



# PROTEAN® i12™ IEF System

12 Lanes. Individual Control. Total Confidence.



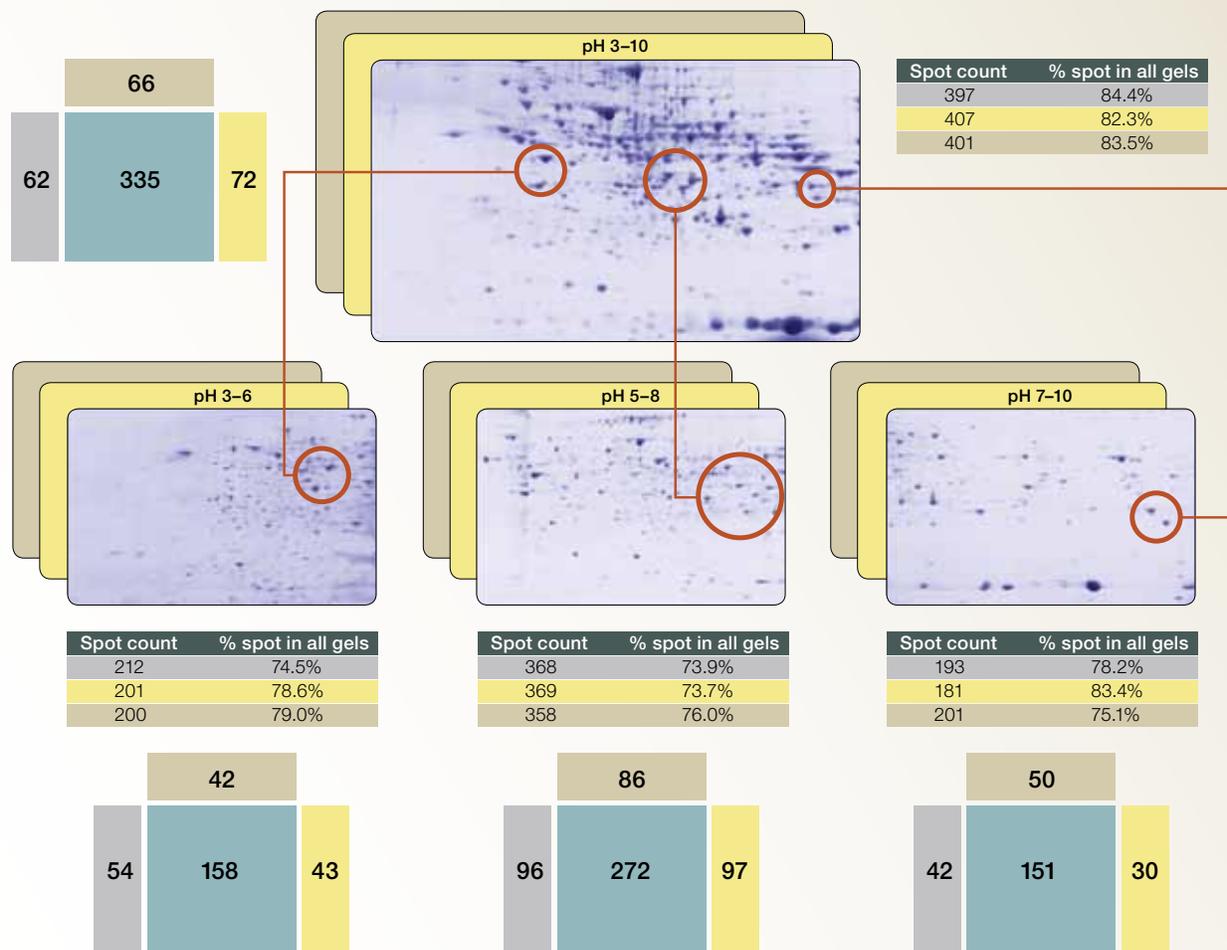




# PROTEAN i12 IEF system — more data, more reliably in fewer runs

## Achieve highly reproducible data and extended separation over multiple pH ranges

Data showing extended separation on multiple pH range IPG strips was 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.



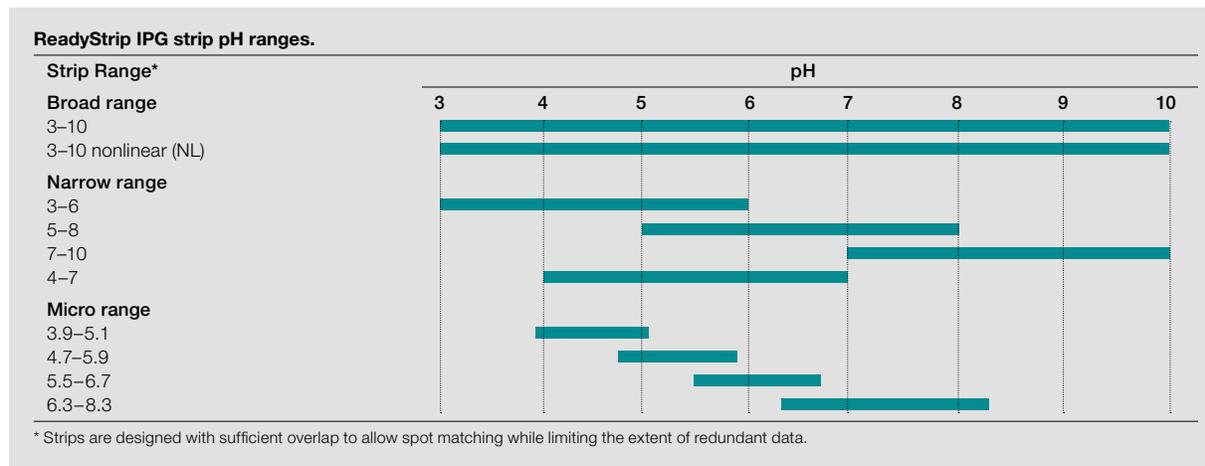
A mouse liver sample was extracted in a urea-thiourea-CHAPS solution. The extract was run in a single PROTEAN i12 IEF cell run on twelve 11 cm ReadyStrip™ IPG strips simultaneously at each of the following pH ranges: 3–10, 3–6, 5–8, and 7–10. Each pH gradient was run in triplicate. The second dimension 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 one 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 cm, 11 cm, 17 cm, 18 cm, and 24 cm) and ten pH ranges that cover broad, narrow, and micro ranges
- Narrow and micro pH ranges increase the number of centimeters per pH unit for enhanced resolution
- Tight gel-length tolerances guarantee pH consistency



## Specifications

<b>Input power</b>	100–240 VAC, 50/60 Hz	<b>Environmental requirements</b>	For indoor use only, at altitudes of up to 1829 m (6000 ft). Operates at 10–35°C ambient temperature, with maximum 90% relative humidity
<b>Fuse</b>	Two 6.3-amp, time delay, 5 × 20 mm	<b>Regulatory</b>	
<b>Power input</b>	IEC 60320 standard cord set with ground	Safety	EN 61010-1, UL STD No. 61010A-1, CAN/CSA C22.2 No. 61010-1-04, IEC 61010-1
<b>Power output</b>		EMC	EN 61326 Class A Equipment for Measurement, Control, and Laboratory Use, General Requirements
Voltage per lane	0, 50–10,000 V	<b>Dimensions (W × D × H)</b>	46 × 34.5 × 18.5 cm (18.1 × 13.6 × 7.3 in)
Current per lane	0–100 μA, 1 μA intervals	<b>Weight</b>	8.6 kg (19 lbs)
Power	0–1 W per lane	<b>User Interface</b>	
<b>Peltier platform</b>		Display	QVGA resolution (320 × 240). Touch screen or mouse control
Tray capacity	1 tray	Programmable	Yes
Temperature	10–25°C ± 0.5°C @ max. ambient temperature 23°C 15–25°C ± 0.5°C @ max. 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
<b>Focusing trays</b>		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		
<b>Rehydration/equilibration trays</b>			
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
164-6000	<b>PROTEAN i12 IEF Isoelectric System</b> , 90–240 VAC, includes basic unit, positive and negative electrode assemblies, 7 cm, 11 cm, and 17 cm focusing trays with IPG strip retainers, 1 pack each of 7 cm, 11 cm, 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 cm, 11 cm, and 17 cm lengths, rehydration sample buffer, and instruction manual. 13 cm, 18 cm, and 24 cm trays and cup loading accessories can be purchased separately	164-6021	<b>i12 Sample Cups</b> , pkg of 25, disposable sample cups, for use with the PROTEAN i12 IEF system sample cup holder (#164-6020)
164-6001	<b>i12 IEF Isoelectric Focusing Cell</b> , includes basic unit, electrode assemblies, and 3 styluses. Focusing trays and other accessories sold separately.	164-6030	<b>Gel-Side Up Electrode Wicks</b> , pkg of 100, precut electrode wicks, for use with the PROTEAN i12 IEF system for gel-side up applications
164-6107	<b>i12 7 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	164-6031	<b>Gel-Side Down Electrode Wicks</b> , pkg of 500, precut electrode wicks, for use with the PROTEAN i12 IEF system for gel-side down applications
164-6111	<b>i12 11 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	164-6012	<b>Negative Electrode Assembly</b> , pkg of 1, replacement negative electrode assembly, for use with the PROTEAN i12 IEF system, can be used with all sizes of i12 focusing trays
164-6113	<b>i12 13 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	164-6011	<b>Positive Electrode Assembly</b> , pkg of 1, replacement positive electrode assembly, for use with the PROTEAN i12 IEF system, can be used with all sizes of i12 focusing trays
164-6117	<b>i12 17 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	164-6010	<b>Electrode Assembly Pair</b> , pkg of 1 pair, positive and negative electrode assemblies, for use with the PROTEAN i12 IEF system, can be used with all sizes of i12 focusing trays
164-6118	<b>i12 18 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	165-4072	<b>Cleaning Brushes</b> , pkg of 2, cleaning brushes
164-6124	<b>i12 24 cm Focusing Tray</b> , 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, for use with the PROTEAN i12 IEF system	161-0722	<b>Cleaning Concentrate</b> , 1 kg, concentrated cleaning solution for use with the PROTEAN i12 IEF system
165-4035	<b>i12 7 cm Rehydration/Equilibration Trays</b> , pkg of 25, 7 cm rehydration/equilibration trays, hold up to twelve 7 cm IPG strips, for use with the PROTEAN i12 IEF system	164-6060	<b>USB Flash Drives</b> , 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
165-4025	<b>i12 11 cm Rehydration/Equilibration Trays</b> , pkg of 25, 11 cm rehydration/equilibration trays, hold up to twelve 11 cm IPG strips, for use with the PROTEAN i12 IEF system	164-6050	<b>Stylus</b> , pkg of 3, for use on the PROTEAN i12 IEF system touch-screen user interface
164-6313	<b>i12 13 cm Rehydration/Equilibration Trays</b> , pkg of 25, 13 cm rehydration/equilibration trays, hold up to twelve 13 cm IPG strips, for use with the PROTEAN i12 IEF system	163-2129	<b>Mineral Oil</b> , 500 ml
165-4015	<b>i12 17 cm Rehydration/Equilibration Trays</b> , pkg of 25, 17 cm rehydration/equilibration trays, hold up to twelve 17 cm IPG strips, for use with the PROTEAN i12 IEF system	165-4070	<b>Forceps</b> , pkg of 1 pair, fine-tipped forceps for handling immobilized pH gradient (IPG) strips
165-4041	<b>i12 18 cm Rehydration/Equilibration Trays</b> , pkg of 25, 18 cm rehydration/equilibration trays, hold up to twelve 18 cm IPG strips, for use with the PROTEAN i12 IEF system	163-2105	<b>ReadyPrep™ 2-D Starter Kit</b> , 2-D gel electrophoresis kit, includes protein sample and buffers for IPG strip rehydration, focusing, and transfer to second dimension (IPG strips not included)
165-4043	<b>i12 24 cm Rehydration/Equilibration Trays</b> , pkg of 25, 24 cm rehydration/equilibration trays, hold up to twelve 24 cm IPG strips, for use with the PROTEAN i12 IEF system	161-0378	<b>Precision Plus Protein™ Standard Plugs</b> , pkg of 24, 1 mm thick agarose plugs containing 10 <i>Strep</i> -tagged recombinant proteins (10–250 kD), including three reference bands
164-6040	<b>IPG Strip Retainers</b> , pkg of 2, replacement IPG strip retainers for use with all sizes of PROTEAN i12 focusing trays		
164-6020	<b>i12 Sample Cup Holder</b> , pkg of 1, 12-position sample cup holder, includes 25 disposable sample cups (#164-6021), for use with the PROTEAN i12 IEF system		



Scan this QR code to learn more about the PROTEAN i12 IEF system, or visit [www.bio-rad.com/i12IEF.com](http://www.bio-rad.com/i12IEF.com).

### ReadyStrip IPG Strips, 12 per package

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

\* NL, nonlinear gradient.

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