SHIMADZU BIOTECH
bringing analysis to life

C297-E077

MCE-202 MultiNA

APPLICATION 10

DNA-500
DNA-1000
DNA-2500
RNA

Accurate DNA Sizing Using the DNA-2500 Reagent Kit

Using the MCE-202 MultiNA DNA-2500 Reagent Kit, size analysis was conducted for a 100 bp to 2500 bp sample with accuracy of ±15%.

K. Suzuki

Introduction

The MCE-202 MultiNA was used to generate a size calibration curve by ladder analysis, which in turn was used to conduct high-accuracy DNA size analysis. Here we introduce an example of size analysis using the DNA-2500 Reagent Kit.

Results

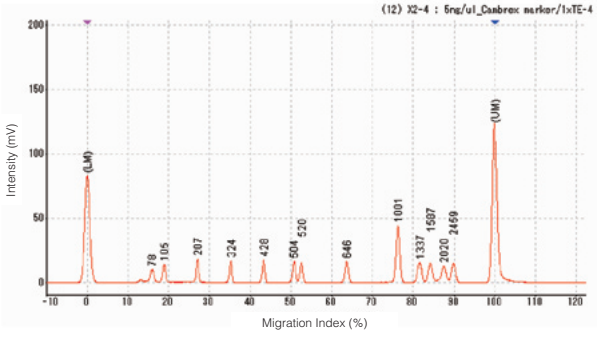
Figure 1 shows the analysis results of the DNA Markers 50-2,500 bp and 100 bp DNA Ladder using the MCE-202 MultiNA. For the DNA Markers 50-2,500 bp (Fig. 1 (a)), 13 peaks were detected, and for the 100 bp DNA Ladder (Fig. 1 (b)), 12 sample-derived peaks were detected. The size calculation results for the constituent fragments are shown in Table 1. The relative error for the 100 bp to 2500 bp fragments ranged from -8.0% to +8.6%.

Table 1 DNA Sizing Results with the DNA-2500 Reagent Kit

	Target Size	Sizing Results (n = 4)				
		Average	RE		SD	RSD
	(bp)	(bp)	(%)	(bp)	(bp)	(%)
50 – 2500 DNA marker	50	77.8	55.5	27.8	1.0	1.2
	100	105.0	5.0	5.0	0.8	0.8
	200	206.8	3.4	6.8	1.3	0.6
	300	325.8	8.6	25.8	1.7	0.5
	400	428.8	7.2	28.8	1.7	0.4
	500	503.3	0.6	3.3	3.0	0.6
	525	519.3	-1.1	-5.8	3.0	0.6
	700	644.3	-8.0	-55.8	4.2	0.7
	1000	1004.5	0.4	4.5	3.5	0.3
	1250	1345.8	7.7	95.8	6.6	0.5
	1500	1600.8	6.7	100.8	10.8	0.7
	2000	2035.3	1.8	35.3	18.6	0.9
	2500	2477.5	-0.9	-22.5	15.5	0.6
100bp DNA ladder	100	92.3	-7.8	-7.8	1.0	1.0
	200	197.5	-1.3	-2.5	1.3	0.7
	300	322.3	7.4	22.3	0.5	0.2
	400	427.8	6.9	27.8	1.0	0.2
	500	502.5	0.5	2.5	2.4	0.5
	600	567.5	-5.4	-32.5	3.7	0.7
	700	646.3	-7.7	-53.8	3.6	0.6
	800	747.8	-6.5	-52.3	1.3	0.2
	900	880.5	-2.2	-19.5	7.3	0.8
	1000	1033.8	3.4	33.8	10.2	1.0
	1500	1599.8	6.7	99.8	7.9	0.5
	2000	1945.5	-2.7	-54.5	11.0	0.6

RE: Relative Error
SD: Standard Deviation
RSD: Relative Standard Deviation (= SD / Average)

(a) DNA Markers 50-2,500 bp



(b) 100 bp DNA Ladder

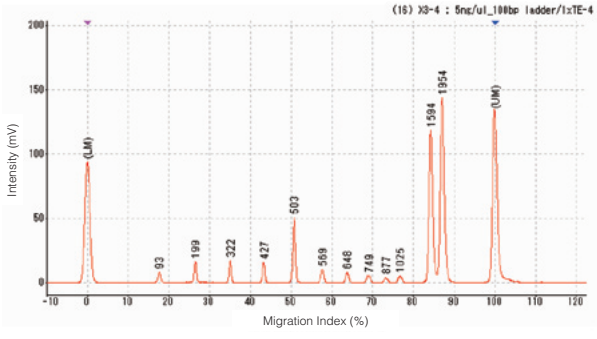


Fig. 1 Electropherogram of DNA Markers 50-2,500 bp and 100 bp DNA Ladder Using the DNA-2500 Reagent Kit for MultiNA

Analytical Conditions and Procedure

Instrument: MCE-202 MultiNA
Analysis mode: DNA-2500 on-chip mixing
Ladder: pGEM® DNA Markers
Diluted 100:1 with TE buffer
Sample: DNA Markers 50-2,500 bp 10 ng/µL
100 bp DNA Ladder 10 ng/µL

Reagents:

- DNA-2500 Reagent Kit for MultiNA (Shimadzu) P/N 292-27912-91
- SYBR® Gold nucleic acid gel stain (Invitrogen) S-11494
- pGEM® DNA Markers (Promega) G1741
- DNA Markers 50-2,500 bp (Lonza) 50631
- 100 bp DNA Ladder (Toyobo) DNA-030

Experimental Method:

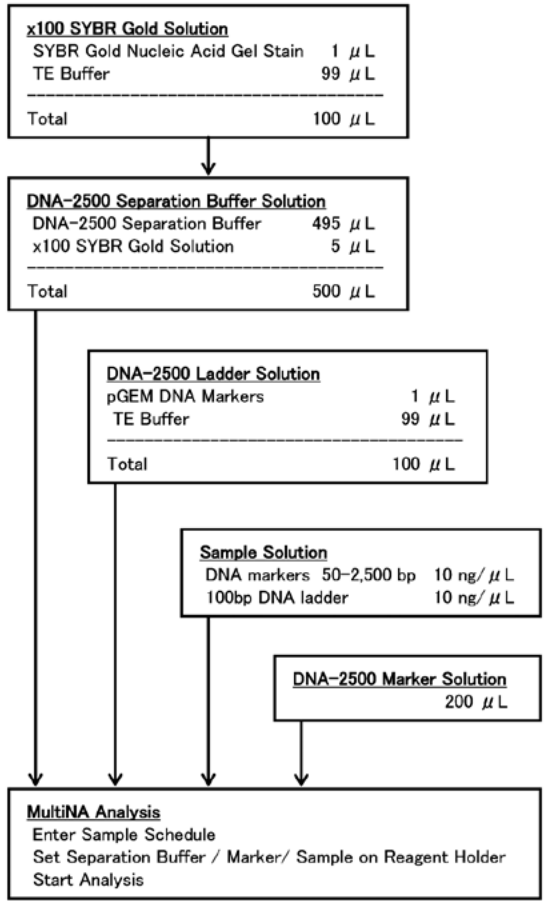


Fig. 2 Experimental Procedure (for 8 Samples)

(Note) For detailed operational information related to analysis using the MCE-202 MultiNA, please refer to the MCE-202 MultiNA Instruction Manual.

SHIMADZU CORPORATION. International Marketing Division
3. Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan Phone: 81(3)3219-5641 Fax. 81(3)3219-5710
URL http://www.shimadzu.com

3295-03816-10ATD

Related Solutions

- Price Inquiry
- Product Inquiry
- Technical Service / Support Inquiry
- Other Inquiry