



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 that the gel is not being equilibrated in water or buffer prior to transfer, as this may inhibit transfer efficiency
- Use a 4–15% or 4–20% gradient gel. For best results, use Bio-Rad 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 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 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 |
|--|--|--|---|--|--|
| Mini-PROTEAN™ TGX Stain-Free Precast Gels | | | | | |
| 7.5% Gel | 4568023 | 4568024 | 4568025 | 4568026 | 4568021 |
| 10% Gel | 4568033 | 4568034 | 4568035 | 4568036 | 4568031 |
| 12% Gel | 4568043 | 4568044 | 4568045 | 4568046 | 4568041 |
| 4–15% Gel | 4568083 | 4568084 | 4568085 | 4568086 | 4568081 |
| 4–20% Gel | 4568093 | 4568094 | 4568095 | 4568096 | 4568091 |
| 8–16% Gel | 4568103 | 4568104 | 4568105 | 4568106 | 4568101 |
| Any kD 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* 700 µl |  IPG+1-Well* 11 cm IPG Strip |
|--|---|--|---|--|--|
| Criterion TGX Stain-Free Precast Gels** | | | | | |
| 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% Gel | 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.

Catalog # Description

Protein Standards

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| 1610373 | Precision Plus Protein All Blue Standards |
| 1610363 | Precision Plus Protein Unstained Standards |
| 1610385 | Precision Plus Protein WesternC Standards |

Buffers

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

Electrophoresis Cell

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| 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

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| 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 |

Catalog # Description

Detection Reagents

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| 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

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| 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

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| 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](https://www.bio-rad.com), [bio-rad.com/ProteinBlottingGuide](https://www.bio-rad.com/ProteinBlottingGuide), and [bio-rad.com/tech/WesternBlotDoctor](https://www.bio-rad.com/tech/WesternBlotDoctor) for tips for good quantitative western blotting.

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Clarity Max Western ECL Substrate is manufactured by Cyanagen Srl and is the subject of U.S. and ex-U.S. patents, including US7855287, EP1950207, US9040252, AU2011202658, CA2742025, US8129136, EP1962095 and CN102313732. TGX Stain-Free Precast Gels are covered by U.S. Patent Numbers 7,569,130 and 8,007,646.

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