



PROTEAN **i12 IEF** System

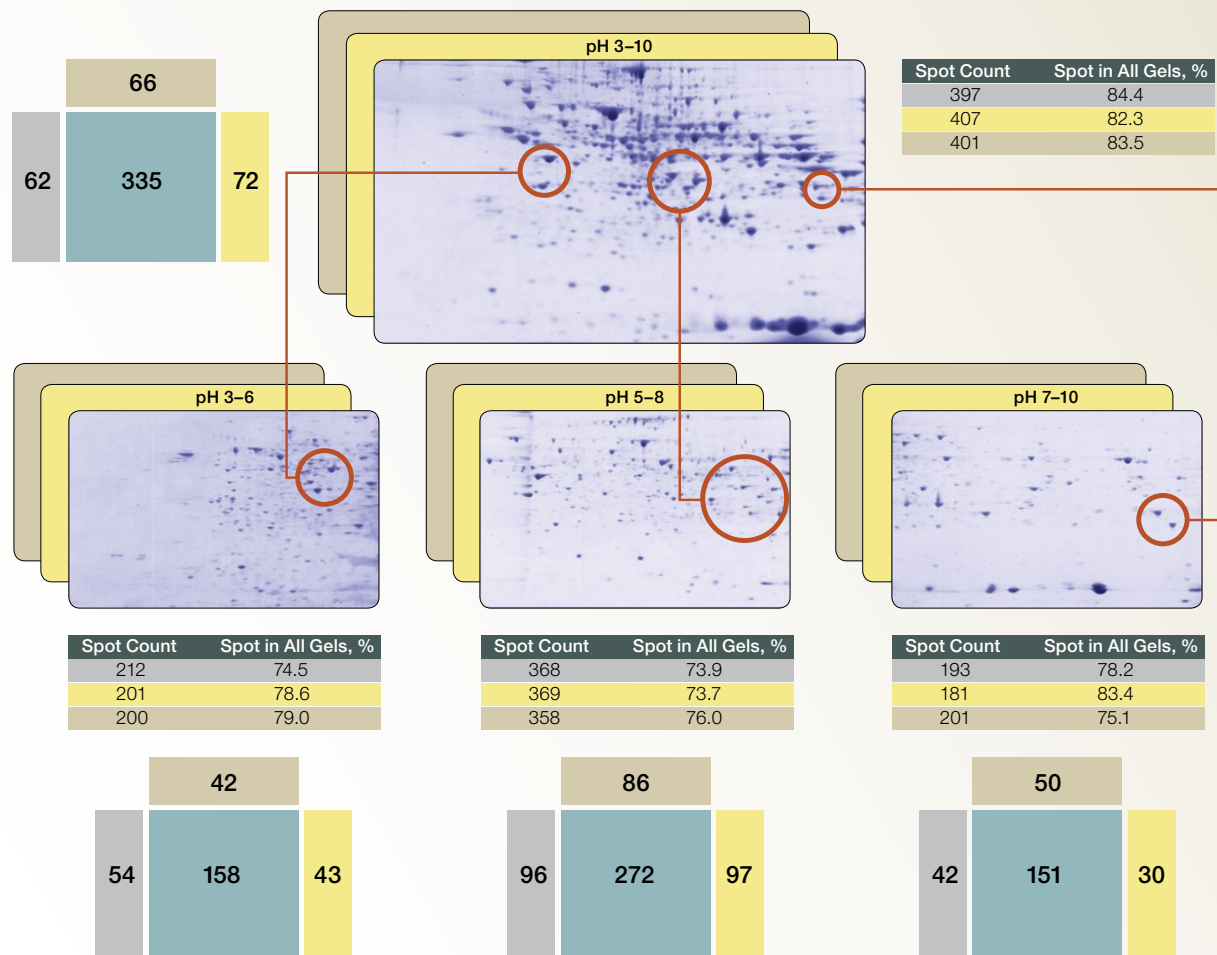
12 Lanes. Individual Control. Total Confidence.



PROTEAN i12 IEF System — More Data, More Reliably in Fewer Runs

Achieve Highly Reproducible Data and Extended Separation across Multiple pH Ranges

Data showing extended separation on multiple range immobilized pH gradient (IPG) strips were generated in a single IEF run. Four different pH gradients and protocols were run simultaneously in triplicate to compare the separation capacity of the broad range pH 3–10 strip with the combination of the narrow range pH 3–6, pH 5–8, and pH 7–10 strips. The red circles highlight the increased resolution attainable with narrow range strips. Broad range separation can, therefore, be achieved with higher resolution on midi-format gels without the need for multiple runs. The box diagrams display the number of spots found in all three replicates of each pH range, showing that a high level of reproducibility was realized among the gels.



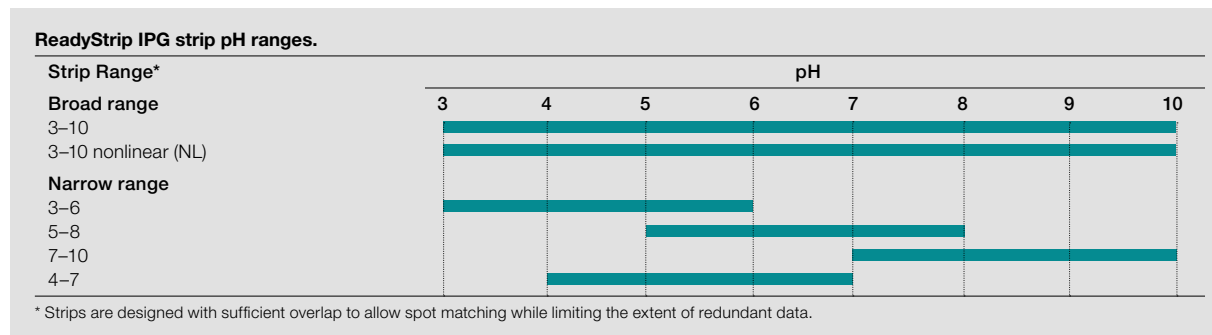
A mouse liver sample was extracted in a urea-thiourea-CHAPS solution. The extract was run in a single PROTEAN i12 IEF Cell run on twelve 11 cm ReadyStrip IPG Strips simultaneously at each of the following pH ranges: 3–10, 3–6, 5–8, and 7–10. Each pH gradient was run in triplicate. The second dimension for each IPG strip was run in 8–16% gradient Criterion Precast Gels that were stained with Bio-Safe Coomassie Stain. The above figure shows a representative gel image for each pH range along with the spot counts for each replicate. The box diagrams show the number of spots found in all three replicates.

Key points of this experiment:

- Running different pH gradients and protocols in 1 run
- Achieving a high level of reproducibility between gels
- Running each pH gradient in triplicate
- Achieving extended separation with narrow-range strips

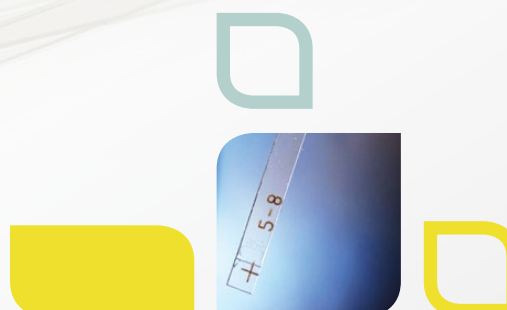
ReadyStrip IPG Strips – A Key Component of the PROTEAN i12 IEF System

- Bio-Rad's high-quality ReadyStrip IPG Strips come in five lengths (7, 11, 17, 18, and 24 cm) and six pH ranges that cover broad and narrow ranges
- Narrow pH ranges increase the number of centimeters per pH unit for enhanced resolution
- Tight gel-length tolerances guarantee pH consistency



Specifications

Input power	100–240 VAC, 50/60 Hz	Environmental requirements	For indoor use only, at altitudes of up to 1,829 m (6,000 ft). Operates at 10–35°C ambient temperature, with maximum 90% relative humidity
Fuse	Two 6.3-amp, time delay, 5 × 20 mm	Regulatory	
Power input	IEC 60320 standard cord set with ground	Safety	EN61010-1:2010 (3rd Edition), UL STD No. 61010-1:2012, CAN/CSA C22.2 No. 61010-1-12
Power output		EMC	EN61326-1:2013 Class A Equipment for Measurement, Control, and Laboratory Use, General Requirements
Voltage per lane	0, 50–10,000 V	Dimensions (W × D × H)	46 × 34.5 × 18.5 cm (18.1 × 13.6 × 7.3 in.)
Current per lane	0–100 μA, 1 μA intervals	Weight	8.6 kg (19 lb)
Power	0–1 W per lane	User interface	
Peltier platform		Display	QVGA resolution (320 × 240). Touch screen or mouse control
Tray capacity	1 tray	Programmable	Yes
Temperature	10–25 ± 0.5°C at maximum ambient temperature 23°C 15–25 ± 0.5°C at maximum ambient temperature 31°C	Ramping	Step, linear, gradual, and hold voltage ramping used for each focusing step. Hold mode as a final step to prevent diffusion when focusing is complete
Focusing trays		Protocol capacity	2 GB, storage of approximately 20,000 data and protocol files
Material	Polycarbonate	Data collection	.DAT file format
IPG strip length	7, 11, 13, 17, 18, and 24 cm		
Capacity	1–12 IPG strips per focusing tray		
Maximum channel volume	7 cm: 7 ml; 11 cm: 10 ml; 13 cm: 11.2 ml; 17 cm: 14.2 ml; 18 cm: 15.2 ml; 24 cm: 20.2 ml		
Rehydration/equilibration trays			
Material	Polystyrene		
IPG strip length	7, 11, 13, 17, 18, and 24 cm		
Capacity	1–12 IPG strips per tray		
Maximum channel volume	7 cm: 6.8 ml; 11 cm: 9.6 ml; 13 cm: 10.5 ml; 17 cm: 14.2 ml; 18 cm: 16 ml; 24 cm: 19 ml		



Ordering Information

Catalog #	Description	Catalog #	Description
1646000	PROTEAN i12 IEF System , 90–240 VAC, includes basic unit, positive and negative electrode assemblies, 7, 11, and 17 cm focusing trays with IPG strip retainers, 1 pack each of 7, 11, and 17 cm rehydration/equilibration trays, 2 pairs of forceps, 2 packs electrode wicks for gel-side down and gel-side up applications, mineral oil, 2 cleaning brushes, cleaning concentrate, 2 USB flash drives, 3 styluses, pH 3–10 ReadyStrip IPG Strips in 7, 11, and 17 cm lengths, rehydration sample buffer, and instruction manual. 13, 18, and 24 cm trays and cup loading accessories can be purchased separately	1646021	i12 Sample Cups , pkg of 25, disposable sample cups, for use with the PROTEAN i12 IEF System Sample Cup Holder (#1646020)
1646001	PROTEAN i12 IEF Cell , includes basic unit, electrode assemblies, and 3 styluses. Focusing trays and other accessories sold separately	1646030	Gel-Side Up Electrode Wicks , pkg of 100, precut electrode wicks, for gel-side up applications
PROTEAN i12 IEF System Accessories		1646031	Gel-Side Down Electrode Wicks , pkg of 500, precut electrode wicks, for gel-side down applications
1646107	i12 7 cm Focusing Tray , pkg of 1, 7 cm focusing tray, holds up to twelve 7 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646012	Negative Electrode Assembly , pkg of 1, replacement negative electrode assembly, can be used with all sizes of i12 Focusing Trays
1646111	i12 11 cm Focusing Tray , pkg of 1, 11 cm focusing tray, holds up to twelve 11 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646011	Positive Electrode Assembly , pkg of 1, replacement positive electrode assembly, can be used with all sizes of i12 Focusing Trays
1646113	i12 13 cm Focusing Tray , pkg of 1, 13 cm focusing tray, holds up to twelve 13 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646010	Electrode Assembly Pair , pkg of 1 pair, positive and negative electrode assemblies, can be used with all sizes of i12 Focusing Trays
1646117	i12 17 cm Focusing Tray , pkg of 1, 17 cm focusing tray, holds up to twelve 17 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1654072	Cleaning Brushes , pkg of 2
1646118	i12 18 cm Focusing Tray , pkg of 1, 18 cm focusing tray, holds up to twelve 18 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1610722	Cleaning Concentrate , 1 kg, 50x alkaline detergent
1646124	i12 24 cm Focusing Tray , pkg of 1, 24 cm focusing tray, holds up to twelve 24 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646060	USB Flash Drives , pkg of 2, 2 GB flash drives, compatible with the PROTEAN i12 IEF System, for transferring data from the PROTEAN i12 IEF System to a computer for data analysis
1654035	i12 7 cm Rehydration/Equilibration Trays , pkg of 25, 7 cm rehydration/equilibration trays, hold up to twelve 7 cm IPG strips	1646050	Stylus , pkg of 3, for use on the PROTEAN i12 IEF System touch-screen user interface
1654025	i12 11 cm Rehydration/Equilibration Trays , pkg of 25, 11 cm rehydration/equilibration trays, hold up to twelve 11 cm IPG strips	1632129	Mineral Oil , 500 ml
1646313	i12 13 cm Rehydration/Equilibration Trays , pkg of 25, 13 cm rehydration/equilibration trays, hold up to twelve 13 cm IPG strips	1654070	Forceps , pkg of 1 pair, fine-tipped forceps for handling IPG strips
1654015	i12 17 cm Rehydration/Equilibration Trays , pkg of 25, 17 cm rehydration/equilibration trays, hold up to twelve 17 cm IPG strips	1632105	ReadyPrep 2-D Starter Kit , 2-D gel electrophoresis kit, includes protein sample and buffers for IPG strip rehydration, focusing, and transfer to second dimension (IPG strips not included)
1654041	i12 18 cm Rehydration/Equilibration Trays , pkg of 25, 18 cm rehydration/equilibration trays, hold up to twelve 18 cm IPG strips	1610378	Precision Plus Protein Standard Plugs , pkg of 24, 1 mm thick agarose plugs containing 10 <i>Strep</i> -tagged recombinant proteins (10–250 kD), including 3 reference bands
1654043	i12 24 cm Rehydration/Equilibration Trays , pkg of 25, 24 cm rehydration/equilibration trays, hold up to twelve 24 cm IPG strips,		
1646040	IPG Strip Retainers , pkg of 2, replacement IPG strip retainers for use with all sizes of PROTEAN i12 Focusing Trays		
1646020	i12 Sample Cup Holder , pkg of 1, 12-position sample cup holder, includes 25 disposable sample cups (#1646021)		



Scan this QR code or visit bio-rad.com/i12IEF to learn more about the PROTEAN i12 IEF System.

ReadyStrip IPG Strips, 12 per package

pH Range	7 cm	11 cm	17 cm	18 cm	24 cm
pH 3–10	1632000	1632014	1632007	1632032	1632042
pH 3–10 NL*	1632002	1632016	1632009	1632033	1632043
pH 3–6	1632003	1632017	1632010	1632035	1632045
pH 4–7	1632001	1632015	1632008	1632034	1632044
pH 5–8	1632004	1632018	1632011	1632036	1632046
pH 7–10	1632005	1632019	1632012	1632037	1632047

* NL, nonlinear gradient.

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