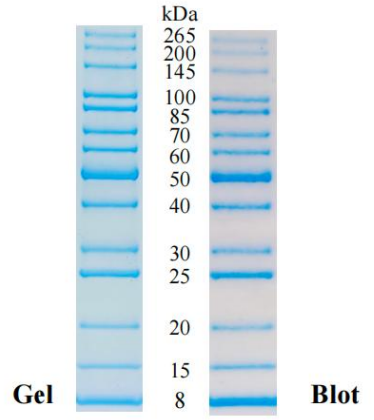
X-Biotech™ Unstained Protein Ladder

Product Manual

Catalog Number: X10139
Size: 500 μL

1. Product Information

Property	Specifications
Molecular Weight Range	8–265 kDa
Number of Bands	14
Formulation	Liquid, supplied in 1X SDS-PAGE loading buffer. Ready-to-use.
Storage Buffer	20 mM Tris-H_3PO_4 (pH 7.5), 2 mM EDTA,2% (w/v) SDS, 15% (w/v) Glycerol, 2 mM DTT, 4 mM Urea, 0.1% (v/v) Proclin 300, 0.01% Bromophenol blue.
Storage Conditions	Short-term: 4°C for up to 2 months. Long-term: -20°C for up to 2 years. Note: Upon receipt, store immediately at -20°C. Avoid repeated freeze-thaw cycles.
Shipping	Gel packs (4–8°C).



4-20% Tris-Glycine SDS-PAGE

2. Product Description

The X-Biotech™ Unstained Protein Ladder is a ready-to-use mixture of 14 precisely engineered recombinant proteins (8–265 kDa) designed for monitoring SDS-PAGE electrophoresis and validating Western blot transfer. When resolved on a denaturing polyacrylamide gel and visualized with general protein stains such as Coomassie® Blue or Ponceau S, this ladder provides clear, sharp bands for accurate molecular weight estimation.

For easy orientation, the bands corresponding to 8 kDa, 25 kDa, and 50 kDa are enhanced in intensity to serve as internal reference markers.

Key Features:

True Ready-to-Use Format: Supplied in a proprietary storage buffer. **Do not heat, dilute, or add reducing agents** prior to loading.

Quality Assured: Functionally validated on 4–20% Tris-Glycine gels.

Calibration Standard: Apparent molecular weights are calibrated against reference standards from leading manufacturers (e.g., *Bio-Rad Laboratories, Cat. No. 1610363; Thermo Fisher Scientific, Cat. Nos. 26614 & 26632*).

3. Applications

- Monitoring protein separation during SDS-polyacrylamide gel electrophoresis.
- Assessing transfer efficiency to PVDF or nitrocellulose membranes in Western blotting.
- Estimating the approximate molecular weight of target proteins on gels and blots.

4. Protocol Guidelines

4.1 Preparation

Thaw: Thaw the ladder at room temperature (20–25°C) until completely dissolved. Mix gently but thoroughly by vortexing or inversion to ensure homogeneity.

Critical: Do not heat the ladder. Heating will denature the urea in the buffer and may cause aberrant migration.

4.2 Recommended Loading Volumes

Load the ladder directly onto the gel. Volumes are optimized for standard 0.75–1.0 mm mini-gels. For thicker gels (1.5 mm), double the loading volume to maintain band visibility.

Gel Type	Recommended Volume
Mini-gel (0.75–1.0 mm)	5 µL per well
Large gel / Analytical Blotting	10 µL per well

5. Important Notes and Precautions

5.1 Electrophoresis & Transfer

Low Percentage Gels: In gels with acrylamide concentrations below 10%, the low molecular weight proteins (<15 kDa) may migrate very close to, or with, the dye front.

Transfer for High Molecular Weight Proteins (>100 kDa): To ensure efficient transfer of proteins above 100 kDa, we recommend increasing transfer time or voltage.

Note on Transfer Buffers: For Western blotting, avoid adding SDS to the transfer buffer unless absolutely necessary. If required, do not exceed a final concentration of 0.02–0.04% SDS, as higher concentrations can reduce protein binding to the membrane.

5.2 Usage Restriction

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