# Model 491 Prep Cell
## and Mini Prep Cell


The Resolution Solution

BIO-RAD

# The Prep Cell System
## for Preparative Gel Electrophoresis

### Purification, Fractionation by Continuous-Elution Electrophoresis

The Model 491 prep cell and mini prep cell separate biomolecules quickly and efficiently by continuous-elution electrophoresis. In as little as 5 hours — using native PAGE, SDS-PAGE, or agarose gel electrophoresis — the prep cell separates and purifies proteins, nucleic acids, and other biomolecules into discrete liquid fractions for sequencing, antibody production, crystallography, and other downstream applications.

Virtually any molecule that can be resolved by gel electrophoresis can be purified on the Model 491 prep cell and mini prep cell.

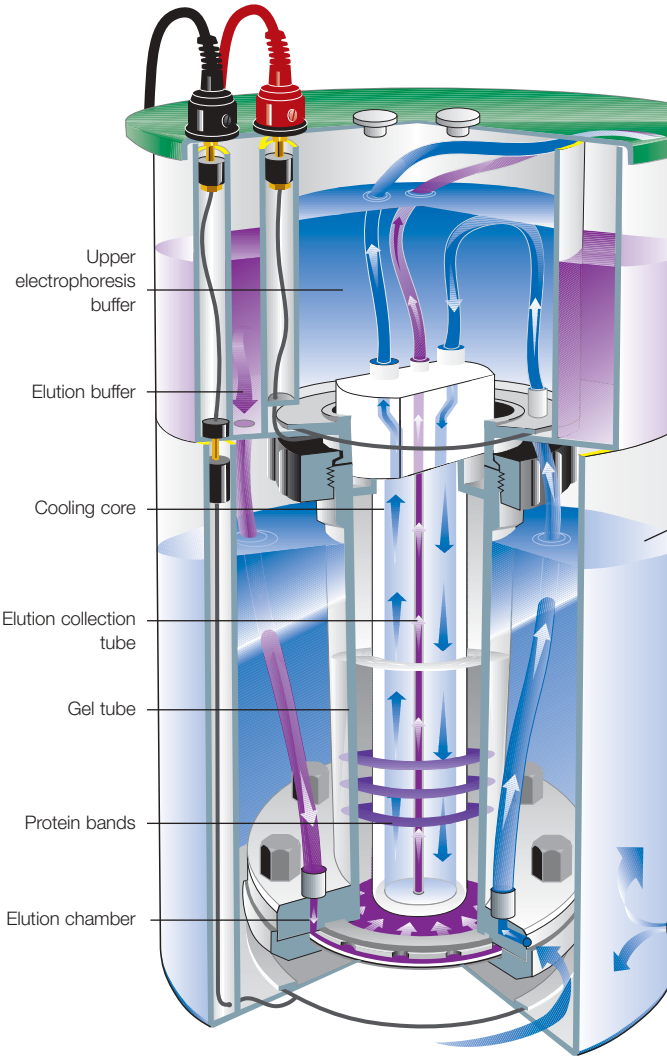
- Using SDS-PAGE, separate and purify proteins that differ in molecular mass by as little as 1,000 Da
- Using native PAGE, isolate proteins that differ in isoelectric point by as little as 0.1 pH unit
- Using agarose gel electrophoresis, purify large proteins, DNA, or RNA fragments (up to 18 kb)
- Process 1–500 mg samples with the Model 491 prep cell
- Process 0.5–1 mg samples with the mini prep cell
- Collect purified molecules automatically in individual liquid fractions
- Obtain sufficient amounts of purified protein for antibody production, sequencing, functional characterization, and a number of other downstream applications

The high sample capacity of the prep cell also makes this device a versatile tool for size-dependent prefractionation and enrichment of low-abundance proteins in proteomics applications.

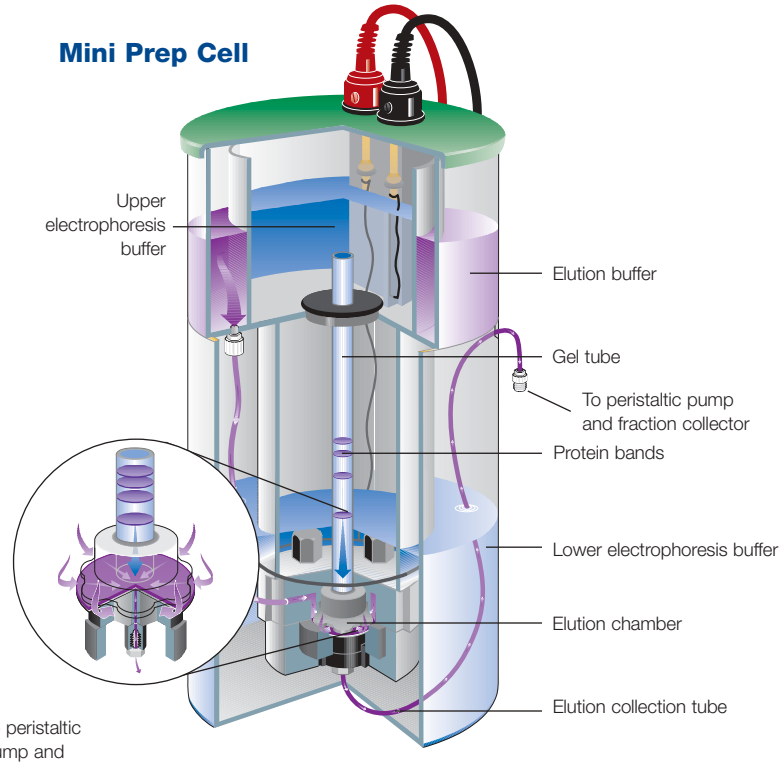
### Target Any Molecule for Purification

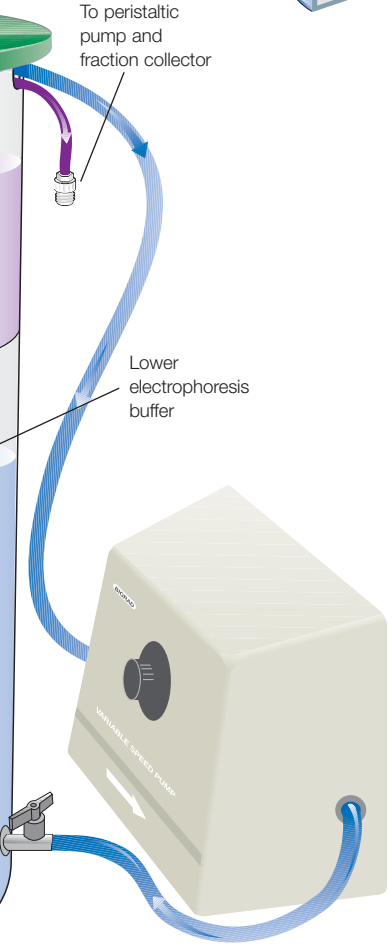
Using the Model 491 prep cell or mini prep cell, you can target any molecule in a complex mixture for purification. Simply select the optimal gel concentration for separating a given molecular weight protein from its nearest contaminants. When working with biologically active proteins, consult our comprehensive library of native electrophoresis buffers and recipes to select a system appropriate for your application. Continuous-elution electrophoresis does the rest.

**Model 491 Prep Cell**



## Mini Prep Cell




Buffer recirculation pump

### How the Prep Cell System Works

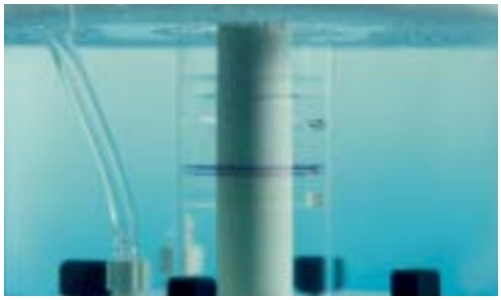
During a run, samples are electrophoresed through a cylindrical gel. As molecules migrate through the gel matrix, they separate into ring-shaped bands. Individual bands migrate off the bottom of the gel, where they pass directly into a thin frit contained within the patented* elution chamber.

Elution buffer enters the chamber around the perimeter of a gasket that is specifically designed to ensure an even flow of buffer into the elution frit. The isolated bands and elution buffer are drawn radially inward to an elution tube by a peristaltic pump, and then driven on to a fraction collector. As molecules are purified, they are collected in discrete liquid fractions and are available for assay and characterization.

*US patent 4,877,510

### What Can You Expect?

Phycocyanin contains three protein subunits of 18.5, 21, and 23 kD. The two larger proteins are naturally blue and are visible during purification on the Model 491 prep cell.



Phycocyanin subunits are visible as individual bands during separation on the Model 491 prep cell.

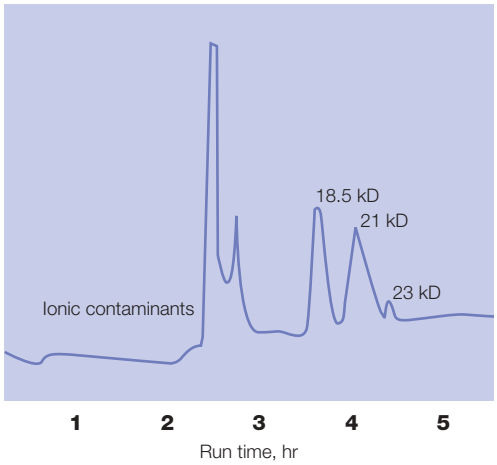
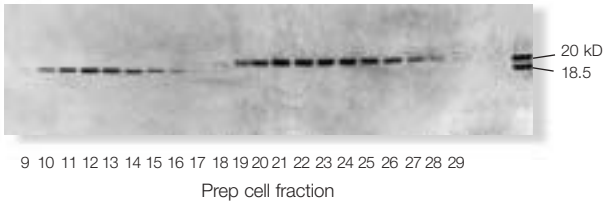



Chart recorder tracing for phycocyanin. The subunits eluted from the Model 491 prep cell over a 5 hour run.

Prep cell fractions 9–29, containing the separated 18.5 and 21 kD subunits of phycocyanin, were analyzed on silver-stained SDS-PAGE gels. Crude phycocyanin was loaded in the extreme right lane. The 18.5 kD subunit eluted in fractions 9–17 and the 21 kD subunit eluted in fractions 18–29.




Separation of phycocyanin fractions by molecular weight.


## The World's Only Preparative 2-D System

Purify any protein with the resolution of analytical 2-D PAGE using Bio-Rad's unique preparative-scale 2-D system.

**First dimension** — Bio-Rad's revolutionary Rotofor® system rapidly separates proteins of interest from the bulk proteins in a crude sample using liquid-phase isoelectric focusing (IEF).

**Second dimension** — The Model 491 prep cell or mini prep cell is used to isolate individual proteins of interest from Rotofor fractions by continuous-elution PAGE.

## Auxiliary Equipment

### Model 491 prep cell

- 1,000 V power supply (PowerPac™ 1000 or 3000)
- Peristaltic pump with flow rate 1 ml/min
- Fraction collector

### Mini prep cell

- 300 V power supply for SDS-PAGE applications (PowerPac™ Basic)
- 1,000 V power supply for native PAGE applications (PowerPac 1000 or 3000)
- Peristaltic pump with flow rate 100 µl/min
- Fraction collector

## Specifications

The size of your sample will determine which prep cell you need.

| | Model 491 Prep Cell | Mini Prep Cell |
|---|---|---|
| Sample load capacity | 1–500 mg | 0.5–1 mg |
| Sample volume | 500 µl to 15 ml | 50–500 µl |
| Dimensions (diameter x H) | 7.5 x 14" | 5 x 11" |
| Voltage limit | 500 V | 500 V |
| Current limit | 40 mA | 10 mA |
| Power limit | 20 W | 5 W |
| Elution buffer flow rate | 1 ml/min | 100 µl/min |

## Ordering Information

| Catalog # | Description |
|---|---|
| **Prep Cells** | |
| 170-2926 | Model 491 Prep Cell, 100/120 V, includes buffer recirculation pump and reagent starter kit with protein standard |
| 170-2927 | Model 491 Prep Cell, 220/240 V |
| 170-2915 | Mini Prep Cell With Reagent Starter Kit |
| 170-2908 | Mini Prep Cell Without Reagent Starter Kit |
| **Auxiliary Equipment** | |
| 165-5056 | PowerPac 3000 Power Supply, 110/120 V |
| 165-5057 | PowerPac 3000 Power Supply, 220/240 V |
| 165-5054 | PowerPac 1000 Power Supply, 110/120 V |
| 165-5055 | PowerPac 1000 Power Supply, 220/240 V |
| 164-5050 | PowerPac Basic Power Supply |
| 731-8140 | Peristaltic Pump: Model EP-1 Econo™ Pump, 100/120 V |
| 731-8141 | Peristaltic Pump: Model EP-1 Econo Pump, 220/240 V |
| 731-8122 | Model 2110 Fraction Collector, 110 V |
| 731-8120 | Model 2110 Fraction Collector, 220 V |
| 741-0002 | BioFrac™ Fraction Collector |

## Protocols and References

Detailed protocols describing published applications for the prep cell system are available in the prep cell technical folder, bulletin 1555B. To receive a free copy, contact your local Bio-Rad representative or request it online at **discover.bio-rad.com**

The ProteomeWorks system is the global alliance between Bio-Rad Laboratories, Inc. and Waters Corporation (Micromass MS Technologies), dedicated to furthering proteomics research.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*Bulletin 1964 US/EG Rev C* *02-741 0303 Sig 0303*