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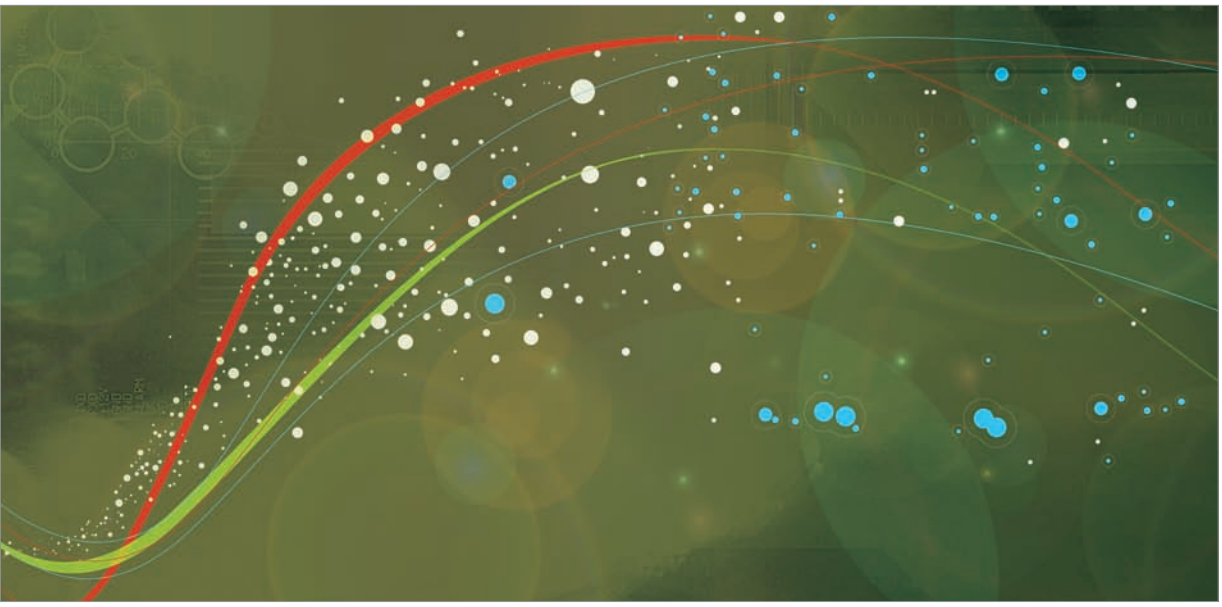
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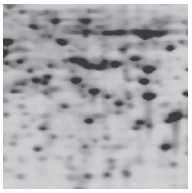
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PROTEAN® IEF System

Reliable, Reproducible Solution For 2-D Gel Electrophoresis

BIO-RAD

Enter a Higher Dimension

Simply Reproducible Proteomics Research



The PROTEAN IEF system enables high-throughput two-dimensional (2-D) protein separation. Consisting of the PROTEAN IEF cell and ReadyStrip™ IPG strips for isoelectric focusing (IEF) of proteins in 2-D applications, this unique system offers major benefits: streamlined handling, enhanced resolution, and increased reproducibility. Whether you run 10 gels a month or 10 gels a day, the PROTEAN IEF system consistently provides great 2-D results. The IEF cell is part of the Expression Proteomics workflow, which covers everything from sample preparation to spot excision. Learn more at **www.expressionproteomics.com.**

PROTEAN IEF Cell

- High-capacity running platform holds 1 large or 2 mini trays, allowing up to 24 immobilized pH gradient (IPG) strips per run in the mini format
- 3 preprogrammed methods enable a quick start to electrophoresis
- Text-based user interface is simple to program and keeps you updated on the run's progress
- Real-time editing capability gives you maximum control over the run
- Peltier-cooled platform maintains consistent temperature for reproducibility; expanded cooling range of 10–25°C lets you work with a broader range of protein samples and conditions
- Integral 10,000 V power supply allows you to reach the desired volt-hour target faster
- Optional thermal printer records progress of run for accurate documentation
- Compatible with all different sample types including prelabeled samples for DIGE



Focusing Trays

- Focusing trays hold 1–12 ReadyStrip IPG strips for flexibility and streamlined handling
- Platinum electrode is physically embedded into running trays to ensure the integrity of each well and sample
- Durable polycarbonate trays ensure sufficient heat transfer for accurate and reproducible pI determination
- Numbered channels aid in strip identification and sample tracking
- Electrode wicks are available to remove salts and other run-interfering contaminants present in complex samples



Cup Loading Trays

- Optimize resolution and separation of proteins that have pIs at extreme pH ranges
- Load up to 150 µl of sample with easy-to-use disposable sample cups
- Movable electrodes provide the flexibility to run IPG strips from 7 to 24 cm in length
- Deliver the same high capacity and throughput as the conventional focusing trays and provide enhanced resolving power



Rehydration/Equilibration Trays

- Separate rehydration/equilibration trays increase throughput — run one set of samples while rehydrating or equilibrating a second set
- Trays can be reused to maximize user options and accommodate any budget
- Multipurpose trays can also be used to store focused strips at –20°C prior to second-dimension runs
- After rehydration, transfer strips directly to running tray and skip the tedious step of removing residual rehydration buffer before the run

Tray Specifications

	IPG Strip Length				
	7 cm	**11 cm**	**17 cm**	**18 cm**	**24 cm**
Focusing Trays					
Electrode distance, cm	6.5	10.2	16.2	17.1	22.7
Total strip length accommodated, cm	8.2	12.1	18.1	20.1	25.3
ReadyStrip IPG strip length, cm	7.9	11.8	17.8	19.0	24.7
Rehydration/Equilibration Trays					
Total strip length accommodated, cm	8.0	12.7	18.6	20.4	25.3
Maximum volume, ml	3.5	6.0	7.5	8.0	12.0

2-D Solutions — From Start to Finish

The PROTEAN IEF system has been optimized to perform first-dimension IEF simply, reproducibly, and efficiently. For applications prior to and following IEF, Bio-Rad offers expression proteomics tools — from sample preparation to protein analysis. A subset of these tools are described below. For more details request bulletin 3099A or visit **www.expressionproteomics.com**.

Sample Preparation

To clean up or fractionate your sample, you can choose from reagent kits, chromatography columns, and preparative electrophoresis cells. Following are a few of our most popular sample preparation tools:

- **ReadyPrep™ 2-D starter kit** — a complete set of reagents to perform 2-D gel electrophoresis under highly controlled conditions. This allows you to focus on your technique, not your sample and reagent prep, when getting started
- **ReadyPrep 2-D cleanup kit** — removes detergents, salts, peptides, lipids, and phenolic compounds from the protein sample. These components can interfere with 2-D electrophoresis. Additionally this kit enables concentration and quantitative recovery of dilute samples
- **ProteoMiner™ protein enrichment kits** — reduce high abundance proteins and enrich medium- and low-abundance proteins in complex biological samples
- **MicroRotofor™ cell** — a preparative IEF device that fractionates complex protein samples in free solution

2-D Electrophoresis

Bio-Rad offers flexibility in gel format and size for the optimal combination of speed and resolution while providing reproducible results.

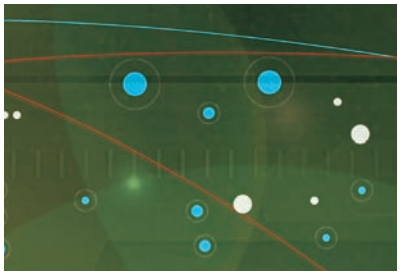
- **Mini gels** — The 7 cm ReadyStrip IPG strips are designed to run in a Mini-PROTEAN® system, with the option of running up to four gels in the Mini-PROTEAN Tetra cell and up to 12 gels in the Mini-PROTEAN 3 Dodeca™ cell
- **Midi gels** — Criterion™ precast gel system accommodates 11 cm ReadyStrip IPG strips. This system provides increased resolution over the mini systems while providing ease of handling over large gel systems. The new Criterion Stain Free™ system enables visualization of gels without any staining steps, reducing time to results significantly
- **Large gels** — The PROTEAN II and PROTEAN Plus systems offer maximum resolution. The PROTEAN II XL cell (for running up to four gels) and the PROTEAN II XL multi-cell (for running up to six gels) are compatible with 17 cm ReadyStrip IPG strips. The PROTEAN Plus Dodeca cell (for running up to 12 gels) can be used with 17, 18, or 24 cm ReadyStrip IPG strips

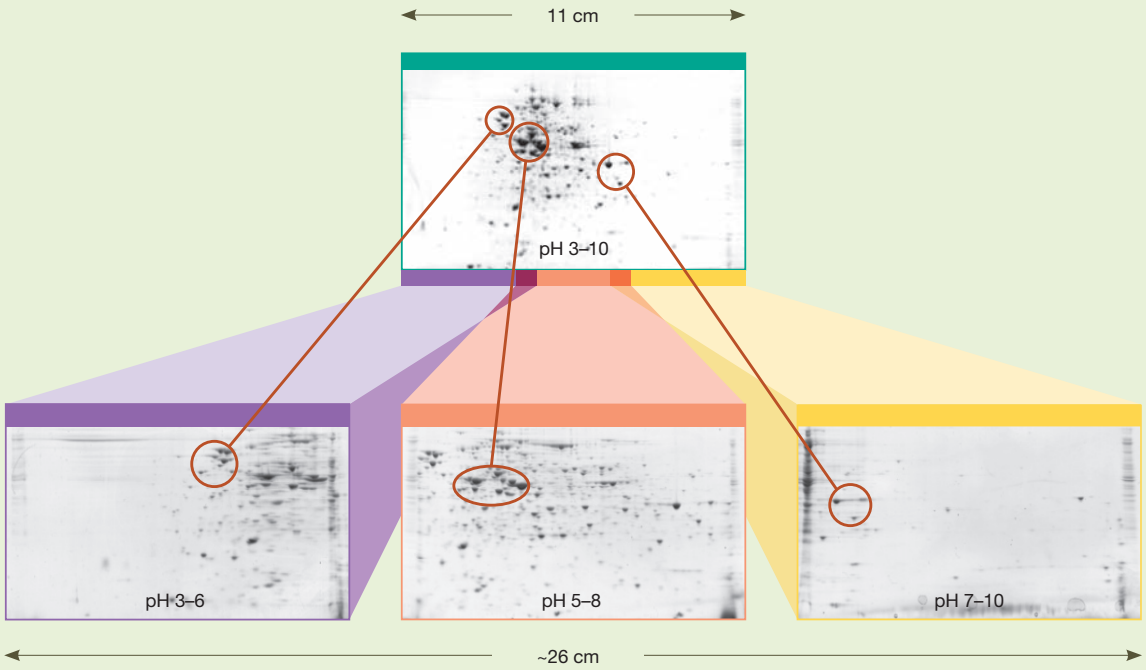
Visualization

For gel imaging and analysis, you can choose from a variety of stains and imaging systems. Following are a few of our most popular imaging tools.

- **Flamingo™ fluorescent gel stain** — an easy-to-use gel stain that is compatible with mass spectrometry. Gels stained with Flamingo fluorescent gel stain can be visualized with a variety of fluorescence-based imaging systems
- **VersaDoc™ MP 4000 system** — allows imaging of a wide range of samples, including single and multicolor fluorescent (DIGE, Pro-Q, Qdot), chemiluminescent, chemifluorescent, and colorimetric samples
- **The EXQuest™ spot cutter** — offers fast, hands-free gel excision with unparalleled accuracy and reliability

For more details on Bio-Rad's tools for expression proteomics request bulletin 3099A or visit **www.expressionproteomics.com**.





Increase in resolving power in the first dimension with overlapping pH range IPG strips. *E. coli* lysate (40 µg per gel) was run on 11 cm overlapping narrow pH range ReadyStrip IPG strips and focused for 20,000 V-hr. The strips were then transferred to 8–16% Tris-HCl Criterion precast gels for the second-dimension run. The gels were stained with colloidal Coomassie Blue stain. Use of three overlapping gels allowed for visualization of more proteins than a single 3–10 pH range gel. Note the improved resolution of proteins in the circled areas.

ReadyStrip IPG Strips

Reproducible High-Resolution First-Dimension Runs

ReadyStrip IPG strips simplify the first dimension, providing reproducibility and high resolution through a variety of features.

- Narrow pH ranges increase the number of centimeters per pH unit for enhanced resolution
- Narrow-range gradients overlap to produce virtual gels of up to 40 cm of isoelectric point (pI) separation
- True linearity of pH gradient allows greater certainty of pI determination
- Tight gel-length tolerances of ±2 mm guarantee pH consistency
- Each strip is labeled for quick identification of polarity and pH range

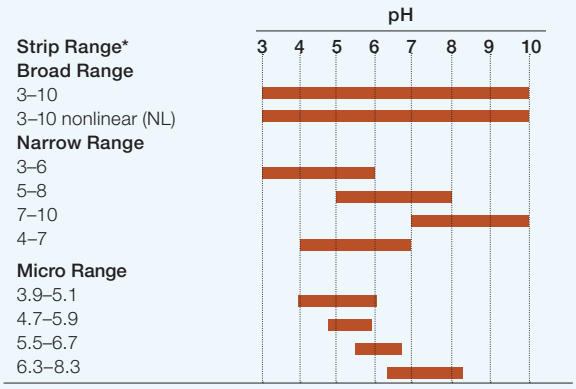
Streamlined Handling

ReadyStrip IPG strips are available in five lengths (7, 11, 17, 18, and 24 cm). Use 24 cm strips with the PROTEAN Plus Dodeca cell for maximum resolution. The 11 cm strips used with Criterion gels provide a high-resolution, high-throughput combination. The 7 cm strips are compatible with Mini-PROTEAN systems. Focusing trays hold up to 12 strips, and the PROTEAN IEF cell accommodates one large (11–24 cm) or two small (7 cm) trays for up to 24 mini strips per run.



ReadyStrip IPG strips are preprinted to indicate anode end (+) and pH range; a bar code is printed on the 24 cm strip.

ReadyStrip IPG strip pH ranges.



* Strips are designed with sufficient overlap to allow spot matching while limiting the extent of redundant data.

PROTEAN IEF Cell Specifications

Power Output	
Voltage	50–10,000 V, 10 V increments
Current	0–2.4 mA, 1.0 µA increments
Power	0–24 W
Peltier Platform	
Strip holder capacity	Twelve 11, 17, 18, or 24 cm, or twenty-four 7 cm IPG strips
Operating temperature	10–25°C
Regulatory certification	CE, EN61010-1
Dimensions (W x D x H)	28 x 30 x 14 cm

Ordering Information

Catalog #	Description
PROTEAN IEF System	
165-4000	**PROTEAN IEF System**, 90–240 VAC, includes basic unit, 17, 11, and 7 cm focusing trays with lids, 1 pack each of 17, 11, and 7 cm rehydration/equilibration trays with lids, 2 pairs of forceps, pack of electrode wicks, mineral oil, cleaning brushes (purchase 18 and 24 cm trays separately)
165-4001	**PROTEAN IEF Cell**, 90–240 VAC, basic unit, includes cell, instructions
Accessories	
165-4070	**Forceps**, 1 pair
165-4071	**Electrode Wicks**, precut, 500 pack
165-4072	**Cleaning Brushes**, 2
163-2129	**Mineral Oil**, 500 ml
165-4080	**Thermal Printer**, 100 V, includes cable and power adaptor
165-4082	**Thermal Printer**, 120 V, includes cable and power adaptor
165-4085	**Thermal Printer**, 220 V, includes cable and power adaptor
170-2412	**Thermal Printer Paper**, 10 rolls

Focusing Trays With Lids

Quantity	7 cm	11 cm	17 cm	18 cm	24 cm
1	165-4030	165-4020	165-4010	165-4040	165-4042

Disposable Rehydration/Equilibration Trays With Lids

Quantity	7 cm	11 cm	17 cm	18 cm	24 cm
25	165-4035	165-4025	165-4015	165-4041	165-4043

Second-Dimension Cells

Catalog #	Description
165-8000	**Mini-PROTEAN Tetra Cell**, 10-well, 0.75 mm thickness; 4-gel system includes 5 combs, 5 sets of glass plates, 2 casting stands, 4 casting frames, sample loading guide, electrode assembly, companion running module, tank, lid with power cables, mini cell buffer dam
165-4100	**Mini-PROTEAN 3 Dodeca Cell**, includes tank, lid with power cables, 6 electrophoresis clamping frames, 2 buffer dams, drain line, 2 gel releasers
165-6001	**Criterion Cell**, includes tank, lid with power cables, 3 sample loading guides (12+2 well, 18-well, 26-well), instructions
165-4130	**Criterion Dodeca Cell**, includes tank, lid with power cables, instructions
165-3188	**PROTEAN II XL Cell**, wide format, 1.0 mm, includes PROTEAN II xi basic unit (165-1834) and 1.0 mm IPG conversion kit (165-3183)
165-3176	**PROTEAN II XL Multi-Cell**, wide format, 1.0 mm, includes PROTEAN II xi multi-cell (165-1951), PROTEAN II xi multi-cell 2-D conversion kit (165-1956), and 3 PROTEAN II xi cell IPG conversion kits of desired thickness
165-4150	**PROTEAN Plus Dodeca Cell**, 100/120 V, includes tank, lid, buffer recirculation pump with tubing, 2 gel releasers, instructions; also available, 220/240 V cell (165-4151)

ReadyStrip IPG Strips, 12 per Package

pH Range	7 cm	11 cm	17 cm	18 cm	24 cm
3–10	163-2000	163-2014	163-2007	163-2032	163-2042
3–10 NL*	163-2002	163-2016	163-2009	163-2033	163-2043
3–6	163-2003	163-2017	163-2010	163-2035	163-2045
4–7	163-2001	163-2015	163-2008	163-2034	163-2044
5–8	163-2004	163-2018	163-2011	163-2036	163-2046
7–10	163-2005	163-2019	163-2012	163-2037	163-2047
3.9–5.1	163-2028	163-2024	163-2020	163-2038	163-2048
4.7–5.9	163-2029	163-2025	163-2021	163-2039	163-2049
5.5–6.7	163-2030	163-2026	163-2022	163-2040	163-2050
6.3–8.3	163-2031	163-2027	163-2023	163-2041	163-2051

* NL, nonlinear gradient.

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