



Technical Data

Basic performance data of FastGene® mini-elute column

Product

Mini-elute column of FastGene® RNA Premium kit

Purpose

The mini-elute column of the FastGene® RNA Premium kit can concentrate RNA to any amount.

Background

Unlike other competitor RNA purification kits, the gDNA removal step of the FastGene® RNA Premium kit is a reaction, performed in solution. This improved and stabilized the efficiency of genomic DNA removal. (Technical data sheet 2017 <02>)

A sample that has been enzymatically treated in solution is purified using a mini-elute column, but we thought if we can reduce the volume of the solution during elution step, we will use the mini-elute column as a "concentrating column".

Therefore, the performance evaluation of recovery rate and concentration efficiency was performed by purifying and concentrating the extracted RNA sample using a mini-elute column.

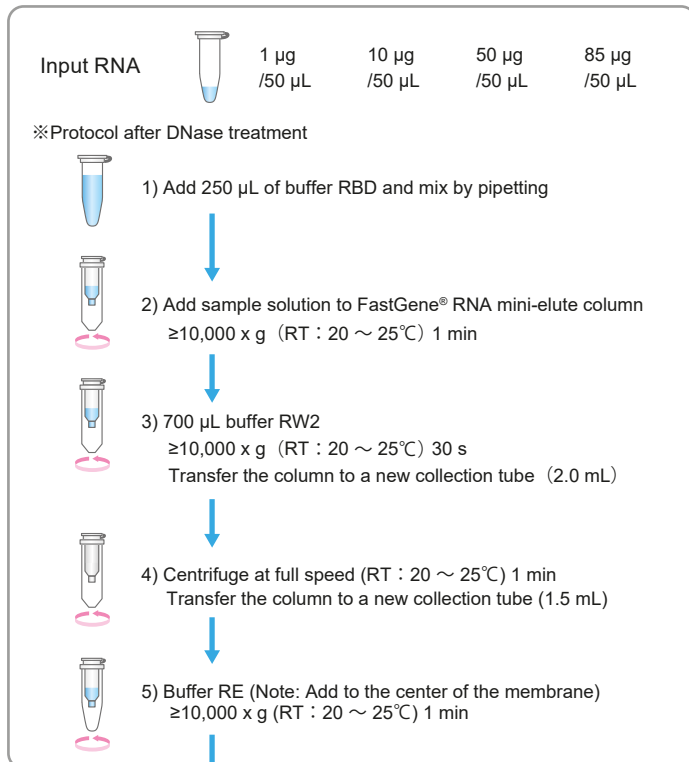
Experimental conditions




RNA input : 1 µg , 10 µg , 50 µg , 85 µg (n=3)
 RNA input volume : 50 µL
 Elution volume : 10 µL (FastGene® minimum)
 20 µL
 50 µL (FastGene® standard amount)
 Absorbance measurement : Implen NanoPhotometer P330

[Evaluation point]

- Elution volume
- Elution concentration
- Recovery rate

Workflow



Elution volume	 10 µL	 20 µL	 50 µL
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FastGene® Premium Kit

- Total RNA purification kit from cultured cells and tissues
- New concept kit including DNase I enzyme, prefilter and micro elution volume column
- Recommended for downstream applications where DNA sensitivity is extremely high
- High purity, high quality RNA purification is guaranteed by combining optimized DNase I processing steps with FastGene® mini-elute column technology



Recommended elution volume and possible elution for FastGene® mini-elute column

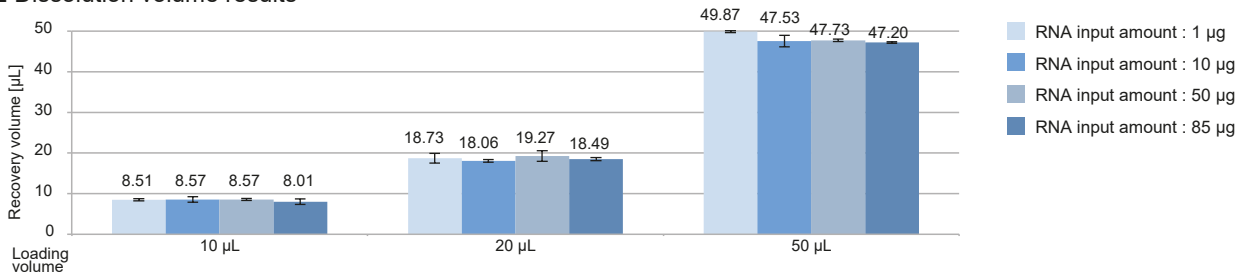
	Standard	Large input
Recommended elution volume	20 µL	50 µL
Dissolution range	10-50 µL	20-50 µL



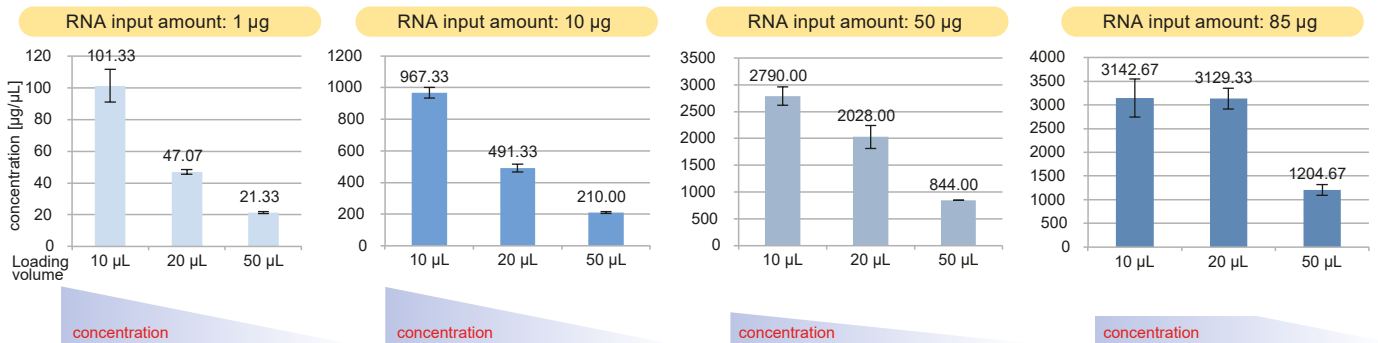


Result

■ **Dissolution volume results**



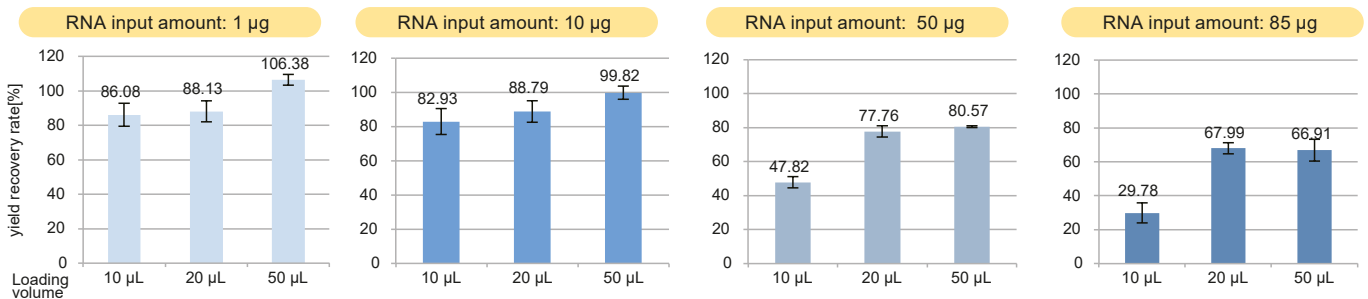
■ **Elution concentration results**



FastGene® mini elute column: The maximum concentration was about 3.1 µg/µL. The reason is believed to be due to the limiting concentration of RNA and the column capacity.

■ **Recovery results**

$$\text{Recovery rate [\%]} = \frac{\text{eluted RNA amount [ng]}}{\text{input RNA amount [ng]}} \times 100$$



FastGene® mini elute column : The recovery at 20 µL elution was in the same ratio as the 50 µL elution. Thus, 20 µL elution could be used in the standard protocol (10 to 50 µL can be eluted). Use 50 µL for large input. (20 to 50 µL can be eluted)

[Conclusion]

	RNA input amount: 1 µg			RNA input amount: 10 µg			RNA input amount: 50 µg			RNA input amount: 85 µg		
	10 µL	20 µL	50 µL	10 µL	20 µL	50 µL	10 µL	20 µL	50 µL	10 µL	20 µL	50 µL
Concentration [ng/µL]	101.33	47.07	21.33	967.33	491.33	210.00	2790.00	2028.00	844.00	3142.67	3129.33	1204.67
Elution volume [µL]	8.51	18.73	49.87	8.57	18.06	47.53	8.57	19.27	47.73	8.01	18.49	47.20
Dissolution amount [µg]	0.86	0.88	1.06	8.29	8.88	9.98	23.91	38.88	40.29	25.31	57.80	56.87
Recovery rate [%]	86.08	88.13	106.38	82.93	88.79	99.82	47.82	77.76	80.57	29.78	67.99	66.91

The 20 µL elution showed the same tendency as the 50 µL elution. However, the recovery rate of 50 µg or more was poor. When eluting more RNA, it is required to elute with more elution volume.

Summary

The 20 µL elution showed the same tendency as the 50 µL elution. However, when the RNA input was 50 µg or more, the recovery rate of RNA was poor. From the above results, it was found that when eluting more RNA, it is recommended to elute with more elution amount.

