

SAMPLE PREPARATION

MicroRotor™ Liquid-Phase IEF Cell

Expression Proteomics // Tools for Protein Separation and Analysis

- Separates proteins into 10 liquid fractions
- Pairs with downstream IEF separations on narrow- and micro-range IPG strips
- Temperature regulation improves reproducibility and preserves protein structure and function
- Disposable chambers for easy setup

Liquid-Phase Isoelectric Focusing (IEF)

Effective, Easy Protein Fractionation by Isoelectric Point (pI)

Expression Proteomics

Bio-Rad's approach to expression proteomics focuses on three technologies: sample preparation, two-dimensional (2-D) electrophoresis, and imaging and analysis. Each technology area is ideally suited to a 2-D gel electrophoresis approach for analysis of sample proteins. By providing choices in methodology, protocols, and products, Bio-Rad's expression proteomics tools help you achieve optimal results in any 2-D experiment.

Sample Fractionation

The effective study of low-abundance proteins by 2-D PAGE often requires a prefractionation step. Sample prefractionation reduces the overall complexity of a sample and enriches low-abundance proteins relative to the original sample. Proteins that may originally have been undetectable are thus rendered amenable to analysis. Removal of high-abundance proteins prevents them from obscuring the low-abundance proteins and allows more effective 2-D separation by limiting the precipitation and smearing artifacts caused by higher protein loads.

Liquid-Phase IEF

The compact MicroRotor cell performs liquid-phase IEF to separate proteins in samples according to their pI. This unique liquid-based technology:

- Enables separation and enrichment of proteins that are immobile or insoluble in gel-based media (for example, large, hydrophobic, or membrane proteins)
- Facilitates recovery and movement of proteins into downstream separations

- Allows a continuous pH gradient to be formed, which permits accurate screening of a protein sample by pI
- May be used to separate proteins that cannot be separated by size or affinity provided their pIs differ

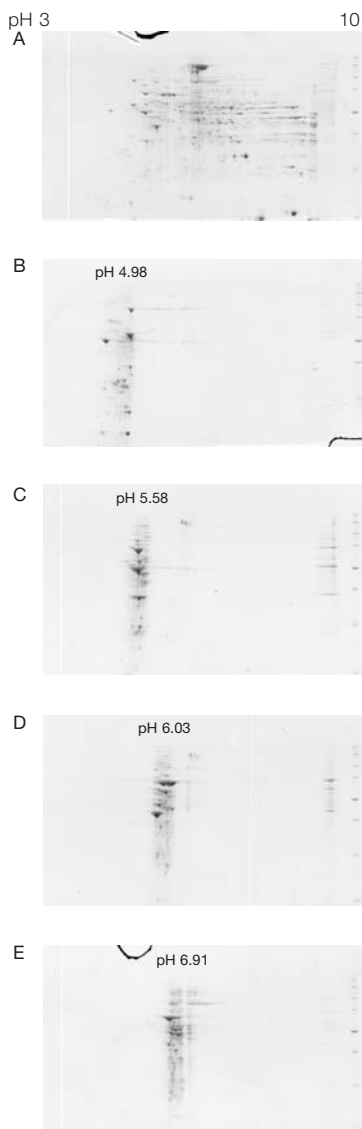
Flexibility

- A 2.5 ml sample capacity* — use smaller sample volumes, develop new protocols, or refractionate samples for even greater resolution
- Ten 200–250 µl fractions — screen all fractions or only those of interest
- Two cooling settings to maintain protein integrity and enhance reproducibility — ~20°C for downstream applications (such as IEF on IPG strips) that do not require nondenatured proteins, and ~10°C for downstream applications (such as activity and structural assays) that require nondenatured proteins
- Customizable pH gradients for enhanced resolution of proteins of interest

* Up to 1 mg of total protein, based on mouse liver extracts.



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2-D PAGE analysis of MicroRotorfor fractions. Mouse liver extract was fractionated in the MicroRotorfor cell using pH 3–10 Bio-Lyte® ampholytes. Unfractionated extract (A) and selected fractions (B–E) were then analyzed by 2-D PAGE using 11 cm pH 3–10 nonlinear ReadyStrip™ IPG strips to demonstrate the extent to which the proteins in the crude extract were separated and enriched. The pH of each fraction analyzed is indicated.

A History of Effective Protein Separation

The Rotorfor and mini Rotorfor cells have been in use in laboratories around the world for over 20 years. Hundreds of publications demonstrate their usefulness for protein fractionation and purification. For a list of selected publications and for more information about the MicroRotorfor cell and other sample preparation tools that are part of Bio-Rad's expression proteomics program, visit us on the Web at www.expressionproteomics.com

The MicroRotorfor cell is the newest addition to the Rotorfor family of products. Rotorfor cells are unique preparative protein purification devices that fractionate proteins according to their pI by liquid-phase IEF. See the specifications for a comparison of the different Rotorfor cells available from Bio-Rad.

Specifications for the Rotorfor Family of Products

	MicroRotorfor Cell	Mini Rotorfor Cell	Standard Rotorfor Cell
Number of fractions	10	20	20
Focusing chamber inner diameter	13 mm	19 mm	30 mm
Sample volume	2.3–2.5 ml	18 ml	35–60 ml
Fraction volume	200–250 µl	0.7 ml	1.75–3 ml
Sample load	Microgram to milligram	Microgram to milligram	Milligram to gram
Power conditions required	1,000 V with 1 W constant	3,000 V with 12 W constant	3,000 V with 15 W constant
Cooling	Integrated Peltier (2 temperature settings and off position)	Cooling finger (requires external recirculating water chiller); temperature flexible	Cooling finger (requires external recirculating water chiller); temperature flexible
Dimensions (W x D x H)	29.5 x 18.8 x 16 cm	16.5 x 45.7 x 22.8 cm	16.5 x 45.7 x 22.8 cm

Ordering Information

Catalog #	Description
170-2800	MicroRotorfor Cell Kit, 100/120 V
170-2801	MicroRotorfor Cell Kit, 220/240 V
170-2802	MicroRotorfor Cell System, 100/120 V, includes kit, PowerPac HV Power Supply
170-2803	MicroRotorfor Cell System, 220/240 V, includes kit, PowerPac HV Power Supply
170-2804	MicroRotorfor Starter Kit

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