



## ELECTROPHORESIS AND BLOTTING

# Transferring High Molecular Weight Proteins on the Trans-Blot Turbo Transfer System

### Quick Start Guide

#### Prepacked Consumables

- Ready-to-use transfer packs eliminate extra membrane, filter paper, and buffer preparation. Setup time is reduced to 1 min from the opening of the gel cassette to the start of the transfer
- Ready-to-assemble transfer kits provide all consumables to transfer 40 blots, including transfer buffer, transfer stacks, and the option to select from nitrocellulose, PVDF, and low fluorescence PVDF membranes



Many factors affect transfer of proteins from a gel to a membrane. When optimizing Trans-Blot Turbo transfers for proteins larger than 150 kD, try the following:

#### 1 Gel Selection

- Ensure the gel is not being equilibrated in water or buffer prior to transfer. This may inhibit transfer efficiency
- Use a 4–15% or 4–20% gradient gel. For best results use Bio-Rad's TGX and TGX Stain-Free Precast Gels. When running the sample use the recommended conditions for each gel. These gels leave large proteins in more porous parts of the matrix, allowing for better transfer out of the gel

See reverse side for Bio-Rad's stain-free precast gel options.

#### 2 Membrane Selection

- Nitrocellulose and polyvinylidene difluoride (PVDF) have varying binding efficiencies as a result of the physiochemical properties of the membrane and the biochemical properties of the protein sample
- Try switching membrane type to improve transfer efficiency. PVDF usually performs best due to its higher binding capacity

See reverse side for membrane options for the Trans-Blot Turbo System.

#### 3 Protocol Selection

- Select the High Molecular Weight protocol on the Trans-Blot Turbo System, not the standard Turbo protocol. The extra 3 minutes in this protocol help move large proteins through the gel matrix and onto the membrane
- Program a custom protocol if the High Molecular Weight protocol does not yield acceptable results

**Note:** Suggested custom protocols include:






- For midi or 2 minis, program 2.5 A constant for 15 min
- For 1 mini, program 1.3 A constant for 15 min

When checking transfer efficiency, it is common to use a colored molecular weight standard. This crude check is not always representative of the proteins in a sample. For an accurate measure of transfer efficiency, use a total protein stain or Bio-Rad's stain-free technology to obtain a true representation of how well the proteins of interest have transferred to the membrane.






**BIO-RAD**

## Ordering Information

### TGX Stain-Free Precast Gels

Description	 10-Well 30 µl	 10-Well 50 µl	 12-Well 20 µl	 15-Well 15 µl	 IPG Well 7 cm IPG Strip
<b>Mini-PROTEAN TGX Stain-Free Precast Gels</b>					
7.5% Resolving Gel	4568023	4568024	4568025	4568026	4568021
10% Resolving Gel	4568033	4568034	4568035	4568036	4568031
12% Resolving Gel	4568043	4568044	4568045	4568046	4568041
4–15% Resolving Gel	4568083	4568084	4568085	4568086	4568081
4–20% Resolving Gel	4568093	4568094	4568095	4568096	4568091
8–16% Resolving Gel	4568103	4568104	4568105	4568106	4568101
Any kD Resolving Gel	4568123	4568124	4568125	4568126	4568121

All formats are available in 10-packs.

Description	 12+2-Well* 45 µl	 18-Well 30 µl	 26-Well 15 µl	 Prep+2-Well* 800 µl	 IPG+1-Well* 11 cm IPG Strip
<b>Criterion TGX Stain-Free Precast Gels**</b>					
7.5% Gel	5678023	5678024	5678025	—	—
10% Gel	5678033	5678034	5678035	—	—
12% Gel	5678043	5678044	5678045	—	—
4–15% Gel	5678083	5678084	5678085	5678082	5678081
4–20% Gel	5678093	5678094	5678095	5678092	5678091
8–16% Linear Gradient	5678103	5678104	5678105	5678102	5678101
Any kD Gel	5678123	5678124	5678125	5678122	5678121

\* Reference wells accommodate 15 µl of markers/standards. \*\* Criterion TGX Stain-Free gels are sold singly.

### Protein Standards

- 1610373 Precision Plus Protein All Blue Standards
- 1610363 Precision Plus Protein Unstained Standards
- 1610385 Precision Plus Protein WesternC Pack

### Buffers

- 1610732 10x Tris/Glycine/SDS, 1 L
- 1610747 4x Laemmli Sample Buffer, 10 ml

### Electrophoresis Cell

- 1656001 Criterion Cell, includes electrophoresis buffer tank, lid with power cables, 3 sample loading guides
- 1658004 Mini-PROTEAN Tetra Cell for Mini Precast Gels, 4-gel vertical electrophoresis system, includes electrode assembly, mini cell buffer dam, companion running module, tank, lid with power cables

### Blotting System

- 17001917 Trans-Blot Turbo Transfer Starter System, blotting instrument, includes base, 2 cassettes to hold up to 4 mini blotting sandwiches, blot roller, 10 mini PVDF transfer packs, and starter consumables kit
- 17001919 Trans-Blot Turbo Transfer Starter System, blotting instrument, includes base, 2 cassettes to hold 1–2 midi blotting sandwiches, blot roller, 10 midi PVDF transfer packs, and starter consumables kit
- 17001918 Trans-Blot Turbo Transfer Starter System, blotting instrument, includes base, 2 cassettes to hold up to 4 mini blotting sandwiches, blot roller, 10 mini nitrocellulose transfer packs, and starter consumables kit
- 17001915 Trans-Blot Turbo Transfer Starter System, blotting instrument, includes base, 2 cassettes to hold 1–2 midi blotting sandwiches, blot roller, 10 midi nitrocellulose transfer packs, and starter consumables kit
- 1704156 Trans-Blot Turbo Transfer Pack, mini, PVDF, pkg of 10
- 1704157 Trans-Blot Turbo Transfer Pack, midi, PVDF, pkg of 10
- 1704158 Trans-Blot Turbo Transfer Pack, mini, nitrocellulose, pkg of 10
- 1704159 Trans-Blot Turbo Transfer Pack, midi, nitrocellulose, pkg of 10
- 1704270 Trans-Blot Turbo RTA Transfer Kit, mini, nitrocellulose
- 1704271 Trans-Blot Turbo RTA Transfer Kit, midi, nitrocellulose
- 1704272 Trans-Blot Turbo RTA Transfer Kit, mini, PVDF
- 1704273 Trans-Blot Turbo RTA Transfer Kit, midi, PVDF
- 1704274 Trans-Blot Turbo RTA Transfer Kit, mini, low fluorescence PVDF
- 1704275 Trans-Blot Turbo RTA Transfer Kit, midi, low fluorescence PVDF

### Detection Reagents

- 1705060 Clarity Western ECL Substrate, 200 ml
- 1705061 Clarity Western ECL Substrate, 500 ml
- 1705062 Clarity Max Western ECL Substrate, 100 ml
- 1706515 Goat Anti-Rabbit IgG-HRP Conjugate
- 1706516 Goat Anti-Mouse IgG-HRP Conjugate

### ChemIDoc Imaging Systems

- 12003153 ChemIDoc Imaging System, blot and gel imaging system, UV/visible light imaging, chemiluminescence, upgradeable for multiplex fluorescence detection; includes internal computer, 12" touch-screen display, Image Lab Touch Software, blot/UV/stain-free sample tray
- 12003154 ChemIDoc MP Imaging System, blot and gel imaging system, UV/visible light imaging, chemiluminescence, 5 fluorescence channels (red, green, and blue [RGB], far red, near infrared); includes internal computer, 12" touch-screen display, Image Lab Touch Software, blot/UV/stain-free sample tray

### Fluorescent Antibodies

- 12004158 StarBright Blue 700 Goat Anti-Mouse IgG, 400 µl
- 12004161 StarBright Blue 700 Goat Anti-Rabbit IgG, 400 µl
- 12005866 StarBright Blue 520 Goat Anti-Mouse IgG, 400 µl
- 12005869 StarBright Blue 520 Goat Anti-Rabbit IgG, 400 µl
- 12004163 hFAB Rhodamine Anti-Actin Primary Antibody, 200 µl
- 12004165 hFAB Rhodamine Anti-Tubulin Primary Antibody, 200 µl
- 12004167 hFAB Rhodamine Anti-GAPDH Primary Antibody, 200 µl

Go to [bio-rad.com](http://bio-rad.com), [bio-rad.com/ProteinBlottingGuide](http://bio-rad.com/ProteinBlottingGuide), and [bio-rad.com/tech/WesternBlotDoctor](http://bio-rad.com/tech/WesternBlotDoctor) for tips for good quantitative western blotting.

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