For research use only

ISO9001

50bp Step Ladder Marker, Ready-to-use

Product	Conc.	Cat. No.	Remarks
50bp Step Ladder Marker, Ready-to-use	500 μl (150 μg)	EBM-1104	Ready-to-use

Description

The 50bp step ladder marker is a mixture of double-stranded DNA fragments from 50 to 3,000 bp in 50 bp step increment. For easy size reference on the gel electrophoresis, the 200 bp, 400 bp, 600 bp, 1,200 bp and 3,000 bp are made to be more brighter than the other bands. The 50bp step ladder marker is supplied in a ready-to-use format. This ladder marker can be stained with ethidium bromide or any other known DNA staining methods.

Storage Buffer

- Marker DNA : 150 μg in 0.5 ml of 10 mM Tris-HCl, pH8.0, 1 mM EDTA, 5% Glycerol, 0.005% Bromophenol Blue, and 0.005% Xylene Cyanol

Recommended Storage Condition

- -20℃ for 2 year
- 4℃ for 6 months
- Room temperature (20-25℃) for 2 months

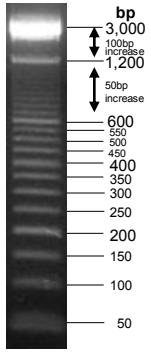
Usage Information

- Concentration : 1,500 ng/5 μl (150 μg/0.5 ml)
- Recommended loading : 2-5 μl (100-200 lanes, ready-to-use)
- Range : 50 bp step increase from 50 bp to 3 kbp

Cautions

- Always use the fresh tip to take out marker solution.
  (If you do not, trace amount of contaminated DNases from buffer tank may degrade marker DNA rapidly)
- Don't boil the product.
- Use appropriate % of gels for separation of 50 to 3,000 bp sizes
  (1 to 4% agarose gel is recommended)
- Confirm that the concentration of DNA staining dye is optimal before use.
  (Breakage or suboptimal concentration of ethidium bromide in gel is a main cause of low estimation of marker concentration or your DNA. 5 ng of DNA should be seen in normal condition)
- Loading volume and concentration should be optimized by gel size, well size, and running length.
- Low sized DNA bands can be gradually disappeared as running is progressing.
  (This is because some DNA is getting out from gel to buffer during horizontal electrophoresis, not because the DNA concentration is incorrect. This will be the same for your DNA)
- This product can not be used for a quantitative purpose.

50bp Step Ladder Marker



5 μl/1,500 ng/lane ;
2% agarose in 0.5x TBE, stained with ethidium bromide

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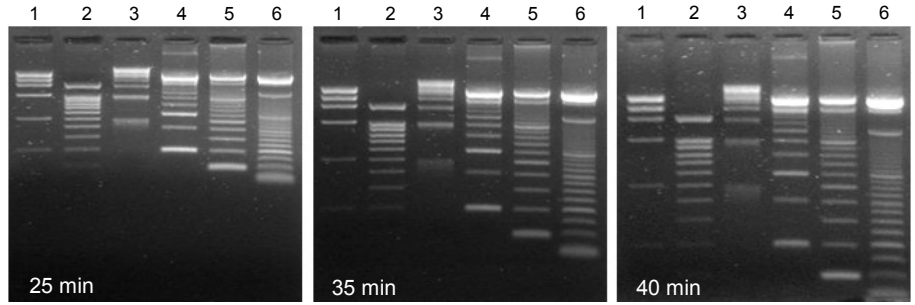
Migration Patterns in Different % of Agarose Gels



1. 1Kbp DNA Mass Marker (EBM-1009)
2. 100bp DNA Mass Ladder Marker (EBM-1010)
3. 500bp Step Ladder Marker (EBM-1101)
4. 200bp Step Ladder Marker (EBM-1102)
5. 100bp Step Ladder Marker (EBM-1103)
6. 50bp Step Ladder Marker (EBM-1104)

1.5%, 0.5x TBE Gel
100V constant
EtBr staining

Recommended Gel Percentages for Separation of Linear DNA

Agarose Gel, %	Range of Separation, bp	Polyacrylamide Gel, %	Range of Separation, bp
0.5	1,000 - 30,000	3.5	100 - 1,000
0.7	800 - 12,000	5	80 - 500
1	500 - 10,000	8	60 - 400
1.2	400 - 7,000	12	40 - 200
1.4	200 - 4,000	20	5 - 100
2	50 - 2,000		

DNA Size Migration with Sample Loading Dyes

Agarose Concentration, %	Xylene cyanol FF	Bromophenol blue	Orange G
0.7 - 1.7	~4000 bp	~300 bp	~50 bp
2.5 - 3.0	~800 bp	~100 bp	~30 bp

Composition of Gel Electrophoresis Buffers

Buffer	Working Concentration		Stock Concentration (per Liter)		
Tris-acetate (TAE)	1x	20 mM Tris-acetate 1 mM EDTA	20x	Tris base Glacial acetic acid 0.5 M EDTA (pH8.0)	96.9 g 22.84 ml 40 ml
Tris-borate (TBE)	0.5x	45 mM Tris-borate 1 mM EDTA	10x	Tris base Boric acid 0.5 M EDTA (pH8.0)	108 g 55 g 40 ml