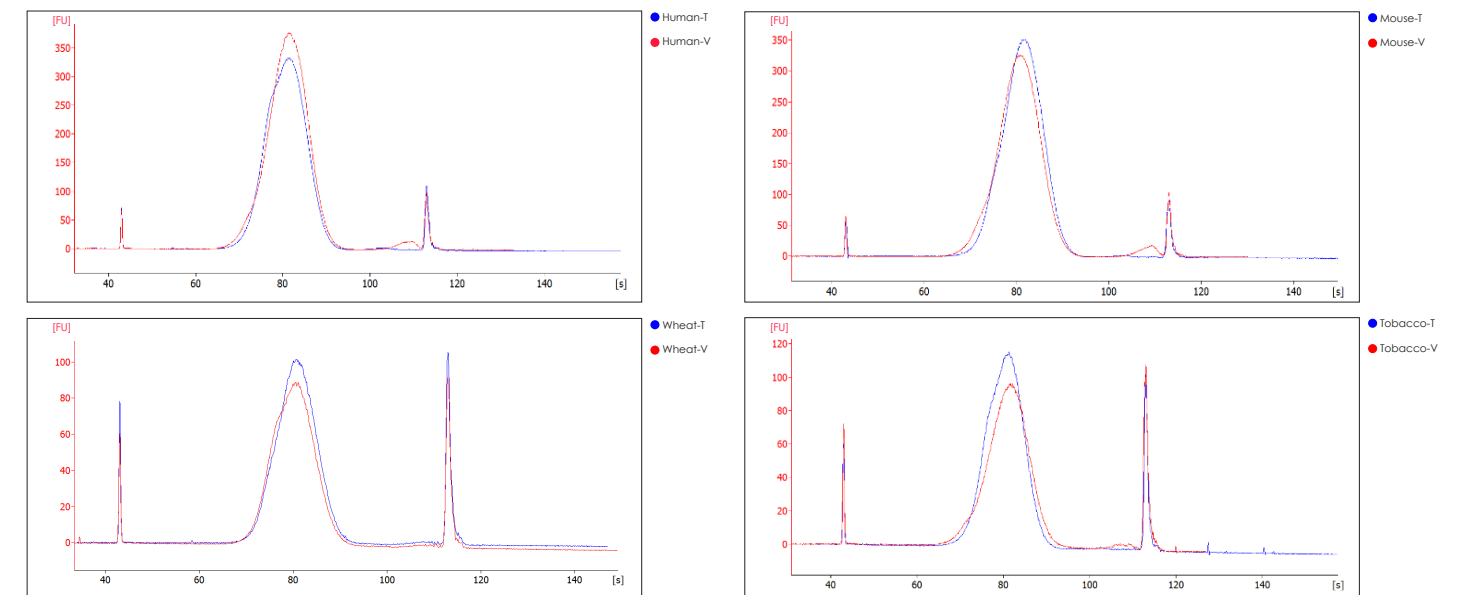
Sequencing quality

Sample name	clean ratio (%)	low quality ratio (%)	adapter ratio (%)	Q20 (%)	Q30 (%)	GC Content (%)	duplicate (%)	Total mapped(%)	Strand specific(%)
Human-T	92.59	6.88	0.53	98.24	94.09	50.05	31.63	96.42	98.62
Human-V	89.25	8.21	2.54	98.21	93.95	49.17	33.91	96.66	97.86
Mouse-T	92.44	7.09	0.47	97.77	92.89	50.53	30.12	95.65	98.30
Mouse-V	88.36	9.09	2.55	98.19	93.95	49.17	31.05	95.35	97.54
Wheat-T	92.94	6.47	0.59	98.25	94.15	54.90	26.51	93.96	98.72
Wheat-V	88.74	8.71	2.55	98.16	93.94	54.05	26.91	94.20	97.85
Tobacco-T	92.48	6.88	0.64	97.56	92.41	45.14	20.46	56.17	98.43
Tobacco-V	88.98	7.98	3.04	98.32	94.17	44.56	21.75	53.52	97.64

TransNGS® Fast Stranded RNA-Seq Library Prep Kit for *MGI®* (KP801)

Features

- Fast library preparation
- High library conversion rate
- High data quality

Applications

- Whole transcriptome sequencing
- Gene expression analysis
- Single nucleotide variation analysis
- Variable splicing testing
- Fusion genetic testing
- Analysis of non-coding RNA and RNA precursor

Comparison with Competing Products

mRNA purification kit was used to capture mRNA from total RNA of human, mouse, and arabidopsis, in which 200 ng total RNA is input for human and mouse, and 1000 ng total RNA is input for arabidopsis. TransGen and Company V products were used for RNA library construction. After library sorting, the library yield, library peak shape, and sequencing analysis is performed. Results show that TransGen products perform consistently with Company V products.

Library yield
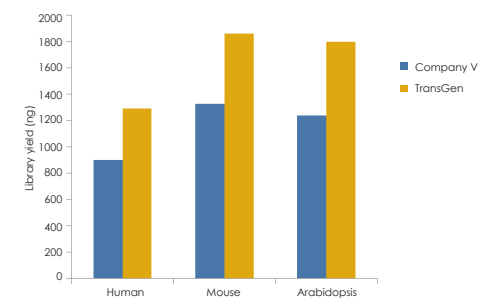
Library peak type
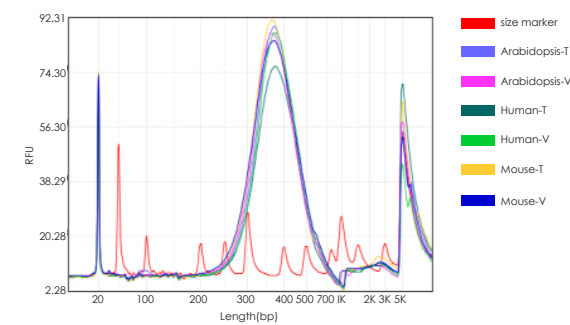
Sequencing quality

Sample	Q20 (%)	Q30 (%)	GC Content (%)	Total mapped (%)	Duplication Rate (%)
Human-T	97.82	94.19	50.53	94.22	19.45
Human-V	97.79	94.19	50.70	94.19	19.41
Mouse-T	97.81	94.18	49.44	93.68	16.46
Mouse-V	97.92	94.48	49.25	92.66	17.64
Arabidopsis-T	97.90	94.39	45.18	92.44	23.62
Arabidopsis-V	98.00	94.69	45.32	92.52	23.39

TRANSGEN Pathogenic Microorganism Detection
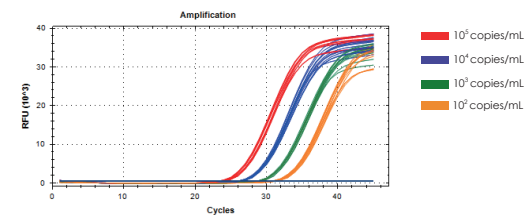
01

Sample Preservation

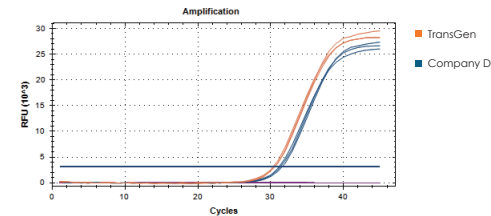## *TransGuard*® Disposable Virus Sampling Tube (ES101)

Features

• Inactivate virus: To avoid secondary contamination during the process of transportation and detection.
• Stable preservation: Protect viral nucleic acids from degradation at room temperature for 1 week.
• Transport and preserve at room temperature without the need of cold chain.
• High detection rate: Compatible with a variety of virus nucleic acid extraction reagents.
• Simple to operate: No professional training is required, allowing self-sampling.

Stable preservation

TransGen products were used to collect and preserve the serially diluted (10^5-10^2 copies/ml)Newcastle disease virus. After 7 days, the nucleic acid was extracted and qRT-PCR was performed to test the preservation effect. The results show that TransGen products can effectively preserve viruses at different concentrations.

TransGen and Company D products were used to collect and preserve Newcastle disease virus. After 7 days, the nucleic acid was extracted and qRT-PCR was performed to test the preservation effect. The results show that TransGen products exhibits a better preservation effect.
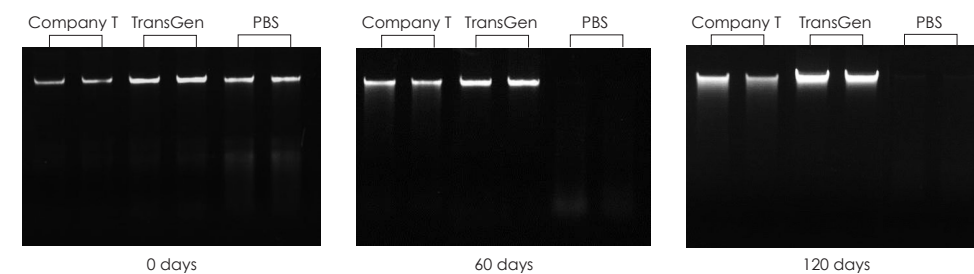

TransGuard® Fecal DNA Sampling Tube

Features

•Inactivate safely: To avoid secondary contamination during the process of transportation and detection.
• Stable preservation: Protect sample nucleic acids from degradation at room temperature for 3 months.
•Convenient transportation and preservation: Transport and preserve at room temperature without the need of cold chain.
•Simple to operate: No professional training is required, allowing self-sampling.

Stable preservation

Stool samples were preserved using products from TransGen, Company T and PBS. The preservation effect was evaluated by agarose gel electrophoresis for gDNA extracted after 0 day, 60 days and 120 days stored at 25oC. The results showed that the integrity of the sample gDNA preserved by TransGen products were better than those of Company T and PBS, with little degradation.


0 days   60 days   120 days

TransGuard® Buccal Swab DNA Preservation Buffer (ES103)

Features

•Inactivate safely: To avoid secondary contamination during the process of transportation and detection.
• Stable preservation: Protect sample nucleic acids from degradation at room temperature for 6 months.
•Convenient transportation and preservation: Transport and preserve at room temperature without the need of cold chain.
•Simple to operate: No professional training is required, allowing self-sampling.

Stable preservation

Four oral swabs were collected using TransGen products. The preseravation effect was evaluated by agarose gel electrophoresis for gDNA extracted after 30 days and 120 days stored at 25oC. The results show that the sample gDNA preserved by TransGen products has good integrity.

M:*Trans*2K® Plus II DNA Marker

M:*Trans*2K® Plus II DNA Marker
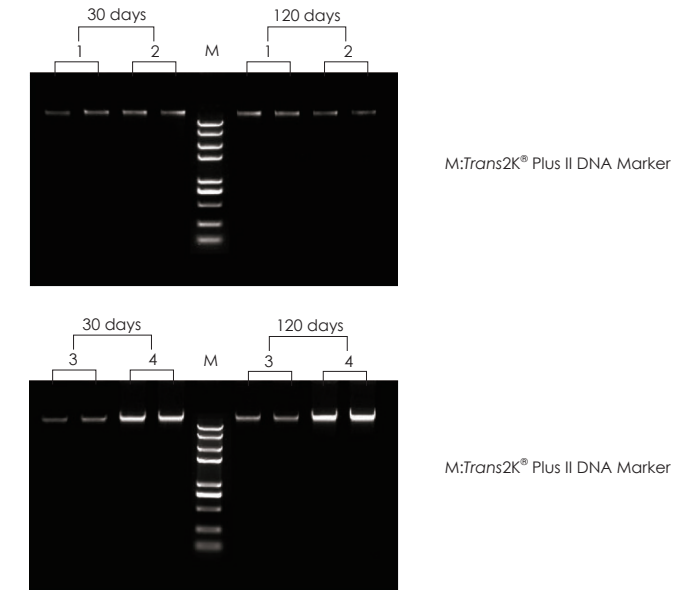
TransNGS® Host DNA Depletion Kit (EH301)

Features

• Simple and time-saving: simple operation, and the nucleic acid removal of the human host is completed in 50 minutes.

• High-efficiency removal: special lysate can efficiently remove human host nucleic acid and improve the detection rate of microorganisms.

• Wide range of samples: suitable for buccal/throat swabs, sputum, pleural fluid, ascites, cerebrospinal fluid, amniotic fluid and other biological fluid samples.

• Compatible with a variety of extraction platforms: compatible with column extraction and magnetic bead method and other downstream extraction methods.

Effective Depletion of Host Nucleic Acid

TransGen, Company V and Company Q were used to process different samples, and the corresponding the column extraction products of pathogenic microorganism nucleic acid were used to extract nucleic acid, and the host conserved genes were quantitatively detected by qPCR. The results showed that TransGen could effectively remove host nucleic acid, and the removal efficiency was significantly better than that of Company V and Company Q products.
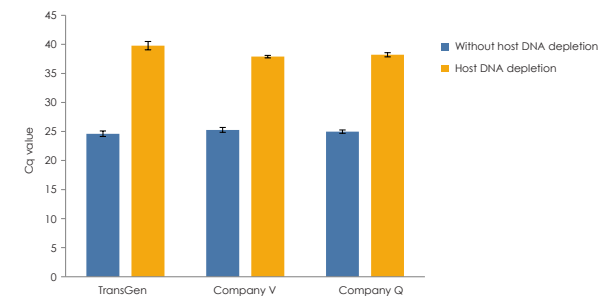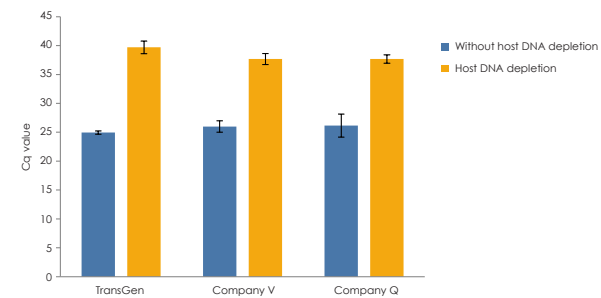
Throat Swab
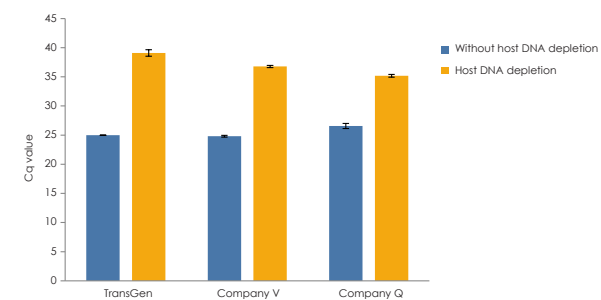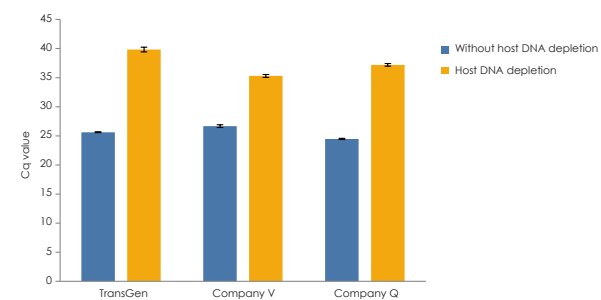
Sputum

Ascites

Pleural Fluid

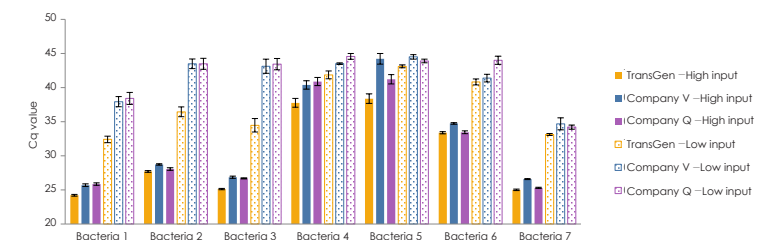## *EasyPure*® Microbiome DNA Isolation Kit (EE401)

Features

• The extracted nucleic acid is of high quality and meets a variety of downstream testing needs.

• Strictly control the contaminations of background bacteria in reagents to reduce the risk of false positives.

• Suitable for microbial nucleic acid extraction from the throat swab, sputum, ascites and pleural fluid samples.
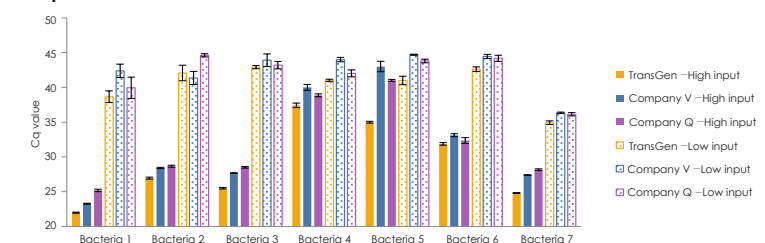
Efficient Extraction of Multiple Samples

High and low input of different bacteria diluents were added to throat swabs, sputum, pleural effusion and ascites samples, and nucleic acid was extracted using TransGen, Company V and Company Q products, respectively. qPCR was used to detect the extraction effect. The results showed that the extraction efficiency of TransGen products for different microorganisms in different samples was better than competing products.
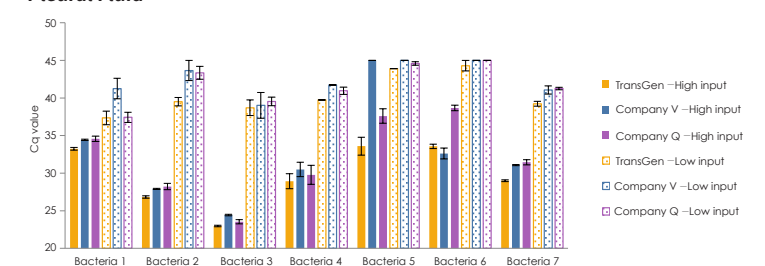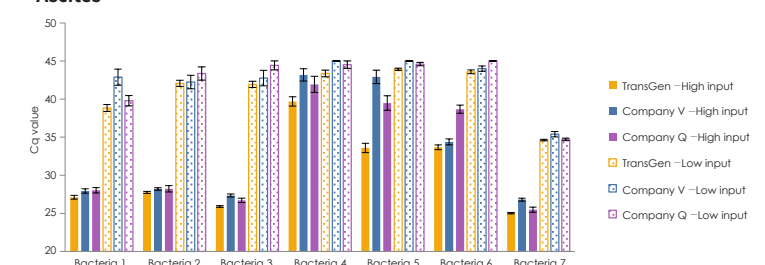
Throat Swab

Sputum

Pleural Fluid

Ascites

# MagicPure® Microbiome DNA Isolation Kit (EC107)

Features

- The extracted nucleic acid is of high quality and meets a variety of downstream detection requirements.
- Strictly control the contaminations of background bacteria in reagents to reduce the risk of false positives.
- Suitable for microbial nucleic acid extraction from the throat swab, sputum, ascites and pleural fluid samples.
- Suitable for high-throughput magnetic-rod nucleic acid extractor.

Efficient Extraction of Multiple Samples

The high and low input of different bacteria diluents were added to the throat swab, sputum, ascites and pleural fluid samples. The nucleic acid was extracted using the TransGen column-based method and magnetic bead method, and the extraction effect was detected by qPCR. The results showed that both TransGen magnetic bead method and column based method can efficiently extract samples with high and low input.
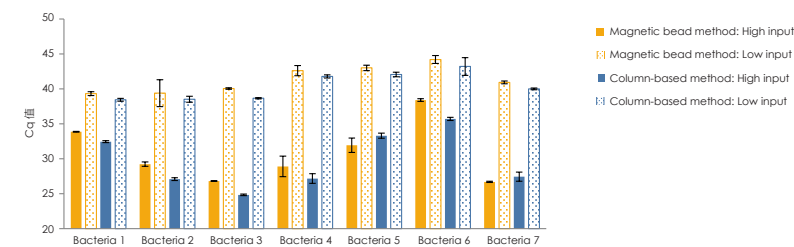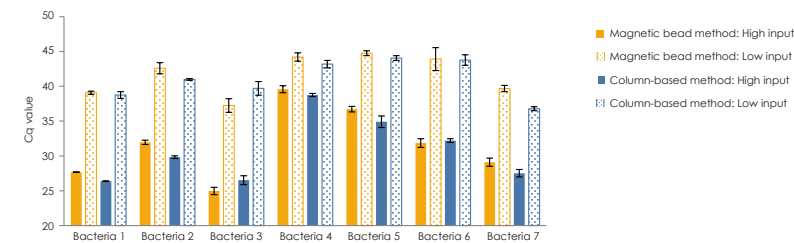
Throat Swab
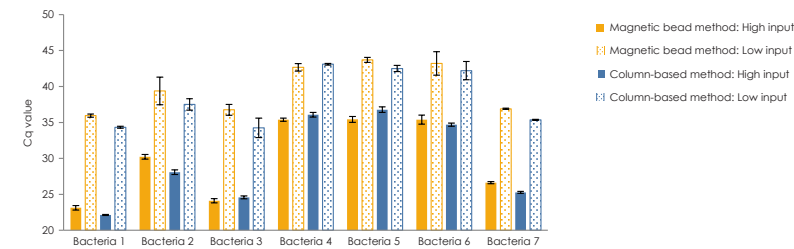
Sputum
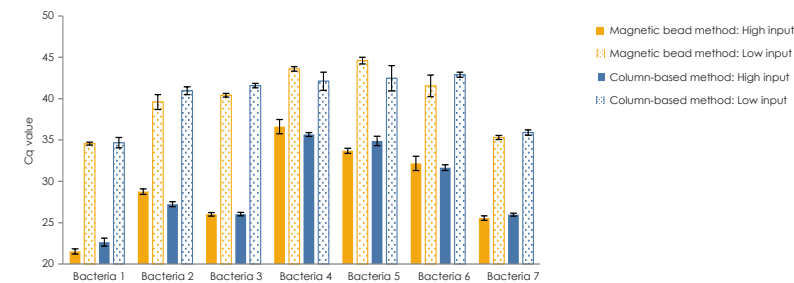
Pleural Fluid

### Ascites

EasyPure® Viral DNA/RNA Kit (ER201)

Features

- Use a unique lysis buffer to lyse virus and silica-based spin column to specifically adsorb DNA.
- High yield and high purity.
- Suitable for extracting viral DNA/RNA from a variety of samples such as whole blood, swab and cell supernatant.
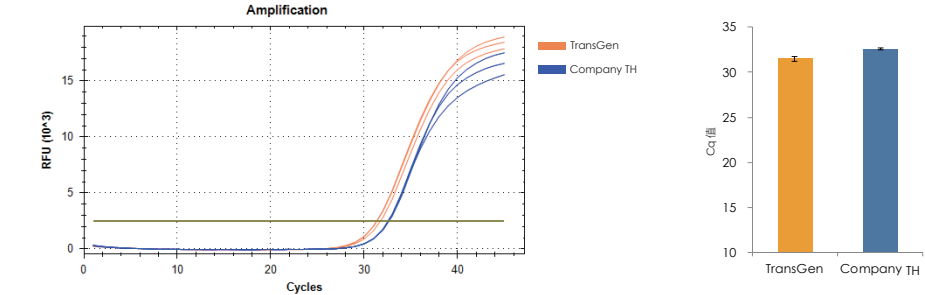
High Extraction Efficiency

Extract COVID-19 pseudovirus RNA using products of TransGen and Company TH respectively, followed by qRT-PCR to detect the ORF1ab and N genes. The results show that TransGen's kit has high extraction efficiency.
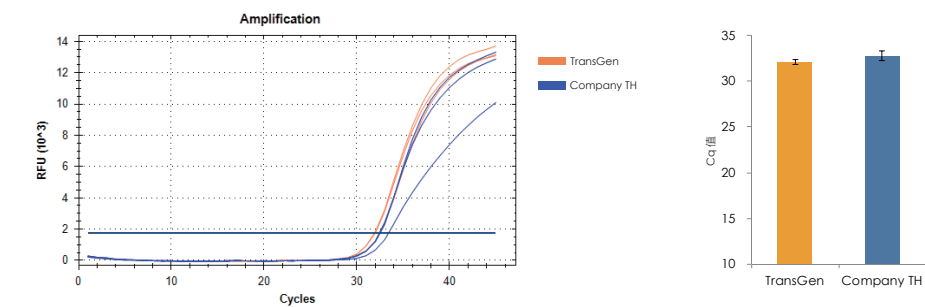
MagicPure® Fly 96 Viral DNA/RNA Kit

Features

- Fast and simple, requiring only one wash, which enhances manual operation efficiency.
- High extraction sensitivity, improving virus detection rates.
- Extract fast, 14 minutes can be completed
- Suitable for extracting viral DNA/RNA from samples such as serum, swabs, and cell supernatants.
- Utilizes silicon-based magnetic beads for specific adsorption and purification of virus DNA/RNA, compatible with various 96-channel automated nucleic acid extractors.

High Extraction Efficiency

Using COVID-19 pseudovirus samples diluted to 10^4-fold and 10^6-fold, nucleic acid extraction was performed using TransGen EC331-96 and EC311-96 products, followed by qPCR (TransGen, AQ322) to assess the extraction efficiency. The results show that EC331-96 product yields a higher extraction quantity.

ORF1ab

N

RNase P

Amplification

EC331-96 10⁴-fold dilution   EC311-96 10⁴-fold dilution   EC331-96 10⁶-fold dilution   EC311-96 10⁶-fold dilution
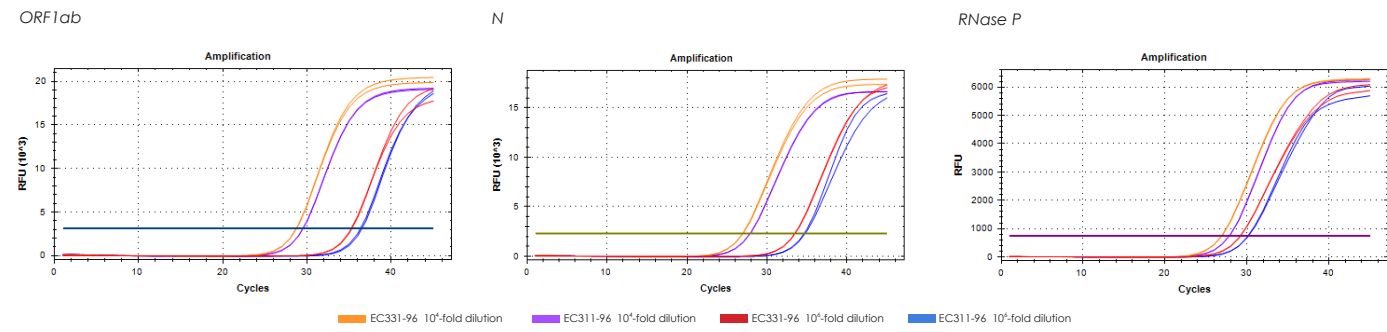
MagicPure® Stool and Soil Genomic DNA Kit (EC801)

Features

- DNA-specific adsorption magnetic beads, high purity, and fast extraction speed.
- Suitable for extracting various types of soil samples, efficiently removing inhibitors from the samples.

Comparison with competitors
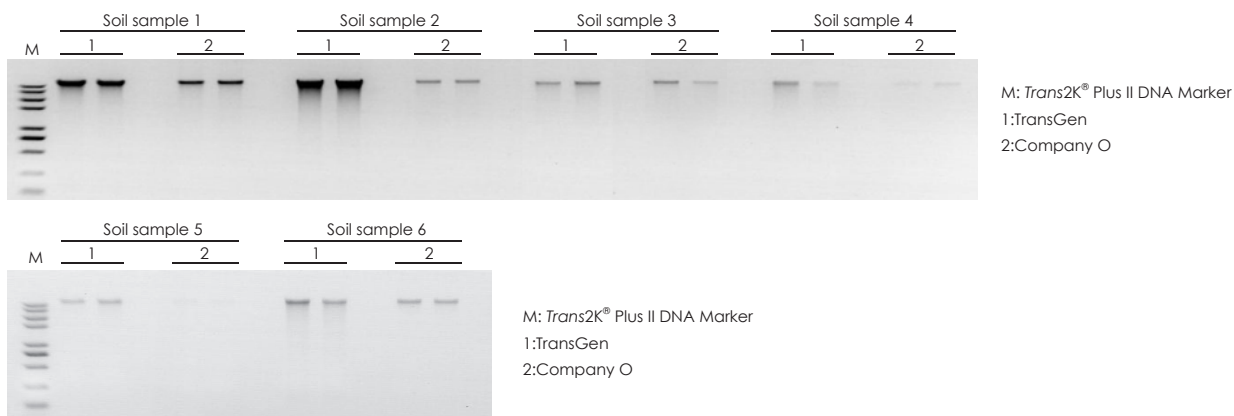
Soil sample

(1) High yield

Extract genomic DNA from different soil samples using products of TransGen and Company O respectively. The Qubit test results showed that TransGen products yielded higher DNA concentrations in the extracted DNA from all six soil samples.
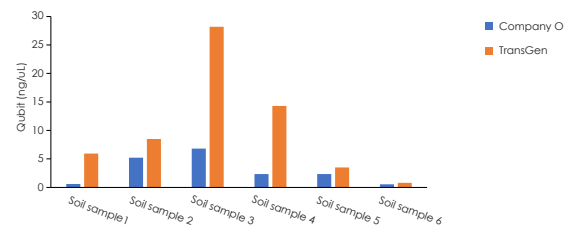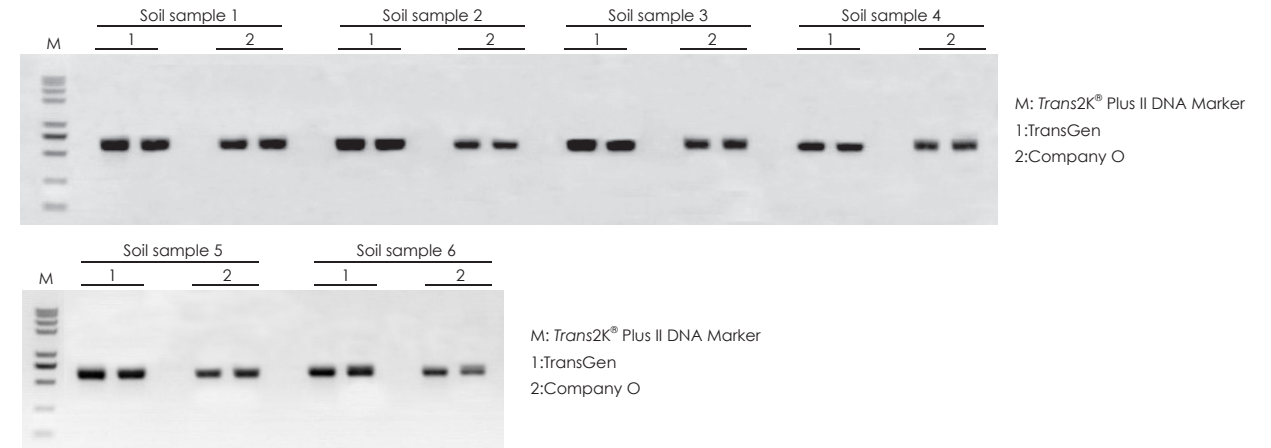

(2) The extracted DNA has good integrity

Extract genomic DNA from different soil samples using products of TransGen and Company O respectively. Gel electrophoresis results show that TransGen products yielded better DNA quantity and integrity.

M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

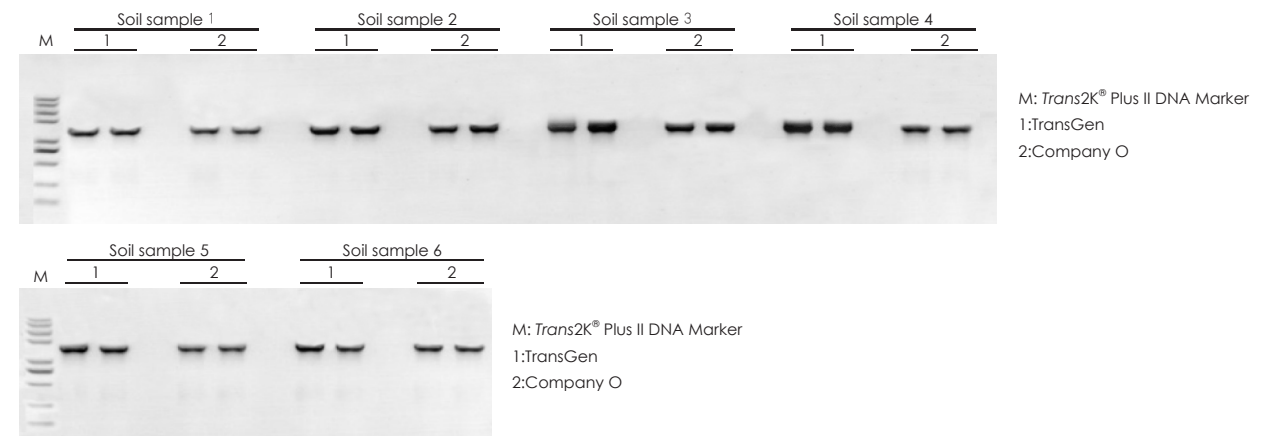M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

(3) Better suited for downstream applications

Fungal ITS sequences were amplified using 50 ng of genomic DNA extracted from different soil samples with TransGen and Company O products as templates. Gel electrophoresis results show that genomic DNA extracted with TransGen products is better suited for downstream PCR detection.

M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

16S rDNA were amplified using 4 µL genomic DNA extracted from different soil samples with TransGen and Company O products as templates. Gel electrophoresis results show that genomic DNA extracted with TransGen products is better suited for downstream PCR detection.


M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

M: *Trans*2K® Plus II DNA Marker
1:TransGen
2:Company O

Stool sample

(1) The extracted DNA has good integrity

Extract genomic DNA from different soil samples(Mouse feces 200 mg, human feces 200 µL） using products of TransGen and Company T respectively. Gel electrophoresis results show that TransGen products yielded better DNA quantity and integrity.

M: *Trans*2K® Plus II DNA Marker
1, 2: TransGen
3, 4: Company T
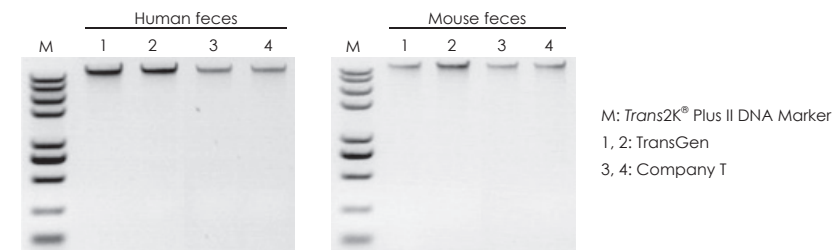
(2) Better suited for downstream applications

Extract genomic DNA using products of TransGen and Company T respectively from human and mouse feces, and then different amounts of genomic DNA were used as templates to amplify 16S rDNA. Gel electrophoresis results show that genomic DNA extracted with TransGen products is better suited for downstream PCR detection.
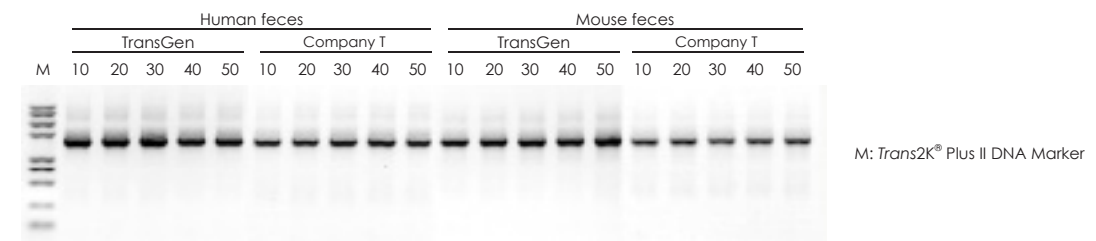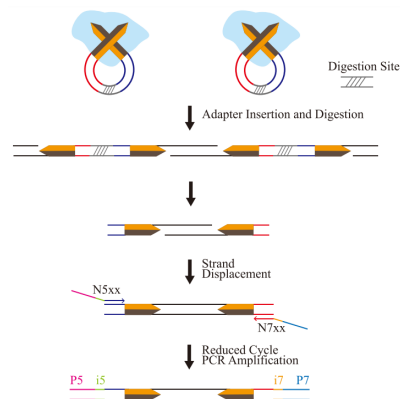

M: *Trans*2K® Plus II DNA Marker

Library Preparation

## *Trans*NGS® Microbiome DNA Library Prep Kit for Illumina® (KP141)

Features
• Fast: no more than 90 minutes.
• Easy to operate: single-tube enzymatic reaction, DNA fragmentation and adapter ligation are synchronized.
• Wide compatibility: the transposase method is suitable for a variety of DNA template library construction requirements.
• Low sample volume: as low as 1 ng.

Schematic diagram of the metagenome library preparation

Digestion Site

Adapter Insertion and Digestion

Strand Displacement

N5xx

N7xx

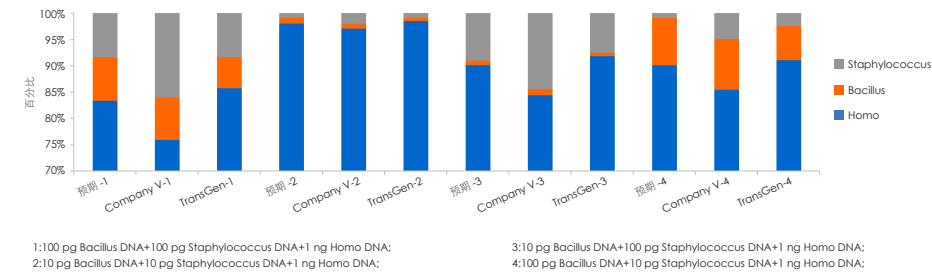Reduced Cycle PCR Amplification

P5 i5   i7 P7

Multi-sample library preparation peak type

TransGen and Company V products were used for library construction using 1 ng of genome samples from oropharyngeal swabs, sputum, and blood, respectively.

Oropharyngeal Swab   Sputum   Blood
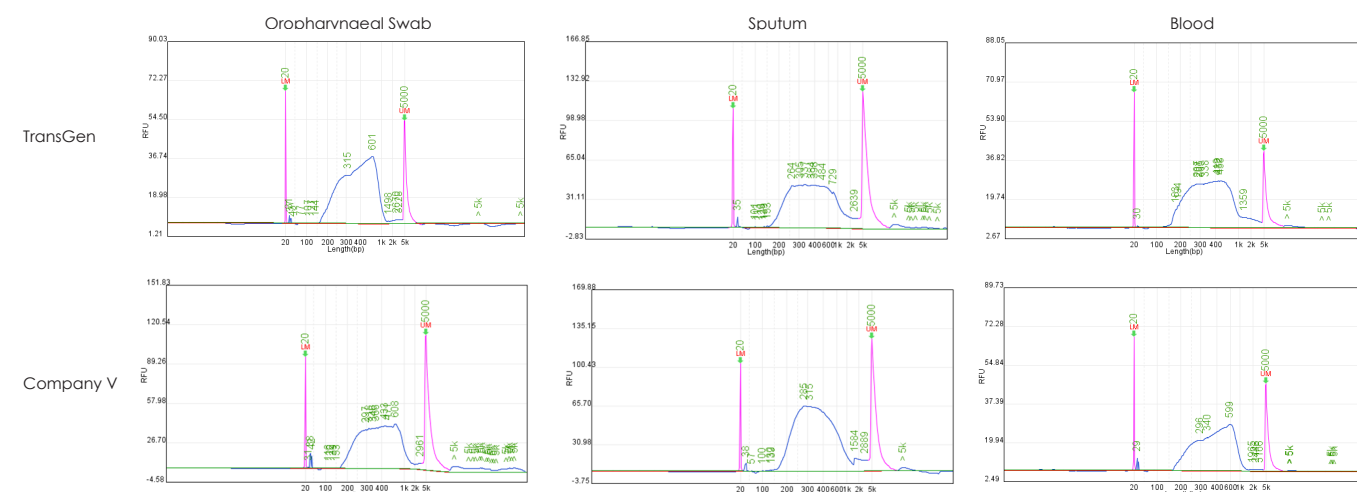
TransGen

Company V

Library preparation of clinical simulation samples

TransGen and Company V products were used to construct the library with simulated clinical pathogenic microorganism samples in vitro, and the results showed that the library detection rate of TransGen products was closer to the simulation ratio.

Staphylococcus
Bacillus
Homo

1:100 pg Bacillus DNA+100 pg Staphylococcus DNA+1 ng Homo DNA;
2:10 pg Bacillus DNA+10 pg Staphylococcus DNA+1 ng Homo DNA;
3:10 pg Bacillus DNA+100 pg Staphylococcus DNA+1 ng Homo DNA;
4:100 pg Bacillus DNA+10 pg Staphylococcus DNA+1 ng Homo DNA;

*Trans*NGS® Microbiome RNA Library Prep Kit for Illumina®

Features
• Simple process: library construction based on transposase RNA, without cDNA two-strand synthesis.
• Low sample volume: as low as 1 ng.
• Compatible rRNA removal module: good compatibility with rRNA removal module.

Schematic diagram of the metagenome library preparation

5' AAAA...
3' TTTT...

Adapter Insertion and Digestion

Digestion Site

5'
3'

Strand Displacement

5'
3'

5'
3'

N5xx

N7xx

PCR Amplification

P5 i5   i7 P7
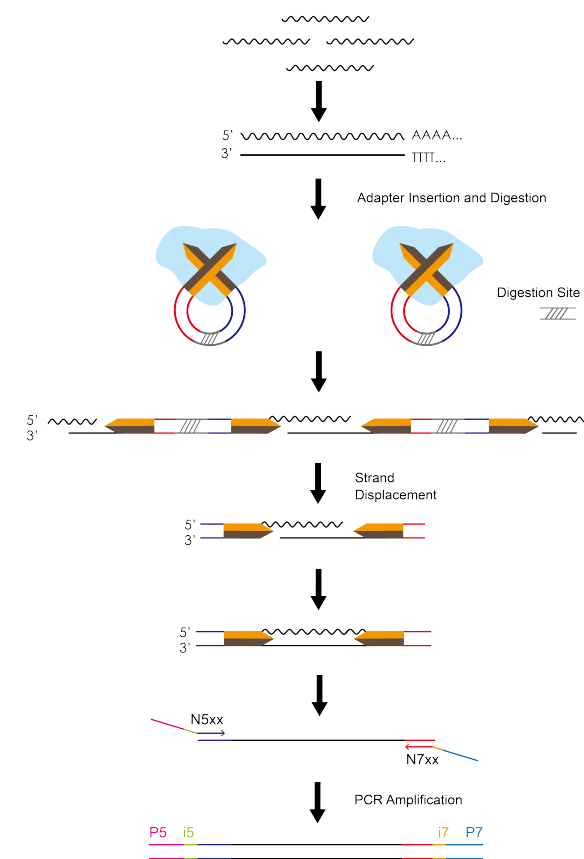
Multi-sample library preparation peak type

TransGen products were used to construct the library using 1 ng, 10 ng, and 100 ng initial volumn of Hela cell RNA, respectively. The results showed that the TransGen product could efficiently construct the library for the initial samples of 1-100 ng.
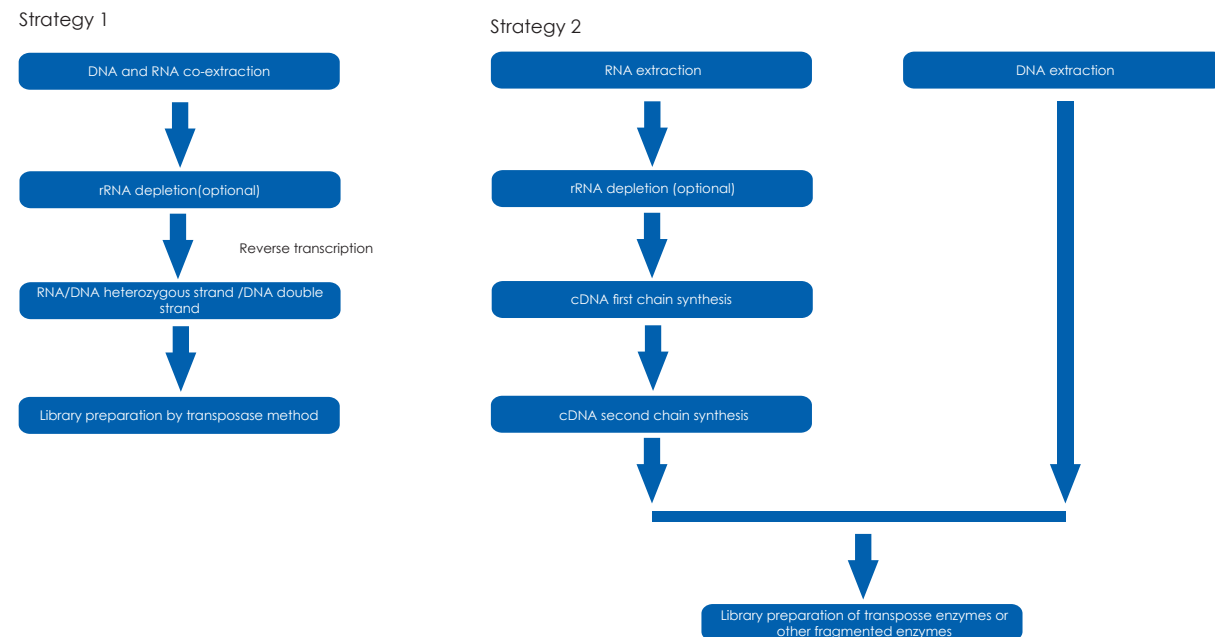

Library construction using samples with different starting amounts

Samples consisting of mixed DNA and RNA from different sources were used to construct libraries using TransGen and Company V products, respectively. PE150 sequencing was performed on the Illumina HiSeq X10 platform. The results indicate that TransGen products have higher sensitivity for library construction with different starting amounts of DNA/RNA.

Sample: Arabidopsis DNA(100 ng) + E.Coli DNA(1 ng) + Hela RNA(100 ng) + Xanthomonas RNA(1 ng) + PRRSV RNA (1 ng) + BVDV RNA (1 ng)

Sample: Arabidopsis DNA(100 ng) + E.Coli DNA(1 ng) + Hela RNA(100 ng) + Xanthomonas RNA(100 pg) + PRRSV RNA (100 pg) + BVDV RNA (100 pg)

Sample: Arabidopsis DNA(100 ng) + E.Coli DNA(1 ng) + Hela RNA(100 ng) + Xanthomonas RNA(10 pg) + PRRSV RNA (10 pg) + BVDV RNA (10 pg)

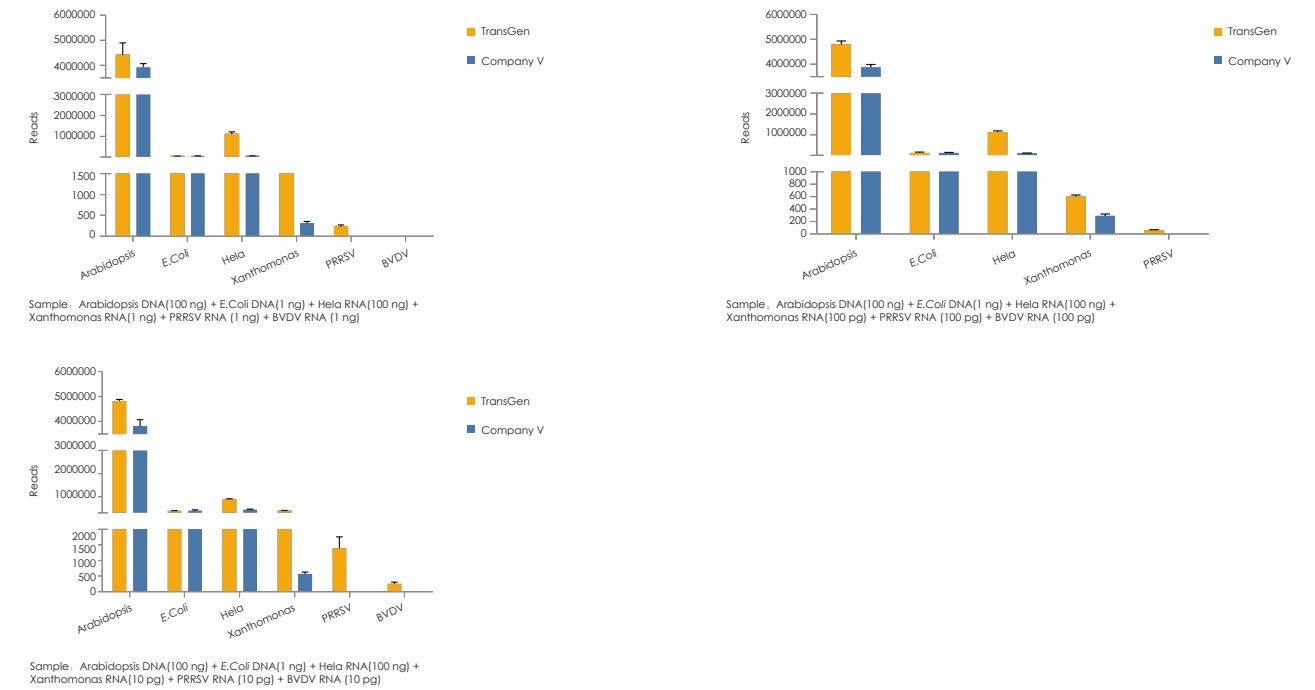# *Trans*NGS® Microbiome DNA/RNA Library Prep Kit for Illumina®

Applications

- Cost reduction: complete DNA & RNA library construction at one time, reducing sequencing costs.
- Display the overall condition of the microbiota: the results of metagenomic and macrotranscriptome sequencing are obtained at the same time, showing the overall condition of the microbiota and the interaction with the body.
- Simple process: DNA and RNA library preparation in one step to shorten the time.

Flow chart of DNA and RNA library preparation

*Trans*NGS® Fragmentase DNA Library Prep Kit for Illumina® (KP231)
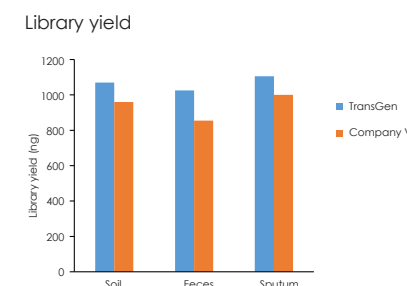
Applications

- Wide applicability to various sample types.
- High library conversion rate.

Applications:

- Whole genome sequencing.
- Targeted gene sequencing.
- Exome sequencing/other targeted capture sequencing.
- Metagenomic sequencing.

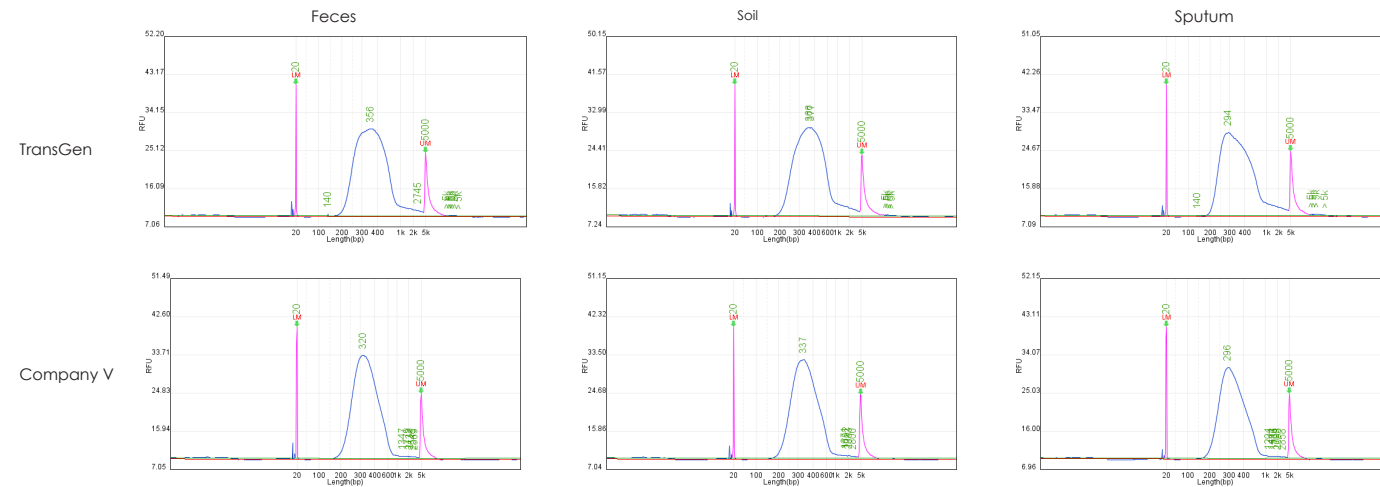## Comparison with competing products:

Compared to our competitor, we conducted library construction using TransGen and Company V products on soil, feces, and sputum samples. The results showed that TransGen's product performance was consistent with that of our competitor in terms of library yield and peak shape, sequencing data quality, sequencing results, and sequence assembly.

Library yield

The peak shape of the library construction

Feces   Soil   Sputum

TransGen

Company V

Sequencing data quality

Sample	Clean reads	rmHost reads	rmHost Bases(bp)	Percent in clean(%)	Q20(%)	Q30(%)	GC Content(%)
Feces-T	7111142	7107050	1047093115	99.94	96.76	91.76	49.2
Feces-V	7368622	7365764	1096527329	99.96	87.69	78.57	48.96
Soil-T	7157144	7156848	1054467309	100	96.55	91.44	62.46
Soil-V	7359946	7355026	1091022557	99.94	96.89	91.89	62.85
Sputum-T	7126684	5711464	833888064	80.91	96.19	90.79	43.95
Sputum-V	7369508	6109882	904691171	83.34	97.15	92.21	45.11

bracken genus stack-bar plot
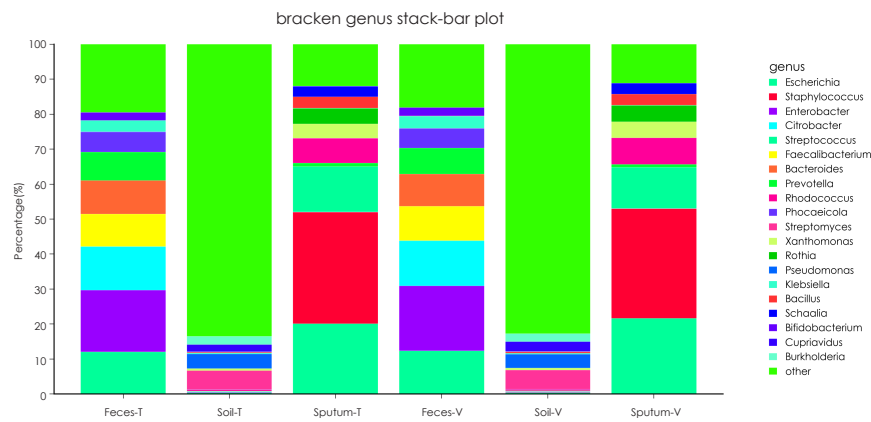
Sequence assembly results

Sample	Contigs	Contig bases(bp)	N50(bp)	N90(bp)	Max(bp)	Min(bp)
Feces-T	158092	116284135	842	365	42833	200
Feces-V	131004	91218323	764	360	34560	200
Soil-T	116560	57703998	465	321	18461	200
Soil-V	122432	60987964	464	324	29016	200
Sputum-T	63449	47478014	822	356	232780	200
Sputum-V	66250	53287413	916	367	271388	200

TRANSGEN

Modifying Enzymes

T4 DNA Ligase for NGS (LL101)

Applications

• This is primarily used for adapter ligation during NGS library construction.
• It can also be used for cloning of restriction enzyme fragments.

Comparison with competing products

Using both TransGen and Company V products for library adapter ligation in next generation sequencing, the results indicate that the library yield and peak shape of TransGen are consistent with those of Company V products.

Library yield
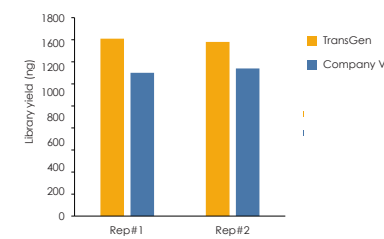
The peak shape of the library construction
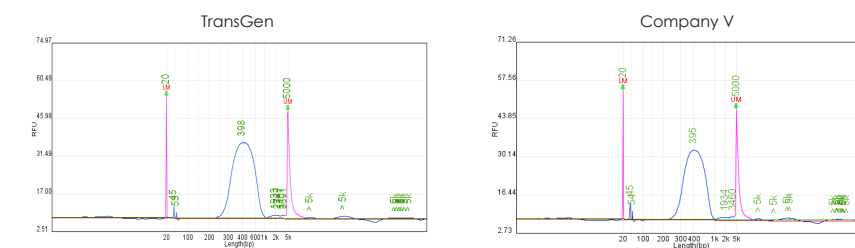
# DNA polymerase I Klenow Fragment (LE201)

Applications

The complementary filling of the 5' overhang and excision of the 3' overhang in double-stranded DNA.

Comparison with competing products

Using a specific quantity of single-stranded cDNA (GFP gene, approximately 700 bp) as a template, dual-strand synthesis was performed using TransGen and Company N products separately. The reaction was carried out at 25℃ for 10 minutes, and the yield was measured. The results indicate that the performance of TransGen products is consistent with that of Company N products in next-generation sequencing.

Library yield
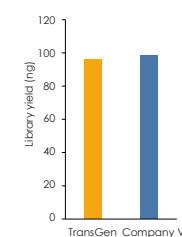
T4 DNA Polymerase (LP201)

Applications

• Smoothing of DNA 5' or 3' protruding ends.
• Synthesis of labeled DNA probes through displacement reaction.
• Subcloning after single-strand deletion.
• Synthesis of the second strand during gene site-directed mutagenesis process.

Comparison with competing products

Using a certain amount of single-stranded cDNA (GFP gene, approximately 700 bp) as a template, we performed double-stranded synthesis using TransGen products and similar competitors. The reaction was carried out at 25℃ for 10 minutes, and the yield was measured. The results indicate that the performance of TransGen products is consistent with that of the competitors.

Library yield
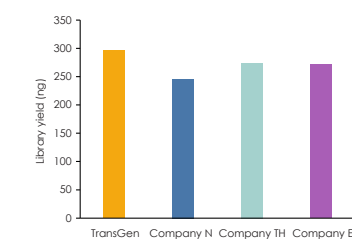
T4 Polynucleotide Kinase (LK101)

Applications

• Oligonucleotide, DNA, or RNA 5' end labeling for use as probes in Southern, Northern, EMSA, DNA sequencing primers, PCR primers, etc.
• Phosphorylation of oligonucleotide, DNA, or RNA 5' ends.
• Removal of 3' end phosphate groups.

Comparison with competing products

Using 1U and 2U TransGen products, as well as similar competitor products, a 50 ng 250 bp PCR fragment was phosphorylated. The resulting product was digested using λ enzyme (with phosphorylated double-stranded DNA as the optimal substrate) and the remaining product was quantified. The results indicate that the phosphorylation efficiency of TransGen products is consistent with that of the competitors.
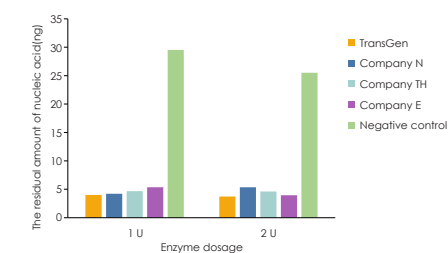
# TransNGS® Library Amplification SuperMix (KA101)

Features

- Ultra high fidelity.
- Low preference.
- High sensitivity and specificity.
- Hot Start.

Applications

Next-generation sequencing library amplification.

Stability of the Product

Different batches of products were used to amplify 25 ng of DNA libraries with different GC contents (33%~72%) for 6 cycles. After the products were purified with 1.0× magnetic beads, Qubit was used to detect the concentration. The results show that the amplification efficiency of different batches of products for templates with different GC contents is basically the same.
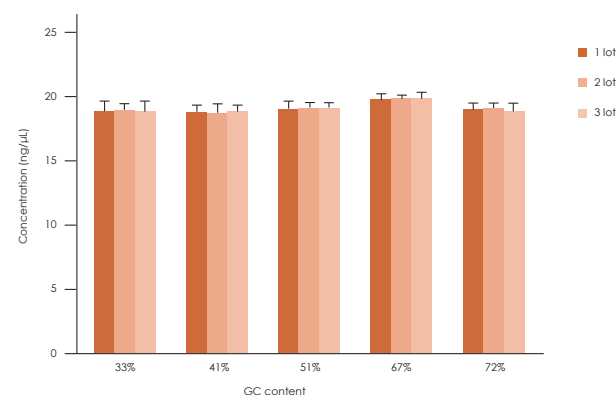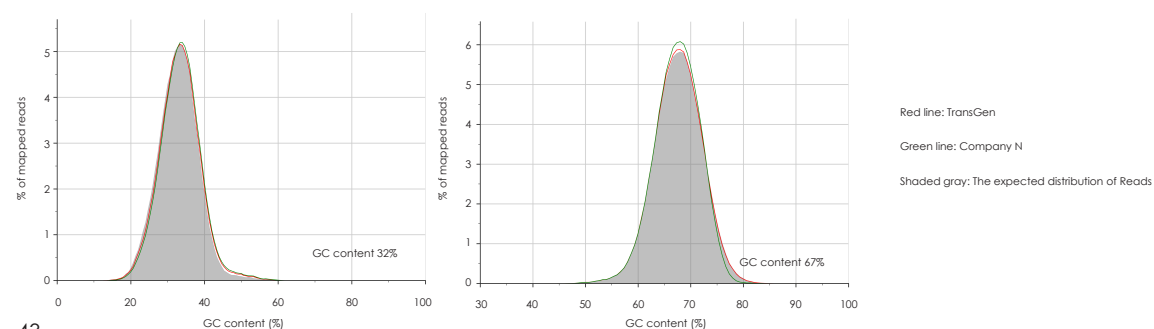

Comparison between competing products

1. Use TransGen, Company N, Company K and Company V products to amplify 25 ng of DNA libraries with different GC contents (33%~72%) respectively, and amplify for 6 cycles. After the products are purified with 1.0× magnetic beads, use Qubit detects concentration. Results show that TransGen products demonstrate higher amplification efficiency and lower GC bias.
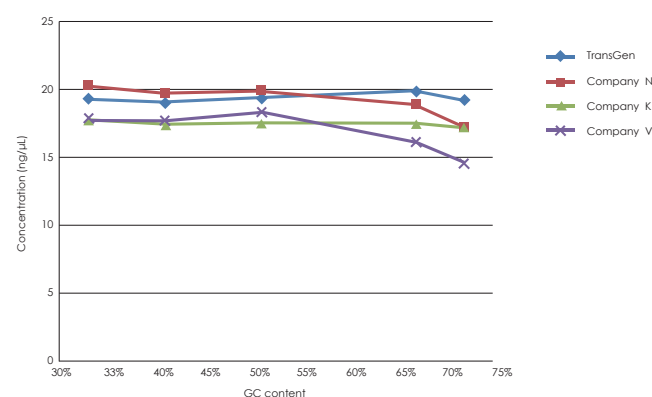
2. Use TransGen and Company N products to amplify libraries with different GC contents. The amplified libraries are DNA fragments connected to the same adapter, and sequenced using the Illumina sequencing platform. The distribution of sequencing reads with different GC contents is shown in the curve in the figure. The library amplified using TransGen products is closer to the expected distribution.

Red line: TransGen

Green line: Company N

Shaded gray: The expected distribution of Reads

Category	Product Name	Catalog Number	Specifications
DNA Library Preparation	TransNGS® Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA)	KP101-11/03	12 rxns / 96 rxns
	TransNGS® Tn5 DNA Library Prep Kit for Illumina®(for 1 ng DNA)	KP111-11/03	12 rxns / 96 rxns
	TransNGS® Tn5 DNA Library Prep Kit for Illumina®(for 5 ng DNA)	KP121-11/03	12 rxns / 96 rxns
	TransNGS® Tn5 Plasmid DNA Library Prep Kit for Illumina® (for ≤3 ng Plasmid DNA)		Customized
	TransNGS® DNA Library Prep Kit for Illumina®	KP201-11/03	12 rxns / 96 rxns
	TransNGS® DNA Library Prep Kit for MGI®	KP221-01/02	12 rxns / 96 rxns
	TransNGS® Fragmentase DNA Library Prep Kit for Illumina®	KP231-01/02	12 rxns / 96 rxns
	TransNGS® Fragmentase DNA Library Prep Kit for MGI®	KP241-01/02	12 rxns / 96 rxns
	TransNGS® Circularization Kit For MGI®	KC101-01/02	12 rxns / 96 rxns
	MagicPure® Size Selection DNA Beads	EC401-01/02/03/04	1 mL / 5 mL / 60 mL / 450 mL
RNA Library Preparation	TransNGS® rRNA Depletion Kit (Human/Mouse/Rat)	KD101-11/03	12 rxns / 96 rxns
	TransNGS® Magic rRNA Depletion Kit (Bacteria)	KD401-01/02	12 rxns / 96 rxns
	MagicPure® mRNA Kit	EC511-01/02	24 rxns / 96 rxns
	TransNGS® RNA-Seq Library Prep Kit for Illumina®	KP601-01/02	12 rxns / 96 rxns
	TransNGS® Fast RNA-Seq Library Prep Kit for Illumina®	KP701-01/02	12 rxns / 96 rxns
	TransNGS® Fast Stranded RNA-Seq Library Prep Kit for MGI®	KP801-01/02	12 rxns / 96 rxns
	TransNGS® Circularization Kit For MGI®	KC101-01/02	12 rxns / 96 rxns
	MagicPure® RNA Beads	EC501-01/02/03	1 ml / 5 ml / 60 ml
Library Quantification and Adapters	TransNGS® Library Amplification SuperMix	KA101-01/02	1 mL / 5×1 mL
	TransNGS® Library Quantification Kit for Illumina®	KQ101-01/02	100 rxns / 500 rxns
	TransNGS® Library Quantification qPCR SuperMix	KQ201-01/02	1 mL / 5×1 mL
	TransNGS® Library Quantification DNA Standards (S1-S6)	KS101-21	50% , 120 μL each
	TransNGS® Library Dilution Buffer	KB101-01	5×1 mL
	TransNGS® UDI Indexed Adapter Kit for Illumina®	KI341-01/02	192 rxns / 384 rxns
	TransNGS® 384 UDI Indexed Adapter Kit for Illumina®	KI351-01/02	192 rxns / 384 rxns
	TransNGS® Indexed Adapter Kit for MGI®	KI401-S$_{1-3}$-01/02	192 rxns / 384 rxns
	TransNGS® Index Primers (384) Kit for Illumina®	KI241-01/02	96 rxns / 384 rxns
Pathogenic Microorganism Detection	TransGuard® Disposable Virus Sampling Tube	ES101-01	50 rxns
	TransGuard® Fecal DNA Sampling Tube	ES102-01	50 rxns
	TransGuard® Buccal Swab DNA Preservation Buffer	ES103-01	50 mL
	TransNGS® Host DNA Depletion Kit	EH301-01	50 rxns
	EasyPure® Microbiome DNA Isolation Kit	EE401-01	50 rxns
	MagicPure® 32 Microbiome DNA Isolation Kit	EC107-32-11	32 rxns
	EasyPure® Viral DNA/RNA Kit	ER201-01/02	50 rxns / 200 rxns
	MagicPure® Fly 96 Viral DNA/RNA Kit	EC331-96	96 rxns
	MagicPure® Stool and Soil Genomic DNA Kit	EC801-11	50 rxns
	TransNGS® Microbiome DNA Library Prep Kit for Illumina®	KP141-01/02	12 rxns / 96 rxns
	TransNGS® Microbiome RNA Library Prep Kit for Illumina®		Customized
	TransNGS® Microbiome DNA/RNA Library Prep Kit for Illumina®		Customized
Modifying Enzymes	T4 DNA Ligase（for NGS）	LL101-01/02	200 μL / 1 mL
	T4 DNA Polymerase	LP201-01/02	150 units / 5×150 units
	T4 Polynucleotide Kinase	LK101-01/02	500 units / 4×500 units
	DNA Polymerase I Klenow Fragment	LE201-01	500 units

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