TransBionovo *Trans*NGS™ products brochure

TRANS®
TRANSBIONOVO

ABOUT US

TransBionovo is a brand of Beijing TransGen Biotech Co., Ltd. Beijing TransGen Biotech Co., Ltd. is a researcher, developer, manufacturer and distributor of more than 200 molecular and cellular biology products and kits for life science research and molecular diagnostics. The company's headquarters, R&D, and manufacturing facilities are located in Beijing. The area of headquarters is more than 10000 m^2, equipped with GMP lab and Gene amplification lab. The company is certified by ISO9001& ISO13485. We provide CRO service for molecular diagnostics and provide customized product for VIP customers.

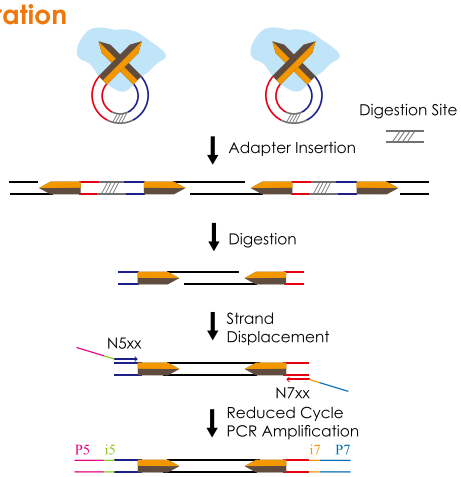
CONTENTS

*Trans*NGS™ Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA) (Patent Pending)

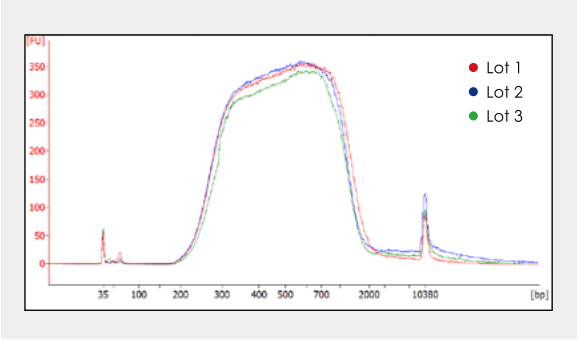
Features
- Fast and easy.
- Less DNA input required.

Application
Suitable for use in genomic DNA library preparation for Illumina high-throughput sequencing platforms.

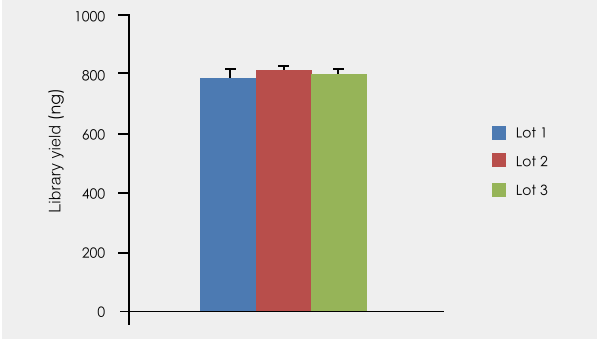
Principle of library preparation



Lot to lot consistency
Library was generated from 50 ng human genomic DNA, using *Trans*NGS™ Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA) of 3 different lots. The whole process contains 6 amplification cycles, and PCR products were purified by 1.0× concentration beads. Size selection was omitted. The library was then identified by high-sensitive Agilent DNA chip, the result showed that size distribution ranges from 200 bp to 1000 bp, and kept consistent (Fig. 2). Library yield was measured using Qubit, and *Trans*NGS™ Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA) of 3 different lots revealed an excellent stability (Fig. 3).



Size distribution of library prepared by *Trans*NGS™ Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA) of 3 different lots



Library yield of 3 different lots

Comparison with competitor products
Libraries were prepared with 50 ng human genomic DNA, using library prep kit of TransBionovo and company I. Then they were sequenced. Data analysis of sequencing result was presented in the following table, which revealed a consistency between TransBionovo products and company I products.

Sample	Mapping (%)	Coverage_at_least_4×(%)	Coverage_at_least_10×(%)	Coverage_at_least_20×(%)	Coverage (%)	Duplication (%)	Depth
TnHum_TransBionovo	99.93	89.58	34.80	0.49	96.59	13.63	8.53
TnHum_I	99.91	89.81	35.08	0.44	96.65	13.12	8.54

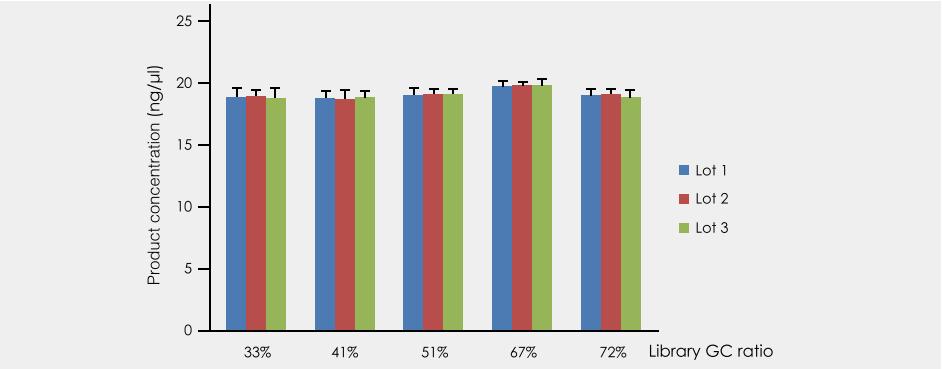
*Trans*NGS™ Library Amplification SuperMix

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

Application
Next-generation sequencing library amplification.

Lot to lot consistency

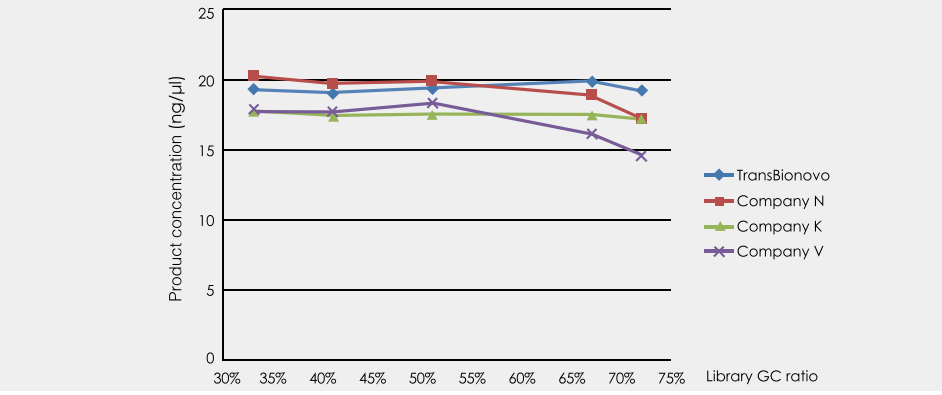
Libraries were prepared with 25 ng human genomic DNA with different GC content (33%-72%), using *Trans*NGS™ Library Amplification SuperMix of 3 different lots. The whole process contains 6 amplification cycles, and PCR products were purified by 1.0× beads. The final concentration was measured using Qubit. The result indicated that the amplification efficiency of 3 different lots keeps consistent for templates with different GC content.



Amplification efficiency of 3 different lots

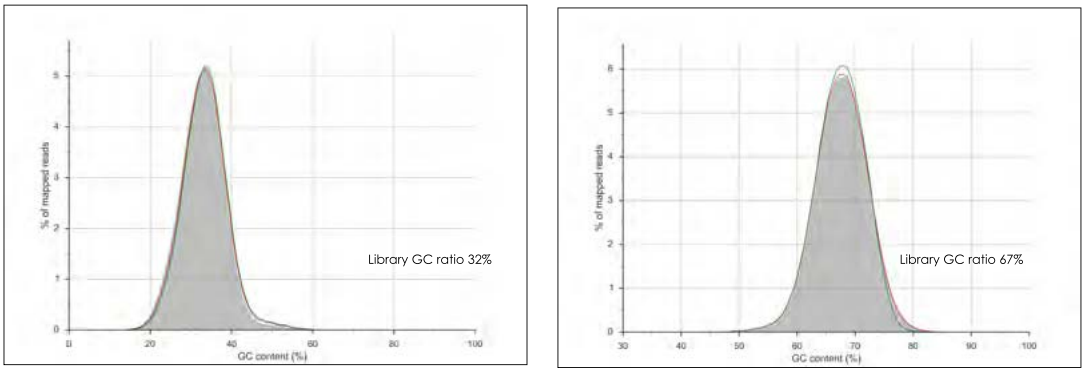
Comparison with competitor products

Libraries were prepared with 25 ng human genomic DNA with different GC content (33%-72%), using library amplification mix of TransBionovo, Company N, Company K and Company V. The whole process contains 6 amplification cycles, and PCR products were purified by 1.0×beads. The final concentration was measured using Qubit. TransBionovo products present higher amplification efficiency and lower GC preference.



Comparison of different brands of library amplification kit

Libraries with different GC content were amplified using TransBionovo and company N library amplification kit. The amplified libraries were DNA fragments with the same adaptors, and then they were sequenced by Illumina sequencing platforms. Distribution of sequencing reads with different GC content was presented by the curves in the following figure, and distribution of libraries amplified by TransBionovo products were closer to the expected value.



Red curve: TransBionovo; Green curve: Company N; Gray shadow: Expected reads distribution.

Comparison of reads distribution of templates with different GC content

*Trans*NGS™ Library Quantification Kit for Illumina® (Patent Pending)

Features

- Linear standards control product, more accurate.
- Strong selectivity. Standards with different GC content are provided.

- High specificity. Only libraries with full adaptors could be amplified.
- Easy to use. Diluted standards with all necessary component can be used directly.
- High amplification efficiency and sensitivity, specially optimized for qPCR.
- Suitable to a broad range of high AT/GC content templates.
- Good compatibility. Compatible with all kinds of qPCR machine.
- Good stability and reproducibility.

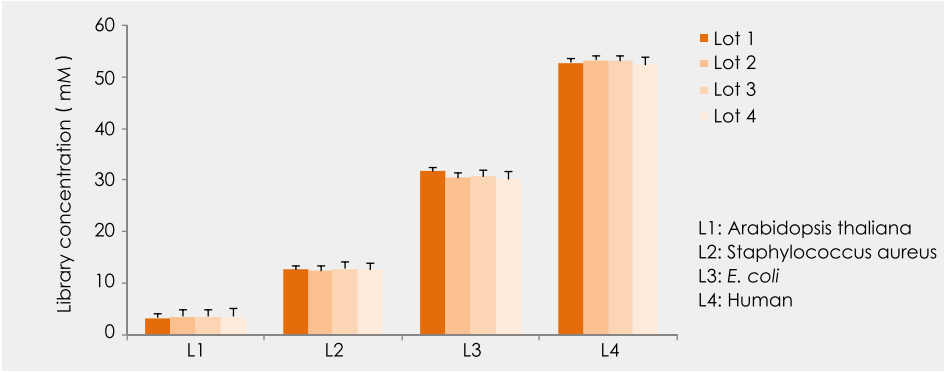
Application

Suitable to libraries with different GC content for Illumina NGS sequencing platforms, and libraries with Illumina P5 and P7 primer, size no more than 1 kb and concentration more than 0.0002 pM.

Lot to lot consistency

(1) Stability of quantification kits from different lots

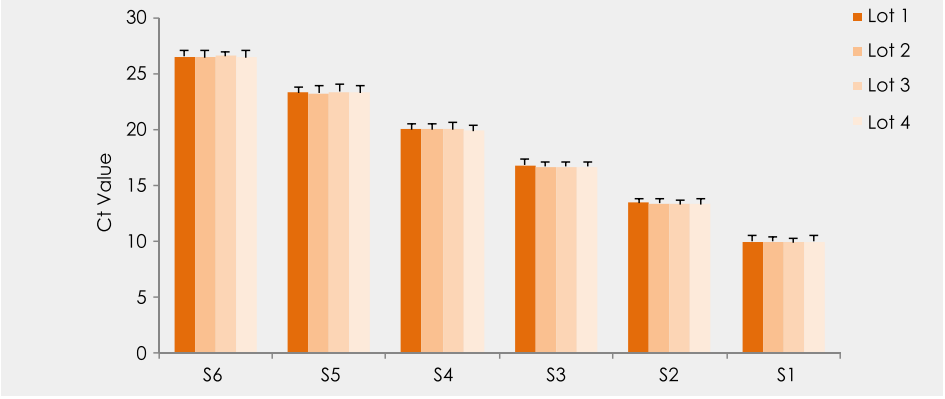
Library quantification of 4 different species were performed by quantification kits of 4 different lots. As was shown in the following figure, quantification result was almost the same for 4 different lots, which indicated that TransBionovo products have very good stability. (All standards used in the experiment were DNA standards with 50% GC included in KQ101 unless specially noted.)



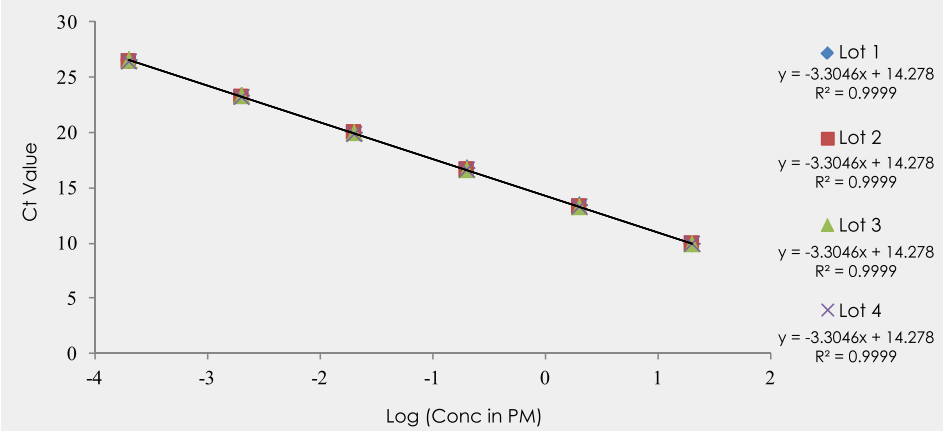
Quantification results of 4 different lots

(2) Stability of different lots standards control product

Standards control product of 4 different lots were amplified by qPCR. As was shown in the following figure, Ct and standard curve of 4 different lots standards (S6-S1) was almost consistent, which indicated that the stability of 4 different lots is very good.



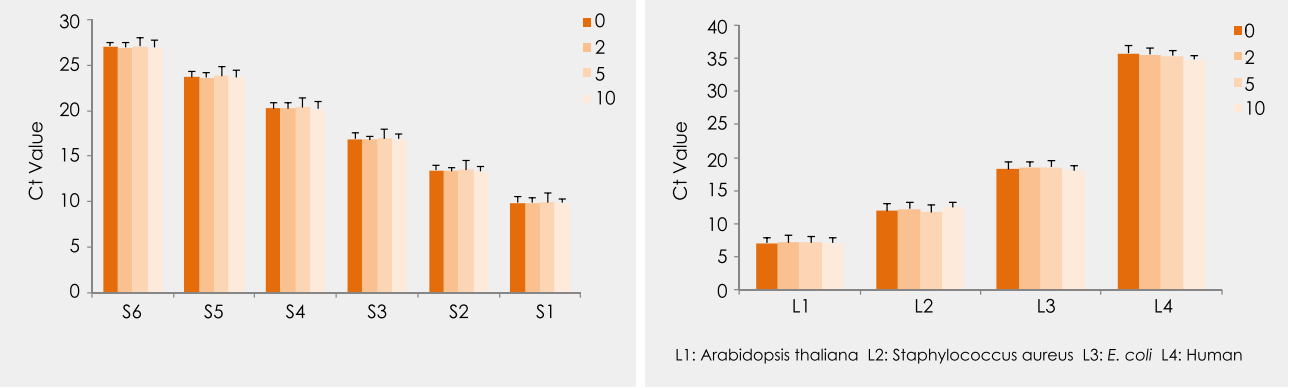
Ct of 4 different lots standards



Standard curve of 4 different lots standards

(3) Stability of standards control product after repeated freeze/thaw cycles

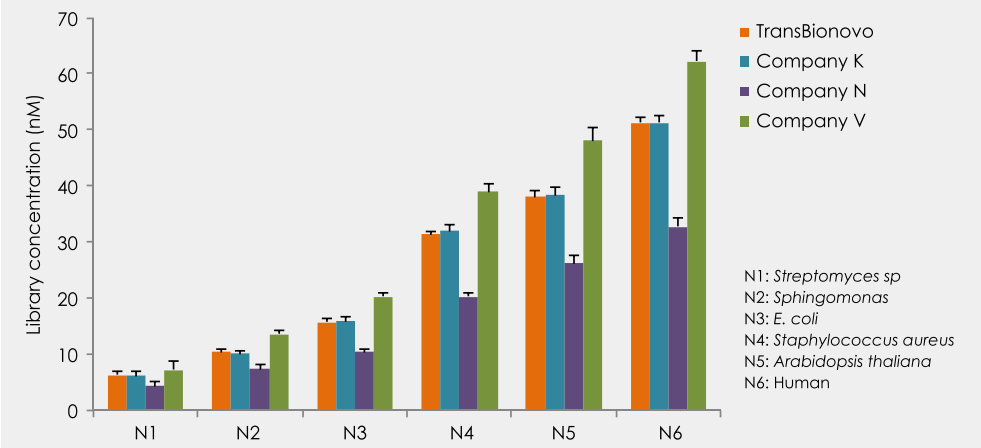
Standards were amplified by qPCR after repeated freeze/thaw cycles (0, 2, 5, 10 cycles). As was shown in the following figure, Ct of standards (S6-S1) was almost consistent after repeated freeze/thaw. Library quantification of 4 different species were performed then using standards after different repeated freeze/thaw cycles (0, 2, 5, 10), and quantification results kept consistent too, which indicated that the standards have very good stability.



Ct of standards control product after different freeze/thaw cycles (left) and quantification results of standards after different freeze/thaw cycles (right)

Comparison with competitor products

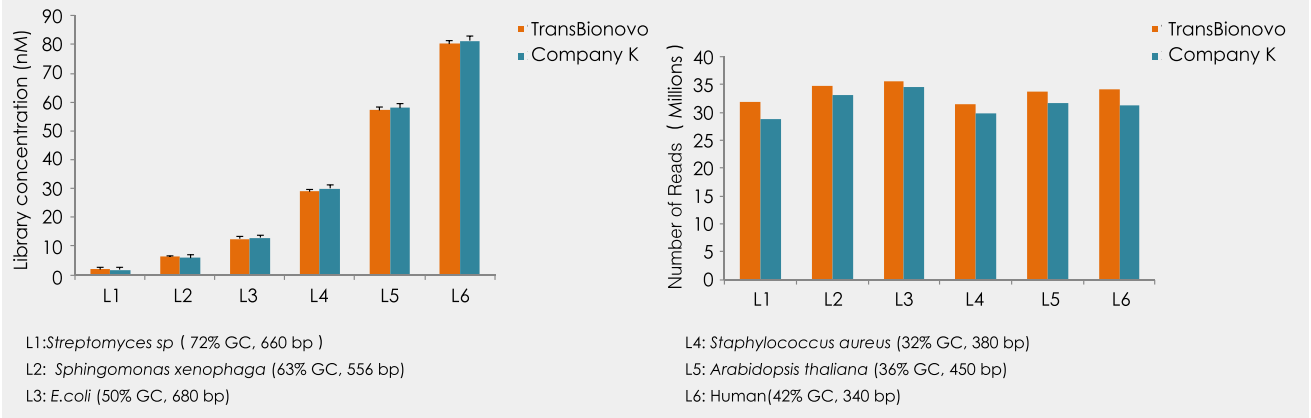
Library quantification of 6 different species were performed using quantification kits of TransBionovo, Company K, Company N and Company V. As was shown in the following figure, TransBionovo and Company K (golden standard in the market of library quantification) kept consistent, and quantification results of Company N and Company V were obviously higher or lower.



Comparison with competitor products

Data analysis under extreme conditions

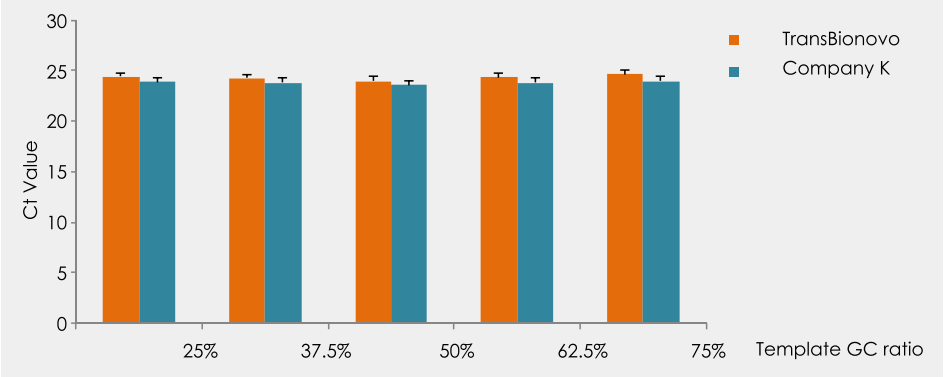
Library quantification of 6 totally different samples were performed using TransBionovo and Company K products. As was shown in the following figure, the quantification result of TransBionovo and Company K kept consistent, and libraries of different species, different GC content, different size and different concentration were accurately quantified. All figures proved that TransBionovo products are suitable to a broad range of samples. Different libraries with the same size were then sequenced by Illumina HiSeq after quantification. As the data analysis indicated, expected amount of clean reads could be obtained via NGS, and the quantification result of TransBionovo and Company K products kept consistent.



Application range of TransBionovo and Company K products.

Comparison of clean reads obtained by TransBionovo and Company K products

Standards with the same concentration and different GC content (25%, 35%, 50%, 62.5%, 75%) were amplified by qPCR SuperMix included in TransBionovo and Company K library quantification kit. As was shown in the following figure, all standards could be well amplified, and Ct kept consistent, which indicated that TransBionovo products are suitable to a broad range of samples.

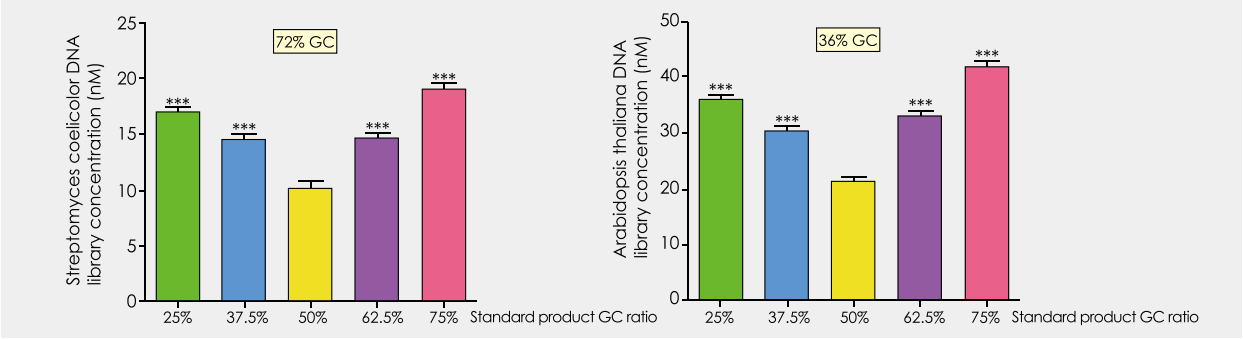


Comparison of TransBionovo and Company K library quantification qPCR SuperMix

Features and advantages

Five linear standards with different GC content providing stronger selectivity and more accurate quantification results.

Streptomyces sp. (left, 72% GC) and *Arabidopsis thaliana* (right, 36% GC) libraries were quantified by the standard curve drawn by 5 different GC content (25%, 37.5%, 50%, 62.5%, 75%) standards. As was shown in the following figure, quantification results of different standards presented obvious difference. Quantification result would be obviously lower (p value less than 5, n=4) when using 50% GC standards. In this case, 75 % GC standards should be used for *Streptomyces sp*. and 37.5% GC standards for *Arabidopsis thaliana* to guarantee a more accurate sequencing result.



Quantification results of *Streptomyces sp*. (left, 72% GC) and *Arabidopsis thaliana* (right, 36% GC)

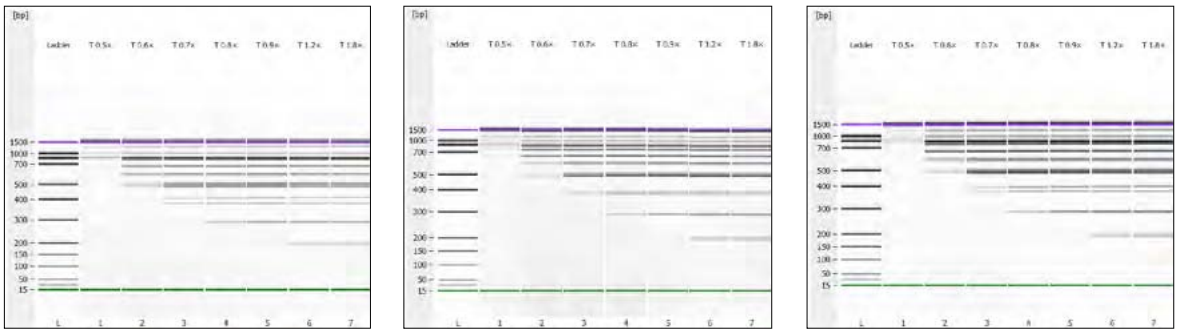
MagicPure™ Size Selection DNA Beads

Features

Easy to use. Automated operation for high-throughput sequencing. Compatible with widely used library prep kit.

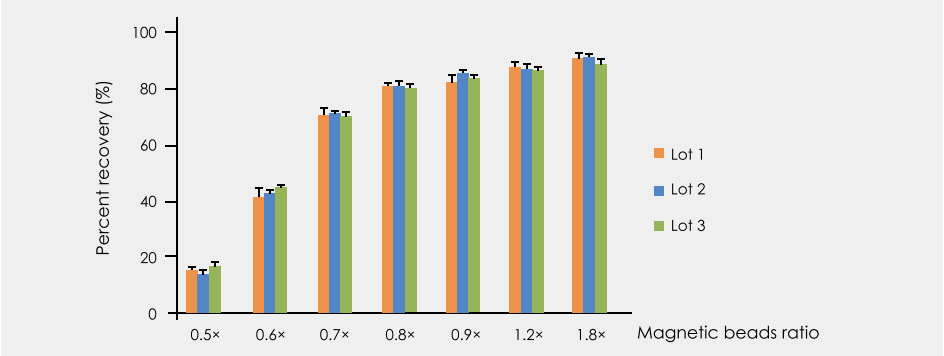
Lot to lot consistency

DNA samples (mixture of DNA fragment with different size) were purified by 0.5×~1.8×DNA beads of 3 different lots. Purified products were identified by Agilent DNA 1000, and then the concentration was measured by Qubit to calculate the recovery of different beads ratio. The result indicated that the size of purified products and beads recovery of 3 different lots kept consistent.



Lot 1 Lot 2 Lot 3

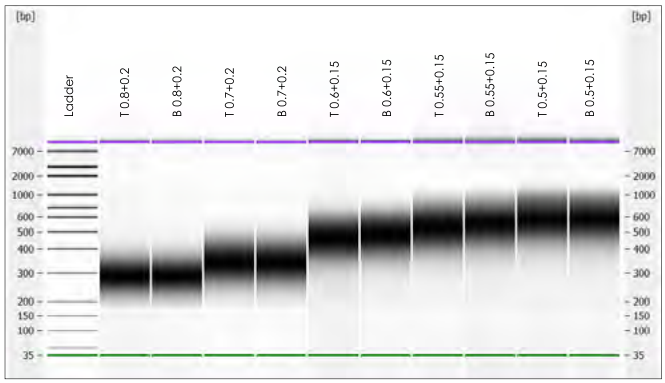
Size of products purified by beads with 3 different lots



Beads recovery of 3 different lots

Comparison with competitor products

Size selection of the same DNA samples were performed using TransBionovo and Company B products. As was shown in the following figure, size of samples purified by TransBionovo and Company B products kept consistent.



T: TransBionovo; B: Company B

Size selection comparison of TransBionovo and Company B under different conditions

*Trans*NGS™ rRNA Depletion Kit (Human/Mouse/Rat)

Features

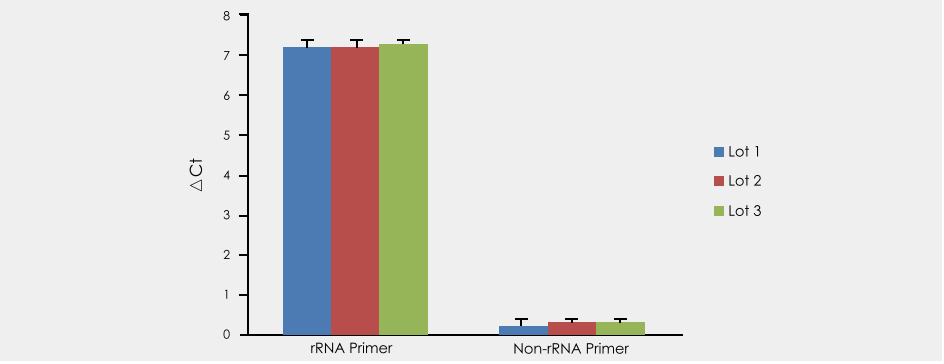
- Remove up to 99% ribosomal RNA from human/mouse/rat total RNA.
- Control qPCR Primer Sets are provided to monitor the depletion efficiency of ribosomal RNA and the retention rate of non-ribosomal RNA.

Application

- Human/ Mouse/ Rat total RNA samples (10 ng-1 μg).
- Suitable to both intact and degraded RNA (e.g. FFPE RNA).

Lot to lot consistency

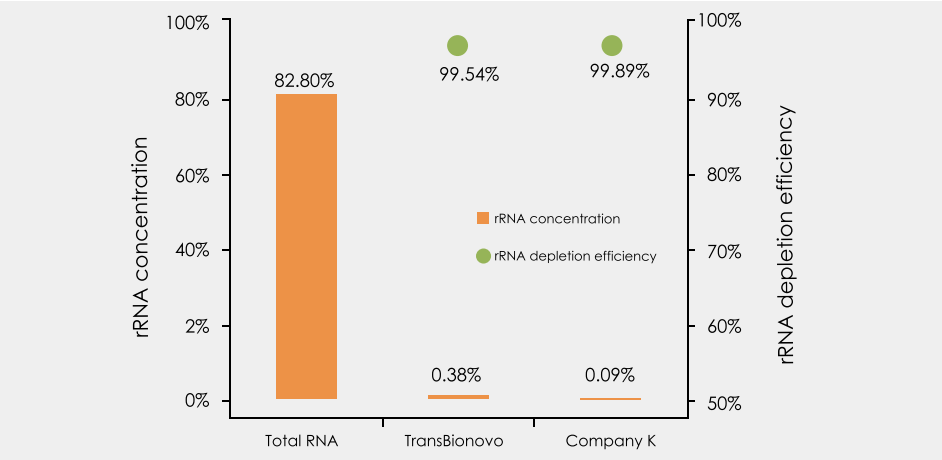
rRNA depletion of 1 μg total RNA (HepG2 cell) was performed using *Trans*NGS™ rRNA Depletion Kit (Human/Mouse/Rat) of 3 different lots, and qRT-PCR was performed using rRNA Primer and non-rRNA Primer for treated and non-treated samples. △Ct (Ct of treated sample minus Ct of non-treated sample) kept consistent for 3 different lots, which indicated that *Trans*NGS™ rRNA Depletion Kit (Human/Mouse/Rat) has very good stability.



△Ct of 3 different lots

Comparison with competitor products

rRNA depletion of 1 μg total RNA (HepG2 cell) was performed using *Trans*NGS™ rRNA Depletion Kit (Human/Mouse/Rat) and Company K rRNA depletion kit. Then library was prepared using the same RNA library prep kit. rRNA content were analyzed after sequencing to calculate rRNA depletion efficiency. The result indicated that more than 99% rRNA was depleted.



rRNA depletion comparison between TransBionovo and Company K products

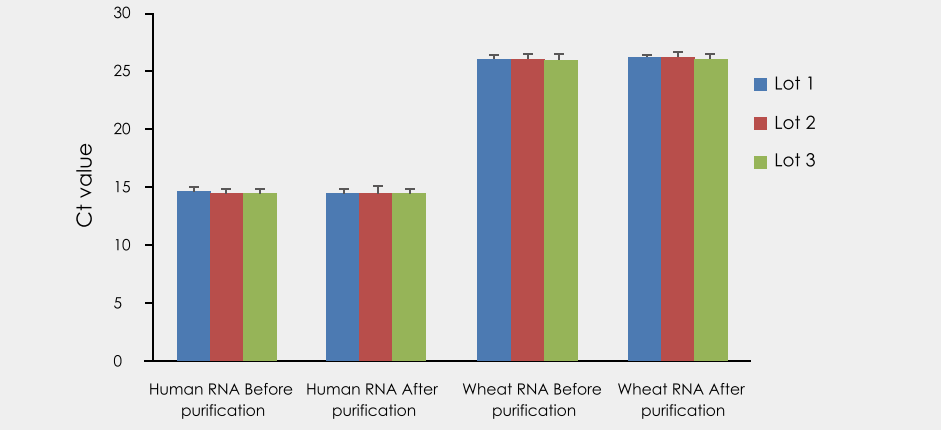
MagicPure™ RNA Beads

Features

Easy to use. Automated operation for high-throughput sequencing.

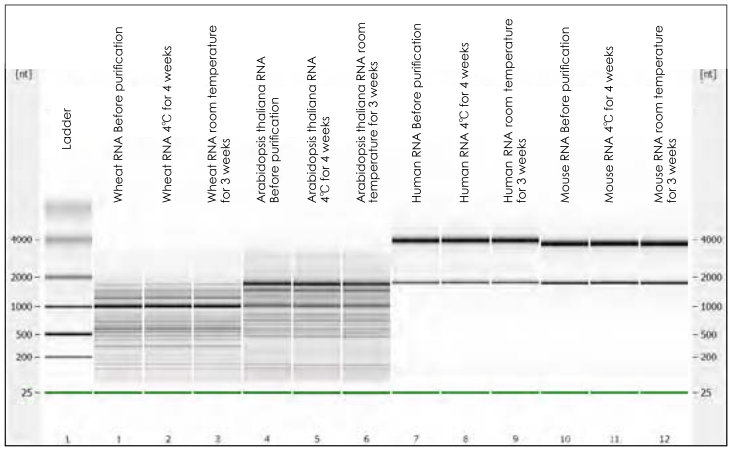
Lot to lot consistency

The same amount of human/wheat RNA samples were purified by *MagicPure*™ RNA Beads of 3 different lots, and primers for qPCR were designed to perform qRT-PCR analysis for RNA samples before and after purification. As was shown in the following figure, Ct of RNA sample before and after purification kept consistent, which indicated that TransBionovo RNA beads have very good purification efficiency.

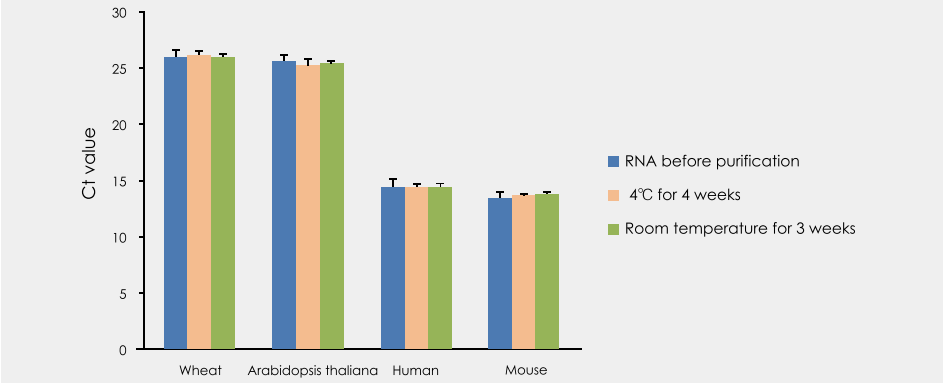


Ct changes of human/wheat RNA before and after purification using RNA beads of 3 different lots

RNA beads of the same lot were kept at 4℃ for 4 weeks and room temperature for 3 weeks, then the same amount of wheat/Arabidopsis thaliana/human/mouse RNA samples were purified using these beads, and samples before and after purification were identified by Agilent RNA 6000 chip and qRT-PCR analysis. The result indicated that size distribution of RNA samples and Ct kept consistent.



Size distribution of RNA samples before and after purification using beads under different storage conditions



Ct changes of RNA samples before and after purification using beads under different storage conditions

Comparison with competitor products

The same amount of human/mouse/wheat RNA samples were purified by TransBionovo and Company V products, and qPCR primers were designed to perform qRT-PCR analysis. As was shown in the following figure, Ct of RNA samples before and after purification kept consistent.

Comparison with competitor products

Products Name	Catalog Number	Quantity
*Trans*NGS™ Tn5 DNA Library Prep Kit for Illumina® (for 50 ng DNA) (Patent Pending)	KP101-01	6 rxns
	KP101-02	24 rxns
	KP101-03	96 rxns
*Trans*NGS™ Tn5 Index Kit for Illumina®	KI101-01	96 Indices, 48 Samples
	KI101-02	96 Indices, 192 Samples
*Trans*NGS™ Library Amplification SuperMix	KA101-01	1 ml
	KA101-02	5×1 ml
*Trans*NGS™ Library Quantification Kit for Illumina® (Patent Pending)	KQ101-01	100 rxns
	KQ101-02	500 rxns
*Trans*NGS™ Library Quantification qPCR SuperMix	KQ201-01	1 ml
	KQ201-02	5×1 ml
*Trans*NGS™ Library Quantification DNA Standards (S1-S6)	KS101-01	25% , 120 µl each
	KS101-11	37.5% , 120 µl each
	KS101-21	50%, 120 µl each
	KS101-31	62.5% , 120 µl each
	KS101-41	75% , 120 µl each
*Trans*NGS™ Library Dilution Buffer	KB101-01	5×1 ml
MagicPure™ Size Selection DNA Beads	EC401-01	1 ml
	EC401-02	5 ml
	EC401-03	60 ml
*Trans*NGS™ rRNA Depletion Kit (Human/Mouse/Rat)	KD101-01	6 rxns
	KD101-02	24 rxns
	KD101-03	96 rxns
MagicPure™ RNA Beads	EC501-01	1 ml
	EC501-02	5 ml
	EC501-03	60 ml

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