

Technical Note

Comparing FastGene® Mini-elute column to a mini elution column of competitor Q

- Goal: Evaluation of how much RNA the FastGene® RNA Premium kit mini-elute column can concentrate. In addition, a performance comparison with Competitor Q was carried out.
- Product: Mini-Elute column of the FastGene® RNA Premium kit

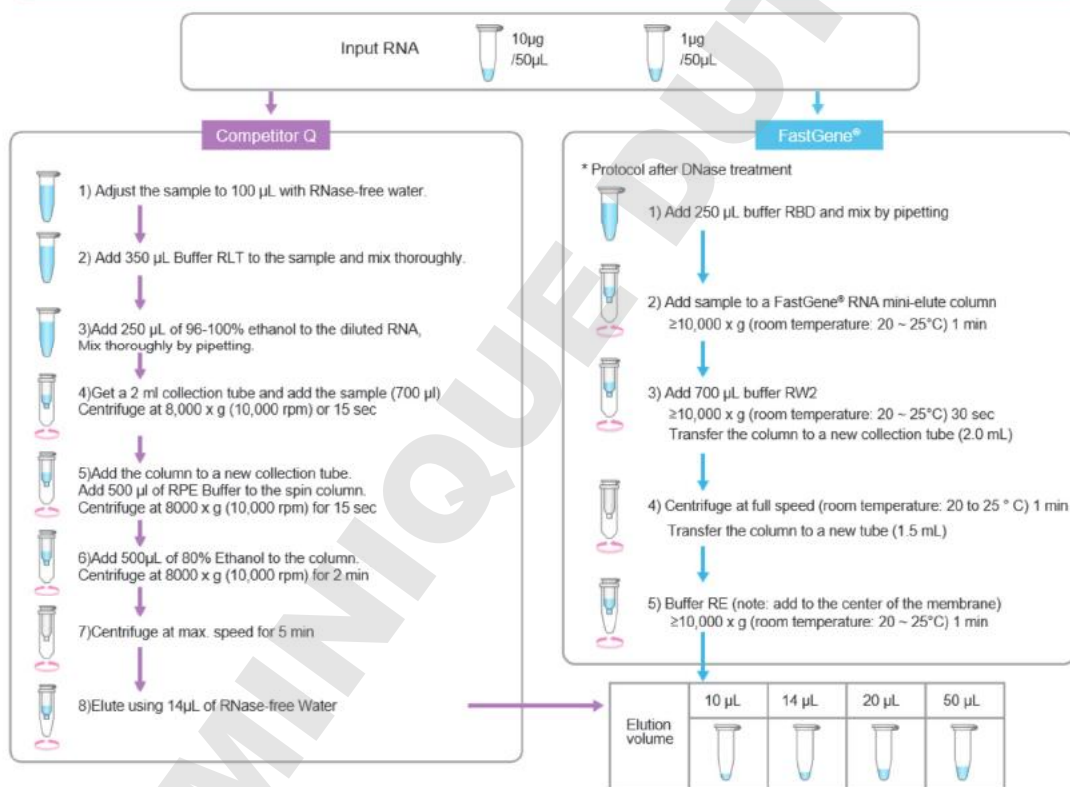
Background

The gDNA removal step of our FastGene® RNA Premium kit, unlike other RNA purification kit in the market, is a reaction performed in solution, resulting in an improved removal efficiency. (Technical Note 2017 <02>)
 Further, the FastGene® Mini-Elute column can be used as a step to concentrate the RNA if the elution volume is reduced. Therefore, we evaluated recovery and concentration efficiency of the column, compared our performance with other mini-elute columns, when collecting and concentrating the extracted RNA sample.

Experimental Condition

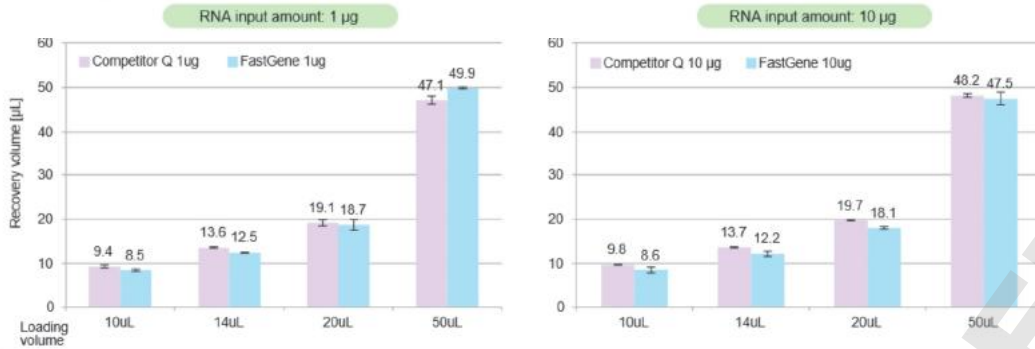
RNA input amount	:1µg , 10µg (n=3)	[Evaluation point]
RNA input volume	:50µL	• Elution volume
Elution volume	:10µL (minimum quantity of competitors) 14µL (standard amount of competitors) 20µL 50µL (FastGene® standard amount)	• Elution concentration
Comparison	:Competitor Q's trace amount elution kit	• Recovery rate
Absorbance measurement	:Implen NanoPhotometer P330	

Workflow



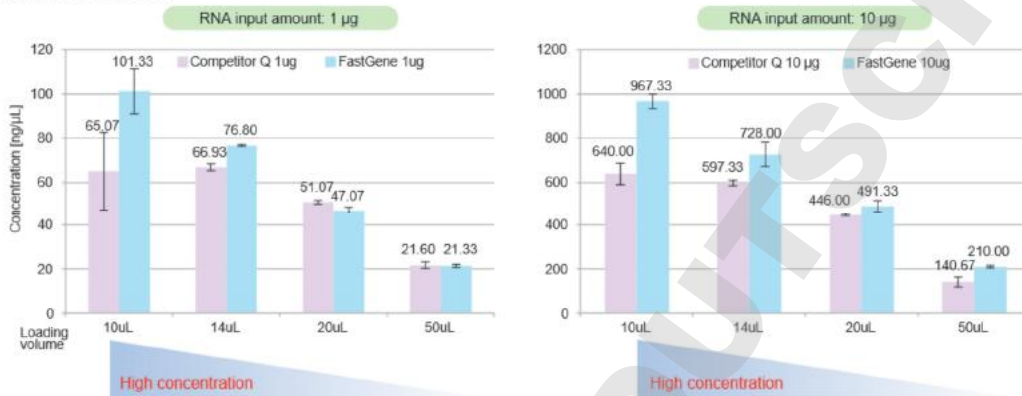
Results

■ Elution volume



Recovery volume showed a similar trend in general.

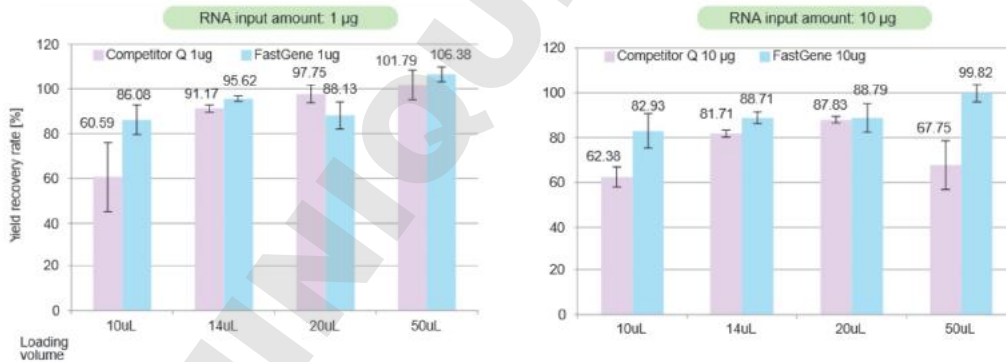
■ RNA concentration



FastGene™ mini elute column worked with 10 µl elution volume, while competitor Q's only worked with 14 µl

■ Collection rate

$$\text{Recovery rate}[\%] = \frac{\text{elute RNA [ng]}}{\text{Input RNA[ng]}} \times 100$$



All elution volumes showed similar perfect recovery rates when using FastGene® mini elute columns .
The recovery rate from competitor Q declined as the elution volume decreased.

Summary of results

RNA input amount: 1 µg

Recovery volume [µL]				
	10µL	14µL	20µL	50µL
Competitor Q	9.35	13.62	19.14	47.13
FastGene®	8.51	12.45	18.73	49.87

Concentration [ng/µL]				
	10µL	14µL	20µL	50µL
Competitor Q	65.07	86.93	51.07	21.60
FastGene®	101.33	76.80	47.07	21.33

Yield [µg]				
	10µL	14µL	20µL	50µL
Competitor Q	0.61	0.91	0.98	1.02
FastGene®	0.86	0.96	0.88	1.06

Recovery rate [%]				
	10µL	14µL	20µL	50µL
Competitor Q	60.59	91.17	97.75	101.79
FastGene®	86.08	95.62	88.13	106.38

RNA input amount: 10 µg

Recovery volume [µL]				
	10µL	14µL	20µL	50µL
Competitor Q	9.75	13.68	19.69	48.20
FastGene®	8.57	12.21	18.06	47.53

Concentration [ng/µL]				
	10µL	14µL	20µL	50µL
Competitor Q	640.00	597.33	446.00	140.67
FastGene®	967.33	728.00	491.33	210.00

Yield [µg]				
	10µL	14µL	20µL	50µL
Competitor Q	6.24	8.17	8.78	6.78
FastGene®	8.29	8.87	8.88	9.98

Recovery rate [%]				
	10µL	14µL	20µL	50µL
Competitor Q	62.38	81.71	87.83	67.75
FastGene®	82.93	88.71	88.79	99.82

Summary

The FastGene® mini-elute column was able to concentrate RNA with an elution volume of 10 - 50 µL.

FastGene™ RNA Premium Kit



Purification and genomic DNA removal of total RNA from cultured cells and tissues, etc.

Special

- DNase I enzyme, prefilter column, Mini-elute column and everything you need for low elution volume
- Recommended for extremely high DNA sensitive downstream applications
- Guaranteed high purity and high quality RNA purification by using optimized DNase I treatment step and FastGene® Mini-Elute column technology together

Specification

	Standard	Large input
Recommended Cell culture	< 5 × 10 ⁶	< 1 × 10 ⁷
Sample Amount Tissue*	< 10 mg	< 20 mg
Elution volume	20 µL (10–50µL)	50 µL (20–50 µL)
Time (6 Preps)	60 Min	60 Min
Format	Silica membrane method	

* Please select the optimum pretreatment depending on your tissue. The yield will vary depending on the sample and type.

Expected yield

- Cultured cells (1 × 10⁸ HeLa Cells): 10-20 µg
- Tissue (20 mg mouse liver tissue): 50-100 µg

Cat. No.	Preps
FG-81008 FastGene® RNA Premium Kit (Trial kit)	6 Preps
FG-81050 FastGene® RNA Premium Kit	50 Preps
FG-81250 FastGene® RNA Premium Kit	250 Preps

Kit content

	6 Preps	50 Preps	250 Preps
Lysis buffer - (RL)	4 mL	25 mL	125 mL
Wash buffer- 1 (RW1)	4 mL	35 mL	170 mL
Wash buffer- 2 (RW2)	2 mL	20 mL	2 × 50 mL
RNA Binding column- (RBD)	1 mL	8 mL	36 mL
Elution buffer- (RE: RNase free water)	1.5 mL	30 mL	200 mL
DNase I - Reconstitution Buffer	1.5 mL	1.5 mL	1.5 mL
10 × DNase I Reaction buffer	50 µL	500 µL	2 × 1 mL
DNase I (lyophilized)	110 Kunitz units	110 Kunitz units	560 Kunitz units
FastGene® RNA filter column	6 Preps	30 Preps	250 Preps
FastGene® RNA binding column	6 Preps	50 Preps	250 Preps
FastGene® RNA mini-elute column	6 Preps	50 Preps	250 Preps
1.5 mL Collection tubes	12 Preps	100 Preps	500 Preps
2 mL Collection tubes	18 Preps	150 Preps	750 Preps

Storage

- FastGene® RNA mini-elute column 4 °C after arrival
- All other components are stored at room temperature (15 to 25° C)