NIPPON Genetics EUROPE

Technical Data

Evaluation test of FastGene® RNA Basic / Premium kit

Product

FastGene® RNA Basic kit（No DNase treatment）
FastGene® RNA Premium kit（With DNase treatment）

Purpose

Evaluate the yield, quality (RIN value) and purity of the extracted RNA and compare the performance of FastGene® RNA Basic kit・FastGene® RNA Premium kit and competitor RNA extraction kit

Background

RNA refers to ribonucleic acid and consists of the four nucleobases: adenin (A), guanine (G), cytosine (C) and uracil (U).
Generally, methods such as the phenol extraction and kits based on silica membrane are known for RNA extraction.
We have been developing RNA purification kits using silica membranes from our original brand FastGene®. In the development, we carried out tests focusing on the analysis of evaluation points, experimental schemes and results based on the idea that we can not sell products we do not agree with. In this technical note, we introduce the case where the results, obtained in the final stage of these evaluation tests, were evaluated in terms of “yield, quality (RIN value) and purity”.

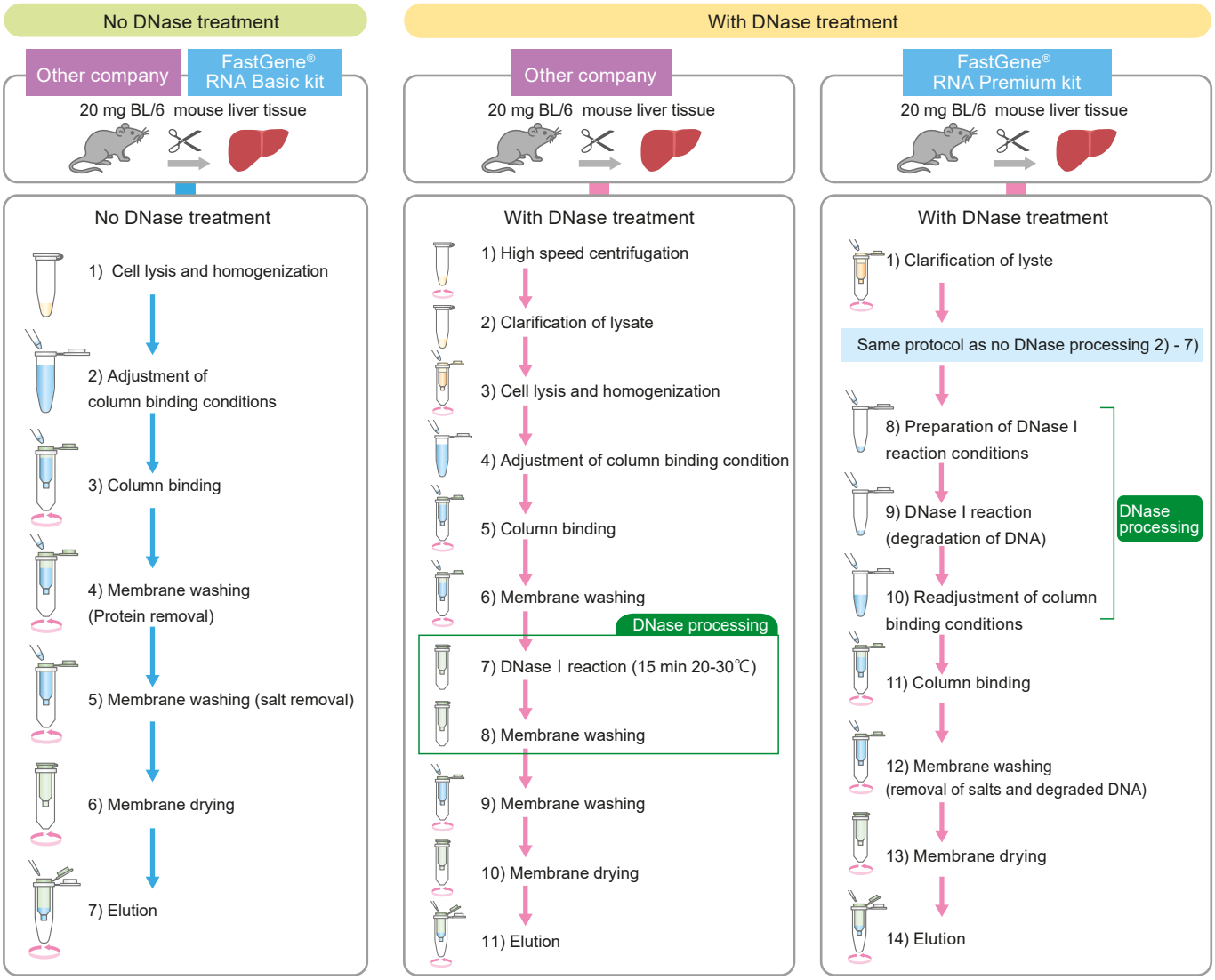
Experimental conditions

Sample: 20 mg BL/6 mouse liver tissue (n=3 per kit)

[Evaluation point]

1. Yield: Absorbance measurement（Implen）　2. Quality (RIN): Agilent Bioanalyzer（RIN value）　3. Purity: Real-time PCR

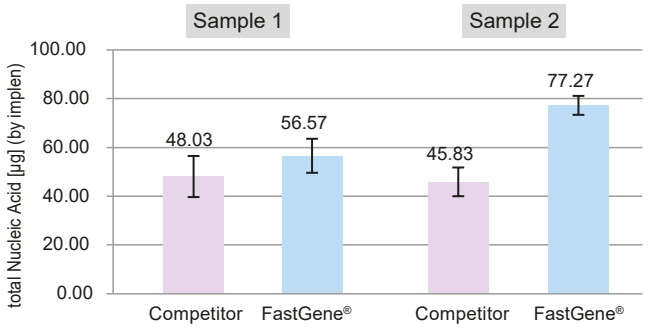
Experimental procedure and kit features



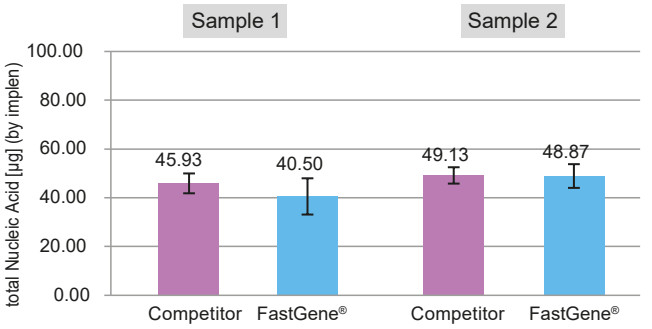
Result

1. Yield

FastGene® Basic kit (No DNase treatment)



FastGene® Premium kit (With DNase treatment)

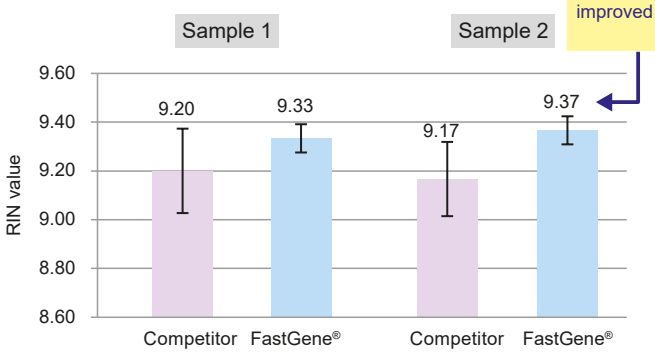


Competitor: The same tendency was shown in both samples
FastGene®: Both samples had slightly different results. Conceivable this is due to the difference between the initial samples.

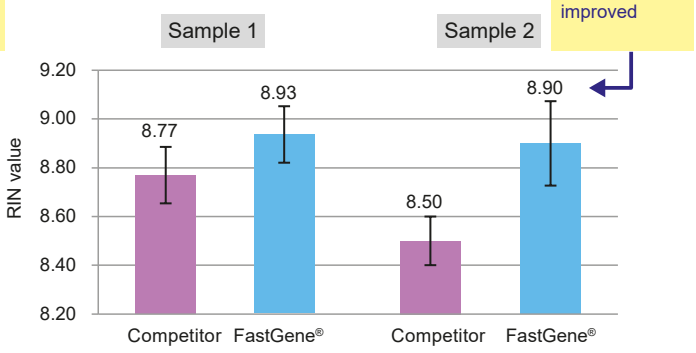
Competitor & FastGene® kits:
The same tendency was shown in both samples.

2. Quality

FastGene® Basic kit (No DNase treatment)



FastGene® Premium kit (With DNase treatment)



Competitor & FastGene®:
Both samples showed similar trends.

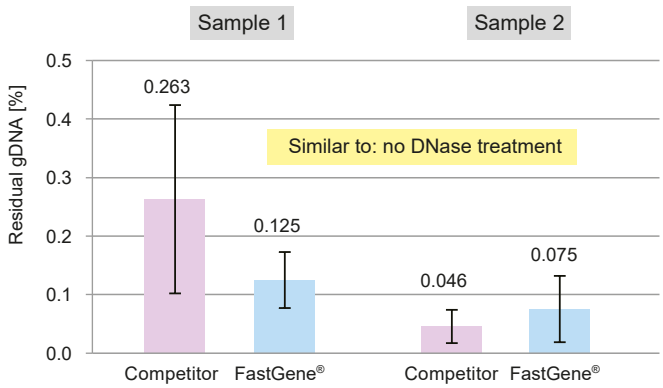
Competitor & FastGene®
Both samples showed similar trends. The RIN values of samples treated with DNase is decreased compared to untreated samples. However, this is considered to be due to DNase treatment.

3. Purity

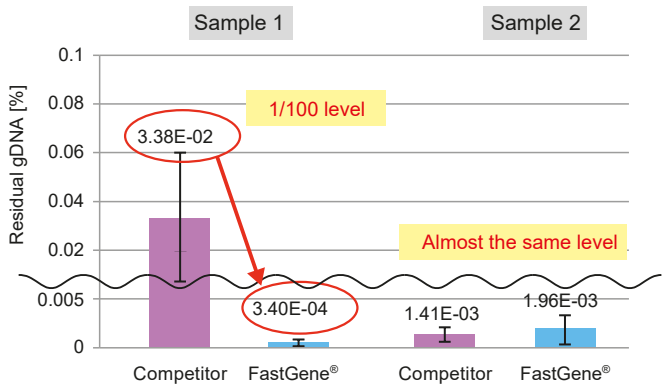
Confirmation of residual gDNA amount by real-time PCR

$$\text{Residual gDNA [\%]} = \frac{\text{Amount of residual gDNA by qPCR [ng]}}{\text{RNA yield by qRT-PCR [ng]}}$$

FastGene® Basic kit (No DNase treatment)



FastGene® Premium kit (With DNase treatment)

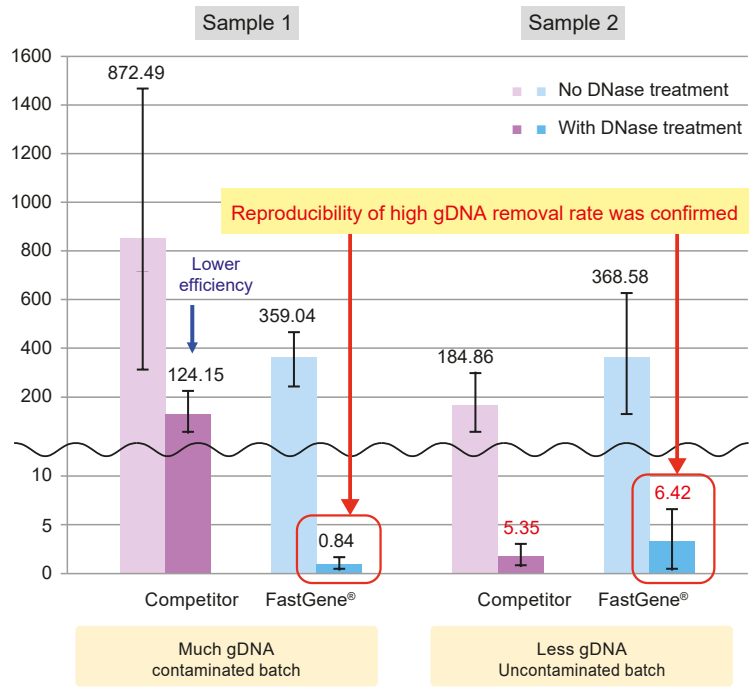


The retention rate of gDNA was different between samples.

Both samples were different.

■ Copy number of residual gDNA

FastGene® Premium kit (With DNase treatment)



Competitor: Removal of gDNA was not constant.
FastGene® : Removal rate of gDNA was highly reproducible and highly efficient.

Summary

FastGene® RNA Basic / Premium kit showed equal or better performance than competitor kits in yield, quality (RIN) and purity.

FastGene® Basic kit (No DNase treatment)		FastGene® Premium kit (With DNase treatment)	
• Yield	Equivalent	• Yield	Equivalent
• Quality (RIN)	equal or higher	• Quality (RIN)	equal or higher
• Purity (reisdual gDNA)	equal	• Purity (residual gDNA)	equal or higher

Columns provided with the kit

① FastGene® RNA binding column (green)

RNA binding/ purification filter

② FastGene® RNA filter column (yellow)

Cell debris / polymer removal filter

③ FastGene® RNA mini-elute column (white)

Low elution filter for RNA concentration

※② and ③ only in Premium kit

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