

Model 491 Prep Cell
Bio-Rad Tech Note Summaries

Bulletin Title	#	Component Purified	Size, %T	Notes
2-D Applications				
Preparative 2-D Purifies Proteins for Sequencing or Antibody Production	1744	Plasma protein	49 kD 12%	Preparative PAGE followed first-dimension isoelectric focusing on a Rotofor [®] cell in order to obtain highly purified preparations of plasma proteins
Preparative 2-D Electrophoresis System Purifies Recombinant Nuclear Proteins From Whole Bacterial Lysates	1773	Recombinant protein	60 kD 7%	Preparative PAGE followed first-dimension isoelectric focusing on a Rotofor cell for purification of recombinant proteins from bacterial contaminants
Preparative SDS Gel Electrophoresis of Hydrophobic Cell Wall Proteins From <i>Candida albicans</i>	1953	Cell wall proteins	42 kD 10%	Preparative PAGE followed first-dimension isoelectric focusing on a Rotofor cell for purification of low-abundance, hydrophobic cell wall proteins for sequence analysis
Combination of 2-D Gel and Liquid-Phase Electrophoretic Separations as Proteomic Tools in Neuroscience	2859	Membrane and soluble proteins		A summary of techniques incorporating the Model 491 prep cell, Rotofor, and whole gel eluter for prefractionation of complex protein mixtures in proteomics applications
Enrichment of Low-Abundance Brain Proteins by Preparative Electrophoresis (reprint from Anal Biochem)	RP-0026	Cytosolic proteins	11%	The Model 491 prep cell used for size-dependent fractionation of protein samples prior to 2-D gel electrophoresis, providing effective enrichment of low-abundance proteins
Membrane Proteins				
Preparative SDS Gel Electrophoresis of Sodium/Glucose Cotransporter Fusion Protein	1685	Membrane fusion protein	54 kD 7.5%	The fusion protein was purified to homogeneity in a single step
Isolation of a FAIDS Upregulated Protein From Infected Feline Lymphoid Cell Lysates by Preparative SDS Gel Electrophoresis	1686	Membrane protein	85 kD 7%	The difference in molecular weight between this protein and its nearest contaminant was less than 2%
Purification of P-Glycoprotein From KB-A1 HeLa Cells Using Preparative LDS Gel Electrophoresis	1960	Membrane glycoprotein	170 kD 7%	Lithium dodecyl sulfate was substituted for SDS to prevent precipitation during electrophoresis at 4°C. Purified protein was used as antigen for the production of polyclonal antibodies
Continuous-Elution Electrophoresis Purification of the Alpha and Beta Subunits From (Na ⁺ , K ⁺)-ATPase	1961	Membrane protein	57 kD 97 kD 7%	Reducing denaturing gel

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Preparative Native PAGE Purification of Membrane-Bound Active Nitrate Reductase From <i>Geobacter metallireducens</i>	2028	Membrane proteins	7%	A modified Model 491 prep cell and electroelution were used to purify membrane proteins of low abundance
Isolation of Outer Membrane Proteins From <i>Haemophilus influenzae</i> by Preparative SDS and Native Gel Electrophoresis	2057	Membrane protein	16–39 kD 12–16%	Preparative electrophoresis overcame problems associated with chromatographic methods
Isolation and Preparation for Sequencing of Hydrophobic <i>Candida albicans</i> Cell Wall Proteins by In-line Transfer From Continuous Elution Preparative Gel Electrophoresis to PVDF Membranes	2168	Cell wall proteins		Native gel Low-abundance hydrophobic proteins A system is described wherein the Rotofor isoelectric focusing cell, prep cell, and Bio-Dot® apparatus are combined to screen and purify proteins for analysis by mass spectrometry
Native PAGE				
Preparative Nondenaturing Gel Electrophoresis of 4S-Limonene Synthase, a Monoterpene Cyclase From Spearmint (<i>Mentha spicata</i>)	1768	Active enzyme	56 kD 10%	Purification equivalent to several column steps
Purification of Endoglucanases From Crude Cell Culture Supernatant by Preparative Native PAGE	1830	Active enzyme	6%	Resolved endoglucanases of similar size and charge
Preparative Nondenaturing Gel Electrophoresis Used in the Purification of an Esterase Involved in Insecticide Resistance	1839	Active enzyme	64 kD 6%	Final purification step
Preparative Native PAGE Purification of Monomeric DAB ₃₈₉ -IL-2 Fusion Proteins From Bacterial Lysate	1844	Active enzyme	7%	Purification of monomeric forms of the protein that could not be isolated by other means
Preparative Nondenaturing Gel Electrophoresis to Purify NADP-Specific Glutamate Dehydrogenase From <i>Chlorella</i>	1897	Active enzyme	53 kD 7%	Large scale separation of isozymes
Detection of Platinum Species in Plant Material by Preparative Isotachophoresis	2014	Metal-binding protein	Various 5%	Native gel isotachophoresis
Preparative Native PAGE Purification of Membrane-Bound Active Nitrate Reductase From <i>Geobacter metallireducens</i>	2028	Membrane protein	7%	A modified Model 491 prep cell and electroelution were used to purify membrane proteins of low abundance
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Purification of Marine Algal Vanadate Bromoperoxidase Dodecamer by Preparative Native PAGE on a BioLogic™-Driven Mini Prep Cell	2078	Active enzyme		0.6 M urea was used in this final purification on a mini prep cell operated by the BioLogic chromatography system
Isolation and Preparation for Sequencing of Hydrophobic <i>Candida albicans</i> Cell Wall Proteins by In-Line Transfer From Continuous Elution Preparative Gel Electrophoresis to PVDF Membranes	2168	Cell wall proteins		Low-abundance hydrophobic proteins A system is described wherein the Rotofor isoelectric focusing cell, prep cell, and Bio-Dot apparatus are combined to screen and purify proteins for analysis by mass spectrometry
Purification and Characterization of beta-Lactoglobulin Genetic Variants A and B Using Preparative Elution Electrophoresis and Isoelectric Focusing	2262	Active enzyme	36 kD 15%	Two isoforms varying in pI by 0.3 pH unit were separated into two distinct peaks
Other Applications				
Use of Preparative SDS Gel Electrophoresis Followed by 2-D PAGE for the Purification of a 30 kD Phosphoprotein Involved in the Control of Steroid Hormone Biosynthesis	1775	Phosphoprotein	30 kD 10%	Prep cell was used to enrich for a 30 kD low-abundance protein so that it could be visualized in 2-D gels
A Rapid Method for the Purification of Analytical Grade Proteins From Plants Using Preparative SDS-PAGE and Preparative IEF	1776	Immunoglobulin heavy chain binding protein	79 kD 7.5%	A rapid technique for purification of protein suitable for both sequence analysis and antibody production. The Rotofor cell was used as a second step in purification
Detection of Platinum Species in Plant Material by Preparative Isotachopheresis	2014	Metal-binding protein	Various 5%	Native gel isotachopheresis
Preparative SDS-PAGE Electrophoresis of a Recombinant Epstein-Barr Virus Encoded Protein and Its Application in Serodiagnostic Test Systems	2024	Fusion protein	49 kD 12%	An insoluble inclusion body fusion protein was purified to homogeneity in a single step
Isolation of Low Molecular Weight Digestion Products of the Human Platelet Thromboxane A ₂ Receptor by Tricine Continuous Elution Preparative Gel Electrophoresis	2344	Digested proteins	35-17 kD 16.5%	Tricine denaturing gels Mini prep cell modified with 100 Da dialysis membrane was used for separation of very low molecular weight proteins for microsequencing
Continuous-Elution Electrophoresis for Purification of the Baculovirus-Expressed Coronavirus Structural Proteins, Rev A	2428	Viral structural proteins	100-150 kD 6% and 10%	Purification of virus-specific proteins from cellular components for immunization studies, monoclonal antibody production, and vaccine preparation
Separation of Bacterial Capsular and Lipopolysaccharides by Preparative Electrophoresis (reprint from Glycobiology)	RP-0001	Lipopolysaccharides	Various	Crude polysaccharide extracts, up to 100 mg, were electrophoresed on the Model 491 prep cell in two stages. Extracellular, capsular, and lipopolysaccharides were separated and purified

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Nucleic Acids				
Purification of DNA Fragments From 2 kb to 18 kb	2203	DNA fragments	7.5 kb 0/5%	Continuous-elution electrophoresis provided an easy and cost-effective means of isolating preparative amounts of genomic DNA fragments
Preparative-Scale Purification of DNA Restriction Fragments by Continuous-Flow Gel Electrophoresis (reprint from Biotechniques)	RP-0002	DNA restriction fragments	923, 171, 3908 bp 4%	Individual DNA fragment lengths were purified on a large scale
Preparative-Scale Purification of RNA Using an Efficient Method Which Combines Gel Electrophoresis and Column Chromatography (reprint from Nucleic Acids Res)	RP-0003	RNA	34-mer 20%	Resolution from n-1, n-2, n+1, and n+2 contaminants





**Bio-Rad
Laboratories, Inc.**

*Life Science
Group*

Web site www.bio-rad.com **USA** (800) 4BIORAD **Australia** 02 9914 2800 **Austria** (01)-877 89 01 **Belgium** 09-385 55 11 **Brazil** 55 21 2527 3454
Canada (905) 712-2771 **China** (86-21) 63052255 **Czech Republic** + 420 2 41 43 05 32 **Denmark** 44 52 10 00 **Finland** 09 804 22 00
France 01 47 95 69 65 **Germany** 089 318 84-0 **Hong Kong** 852-2789-3300 **Hungary** 36 1 455 8800 **India** (91-124)-6398112/113/114, 6450092/93
Israel 03 951 4127 **Italy** 39 02 216091 **Japan** 03-5811-6270 **Korea** 82-2-3473-4460 **Latin America** 305-894-5950 **Mexico** 55-52-00-05-20
The Netherlands 0318-540666 **New Zealand** 64 9 415 2280 **Norway** 23 38 41 30 **Poland** + 48 22 331 99 99 **Portugal** 351-21-472-7700
Russia 7 095 721 1404 **Singapore** 65-6415 3188 **South Africa** 00 27 11 4428508 **Spain** 34 91 590 5200 **Sweden** 08 555 12700
Switzerland 061 717-9555 **Taiwan** (8862) 2578-7189/2578-7241 **United Kingdom** 020 8328 2000