



The **Whole Gel Eluter**  
and Mini Whole Gel Eluter



The Elution Solution



# The Whole Gel Eluter and

## What Is the Whole Gel Eluter?

The whole gel eluter and mini whole gel eluter are unique electroelution tools that elute multiple bands of proteins or nucleic acids from intact preparative gels and deliver them into liquid fractions that may be immediately assayed. These fast, efficient devices eliminate the tedious and time-consuming steps of slicing and eluting gel sections.

## Rapid Recovery of Separated Proteins, DNA, or RNA

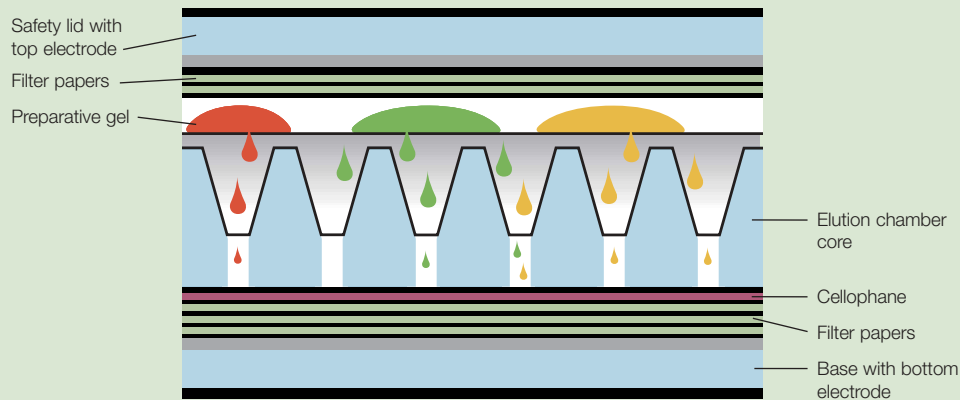
Conceptually, the whole gel eluter is like an electrophoretic blot. Resolved bands move electrophoretically across the thickness of a gel, but are transferred as bands into liquid fractions instead of onto a membrane. The entire process takes only 15–20 minutes.

The whole gel eluter rapidly extracts all proteins or nucleic acids from entire preparative gels. Individual bands or groups of closely spaced bands are collected in liquid fractions, quickly and easily, making samples ready for subsequent analysis or bioassay.



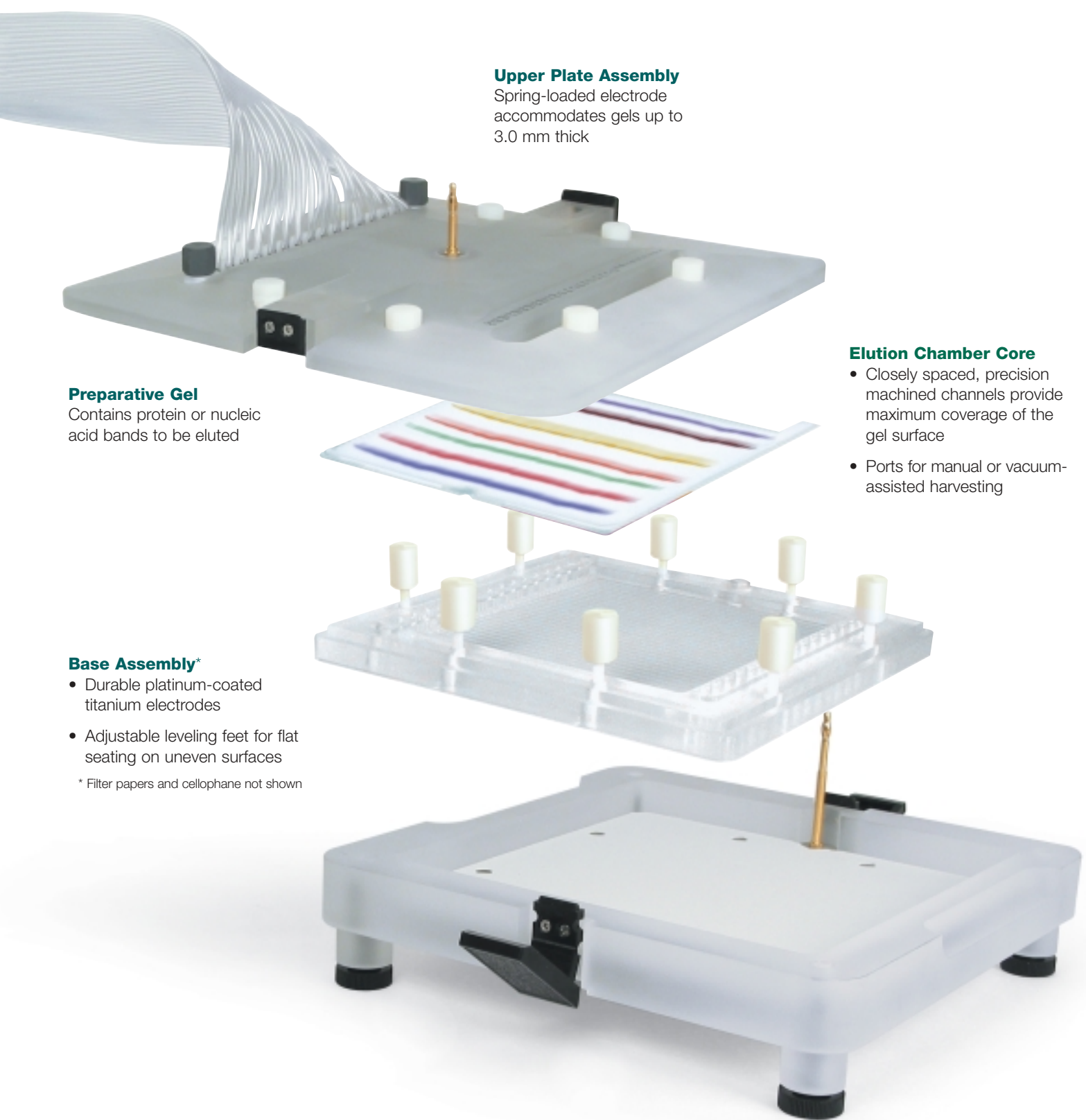
## Harvesting Box

- Vacuum adjustment valve allows controlled collection of fractions
- The whole gel eluter collects up to 30 fractions of 3 ml each
- The mini whole gel eluter collects up to 14 fractions of 0.5 ml each
- Numbered rack allows easy identification of fractions



Proteins are electrophoretically eluted from the gel into precisely spaced channels of the elution chamber core. Liquid fractions are then harvested into a harvesting box.

# Mini Whole Gel Eluter



## Upper Plate Assembly

Spring-loaded electrode accommodates gels up to 3.0 mm thick

## Preparative Gel

Contains protein or nucleic acid bands to be eluted

## Elution Chamber Core

- Closely spaced, precision machined channels provide maximum coverage of the gel surface
- Ports for manual or vacuum-assisted harvesting

## Base Assembly\*

- Durable platinum-coated titanium electrodes
- Adjustable leveling feet for flat seating on uneven surfaces

\* Filter papers and cellophane not shown



## Applications

### Screening Biomolecules

The whole gel eluter can screen complex protein mixtures in cellular assays. As demonstrated in the figures to the right, the whole gel eluter has been used for direct mapping of antigenic fractions from *Mycobacterium tuberculosis*. Fractions that held T-cell antigens were identified, and single fractions from short-term culture filtrates were then purified. For more information on use of the whole gel eluter for purification of proteins from *M. tuberculosis*, request bulletin 2043.

### Purifying Biomolecules

When a protein of interest is well resolved on a PAGE gel, it can be isolated using the whole gel eluter and made available in liquid form for antibody production, sequencing, or characterization studies. Mature RNA forms may also be separated from pre-mRNA and other cellular components with the whole gel eluter for subsequent RT-PCR, cloning, and sequencing.

The distance between bands resolved on a gel must be >5 mm for the mini whole gel eluter, or >6 mm for the whole gel eluter to ensure that a particular band will be eluted without contamination from neighboring bands.

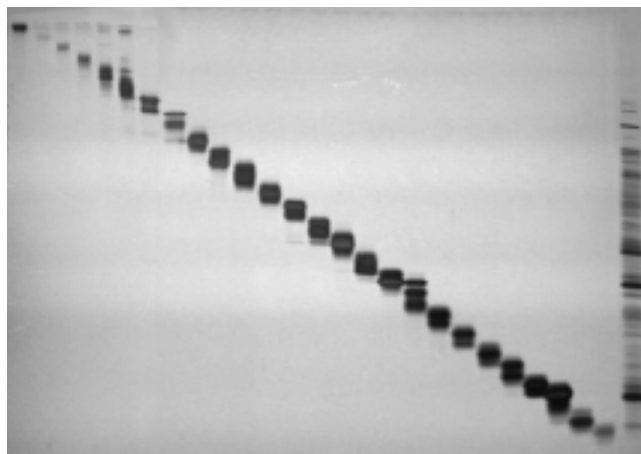
Both eluters include a ruler indicating channel distances where specific bands will elute.

### One Step in a Preparative Puzzle

Whole gel eluters are part of the expanding line of preparative electrophoresis products from Bio-Rad. They complement the Rotofor® preparative isoelectric focusing cells and the Model 491 prep cell. With the Rotofor cells, extraneous proteins in complex samples can be removed prior to screening with the whole gel eluter. Once an active protein has been identified with an eluter, it can be purified in larger quantities with a Model 491 prep cell.

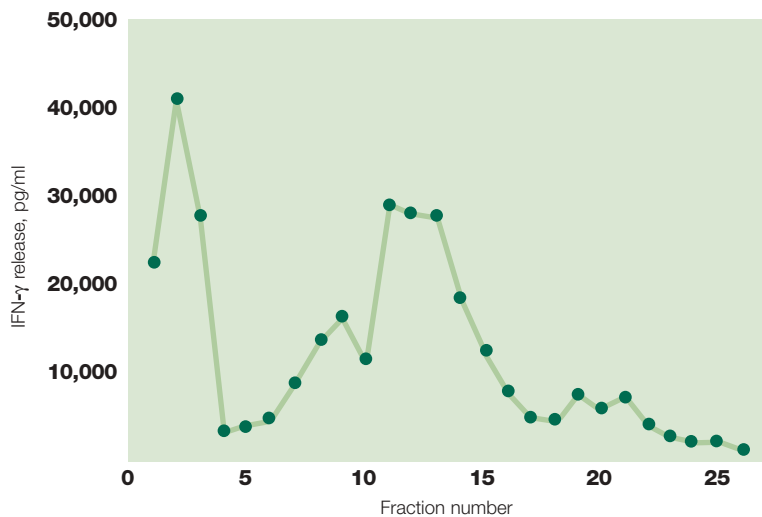
Put simply, the whole gel eluter greatly increases the power and capabilities of electrophoresis. Consider adding one to your laboratory today.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 F



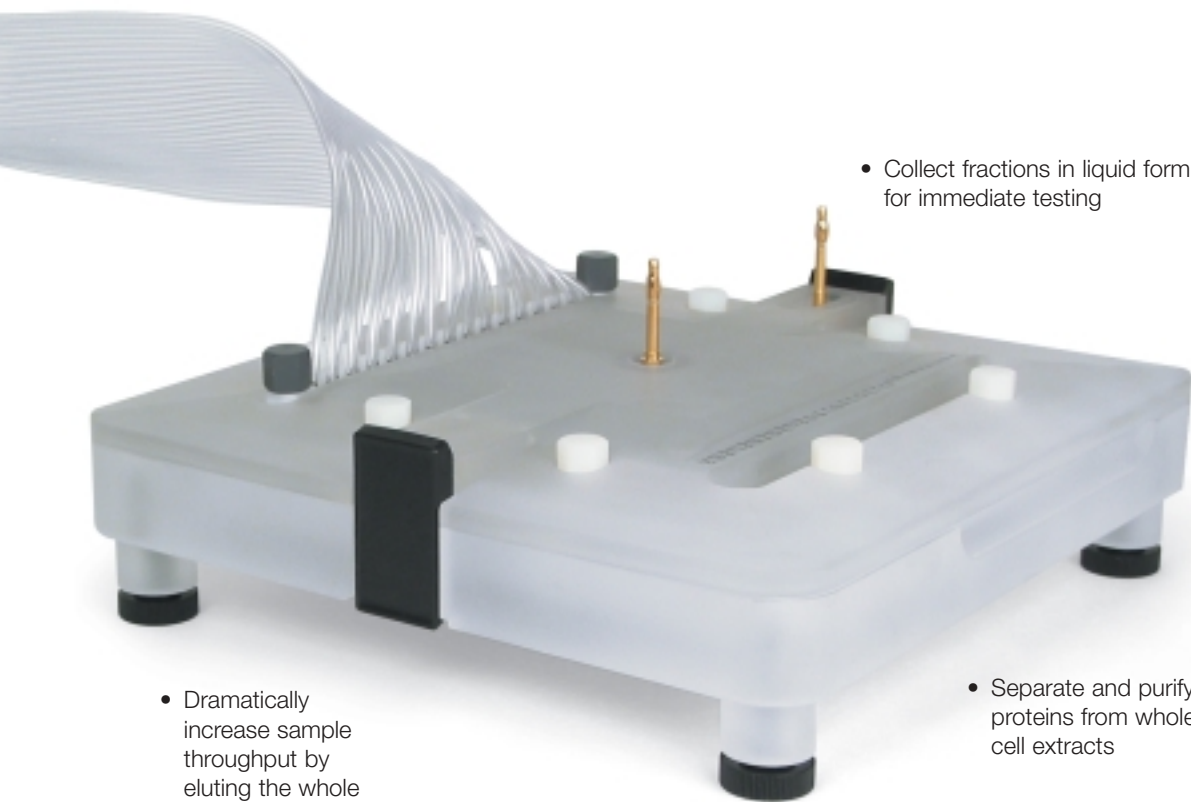
### Culture filtrates can be divided into narrow, sharply defined fractions on the whole gel eluter.

Culture filtrates (5 mg) were separated in a 10–20% SDS-PAGE gel, and the gel was electroeluted at 40 V for 20 min on the whole gel eluter. The fractions were analyzed on a 10–20% SDS-PAGE gel, and proteins were visualized by silver staining. Lane F, filtrate; lanes 1–26, fractions 1–26 off the eluter. No proteins were detected in lanes 27–30.



### Stimulation of T-cells in vitro with culture filtrate fractions.

IFN-γ release was measured from lymphocytes stimulated in vitro with a panel of culture filtrate fractions from *M. tuberculosis*. The lymphocytes were isolated from the spleens of tuberculosis-infected mice and stimulated for 48 hr with the fractions. Cytokines in the culture supernatant were measured by ELISA. All values are means of triplicates, and were obtained with cells pooled from 3–5 mice.



- Collect fractions in liquid form for immediate testing
- Elute proteins and nucleic acids from SDS and native PAGE, acid/urea, IEF acrylamide, and agarose gels
- Recover  $\geq 70\%$  of the protein in a band
- Dramatically increase sample throughput by eluting the whole gel at once
- Separate and purify proteins from whole cell extracts

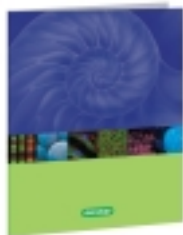
## Five Simple Steps to Preparative Elution:

1. Resolve proteins, DNA, or RNA by vertical PAGE
2. Cut gel to size
3. Place gel on whole gel eluter
4. Apply electrical field
5. Collect fractions

## Choose the Whole Gel Eluter That's Right for Your Application

	Whole Gel Eluter	Mini Whole Gel Eluter
Gel area	14 x 16 cm	6.5 x 5.5 cm
Fraction volume	30 x 3 ml	14 x 0.5 ml
Sample load	milligrams	micrograms





## Protocols and References

Detailed protocols describing published applications for the whole gel eluter system are available in the whole gel eluter technical folder, bulletin 1555C. To receive a free copy, contact your local Bio-Rad representative or request it online at [discover.bio-rad.com](http://discover.bio-rad.com)



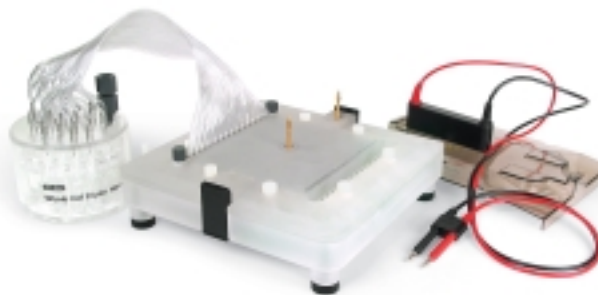
The ProteomeWorks system is the global alliance between Bio-Rad Laboratories, Inc. and Micromass-Waters, Ltd., dedicated to furthering proteomics research.

## Ordering Information

Catalog #	Description
<b>Whole Gel Eluter</b>	
165-1251	Whole Gel Eluter With Harvesting Box, includes lid, electrodes, elution chamber core, base, roller, ruler, template, 75 pieces of lower filter paper, 50 pieces of upper filter paper, 50 sealing strips, 25 pieces of cellophane, application note, instructions
165-1250	Whole Gel Eluter, includes lid, electrodes, elution chamber core, base, roller, ruler, template, 75 pieces of lower filter paper, 50 pieces of upper filter paper, 50 sealing strips, 25 pieces of cellophane, application note, instructions
<b>Mini Whole Gel Eluter</b>	
165-1256	Mini Whole Gel Eluter With Harvesting Box, includes lid, electrodes, elution chamber core, base, roller, ruler, template, 50 pieces of lower filter paper, 50 pieces of upper filter paper, 50 sealing tabs, 25 pieces of cellophane, application note, instructions
165-1255	Mini Whole Gel Eluter, includes lid, electrodes, elution chamber core, base, roller, ruler, template, 50 pieces of lower filter paper, 50 pieces of upper filter paper, 50 sealing tabs, 25 pieces of cellophane, application note, instructions

## Specifications

	Whole Gel Eluter	Mini Whole Gel Eluter
Fractions	30	14
Gel size	≥14 x 16 cm	≥6.5 x 5.5 cm
Minimum gel width	14 cm	5.5 cm
Gel thickness	0.75–3 mm	0.75–3 mm
Fraction volumes	3.0 ml	0.5 ml
Run time	15–20 min	15–20 min
Power limit	300 V/15 W	200 V/10 W
Total elution buffer	1 L	500 ml
Preparative protein load	≤10 mg	µg to low mg



The patented\* whole gel eluter system is available in 14-well (mini whole gel eluter) and 30-well (whole gel eluter) versions with optional collectors and includes consumables for up to 25 runs.

\* US patent 5,840,169; European patent 92905561.4; Japanese patent 504883/92; Canadian patent 2,130,751

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