

Protein and Peptide Purification Applications

Bio-Rad has numerous chromatographic products for the purification, characterization, and manipulation of proteins and peptides. Ion exchange, size exclusion, affinity, hydrophobic interaction, and hydroxyapatite supports are available in a number of different formats for any isolation and purification need. A number of published references utilizing Bio-Rad chromatography supports for the purification of proteins and peptides are described below.

Sample Preparation and Enzyme Assay Applications

| Application | Product | References |
|---|--------------------|---|
| Acetylglutamate from glutamate separation | AG 50W-X8 resin | Alonso E and Rubio V, Determination of N-acetyl-L-glutamate using high-performance liquid chromatography, <i>Anal Biochem</i> 146, 252–259 (1985) |
| Adenylate cyclase activity analysis | Bio-Gel® A-5m gel | Andreasen TJ et al., Photoaffinity labeling of brain adenylate cyclase preparations with azido[¹²⁵ I]iodocalmodulin, <i>Biochemistry</i> 22, 2757–2762 (1983) |
| Adenylate cyclase assay | AG 50W-X4 resin | Marcus R and Orner FB, Cyclic AMP production in rat calvaria in vitro: interaction prostaglandins with parathyroid hormone, <i>Endocrinology</i> 101, 1570–1578 (1977) Salomon Y et al., A highly sensitive adenylate cyclase assay, <i>Anal Biochem</i> 58, 541–548 (1974) |
| 3',5'-Cyclic AMP preparation | AG® 50W-X4 resin | Grant PG et al., Three new potential cAMP affinity labels. Inactivation of human platelet low K_m cAMP phosphodiesterase by 8-[[4-bromo-2,3-dioxobutyl]thio]adenosine 3',5'-cyclic monophosphate, <i>Biochemistry</i> 29, 887–894 (1990) |
| Cyclic AMP from cGMP phosphodiesterase separation | AG MP-1 resin | Hsu DS and Chen SS, Simultaneous assay of cyclic AMP and cyclic GMP phosphodiesterase activity by anion-exchange column chromatography, <i>J Chromatogr</i> 245, 369–372 (1982) |
| Cyclic AMP from cGMP separation | AG 1-X8 resin | Fallon AM and Wyatt GR, An improved assay for cyclic GMP using an insect binding protein, <i>Anal Biochem</i> 63, 614–619 (1975) Kuehl FA Jr et al., Estrogen-related increases in uterine guanosine 3':5'-cyclic monophosphate levels, <i>Proc Natl Acad Sci USA</i> 71, 1866–1870 (1974) |
| Cyclic AMP separation | AG 50W-X4 resin | Coleman DL et al., Recombinant granulocyte-macrophage colony-stimulating factor increases adenylate cyclase activity in murine peritoneal macrophages, <i>J Immunol</i> 143, 4134–4140 (1989) |
| Diaminopimelate from lysine separation | AG 50W-X8 resin | Kelland JG et al., Stereochemistry of lysine formation by meso-diaminopimelate decarboxylase from wheat germ: use of ¹ H- ¹³ C NMR shift correlation to detect stereospecific deuterium labeling, <i>Biochemistry</i> 24, 3263–3267 (1985) |
| Enzyme activity measurement | Bio-Gel A-1.5m gel | Bazzi MD and Nelsestuen GL, Differences in the effects of phorbol esters and diacylglycerols on protein kinase C, <i>Biochemistry</i> 28, 9317–9323 (1989) |
| Enzyme binding-efficiency studies | Affi-Gel® 102 gel | Bowers-Komro DM et al., Substrate specificity and variables affecting efficiency of mammalian flavin adenine dinucleotide synthetase, <i>Biochemistry</i> 28, 8439–8446 (1989) |
| GABA aminotransferase assay | AG 50W-X8 resin | Silverman RB and George C, Inactivation of γ -aminobutyric acid aminotransferase by (Z)-4-amino-2-fluorobut-2-enoic acid, <i>Biochemistry</i> 27, 3285–3289 (1988) |
| GlcNAc transferase assay | AG 1-X8 resin | Brockhausen I et al., Mucin synthesis: UDP-GlcNAc:GalNAc-R β 3-N-acetylglucosaminyl transferase and UDP-GlcNAc:GlcNAc β 1-3GalNAc-R (GlcNAc to GalNAc) β 6-N-acetylglucosaminyltransferase from pig and rat colon mucosa, <i>Biochemistry</i> 24, 1866–1874 (1985) |
| Glutamine synthetase assay | AG 1-X8 resin | Pishak MR and Phillips AT, A modified radioisotopic assay for measuring glutamine synthetase activity in tissue extracts, <i>Anal Biochem</i> 94, 82–88 (1979) |
| HMG-CoA reductase assay | AG 1-X8 resin | Edwards PA et al., Improved methods for the solubilization and assay of hepatic 3-hydroxy-3-methylglutaryl coenzyme A reductase, <i>J Lipid Res</i> 20, 40–46 (1979) |
| Inositol phosphate determination | AG 1-X8 resin | McCoy KL et al., Diminished antigen processing by endosomal acidification mutant antigen-presenting cells, <i>J Immunol</i> 143, 29–38 (1989) |

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| Inositol phosphate fractionation | AG 1-X8 resin | Ting AE and Pagano RE, Detection of a phosphatidylinositol-specific phospholipase C at the surface of Swiss 3T3 cells and its potential role in the regulation of cell growth, <i>J Biol Chem</i> 265, 5337–5340 (1990) |
| Inositol phosphate isolation | AG 1-X8 resin | Grier CE 3rd and Mastro AM, Lectin-induced phosphatidylinositol metabolism in lymphocytes is potentiated by macrophages, <i>J Immunol</i> 141, 2585–2592 (1988) Heathers GP et al., Anion exchange chromatographic separation of inositol phosphates and their quantification by gas chromatography, <i>Anal Biochem</i> 176, 109–116 (1989) Trenn G et al., Biochemical characterization of the inhibitory effect of CsA on cytolytic T lymphocyte effector functions, <i>J Immunol</i> 142, 3796–3802 (1989) |
| Inositol phosphate measurement | AG 1-X8 resin | Leibson PJ et al., Transmembrane signaling during natural killer cell-mediated cytotoxicity: regulation by protein kinase C activation, <i>J Immunol</i> 145, 1498–1504 (1990) |
| Inositol phosphate purification | AG 1-X2 resin | Stohl W et al., Differential CD3/T cell antigen receptor-mediated IL-2 production in jurkat T cells: dissociation of IL-2 response from total inositol phosphate and calcium responses, <i>J Immunol</i> 145, 1078–1087 (1990) |
| Inositol phosphate quantitation | AG 1-X8 resin | Le Gouvello S et al., CD2 triggering stimulates a phospholipase A2 activity beside the phospholipase C pathway in human T lymphocytes, <i>J Immunol</i> 144, 2359–2364 (1990) |
| Inositol triphosphate separation | AG 1-X8 resin | Murayama T et al., Histamine-stimulated and GTP-binding proteins-mediated phospholipase A2 activation in rabbit platelets, <i>J Biol Chem</i> 265, 4290–4295 (1990) |
| Lipoprotein lipase isolation | Bio-Gel A-5m gel | Shirai K et al., Interaction of lipoprotein lipase with phospholipid vesicles: role of apolipoprotein C-II and heparin, <i>Biochim Biophys Acta</i> 665, 504–510 (1981) |
| Methionine synthetase assay | AG 1-X8 resin | Sauer HJ and Jaenicke L, [Simple method for the assay of methionine synthetase (MS-) activity and its possible use in clinical laboratory], <i>Klin Wochenschr</i> 50, 986–990 (1972) (in German) |
| Na ⁺ , K ⁺ ATPase assay | AG 50W-X8 resin | McGill DL, Characterization of the adipocyte ghost (Na ⁺ ,K ⁺) pump: insights into the insulin regulation of the adipocyte (Na ⁺ ,K ⁺ pump, <i>J Biol Chem</i> 266, 15817–15823 (1991) |
| Phospholipase c assay | AG 1-X8 resin | Ladoux A and Frelin C, Endothelins inhibit adenylate cyclase in brain capillary endothelial cells, <i>Biochem Biophys Res Commun</i> 180, 169–173 (1991) |
| Saxitoxin (neurotoxin) assay | AG 50W-X2 resin | Li Y and Moczydlowski E, Purification and partial sequencing of saxiphilin, a saxitoxin-binding protein from the bullfrog, reveals homology to transferrin, <i>J Biol Chem</i> 266, 15481–15487 (1991) |

Protein Analysis Applications

| Application | Product | References |
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| 5-Methyl-L-tetrahydrofolate reductase purification | Affi-Gel Blue gel | Kattchee PA and Guynn RW, Enzymatic assay of 5-methyl-L-tetrahydrofolate, <i>Anal Biochem</i> 118, 85–90 (1981) |
| Acetylcholine receptor purification | Affi-Gel 10 gel | Andre C et al., Purification of muscarinic acetylcholine receptors by affinity chromatography, <i>EMBO J</i> 2, 499–504 (1983) |
| Adenylate cyclase purification | Affi-Gel Blue gel | Westcott KR et al., Resolution of adenylate cyclase sensitive and insensitive to Ca ²⁺ and calcium-dependent regulatory protein (CDR) by CDR-sepharose affinity chromatography, <i>Proc Natl Acad Sci USA</i> 76, 204–208 (1979) |
| Adenylyl cyclase purification (mammalian) | Bio-Gel A-5m gel | Orlando C et al., A monoclonal antibody directed against the catalytic site of <i>Bacillus anthracis</i> adenylyl cyclase identifies a novel mammalian brain catalytic subunit, <i>Biochemistry</i> 31, 3215–3222 (1992) |
| Albumin isolation | CM Affi-Gel Blue gel | Poduslo JF and Curran GL, Increased permeability across the blood-nerve barrier of albumin glycosylated in vitro and in vivo from patients with diabetic polyneuropathy, <i>Proc Natl Acad Sci USA</i> 89, 2218–2222 (1992) |
| Alcohol dehydrogenase purification (yeast) | Affi-Gel Blue gel | Weinhold EG et al., Structural determinants of stereospecificity in yeast alcohol dehydrogenase, <i>Proc Natl Acad Sci USA</i> 88, 8420–8424 (1991) |
| Alkaline phosphatase purification | DEAE Bio-Gel A gel | Hamilton TA et al., Alkaline phosphates from human milk: comparison with isoenzymes from placenta and liver, <i>Biochem J</i> 177, 197–201 (1979) |
| α-chymotrypsin purification | Affi-Gel 10 gel | Wilkinson TJ et al., Affinity chromatographic separations of chemically modified α-chymotrypsins from α-chymotrypsin, <i>Sep Sci</i> 11, 385–389 (1976) |
| α fetoprotein purification | Affi-Gel Blue gel | Miyazaki M et al., A simple method for purification of rat α-fetoprotein by Affi-Gel Blue chromatography and disc electrophoresis, <i>Acta Med Okayama</i> 35, 427–430 (1981) |
| α-MSH, ACTH, β-endorphin separation | Bio-Gel P-60 gel | Tanaka I et al., γ-Melanotrophin-like immunoreactivities in human pituitaries, ACTH-producing pituitary adenomas, and ectopic ACTH-producing tumours: evidence for an abnormality in glycosylation in ectopic ACTH-producing tumours, <i>Clin Endocrinol</i> 15, 353–361 (1981) |
| Alzheimer's-related protein | Affi-Gel 10 gel | Vincent IJ and Davies P, A protein kinase associated with paired helical filaments in Alzheimer disease, <i>Proc Natl Acad Sci USA</i> 89, 2878 (1992) |
| Amino terminal ligand coupling | CM Bio-Gel A gel | Khalifah RG et al., Carbon-13 nuclear magnetic resonance probe of active-site ionizations in human carbonic anhydrase B, <i>Biochemistry</i> 16, 2241–2247 (1977) |
| Anti-G protein antibody isolation | Affi-Gel 10/15 gel | Murakami T et al., Site-specific antibodies directed against G protein β and γ subunits: effects on α and β γ subunit interaction, <i>Biochemistry</i> 31, 2905–2911 (1992) |
| Anti-Klenow antibodies | Macro-Prep® 50 S resin | Dunn L et al., Characterization of synthetic macroporous ion-exchange resins in low-pressure cartridges and columns: evaluation of the performance of Macro-Prep 50 S resin in the purification of anti-Klenow antibodies from goat serum, <i>J Chromatogr</i> 548, 165–178 (1991) |
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| Apocytochrome b562 (<i>E. coli</i>) | Bio-Gel P-30 gel | Feng YQ and Sligar SG, Effect of heme binding on the structure and stability of <i>Escherichia coli</i> apocytochrome b562, <i>Biochemistry</i> 30, 10150–10155 (1991) |
| Apolipoprotein purification | Affi-Gel 10 gel | Davis RA and Boogaerts JR, Intrahepatic assembly of very low density lipoproteins: effect of fatty acids on triacylglycerol and apolipoprotein synthesis, <i>J Biol Chem</i> 257, 10908–10913 (1982) |
| ATP:AMP phosphotransferase purification | Affi-Gel Blue gel | Tomasselli AG and Noda LH, Mitochondrial ATP:AMP phosphotransferase from beef heart: purification and properties, <i>Eur J Biochem</i> 103, 481–491 (1980) |
| ATP-independent catenating enzyme purification | Bio-Gel HTP gel | Chakraborty AK and Majumder HK, An ATP-independent catenating enzyme from the kinetoplast hemoflagellate <i>Leishmania donovani</i> , <i>Biochem Biophys Res Commun</i> 180, 279–285 (1991) |
| Bactericidal protein purification | Bio-Rex® 70 resin | Wasiluk KR et al., Comparison of granule proteins from human polymorphonuclear leukocytes which are bactericidal toward <i>Pseudomonas aeruginosa</i> , <i>Infect Immun</i> 59, 4193–4200 (1991) |
| β-endorphin separation | Bio-Gel P-60 gel | Rückert RI et al., Some methodic aspects in optimizing the radioimmunoassay of β-endorphin, <i>Exp Clin Endocrinol</i> 87, 277–287 (1986) |
| Ca ²⁺ + Mg ²⁺ -ATPase purification | Affi-Gel Blue gel | Gutierrez-Merino C et al., Interaction of the local anesthetics dibucaine and tetracaine with sarcoplasmic reticulum membranes: differential scanning calorimetry and fluorescence studies, <i>Biochemistry</i> 28, 3398–3406 (1989) |
| Ca/Cam-sensitive PDE assay | AG 1-X2 resin | Ahn HS et al., Evidence for essential histidine and cysteine residues in calcium/calmodulin-sensitive cyclic nucleotide phosphodiesterase, <i>Biochemistry</i> 30, 6754–6760 (1991) |
| Calcineurin assay | AG 50W-X4 resin | Swanson SK et al., Cyclosporin-mediated inhibition of bovine calcineurin by cyclophilins A and B, <i>Proc Natl Acad Sci USA</i> 89, 3741–3745 (1992) |

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| Calmodulin binding protein purification | Affi-Gel 10 gel | Wallace RW et al., High levels of a heat-labile calmodulin-binding protein (CaM-BP80) in bovine neostriatum, <i>Biochemistry</i> 19, 1831–1837 (1980) |
| | Bio-Gel A-1.5m gel | Andreasen TJ et al., Purification of a novel calmodulin binding protein from bovine cerebral cortex membranes, <i>Biochemistry</i> 22, 4615–4618 (1983) |
| Calmodulin purification | Affi-Gel 10 gel | Caldwell CR and Haug A, Affinity chromatographic isolation of calmodulin from bovine-brain acetone powder, <i>Anal Biochem</i> 116, 325–330 (1981) |
| Capsid virus concentration | Hydroxyapatite | Smith RG and Lee SA, Large-scale isolation and partial purification of type C RNA viruses on hydroxyapatite: 1. biochemical characterization, <i>Anal Biochem</i> 86, 252–263 (1978) |
| Carbohydrate antigen characterization | Bio-Gel P-2 gel | Hanisch FG et al., Structure of tumor-associated carbohydrate antigen Ca 19-9 on human seminal-plasma glycoproteins from healthy donors, <i>Eur J Biochem</i> 144, 467–473 (1984) |
| Carbonic anhydrase purification | CM Bio-Gel A gel | Khalifah RG et al., Carbon-13 nuclear magnetic resonance probe of active-site ionizations in human carbonic anhydrase B, <i>Biochemistry</i> 16, 2241–2247 (1977) |
| Cardiotoxin purification | Bio-Gel P-10 gel | Kini RM and Evans HJ, Role of cationic residues in cytolytic activity: modification of lysine residues in the cardiotoxin from <i>Naja nigricollis</i> venom and correlation between cytolytic and antiplatelet activity, <i>Biochemistry</i> 28, 9209–9215 (1989) |
| Casein kinase I purification | Affi-Gel Blue gel | Chaudhry PS et al., Casein kinase I in bovine sperm: purification and characterization, <i>Biochem Biophys Res Commun</i> 179, 592–598 (1991) |
| CD45 protein tyrosine phosphatase purification | Affi-Gel Blue gel | Cho H et al., Catalytic domains of the LAR and CD45 protein tyrosine phosphatases from <i>Escherichia coli</i> expression systems: purification and characterization for specificity and mechanism, <i>Biochemistry</i> 31, 133–138 (1992) |
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| cGMP phosphodiesterase assay | AG 1-X2 resin | Lem J et al., Retinal degeneration is rescued in transgenic <i>rd</i> mice by expression of the cGMP phosphodiesterase β subunit, <i>Proc Natl Acad Sci USA</i> 89, 4422–4426 (1992) |
| Chaperonin-60 (GroEL) purification | Affi-Gel Blue gel | Fisher MT, Promotion of the in vitro renaturation of dodecameric glutamine synthetase from <i>Escherichia coli</i> in the presence of GroEL (chaperonin-60) and ATP, <i>Biochemistry</i> 31, 3955–3963 (1992) |
| Choline acetyltransferase purification | DEAE Bio-Gel A gel | Slemmon JR et al., Purification of choline acetyltransferase from <i>Drosophila melanogaster</i> , <i>J Biol Chem</i> 257, 3847–3852 (1982) |
| Chromosomal protein fractionation | Hydroxyapatite | Simon RH and Felsenfeld G, A new procedure for purifying histone pairs H2A + H2B and H3 + H4 from chromatin using hydroxylapatite, <i>Nucleic Acids Res</i> 6, 689–696 (1979) |
| Chymotrypsin affinity column | Affi-Gel 10 gel | Hurle MR et al., Denaturant-dependent folding of bovine pancreatic trypsin inhibitor mutants with two intact disulfide bonds, <i>Biochemistry</i> 29, 4410–4419 (1990) |
| CNBr fragment separation | Bio-Gel A-1.5m gel | Osmand AP et al., Partial amino-acid sequences of human and rabbit C-reactive proteins: homology with immunoglobulins and histocompatibility antigens, <i>Proc Natl Acad Sci USA</i> 74, 1214–1218 (1977) |
| Complement component C3 isolation | Bio-Gel A-0.5m gel; hydroxyapatite | Horstmann RD and Muller-Eberhard HJ, Isolation of rabbit C3, Factor B, and Factor H and comparison of their properties with those of the human analog, <i>J Immunol</i> 134, 1094–1100 (1985) |
| Core histone isolation | Hydroxyapatite | Prevelige PE Jr and Fasman GD, Structural studies of acetylated and control inner core histones, <i>Biochemistry</i> 26, 2944–2955 (1987) |
| Creatine kinase isoenzyme separation (batch) | AG MP-1 resin | Morin LG, Improved separation of creatine kinase cardiac isoenzyme in serum by batch fractionation, <i>Clin Chem</i> 22, 92–97 (1976) |
| Cyclic AMP receptor protein purification | Bio-Rex 70 resin | Heyduk T and Lee JC, <i>Escherichia coli</i> cAMP receptor protein: evidence for three protein conformational states with different promoter binding affinities, <i>Biochemistry</i> 28, 6914–6924 (1989) |
| Cyclic nucleotide phosphodiesterase purification | Affi-Gel Blue gel | Sharma RK et al., Purification and properties of bovine brain calmodulin-dependent cyclic nucleotide phosphodiesterase, <i>J Biol Chem</i> 255, 5916–5923 (1980) |
| Cystamine affinity column | Affi-Gel 10 gel | Li L et al., Functional role of the cysteine 451 thiol group in the M4 helix of the α subunit of <i>Torpedo californica</i> acetylcholine receptor, <i>Biochemistry</i> 29, 5428–5436 (1990) |
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| Cytochrome c derivative purification | Bio-Rex 70 resin | Durham B et al., Photoinduced electron-transfer kinetics of singly labeled ruthenium bis(bipyridine) dicarboxybipyridine cytochrome c derivatives, <i>Biochemistry</i> 28, 8659–8665 (1989) |
| Cytochrome c peroxidase purification | Bio-Gel HTP gel | Corin AF et al., Effects of surface amino acid replacements in cytochrome c peroxidase on complex formation with cytochrome c, <i>Biochemistry</i> 30, 11585–11595 (1991) |

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| Diadenosine tetraphosphate binding protein purification | DEAE Bio-Gel A gel | Vishwanatha JK and Lei Z, Diadenosine tetraphosphate binding protein from human HeLa cells: purification and characterization, Biochemistry 31, 1631–1635 (1992) |
| DNA-dependent adenosine-triphosphatase A purification | Affi-Gel Hz gel | Mesner LD et al., DNA-dependent adenosinetriphosphatase A is the eukaryotic analogue of the bacteriophage T4 gene 44 protein: immunological identity of DNA replication-associated ATPases, Biochemistry 30, 11490–11494 (1991) |
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| <i>E. coli</i> growth inhibitor immobilization | Affi-Gel 10 gel | LaPorte DC et al., Inhibition of <i>Escherichia coli</i> growth and respiration by polymyxin B covalently attached to agarose beads, Biochemistry 16, 1642–1648 (1977) |
| <i>E. coli</i> rep protein purification | Bio-Rex 70 resin | Scott JF and Kornberg A, Purification of the rep protein of <i>Escherichia coli</i> : an ATPase which separates duplex DNA strands in advance of replication, J Biol Chem 253, 3292–3297 (1978) |
| <i>E. coli</i> transcriptional factor purification | Hydroxyapatite | Liberek K et al., The DnaK chaperone modulates the heat shock response of <i>Escherichia coli</i> by binding to the sigma 32 transcription factor, Proc Natl Acad Sci USA 89, 3516–3520 (1992) |
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| Epidermal growth factor purification | Bio-Rex 70 resin | Savage CR Jr and Harper R, Human epidermal growth factor/urogastrone: rapid purification procedure and partial characterization, Anal Biochem 111, 195–202 (1981) |
| | Bio-Gel P-10 gel | Kohda D and Inagaki F, Structure of epidermal growth factor bound to perdeuterated dodecylphosphocholine micelles determined by two-dimensional NMR and simulated annealing calculations, Biochemistry 31, 677–685 (1992) |
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| Erythrocyte reductase purification | Bio-Gel P-100 gel | Xu F et al., Characterization of NADPH-dependent methemoglobin reductase as a heme-binding protein present in erythrocytes and liver, Proc Natl Acad Sci USA 89, 2130–2134 (1992) |
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| Exonuclease purification | Bio-Rex 70 resin; hydroxyapatite | Perrino FW and Loeb LA, Hydrolysis of 3'-terminal mispairs in vitro by the 3'→5' exonuclease of DNA polymerase δ permits subsequent extension by DNA polymerase α , Biochemistry 29, 5226–5231 (1990) |
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| Factor XI (recombinant) purification | Affi-Prep® 10 support | Hamaguchi N et al., Expression and characterization of human factor IX: factor IX _{thr-397} and factor IX _{val-397} , J Biol Chem 266, 15213–15220 (1991) |

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| Fetuin fractionation | Bio-Gel A-5m gel | Kumbala L et al., Association of a lipoprotein-like particle with bovine fetuin, <i>FASEB J</i> 3, 2075–2080 (1989) |
| Fibronectin purification | Affi-Gel 10 gel | Coller BS, Interaction of normal, thrombasthenic, and Bernard-Soulier platelets with immobilized fibrinogen: defective platelet-fibrinogen interaction in thrombasthenia, <i>Blood</i> 55, 169–178 (1980) |
| FixL <i>Rhizobium</i> nitrogen fixation protein purification | Bio-Gel HT gel | Monson EK et al., The FixL protein of <i>Rhizobium melliloti</i> can be separated into a heme-binding oxygen-sensing domain and a functional C-terminal kinase domain, <i>Proc Natl Acad Sci USA</i> 89, 4280–4284 (1992) |
| Formyltetrahydrofolate synthetase from spinach leaves | Bio-Gel HTP gel | Nour JM and Rabinowitz JC, Isolation, characterization, and structural organization of 10-formyl-tetrahydrofolate synthetase from spinach leaves, <i>J Biol Chem</i> 266, 18363–18369 (1991) |
| Fusion protein affinity column | Affi-Gel 15 gel | Kovary K and Bravo R, The jun and fos protein families are both required for cell cycle progression in fibroblasts, <i>Mol Cell Biol</i> 11, 4466–4472 (1991) |
| | Affi-Gel 15 gel | Kuhn R et al., The gene encoding the transcription factor SCIP has features of an expressed retroposon, <i>Mol Cell Biol</i> 11, 4642–4650 (1991) |
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| Gentamicin purification from serum | Bio-Rex 70 resin | Habbal ZM, Spectrofluorometric assay of gentamicin in serum, <i>Clin Chim Acta</i> 95, 301–309 (1979) |
| Glia-derived nexin purification | Bio-Gel P-10 gel | Rovelli G et al., Characterization of the heparin-binding site of glia-derived nexin/protease nexin-1, <i>Biochemistry</i> 31, 3542–3549 (1992) |
| Glutamate transporter from glycoprotein | Hydroxyapatite | Danbolt NC et al., Purification and reconstitution of the sodium- and potassium-coupled glutamate transport glycoprotein from rat brain, <i>Biochemistry</i> 29, 6734–6740 (1990) |
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