



PRODUCT INFORMATION

Thermo Scientific Spectra Multicolor Broad Range Protein Ladder

Pub. No. MAN0011774

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Components	#26634	#26623	#26624
Spectra Multicolor Broad Range Protein Ladder	2 x 250 µL	10 x 250 µL	50 µL

Store at -20 °C

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For Research Use Only. Not for use in diagnostic procedures.

Introduction

The Thermo Scientific™ Spectra™ Multicolor Broad Range Protein Ladders are a prestained mixture of 10 recombinant proteins ranging from 10 kDa to 260 kDa. Four different chromophores are bound to the proteins, producing a brightly colored ladder in an easy-to-remember pattern. The protein ladder is conveniently packaged and ready to use with no heating, diluting or additional reducing agent necessary.

Lot-to-lot variation of the apparent molecular weight of prestained proteins is ~5 %.

Storage Buffer: 62.5 mM Tris•H₃PO₄ (pH 7.5 at 25 °C), 1 mM EDTA, 2 % (w/v) SDS, 10 mM DTT, 1 mM NaN₃ and 33 % (v/v) glycerol.

Important Product Information

- Do not boil the protein ladder.
- For precise protein MW determination use the Thermo Scientific™ PageRuler™ Broad Range Unstained Protein Ladder (#26630).

Migration Patterns of Spectra Multicolor Broad Range Protein Ladder

Gel type		Tris-Glycine						Tris-Acetate*		Bis-Tris*						
Gel concentration		4-20%	8-16%	10-20%	8%	10%	12%	15%	3-8%	7%	4-12%		10%		12%	
Running buffer		Tris-Glycine						Tris-Acetate		MOPS	MES	MOPS	MES	MOPS	MES	
		Apparent Molecular Weights, kDa														
% length of gel ↓	10															
	20	260	260	140	140	100	100	70	70	225	120	115	120	115	120	115
	30	140	140	100	70	70	50	50	50	40	80	80	80	80	80	80
	40	100	100	70	70	50	50	40	40	80	80	80	80	80	80	80
	50	70	70	50	50	40	40	35	35	120	85	65	65	65	65	65
	60	50	50	40	40	35	35	25	25	85	65	50	50	50	50	50
	70	40	40	35	35	25	25	15	15	65	50	35	35	35	35	35
	80	35	35	25	25	15	15	15	15	50	40	30	30	30	30	30
	90	25	25	15	15	15	15	10	10	40	30	25	25	25	25	25
	100	15	15	10	10	10	10	10	10	30	25	15	15	15	15	15

* migration patterns were determined using NuPAGE® precast gels.

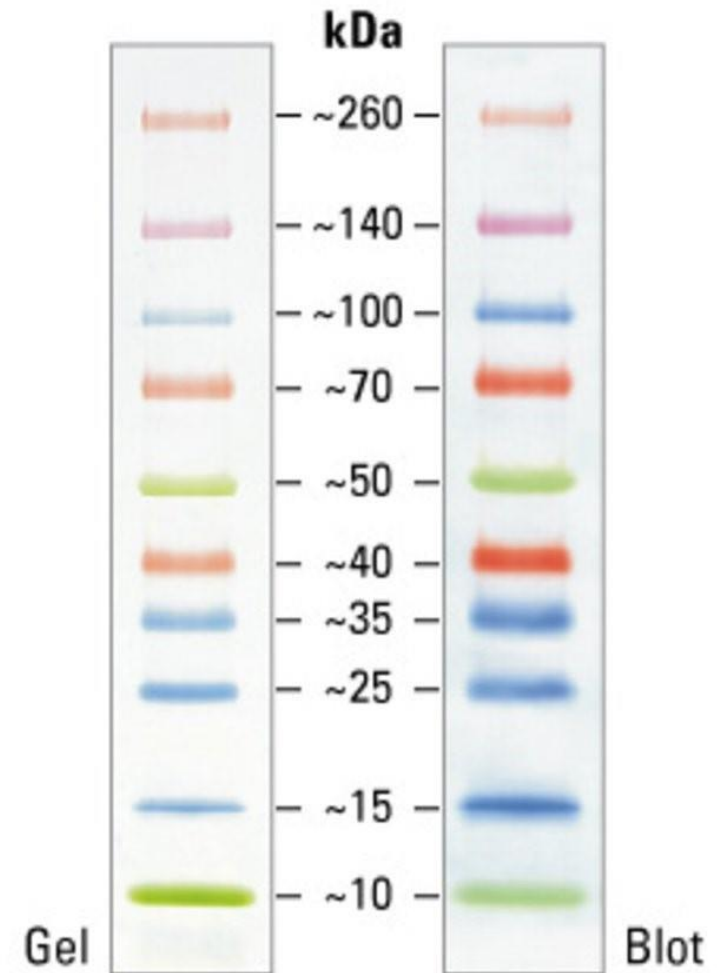
Recommendations for Loading

1. Thaw the ladder at room temperature for a few minutes to dissolve precipitated solids. **Do not boil!**
2. Mix gently, but thoroughly, to ensure that the solution is homogeneous.
3. Load the following volumes of the ladder on an SDS-polyacrylamide gel:
 - 10 μL per well for mini gel,
 - 20 μL per well for large gel.Use the same volumes for Western blotting.
The loading volumes listed above are recommended for gels with a thickness of 0.75-1.0 mm. The loading volume should be doubled for 1.5 mm thick gels.

Important Notes

- In low-percentage gels (< 10 %), the low-molecular weight proteins in the ladder may migrate with the dye front.
- Longer transfer times or higher transfer voltages may be required for Western blotting of large (>100 kDa) proteins.
- Prestained proteins can have different mobilities in various SDS-PAGE-buffer systems. However, they are suitable for approximate molecular weight determination when calibrated against unstained standards in the same system. See the table provided for migration patterns in different electrophoresis conditions.

Spectra Multicolor Broad Range Protein Ladder



4-20 % Tris-glycine SDS-PAGE

General References

Burnette, W.N. (1981). "Western blotting": electrophoretic transfer of proteins from sodium dodecyl sulfate – polyacrylamide gels to unmodified nitrocellulose and radiographic detection with antibody and radioiodinated protein A. *Anal Biochem* 112(2):195-203.

Kurien, B.T. and Scofield, R.H. (2003). Protein blotting: a review. *J Imm Meth* 274:1-15.

Laemmli, U.K. (1970). Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* 227:680-5.

Towbin, H., et al. (1979). Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: procedure and some applications. *Proc Natl Acad Sci USA* 76:4350-4.

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively *for research purposes and in vitro use only*. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Please refer to www.thermofisher.com for Material Safety Data Sheet of the product.

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