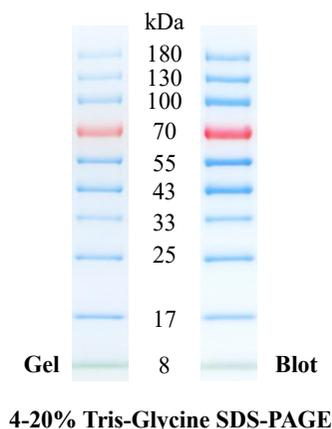


X-Biotech™ Pre-stained Protein Ladder

1. Product Basic Information

Item	Specification
Cat. No.	: X10122E
Product Size	: 250 μL × 2
MW Range	: 8 - 180 kDa
Band Number	: 10
Storage	: 4°C for 2 months -20°C for 2 years
Storage Buffer	: 20 mM Tris-PO4 (pH 7.5), 2 mM EDTA.2 Na, 4 M Urea, 1.5% (W/V) SDS, 2 mM DTT 15% (V/V) Glycerol, 0.1% (V/V) Proclin 300



2. Product Basic Information

The X-biotech™ Pre-stained Protein Ladder is a ready to use pre-stained mixture of 10 recombinant proteins ranging from 8 kDa to 180 kDa. It features the following key characteristics:

• Pre-stained Design

Four different chromophores are bound to the proteins, producing a brightly colored ladder. When separated by SDS-PAGE, most proteins exhibit a blue color, except for three reference bands: **70 kDa (orange-red)**, and **8 kDa (green)**.

• Ready-to-Use Convenience

No additional steps (e.g., heating, dilution, or adding reducing agents) are required before use.

• Calibration Basis

The indicated apparent molecular weights are calibrated against unstained protein ladders from standard manufacturers, including *X-biotech™ Protein Ladder (Cat. No. X10139)*, *Bio-Rad Laboratories (Cat. No. 1610363)* and *Thermo Fisher Scientific (Cat. No. 26614)*.

• Core Applications

1. Monitoring protein separation processes during SDS-PAGE electrophoresis.
2. Verifying Western blot transfer efficiency on membranes (PVDF or nitrocellulose membranes).
3. Approximating the molecular weight of target proteins on gels or blots.

• Shipping Condition

Transport with ice bag (4-8°C).

Note: Upon receipt of the product, please store it at -20°C promptly.

3. Recommended Experimental Procedures

3.1 Thawing and Preparation

Thaw the ladder at room temperature until completely dissolved (to redissolve any precipitated solids).

Gently but thoroughly mix the solution to ensure homogeneity.

Critical Warning: Do not heat the product above room temperature.

3.2 Recommended loading volumes

When performing polyacrylamide gel electrophoresis (SDS-PAGE), load an appropriate volumes of the ladder on an SDS-polyacrylamide gel:

- Mini gel electrophoresis: 5 μL per well
- Large gel electrophoresis: 10 μL per well

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.

4. Key Notes and Precautions

4.1 Electrophoresis-Related Notes

1. In gels with a concentration <10%, low-molecular weight proteins in the ladder may migrate with the dye front.
2. Western Blot for Large Proteins (>100 kDa):
 - Extend transfer time or increase transfer voltage to ensure complete transfer.
 - SDS in Transfer Buffer: It is recommended to avoid adding SDS. If necessary for the experiment, the concentration must not exceed 0.02-0.04%.
3. Pre-stained proteins may show different apparent molecular weights in different SDS-PAGE buffer systems. For accurate approximate molecular weight determination:
 - Calibrate with unstained proteins in the same buffer system in advance.
 - Refer to the attached "Mobility Table" for migration patterns under different electrophoresis conditions.

4.2 Usage Restriction

For Research Use Only: This product is strictly for laboratory research purposes and not approved for diagnostic procedures (e.g., clinical sample testing, disease diagnosis).

5. Migration Patterns and Apparent Molecular Weights (kDa)

The following table presents the apparent molecular weights of the X-biotech™ Pre-stained Protein Ladder under different gel types, gel concentrations, and running buffers.

Migration Patterns and approximate MWs (kDa) of X-Biotech™ Protein Ladder

Gel type	Tris-Glycine					Bis-Tris						Tris-Acetate		
Gel concentration	8%	10%	12.5%	15%	4-20%	4-12%	8-16%	4-20%	4-12%	8-16%	4-20%	7%	3-8%	
Running buffer	Tris-Glycine					MOPS			MES			Tris-Acetate		
Apparent Molecular Weights, kDa														
% length of gel	10					180	180	180	180	180	180	180	180	
	20		180	180	180	130	130	130	130	130	130	130	130	
	30	180	130	100	100	79	100	100	100	100	100	100	100	180
	40	130	100	75	55	43	55	55	55	55	55	55	55	130
	50	100	72	55	43	33	43	43	43	43	43	43	43	100
	60	70	43	33	25	33	33	33	33	33	33	33	33	100
	70	55	33	25	17	25	25	25	25	25	25	25	25	65
	80	43	25	17	17	17	17	17	17	17	17	17	17	55
	90	33	17/8	8	8	8	8	8	8	8	8	8	8	43
	100	25/17/8	17/8	8	8	8	8	8	8	8	8	8	8	33 25/17/8