

Gel Electrophoresis

1. REVIEWS AND BOOKS

1958 Takagi, T.: (Capillary). *Seisan to Gijutsu*, 52, No. 2 (2000) 2-4; C.A., 135 (2001) 16148w - a review without refs.

1959 Usui, S.: (Electrophoresis and interface potential 1). *Kincoku*, 70 (2000) 993-998; C.A., 135 (2001) 38264h - a review with 7 refs.

See also 1963, 1966, 1968, 1969, 1971, 1997, 2004, 2007, 2008, 2014, 2031, 2032, 2057, 2064, 2067, 2077, 2124, 2217, 2223, 2264, 2306, 2353, 2364, 2379, 2382, 2388, 2416, 2445, 2554.

2. FUNDAMENTALS, THEORY AND GENERAL

2a. General

1960 Mercier, J.-F., Tessier, F. and Slater, G.W.: An exactly solvable Ogston model of gel electrophoresis: VIII. Nonconducting gel fibers, curved field lines, and the Nernst-Einstein relation. *Electrophoresis (Weinheim)*, 22 (2001) 2631-2638.

2b. Thermodynamics and theoretical relationships

See 2557.

2c. Relationship between structure and electrophoretic behaviour

1961 Lee, Y.S., Han, J.S., Jeon, Y. and Hwang, D.S.: The Arc two-component signal transduction system inhibits *in vitro* *Escherichia coli* chromosomal initiation. *J. Biol. Chem.*, 276 (2001) 9917-9923.

2d. Measurement of physico-chemical and related values

See 1962.

3. GENERAL TECHNIQUES

3b. Detectors and detection procedures

1962 Pletscher, E., Amrein, A.H. and Hugli, F.: (Determination of the reaction rate of reactive dyes). *Textilveredlung*, 35, No. 11/12 (2000) 25-28; C.A., 134 (2001) 267632y.

1963 Stott, D.I.: Immunoblotting, dot-blotting, and ELISPOT assays: methods and applications. *J. Immunoassay*, 21 (2000) 273-296; C.A., 134 (2001) 143936f - a review with many refs.

1964 Timtcheva, I., Maximova, V., Deligeorgiev, T., Gadjev, N., Drexhage, K.H. and Petkova, I.: Homodimeric monomethine cyanine dyes as fluorescent probes of biopolymers. *J. Photochem. Photobiol., B*, 58, No. 2-3 (2000) 130-135; C.A., 134 (2001) 277512y.

1965 Zemann, A.J.: Conductivity detection in capillary electrophoresis. *TrAC*, 20 (2001) 346-354.

See also 1998, 2000, 2005, 2012, 2292.

3c. Stabilization media for electrophoresis

1966 Liu, Y. and Rill, R.L.: DNA separation by capillary electrophoresis in lyotropic polymer liquid crystals. *Methods Mol. Biol. (Totowa)*, 162(Capillary Electrophoresis of Nucleic Acids, Volume 1) (2001) 203-213; C.A., 135 (2001) 2330n - a review with 36 refs.

See also 2011.

3d. Quantitative analysis

See 1989, 2005, 2386.

3e. Preparative scale electrophoresis

See 2063.

4. SPECIAL TECHNIQUES

4a. Automation

See 2356.

4b. Computerization and modelling

1967 Stoyanov, A.V., Stozhkova, I.N. and Righetti, P.G.: Acid-base equilibria of polyvalent electrolytes and theoretical description of polyelectrolyte behavior in electrokinetic separations. *J. Biochem. Biophys. Methods*, 46 (2000) 21-30; C.A., 134 (2001) 153200a.

4c. Combination with other physicochemical techniques, (MS, IR etc.)

See 2002, 2007, 2218, 2417.

4d. Affinity electrophoresis

1968 Kuznetsov, P.V. and Engel'man, E.V.: (Affinity chromatography in the 21st century: key priorities of strategy and tactics). *Vopr. Biol. Med. Farm. Khim.*, No. 4 (2000) 3-9; C.A., 134 (2001) 331958p - a review with 96 refs.

See also 2105.

4e. Two dimensional databases

See 2043, 2170.

4f. Isoelectric focusing

See 1973, 2043, 2061, 2071, 2124, 2159, 2379.

4g. Enantiomers, separation

See 2543.

4h. Two dimensional electrophoresis

1969 Fey, S.J. and Larsen, P.M.: 2D or not 2D. *Curr. Opin. Chem. Biol.*, 5 (2001) 26-33; *C.A.*, 134 (2001) 262950r -a review with 67 refs.

See also 1973, 1988, 2000, 2001, 2003, 2004, 2005, 2006, 2007, 2010, 2013, 2030, 2040, 2043, 2061, 2064, 2071, 2078, 2081, 2083, 2091, 2100, 2104, 2121, 2167, 2170, 2178, 2189, 2226, 2250, 2359, 2529.

4i. Other special techniques

1970 Clerc, M.: (Simple-type ion separation). *LaborPraxis*, 25 (2001) 48-49; *C.A.*, 134 (2001) 335734k.

See also 2129, 2281, 2287, 2359.

10. CARBOHYDRATES

10a. Mono and oligosaccharides. Structural studies

1971 Anonymous: Separatory and analytical methods. *Carbohydr. Chem.*, 32 (2001) 342-352; *C.A.*, 134 (2001) 326677s - a review with 123 refs.

10b. Polysaccharides, mucopolysaccharides, lipopolysaccharides

1972 Zdorovenko, G.M., Shashkov, A.S., Zdorovenko, E.L., Kocharova, N.A., Yakovleva, L.M., Knirel, Y.A. and Rudolph, K.: (Characterization of the lipopolysaccharide and structure of the O-specific polysaccharide of the bacterium *Pseudomonas syringae* pv. *atropaciens* IMV 948.) *Biokhimiya (Moscow)*, 66 (2001) 457-466.

See also 1983.

10c. Glycoproteins and their constituents

1973 Becker, W.-M. and Reese, G.: Immunological identification and characterization of individual food allergens. *J. Chromatogr. B*, 756 (2001) 131-140 - a review with 50 refs.

1974 Bendjennat, M., Bahbouhi, B. and Bahraoui, E.: Purification and characterization of a Ca²⁺-independent endoprotease activity from peripheral blood lymphocytes: involvement in HIV-1 gp 160 maturation. *Biochemistry*, 40 (2001) 4800-4810.

1975 Fares, F.A., Levi, F., Reznick, A.Z. and Kraiem, Z.: Engineering a potential antagonist of human thyrotropin and thyroid-stimulating antibody. *J. Biol. Chem.*, 276 (2001) 4543-4548.

1976 Li, L.-C. and Cosgrove, D.J.: Grass group I pollen allergens (β -expansins) lack proteinase activity and do not cause wall loosening via proteolysis. *Eur. J. Biochem.*, 268 (2001) 4217-4226.

1977 Metzger, J., Blobner, M. and Lupp, P.B.: Sensitive chemiluminescence immunoassay for the determination of rat serum α_1 -acid glycoprotein. *Clin. Chem. Lab. Med.*, 39 (2001) 514-518.

1978 Ouwens, D.M., Gomes de Mesquita, D.S., Dekker, J. and Maassen, J.A.: Hyperosmotic stress activates the insulin receptor in CHO cells. *Biochim. Biophys. Acta*, 1540 (2001) 97-106.

1979 Petersen, A. and Mundt, C.: Investigations on the carbohydrate moieties of glycoprotein allergens. *J. Chromatogr. B*, 756 (2001) 141-150.

1980 Storey, M.K., Wu, W.-I. and Voelker, D.R.: A genetic screen for ethanolamine auxotrophs in *Saccharomyces cerevisiae* identifies a novel mutation in Mcd4p, a protein implicated in glycosylphosphatidylinositol anchor synthesis. *Biochim. Biophys. Acta*, 1532 (2001) 234-247.

1981 Tateyama, S. and Sagami, H.: Study on the biosynthesis of dolichol in yeast: recognition of the prenyl chain length in polyprenol reduction. *J. Biochem. (Tokyo)*, 129 (2001) 297-302.

1982 Ujvari, A., Aron, R., Eisenhaure, T., Chemg, E., Parag, H.A., Smicun, Y., Halaban, R. and Hebert, D.N.: Translation rate of human tyrosinase determines its N-linked glycosylation level. *J. Biol. Chem.*, 276 (2001) 5924-5931.

1983 Wen, B., Yu, R. and Bai, X.: (Studies on polysaccharide in tissue cultures of *Cordyceps militaris*. *Shenyang Yaoke Daxue Xuebao*, 17 (2000) 361-364; *C.A.*, 134 (2001) 146452f.

See also 1973, 2051, 2083, 2202, 2218, 2532.

11. ORGANIC ACIDS AND LIPIDS

11c. Lipids and their constituents

See 1987.

11d. Lipoproteins and their constituents

1984 Dominguez, M., Rojas, G., Loyau, S., Bazarco, M., Sorell, L. and Angles-Cano, E.: Kringles of the plasminogen-prothrombin gene family share conformational epitopes with recombinant apolipoprotein (a): specificity of the fibrin-binding site. *Biochim. Biophys. Acta*, 1548 (2001) 72-80.

1985 Panin, L.E., Russkikh, G.S. and Polyakov, L.M.: (Detection of apolipoproteins A-I, B and E immunoreactivity in nuclei of cells from different rat tissues.) *Biokhimiya (Moscow)*, 65 (2000) 1684-1689.

1986 Wang, W.-Q., Moses, A.S. and Francis, G.A.: Cholesterol motilization by free and lipid-bound apoA_I^{Milano} and apoA_I^{Milano}-ApoA_{II} heterodimers. *Biochemistry*, 40 (2001) 3666-3673.

13. STEROIDS

13d. Sterols

- 1987 Ohi, K., Nobori, T. and Sakurai, Y.: (Study on qualitative abnormality of LDL fraction by simultaneous determination of serum cholesterol and triglyceride fractions). *Seibutsu Butsuri Kagaku*, 45 (2001) 83-88; *C.A.*, 134 (2001) 293838q.

18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

18a. Amino acids and their derivatives

- 1988 Is'harc, H., Watling, D. and Kerr, I.M.: Phosphotyrosine profiling to identify novel components of interferon and interleukin 6-family cytokine signalling. *Proteomics (Weinheim)*, 1 (2001) 767-772.

See also 1967.

18b. Peptides, peptidic and proteinous hormones, growth factors

- 1989 Benga, G., Frentescu, L., Matei, H. and Tigan, S.: Comparative nuclear magnetic resonance studies of water permeability of red blood cells from maternal venous blood and newborn umbilical cord blood. *Clin. Chem. Lab. Med.*, 39 (2001) 606-611.
- 1990 Kim, I., Moon, S.-O., Kim, S.H., Km, H.J., Koh, Y.S. and Koh, G.H.: Vascular endothelial growth factor expression of intercellular adhesion molecule 1 (ICAM-1), vascular cell adhesion molecule 1 (VCAM-1), and E-selectin through nuclear factor- κ B activation in endothelial cells. *J. Biol. Chem.*, 276 (2001) 7614-7620.
- 1991 Niu, G., Shain, K.H., Huang, M., Ravi, R., Bedi, A., Dalton, W.S., Jove, R. and Yu, H.: Overexpression of a dominant-negative signal transducer and activator of transcription 3 variant in tumor cells leads to production of soluble factors that induce apoptosis and cell cycle arrest. *Cancer Res.*, 61 (2001) 3276-3280.
- 1992 Yamamoto, Y., Inagaki, N. and Satoh, K.: Overexpression and characterization of carboxyl-terminal processing protease for precursor D1 protein. *J. Biol. Chem.*, 276 (2001) 7518-7525.
- 1993 Zhang, Y., Ren, Y., Zhang, Y., Yi, S. and Zhang, X.: (Extraction and purification of porcine platelet-derived growth factor). *Disi Junyi Daxue Xuebao*, 21 (2000) 1192-1194; *C.A.*, 134 (2001) 307484k.

See also 2025, 2042, 2095, 2106, 2194, 2256, 2287.

18c. Elucidation of structure of proteins and enzymes

- 1994 Daoud, R., Julien, M., Gros, P. and Georges, E.: Major photoaffinity drug binding sites in multidrug resistance protein 1 (MRP1) are within transmembrane domains 10-11 and 16-17. *J. Biol. Chem.*, 276 (2001) 12324-12330.

- 1995 Ono, S., Umezaki, M., Tojo, N., Hashimoto, S., Taniyama, H., Kaneko, T., Fujii, T., Morita, H., Shimasaki, C., Yamazaki, I., Yoshimura, T. and Kato, T.: Cyclic and linear peptides derived from α -amylase inhibitory protein tendamistat. *J. Biochem. (Tokyo)*, 129 (2001) 783-790.

See also 2098, 2194, 2252.

19. PROTEINS

19a. General techniques

- 1996 Ahn, T., Yim, S.-K., Choi, H.-I. and Yun, C.-H.: Polyacrylamide gel electrophoresis without a stacking gel: Use of amino-acids as electrolytes. *Anal. Biochem.*, 291 (2001) 300-303; *C.A.*, 135 (2001) 30866k.
- 1997 Al-Tubuly, A.A.: SDS-PAGE and Western blotting. *Methods Mol. Med.*, 40 (Diagnostic and Therapeutic Antibodies) (2000) 391-405; *C.A.*, 134 (2001) 292154b - a review with refs.
- 1998 Chen, H. and Chang, G.-D.: Simultaneous immunoblotting analysis with activity gel electrophoresis in a single polyacrylamide gel. *Electrophoresis (Weinheim)*, 22 (2001) 1894-1899.
- 1999 Chiang, E.T., Lim, M.J., Patton, W.F. and Shepro, D.: NF κ B translocation in human microvessel endothelial cells using a four-compartment subcellular protein redistribution assay. *J. Biochem. Biophys. Methods*, 46 (2000) 53-68; *C.A.*, 134 (2001) 159801u.
- 2000 Duong, P.T. and Chang, F.N.: A simple method for assigning multiple immunogens to their protein on a two-dimensional blot and its application to asthma-causing allergens. *Electrophoresis (Weinheim)*, 22 (2001) 2098-2102.
- 2001 Galvani, M., Hamdan, M., Herbert, B. and Righetti, P.G.: Alkylation kinetics of proteins in preparation for two-dimensional maps: A matrix assisted laser desorption/ionization-mass spectrometry investigation. *Electrophoresis (Weinheim)*, 22 (2001) 2058-2065.
- 2002 Galvani, M., Rovatti, L., Hamdan, M., Herbert, B. and Righetti, P.G.: Protein alkylation in the presence/absence of thiourea in proteome analysis: A matrix assisted laser desorption/ionization-time of flight-mass spectrometry investigation. *Electrophoresis (Weinheim)*, 22 (2001) 2066-2074.
- 2003 Herbert, B., Galvani, M., Hamdan, M., Olivieri, E., MacCarthy, J., Pedersen, S. and Righetti, P.G.: Reduction and alkylation of proteins in preparation of two-dimensional map analysis: Why, when, and how? *Electrophoresis (Weinheim)*, 22 (2001) 2046-2057.
- 2004 Johannes, F.-J. and Hubner, S.: (Proteome technologies for the analysis of signal pathways). *BIOspektrum*, 7 (2001) 66-70; *C.A.*, 134 (2001) 306709a - a review with 20 refs.
- 2005 Mahon, P. and Dupree, P.: Quantitative and reproducible two-dimensional gel analysis using Phoretix 2D Full. *Electrophoresis (Weinheim)*, 22 (2001) 2075-2085.
- 2006 Nakayama, H.: (HPLC-MS of proteins in post-genomic era). *Chromatography*, 21 (2000) 252-253; *C.A.*, 134 (2001) 337851v.

- 2007 Nilsson, C.L. and Davidsson, P.: New separation tools for comprehensive studies of protein expression by mass spectrometry. *Mass Spectrom. Rev.*, 19 (2000) 390-397; *C.A.*, 134 (2001) 322897r - a review with 48 refs.
- 2008 Righetti, P.G. and Verzola, B.: Folding/unfolding/refolding of proteins: Present methodologies in comparison with capillary zone electrophoresis. *Electrophoresis (Weinheim)*, 22 (2001) 2359-2374 - a review with 110 refs.
- 2009 Scheibe, B., Weiss, W., Ruëff, F., Przybilla, B. and Görg, A.: Detection of trace amounts of hidden allergens: hazelnut and almond proteins in chocolate. *J. Chromatogr. B*, 756 (2001) 229-237.
- 2010 Stancato, L.F. and Petricoin, E.F., III.: Fingerprinting of signal transduction pathways using a combination of anti-phosphotyrosine immunoprecipitations and two-dimensional polyacrylamide gel electrophoresis. *Electrophoresis (Weinheim)*, 22 (2001) 2120-2124.
- 2011 Tong, D., Hetenyi, C., Bikadi, Z., Gao, J.-P. and Hjerten, S.: Some studies of the chromatographic properties of gels ('artificial antibodies/receptors') for selective adsorption of proteins. *Chromatographia*, 54 (2001) 7-14.
- 2012 Towbin, H., Özbey, Ö. and Zingel, O.: An immunoblotting method for high-resolution isoelectric focusing of protein isoforms on immobilized pH gradients. *Electrophoresis (Weinheim)*, 22 (2001) 1887-1893.
- 2013 Vardy, K.: Using ProteinChip technology to accelerate proteomics. *Bioforum Int.*, 4 (2000) 148-149; *C.A.*, 135 (2001) 41476j.
- 2014 Vogel, J.S., Grant, P.G., Buchholz, B.A., Dingley, K. and Turteltaub, K.W.: Attomole quantitation of protein separations with accelerator mass spectrometry. *Electrophoresis (Weinheim)*, 22 (2001) 2037-2045 - a review with 37 refs.
- See also 2073, 2122, 2264, 2281, 2554.
- 19b. *Proteins of cells, viruses and subcellular particles*
- 2015 Amir-Ahmady, B. and Salati, L.M.: Regulation of the procession of glucose-6-phosphate dehydrogenase mRNA by nutritional status. *J. Biol. Chem.*, 276 (2001) 10514-10523.
- 2016 Balandreau, J., Viallard, V., Courmoyer, B., Coenye, T., Laevens, S. and Vadamme, P.: *Burkholderia cepacia* genomovar III is a common plant-associated bacterium. *Appl. Environ. Microbiol.*, 67 (2001) 982-985; *C.A.*, 134 (2001) 277840d.
- 2017 Bayele, H.K.: Critical parameters for functional reconstitution of glucose transport in *Trypanosoma brucei* membrane vesicles. *Biochim. Biophys. Acta*, 1513 (2001) 233-231.
- 2018 Blanton, M.P., Lala, A.K. and Cohen, J.B.: Identification and characterization of membrane-associated polypeptides in Torpedo nicotinic acetylcholine receptor-rich membranes by hydrophobic photolabeling. *Biochim. Biophys. Acta*, 1512 (2001) 215-224.
- 2019 Boronowsky, U., Wenk, S.-O., Schneider, D., Jäger, C. and Rögner, M.: Isolation of membrane protein subunits in their native state: evidence for selective binding of chlorophyll and carotenoid to the b₆ subunit of the cytochrome b₆f complex. *Biochim. Biophys. Acta*, 1506 (2001) 55-66.
- 2020 Brouwer, R., Allmang, Ch., Rajmakers, R., van Aarsen, Y., Egberts, W.V., Pertalski, E., van Venrooij, W.J., Tollervey, D. and Pruijn, G.J.M.: Three novel components of the human exosome. *J. Biol. Chem.*, 276 (2001) 6177-6184.
- 2021 Capella, L.S., Gefe, M., Silva, E.F., Morales, M.M., Affonso-Mitidieri, O., Lopes, A.G., Rumjanek, V.M. and Capella, M.A.M.: Reduced glutathione protect cells from ouabain toxicity. *Biochim. Biophys. Acta*, 1526 (2001) 293-300.
- 2022 Deng, K., Shenoy, S.K., Tso, S.-Ch., Yu, L. and Yu, Ch.-A.: Reconstitution of mitochondrial processing peptidase from the core proteins (subunits I and II) of bovine heart mitochondrial cytochrome bc₁ complex. *J. Biol. Chem.*, 276 (2001) 6499-6505.
- 2023 Dettenhofer, M. and Yu, X.p.F.: Characterization of the biosynthesis of human immunodeficiency virus type 1 Env from infected T-cells and the effects of glucose trimming of Env on virion infectivity. *J. Biol. Chem.*, 276 (2001) 5985-5991.
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- 2025 Goswami, T.K., Joardar, S.N. and Ram, G.C.: Antigenic analysis of *M. paratuberculosis* strain TEPS by SDS-PAGE and two-dimensional immunoelectrophoresis. *Indian J. Anim. Sci.*, 70 (2000) 789-791; *C.A.*, 134 (2001) 264804v.
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- 2031 Hooper, N.M.: Determination of glycosyl-phosphatidylinositol membrane protein anchorage. *Proteomics*, 1 (2001) 748-755 - a review with 49 refs.
- 2032 Hynes, G.: Characterization of cellular antigens using monoclonal antibodies. In: Sheppherd, P. and Dean, C. (Editors), *Monoclonal Antibodies*, Oxford University Press, Oxford, 2000, pp. 265-296; *C.A.*, 134 (2001) 322849b - a review with 11 refs.
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- 2034 Iruzzyn, A. and Carrasco, L.: Entry of poliovirus into cells is blocked by valinomycin and concanamycin A. *Biochemistry*, 40 (2001) 3589-3600.

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- 2036 Kaji, M., Ikari, M., Hashiguchi, S., Ito, Y., Matsumoto, R., Yoshimura, T., Kuratsu, J.-i. and Sugimura, K.: Peptide mimics of monocyte chemoattractant protein-1 (MCP-1) with an antagonistic activity. *J. Biochem. (Tokyo)*, 129 (2001) 577-583.
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- 2039 Kurochkina, L.P., Leiman, P.G., Venyaminov, S.Y. and Mesyanzhinov, V.V.: (Expression and properties of bacteriophage T4 gene product 11.) *Biokhimiya (Moscow)*, 66 (2001) 180-186.
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- 2042 Lee, I.H., Lee, Y.S., Kim, C.H., Kim, C.R., Hong, T., Menzel, L., Boo, L.M., Pohl, J., Sherman, M.A., Waring, A. and Lehrer, R.I.: Dicynthaurin: an antimicrobial peptide from hemocytes of the solitary tunicate, *Halocynthia aurantium*. *Biochim. Biophys. Acta*, 1527 (2001) 141-148.
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21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS

See 2276.

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- 23a. *Porphyrins and other pyrroles*
- See 2541.
25. ORGANIC PHOSPHORUS COMPOUNDS (INCL. SUGAR PHOSPHATES)
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- 26c. *Coordination compounds*
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- See 2165.
29. INSECTICIDES, PESTICIDES AND OTHER AGROCHEMICALS
- 29b. *Chlorinated insecticides*
- See 2123.
30. SYNTHETIC AND NATURAL DYES
- 30b. *Chloroplast and other natural pigments*
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33. CLINICO-CHEMICAL APPLICATIONS

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35c. *Water pollution (complex mixtures; single compounds by cross-reference only)*

See 2501.

35d. *Soil pollution (complex mixtures; single compounds by cross-reference only)*

See 2517, 2542.

37. CELLS, CELLULAR PARTICLES AND SUPRAMOLECULAR STRUCTURES

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