

## General References for Fixation, Embedding, and Some Specialized Techniques.

1. Afzelius, B.A. (1992) Section staining for electron microscopy using tannic acid as a mordant: A simple method for visualization of glycogen and collagen, *J. Microsc. Res. Tech.* 21, 65-72.
2. Ainley, C.D. and Ironside, J.W. (1994) Microwave technology in diagnostic neuropathology, *J. Neurosci. Methods* 55, 183-190.
3. Albrecht, R.M., Goodman, S.L., and Simmons, S.R. (1989) Distribution and movement of membrane-associated platelet glycoproteins: Use of colloidal gold with correlative video-enhanced light microscopy, low-voltage high-resolution scanning electron microscopy, and high-voltage transmission electron microscopy, *Am. J. Anat.* 185, 149-164.
4. Antonio, C., González-García, J.M., Page, J., Suja, J.A., Stockert, J.C., and Rufas, J.S. (1996) The osmium tetroxide-p-phenylenediamine procedure reveals the chromatid cores and kinetochores of meiotic chromosomes by light and electron microscopy, *J. Histochem. Cytochem.* 44, 1279-1288.
5. Aoki, A. (1992) Microwell cluster for processing electron microscope sections for immunocytochemistry, *Biotechnic Histochem.* 67, 98-99.
6. Arai, R., Geffard, M., and Calas, A. (1992) Intensification of labelings of the immunogold silver staining method by gold toning, *Brain Res. Bull.* 28, 343-345.
7. Araki, N., Yokota, S., and Takashima, Y. (1993) The cerium-based method is advantageous in combination of phosphatase enzyme cytochemistry with post-embedding immunocytochemistry, *Acta Histochem. Cytochem.* 26, 569-576.
8. Argall, K. and Armati, P. (1990) Use of microwave fixation in the preparation of cell cultures for observation with the scanning electron microscope, *J. Electron Microsc. Tech.* 16, 347-350.
9. Armati, P.J., Pollard, J.D., Van Reyk, D., and Van der Lubbe, L. (1988) Neuroimmunological electron microscopy with microwave-accelerated fixation, *J. Immunol. Methods* 110, 267-269.
10. Baigent, C.L. and Müller, G. (1990) Carbon-based immunocytochemistry. A new approach to the immunostaining of epoxy-resin-embedded material, *J. Microsc.* 158, 73-80.
11. Banerjee, S.K. and Iyer, V.N. (1995) Quick and easy spreading technique for electron microscopy of DNA, *BioTechniques* 18, 946-947.
12. Barsony, J., Pike, J.W., DeLuca, H.F., and Marx, S.J. (1990) Immunocytology with microwave-fixed fibroblasts shows 1 alpha,25-dihydroxyvitamin D<sub>3</sub>-dependent rapid

- and estrogen-dependent slow reorganization of vitamin D receptors, *J. Cell Biol.* 111, 2385-2395.
13. Baskin, T.I., Miller, D.D., Vos, J.W., Wilson, J.E., and Hepler, P.K. (1996) Cryofixing single cells and multicellular specimens enhances structure and immunocytochemistry for light microscopy, *J. Microsc.* 182, 149-161.
  14. Beals, T.F. (1992) Ultrastructure of in situ hybridization, *Ultrastruct. Pathol.* 16, 87-93
  15. Bell, P.B., Jr. and Safiejko-Mroczka, B. (1995) Improved methods for preserving macromolecular structures and visualizing them by fluorescence and scanning electron microscopy, *Scanning Microsc.* 9, 843-860.
  16. Benchimol, M., Goncalves, N.R., and De Souza, W. (1993) Rapid primary microwave-glutaraldehyde fixation preserves the plasma membrane and intracellular structures of the protozoan *Tritrichomonas foetus*, *Microsc. Res. Tech.* 25, 286-290.
  17. Berghman, L.R., Grauwels, L., Vanhamme, L., and Vandesande, F. (1994) A simple method for the immunocytochemical processing of large numbers of floating sections and its application in screening for monoclonal antibodies, *J. Immunol. Methods* 168, 197-202.
  18. Berryman, M.A., Porter, W.R., Rodewald, R.D., and Hubbard, A.L. (1992) Effects of tannic acid on antigenicity and membrane contrast in ultrastructural immunocytochemistry, *J. Histochem. Cytochem.* 40, 845-857.
  19. Bettica, A. and Johnson, A.B. (1990) Ultrastructural immunogold labeling of glial filaments in osmicated and unosmicated epoxy-embedded tissue, *J. Histochem. Cytochem.* 38, 103-109.
  20. Bezahler, G.H. (1989) Microwave fixation of biopsy specimens, *Am. J. Dermatopathol.* 11, 295-295.
  21. Biggiogera, M., Courtens, J.L., Derenzini, M., Fakan, S., Hernandez-Verdun, D., Risueno, M.C., and Soyer-Gobillard, M.O. (1996) Osmium ammine: Review of current applications to visualize DNA in electron microscopy, *Biol. Cell* 87, 121-132.
  22. Bohrmann, B. and Kellenberger, E. (1994) Immunostaining of DNA in electron microscopy: An amplification and staining procedure for thin sections as alternative to gold labeling, *J. Histochem. Cytochem.* 42, 635-643.
  23. Bonhomme, A., Pingret, L., Bonhomme, P., Michel, J., Balossier, G., Lhotel, M., Pluot, M., and Pinon, J.M. (1993) Subcellular calcium localization in *Toxoplasma gondii* by electron microscopy and by X-ray and electron energy loss spectroscopies, *Microsc. Res. Tech.* 25, 276-285.

24. Brockmeyer,C., Thiedemann,K.-U., and Mohr,U. (1989) An improved embedding method for obtaining semithin and ultrathin sections from critical-point dried trachea specimens, *Exp. Pathol.* 36, 233-236.
25. Burry,R.W., Vandr ,D.D., and Hayes,D.M. (1992) Silver enhancement of gold antibody probes in pre-embedding electron microscopic immunocytochemistry, *J. Histochem. Cytochem.* 40, 1849-1856.
26. Cuevas,E.C., Bateman,A.C., Wilkins,B.S., Johnson,P.A., Williams,J.H., Lee,A.H.S., Jones,D.B., and Wright,D.H. (1994) Microwave antigen retrieval in immunocytochemistry: A study of 80 antibodies, *J. Clin. Pathol.* 47, 448-452.
27. De Mesy Jensen,K.L. and Di Sant'Agnes,P.A. (1992) Large block embedding and "pop-off" technique for immunoelectron microscopy, *Ultrastruct. Pathol.* 16, 51-59.
28. Deerinck,T.J., Martone,M.E., Lev-Ram,V., Green,D.P.L., Tsien,R.Y., Spector,D.L., Huang,S., and Ellisman,M.H. (1994) Fluorescence photooxidation with eosin: A method for high resolution immunolocalization and in situ hybridization detection for light and electron microscopy, *J. Cell Biol.* 126, 901-910.
29. DeFelipe,J. and Fair n,A. (1993) A simple and reliable method for correlative light and electron microscopic studies, *J. Histochem. Cytochem.* 41, 769-772.
30. DeHart,B.W., Kan,R.K., and Day,J.R. (1996) Microwave superheating enhances immunocytochemistry in the freshly frozen rat brain, *Neuroreport* 7, 2691-2694.
31. Delecalle,B., Nono Womdim,R., and Marchoux,G. (1992) Optimisation of the gold immunolabeling techniques on ultrathin slides obtained from samples fixed with glutaraldehyde and osmium tetroxide and included in epoxy-resin, *Cell. Mol. Biol.* 38, 495-511.
32. DiScipio,R.G. (1996) Preparation of colloidal gold particles of various sizes using sodium borohydride and sodium cyanoborohydride, *Anal Biochem* 236, 168-170.
33. Domagala,W.M., Markiewski,M., Tuziak,T., Kram,A., Weber,K., and Osborn,M. (1990) Immunocytochemistry on fine needle aspirates in paraffin miniblocks, *Acta Cytol.* 34 , 291-296.
34. Feirabend,H.K.P., Kok,P., Choufoer,H., and Ploeger,S. (1994) Preservation of myelinated fibers for electron microscopy: A qualitative comparison of aldehyde fixation, microwave stabilisation and other procedures all completed by osmication, *J. Neurosci. Methods* 55, 137-153.
35. Giberson,R.T. and Demaree,R.S., Jr. (1995) Microwave fixation: Understanding the variables to achieve rapid reproducible results, *Microsc. Res. Tech.* 32, 246-254.

36. Giberson,R.T., Demaree,R.S., Jr., and Nordhausen,R.W. (1997) Four-hour processing of clinical/diagnostic specimens for electron microscopy using microwave technique, *J. Vet. Diagn. Invest.* 9, 61-67.
37. Gualtieri,R. and Andreuccetti,P. (1995) Silver enhancement of colloidal gold particles in deplasticized semithin epoxy sections, *Biotech. Histochem.* 70, 7-11.
38. Haruna,N., Monden,T., Morimoto,H., Murotani,M., Yagyū,T., Nagaoka,H., Shimano,T., and Mori,T. (1990) Use of a rapid microwave fixation technique for immunocytochemical demonstration of tumor necrosis factor, interleukin-1 $\alpha$ , and interleukin-1 $\beta$  in activated human peripheral mononuclear cells, *Acta Histochem. Cytochem.* 23, 563-572.
39. Hawkins,H.K., Rehm,L.S., and Zhu,J.Y. (1992) Colloidal gold labeling of sections and cell surfaces, *Ultrastruct. Pathol.* 16, 61-70.
40. Hayat,M.A. (1970) *Principles and techniques of electron microscopy* Van Nostrand Reinhold, New York.
41. Hermann,R., Walther,P., and Müller,M. (1996) Immunogold labeling in scanning electron microscopy, *Histochem. Cell Biol.* 106, 31-39.
42. Herrera,G.A. (1992) Ultrastructural immunolabeling: A general overview of techniques and applications, *Ultrastruct. Pathol.* 16, 37-45.
43. Hirst,E.M.A. (1991) An easy method for orientated embedding tissue culture cell monolayers in LR white resin for postembedding immunocytochemistry, *J. Electron Microsc. Tech.* 17, 456-458.
44. Hopwood,D., Milne,G., and Penston,J. (1990) A comparison of microwaves and heat alone in the preparation of tissue for electron microscopy, *Histochem. J.* 22, 358-364.
45. Horowitz,R.A. and Woodcock,C.L. (1992) Alternative staining methods for Lowicryl sections, *J. Histochem. Cytochem.* 40, 123-133.
46. Hoying,J.B., Chen,S.-C., and Williams,S.K. (1995) Interaction of colloidal gold-labelled glucosylated albumin with endothelial cell monolayers: Comparison between cryofixation and glutaraldehyde fixation, *Microsc. Res. Tech.* 30, 252-257.
47. Jamur,M.C., Faraco,C.D., Lunardi,L.O., Siraganian,R.P., and Oliver,C. (1995) Microwave fixation improves antigenicity of glutaraldehyde- sensitive antigens while preserving ultrastructural detail, *J. Histochem. Cytochem.* 43, 307-311.
48. Jones,J.T. and Gwynn,I.A. (1991) A method for rapid fixation and dehydration of nematode tissue for transmission electron microscopy, *J. Microsc.* 164, 43-51.

49. Kasper,M. and Migheli,A. (1993) LR Gold and LR White embedding of lung tissue for immunoelectron microscopy, *Acta Histochem.* 95, 221-227.
50. Kayser,K., Stute,H., Lubcke,J., and Wazinski,U. (1988) Rapid microwave fixation--a comparative morphometric study, *Histochem. J.* 20, 347-352.
51. Kellenberger,E., Johansen,R., Maeder,M., Bohrmann,B., Stauffer,E., and Villiger,W. (1992) Artefacts and morphological changes during chemical fixation, *J. Microsc.* 168, 181-201.
52. Keller,G.A., Tokuyasu,K.T., Dutton,A.H., and Singer,S.J. (1984) An improved procedure for immunoelectron microscopy: Ultrathin plastic embedding of immunolabeled ultrathin frozen sections., *Proc Nat Acad Sci USA* 81, 5744-5747.
53. Lah,J.J., Hayes,D.M., and Burry,R.W. (1990) A neutral pH silver development method for the visualization of 1-nanometer gold particles in pre-embedding electron microscopic immunocytochemistry, *J. Histochem. Cytochem.* 38, 503-508.
54. Lee,P., Kirk,R.G., and Reasor,M.J. (1993) X-ray microanalysis of cultured alveolar macrophages with phospholipidosis, *Exp. Mol. Pathol.* 58, 96-104.
55. Leonard,J.B. and Shepardson,S.P. (1994) A comparison of heating modes in rapid fixation techniques for electron microscopy, *J. Histochem. Cytochem.* 42, 383-391.
56. Lilje,O. and Armati,P.J. (1995) An improved protocol for immunogold staining for scanning electron microscopy of cultured cells, *J. Neurosci. Methods* 58, 77-80.
57. Lin,A., Krockmalnic,G., and Penman,S. (1990) Imaging cytoskeleton-mitochondrial membrane attachments by embedment-free electron microscopy of saponin-extracted cells, *Proc Nat Acad Sci USA* 87, 8565-8569.
58. Login,G.R., Schnitt,S.J., and Dvorak,A.M. (1987) Rapid microwave fixation of human tissues for light microscopic immunoperoxidase identification of diagnostically useful antigens, *Lab. Invest.* 57, 585-591.
59. Login,G.R. and Dvorak,A.M. (1988) Microwave fixation provides excellent preservation of tissue, cells and antigens for light and electron microscopy, *Histochem. J.* 20, 373-387.
60. Login,G.R., Dwyer,B.K., and Dvorak,A.M. (1990) Rapid primary microwave-osmium fixation. I. Preservation of structure for electron microscopy in seconds, *J. Histochem. Cytochem.* 38, 755-762.
61. Login,G.R., Galli,S.J., and Dvorak,A.M. (1992) Immunocytochemical localization of histamine in secretory granules of rat peritoneal mast cells with conventional or rapid microwave fixation and an ultrastructural post- embedding immunogold technique, *J. Histochem. Cytochem.* 40, 1247-1256.

62. Login,G.R. and Dvorak,A.M. (1994) Application of microwave fixation techniques in pathology to neuroscience studies: A review, *J. Neurosci. Methods* 55, 173-182.
63. Login,G.R., Ku,T.-C., and Dvorak,A.M. (1995) Rapid primary microwave-aldehyde and microwave-osmium fixation: Improved detection of rat parotid acinar cell secretory granule  $\alpha$ -amylase using a post-embedding immunogold ultrastructural morphometric analysis, *J. Histochem. Cytochem.* 43, 515-523.
64. Mandry,P., Murray,A.B., Rieke,L., Becke,H., and Höfler,H. (1993) Postembedding ultrastructural in situ hybridization on ultrathin cryosections and LR White resin sections, *Ultrastruct. Pathol.* 17, 185-194.
65. Matsutani,S. and Yamamoto,N. (1990) Improved methods for immuno-electron microscopy of cultured cells: Use of a novel substrate and application of microwave irradiation, *Acta Histochem. Cytochem.* 23, 227-236.
66. Maxwell,L., Gavin,J.B., and Walker,S. (1991) Oxygen content of the fixative is important in the interpretation of the ultrastructure of ischaemic myocardium, *J. Electron Microsc. Tech.* 17, 356-360.
67. McCann,J.A., Maddox,D.A., Mount,S.L., Hong,R., and Taatjes,D.J. (1996) Cryofixation, cryosubstitution, and immunoelectron microscopy: Potential role in diagnostic pathology, *Ultrastruct. Pathol.* 20, 223-230.
68. McLaughlin,G.L., Giberson,R.T., Dickey,L.E., Pascale,J.M., Shaw,M.M., Bartlett,M.S., Smith,J.W., and Demaree,R.S. (1996) Microwave processing of *Pneumocystis carinii* for electron microscopy, *J. Euk. Microbiol.* 43, 21S-21S.
69. McQuaid,S., McConnell,R., McMahon,J., and Herron,B. (1995) Microwave antigen retrieval for immunocytochemistry on formalin- fixed, paraffin-embedded post-mortem CNS tissue, *J. Pathol.* 176, 207-216.
70. Mikhaylova,V.T. and Markov,D.V. (1994) An alternative method for preparation of Schiff-like reagent from osmium-ammine complex for selective staining of DNA on thin Lowicryl sections, *J. Histochem. Cytochem.* 42, 1643-1649.
71. Mills,A.E., Emms,M., and Licata,S.G. (1990) A simple technique for preparation of bone marrow or peripheral blood buffy coat cells for electron microscopy, *Ultrastruct. Pathol.* 14, 173-176.
72. Mitsushima,A. and Katsumoto,T. (1990) A preparation technique for observing cytoskeletons by high resolution scanning electron microscopy, *J. Submicrosc. Cytol. Pathol.* 22, 591-599.
73. Mizuhira,V., Hasegawa,H., and Notoya,M. (1997) Microwave fixation and localization of calcium in synaptic terminals and muscular cells by electron probe X-ray microanalysis and electron energy-loss spectroscopy imaging, *Acta Histochem. Cytochem.* 30, 277-301.

74. Mollenhauer, H.H. (1993) Artifacts caused by dehydration and epoxy embedding in transmission electron microscopy, *Microsc. Res. Tech.* 26, 496-512.
75. Mollenhauer, H.H. and Droleskey, R.E. (1997) Image contrast in sections of epoxy resin-embedded biological material: Maintenance of a proper anhydride-epoxy ratio during tissue impregnation, *Microsc. Res. Tech.* 36, 417-421.
76. Moran, R.A., Nelson, F., Jagirdar, J., and Paronetto, F. (1988) Application of microwave irradiation to immunohistochemistry: preservation of antigens of the extracellular matrix, *Stain Technol.* 63, 263-269.
77. Mount, S.L., Schwarz, J.E., and Taatjes, D.J. (1997) Prolonged storage of fixative for electron microscopy: Effects on tissue preservation for diagnostic specimens, *Ultrastruct. Pathol.* 21, 195-200.
78. Mowery, J., Chesner, J., Spangenberg, S., and Hixson, D.C. (1989) Rapid low molecular weight polyethylene glycol embedding protocol for immunocytochemistry, *J. Histochem. Cytochem.* 37, 1549-1552.
79. Mutasa, H.C.F. (1989) Combination of diaminobenzidine staining and immunogold labeling: A novel technical approach to identify lysozyme in human neutrophil cells, *Eur. J. Cell Biol.* 49, 319-325.
80. Namimatsu, S. (1992) Periodic acid thiosemicarbazide gelatin methenamine silver (PATSC-GMS) staining for transmission electron microscopy, *J. Submicrosc. Cytol. Pathol.* 24, 19-28.
81. Nicolas, M.-T. and Bassot, J.-M. (1993) Freeze substitution after fast-freeze fixation in preparation for immunocytochemistry, *Microsc. Res. Tech.* 24, 474-487.
82. Nochlin, D., Mackenzie, A.P., Bryant, E.M., Norwood, T.H., and Sumi, S.M. (1993) A simple method of rapid freezing adequately preserves brain tissue for immunocytochemistry, light and electron microscopic examination, *Acta Neuropathol. (Berl.)* 86, 645-650.
83. Nogués, C., Martí, M., Boada, M., and Ponsà, M. (1994) A simple method for processing individual oocytes and embryos for electron microscopy, *J. Microsc.* 174, 51-54.
84. Norgren, R.B., Jr. and Lehman, M.N. (1989) A double-label pre-embedding immunoperoxidase technique for electron microscopy using diaminobenzidine and tetramethylbenzidine as markers, *J. Histochem. Cytochem.* 37, 1283-1289.
85. Ogneva, V. and Neronov, A. (1995) A method for preparation of immobilized cells and tissues for light and electron microscopy studies, *Microsc. Res. Tech.* 30, 265-267.
86. Oprins, A., Geuze, H.J., and Slot, J.W. (1994) Cryosubstitution dehydration of aldehyde-fixed tissue: A favorable approach to quantitative immunocytochemistry, *J. Histochem. Cytochem.* 42, 497-503.

87. Otsuki, Y., Maxwell, L.E., Magari, S., and Kubo, H. (1990) Immunogold-silver staining method for light and electron microscopic detection of lymphocyte cell surface antigens with monoclonal antibodies, *J. Histochem. Cytochem.* 38, 1215-1221.
88. Parton, R.G. (1995) Rapid processing of filter-grown cells for Epon embedding, *J. Histochem. Cytochem.* 43, 731-733.
89. Peng, Q. (1992) Incubation chambers for the staining of ultrathin sections. An *in situ* technique especially suited for immunocytochemistry, *Acta Histochem.* 93, 353-356.
90. Peng, Q. and Richter, H.-P. (1993) Tissue carriers for processing fragile bio-materials in immuno-electron microscopy, *Acta Histochem.* 95, 71-74.
91. Peschke, T., Augsten, K., Sasama, F., and Gabert, A. (1989) Determination of gold-labelled surface receptors on single cells by x-ray microanalysis, *J. Microsc.* 156, 191-199.
92. Peters, K.-R. and Pohl, R. (1992) Freeze-substitution of chemically stabilized samples for biological field emission scanning electron microscopy, *J. Microsc. Res. Tech.* 22, 170-184.
93. Pettitt, J.M. and Humphris, D.C. (1991) Double lectin and immunolabelling for transmission electron microscopy: Pre- and post-embedding application using the biotin-streptavidin system and colloidal gold-silver staining, *Histochem. J.* 23, 29-37.
94. Pérez-Morga, D.L. and Englund, P.T. (1993) Microtechnique for electron microscopy of DNA, *Nucleic Acids Res.* 21, 1327-1328.
95. Phend, K.D., Rustioni, A., and Weinberg, R.J. (1995) An osmium-free method of Epon embedment that preserves both ultrastructure and antigenicity for post-embedding immunocytochemistry, *J. Histochem. Cytochem.* 43, 283-292.
96. Pignot-Paintrand, I. (1992) Orientation of human spermatozoa for electron microscopy: A fast, simple method, *J. Microsc. Res. Tech.* 21, 75-76.
97. Pignot-Paintrand, I. and Bressac, C. (1992) Rapid three-dimensional reconstruction at the light microscopic level and a technique for re-embedding the same semithin sections for electron microscopic examination, *Biotechnic Histochem.* 67, 55-57.
98. Pihakaski-Maunsbach, K., Soitamo, A., and Suoranta, U.-M. (1990) Easy handling of cell suspensions for electron microscopy, *J. Electron Microsc. Tech.* 15, 414-415.
99. Pintó, R.M., Jofre, J., and Bosch, A. (1990) A simple method for the cultivation of cell monolayers for electron microscopy studies, *Stain Technol.* 65, 51-53.
100. Preto, P. (1995) Glutaraldehyde for electron microscopy: A practical investigation of commercial glutaraldehydes and glutaraldehyde-storage conditions, *Histochem. J.* 27, 906-913.



101. Qualmann,B., Kessels,M.M., Klobasa,F., Jungblut,P.W., and Sierralta,W.D. (1996) Electron spectroscopic imaging of antigens by reaction with boronated antibodies, *J. Microsc.* 183, 69-77.
102. Raska,I., Michel,L.S., Jarnik,M., Dunder,M., Fakan,S., Gasser,S., Gassmann,M., Hübscher,U., Izaurralde,E., Martinez,E., Richter,A., and Dubochet,J. (1991) Ultrastructural cryoimmunocytochemistry is a convenient tool for the study of DNA replication in cultured cells, *J. Electron Microsc. Tech.* 18, 91-105.
103. Richards,R.G. and Kääb,M.J. (1996) Microwave-enhanced fixation of rabbit articular cartilage, *J. Microsc.* 181, 269-276.
104. Richter,K. (1994) A cryoglue to mount vitreous biological specimens for cryoultramicrotomy at 110 K, *J. Microsc.* 173, 143-147.
105. Rightor,K.S., Mitchell,P.A., Miller,T.A., and Schmidt,K.L. (1991) Colloidal gold localization of type IV collagen in the extracellular matrix of rat gastric mucosa: Influence of alcohol and prostaglandin, *Anat. Rec.* 230, 235-242.
106. Robb,I.A., Carpenter,B.F., and Jimenez,C.L. (1991) Rapid ultrasonic bath processing for electron microscopy, *Ultrastruct. Pathol.* 15, 83-86.
107. Roberts,J.C., McCrossan,M.V., and Jones,H.B. (1990) The case for perfusion fixation of large tissue samples for ultrastructural pathology, *Ultrastruct. Pathol.* 14, 177-191.
108. Roth,J. (1996) The silver anniversary of gold: 25 years of the colloidal gold marker system for immunocytochemistry and histochemistry, *Histochem. Cell Biol.* 106, 1-8.
109. Rudick,V.L., Brun-Zinkernagel,A.-M., Rudick,M.J., and Chakraborty,S. (1991) A method for using low-temperature embedding media for electron microscopy of cells grown on microporous supports, *BioTechniques* 11, 494-503.
110. Ryan,K.P. (1992) Cryofixation of tissues for electron microscopy: A review of plunge cooling methods, *Scanning Microsc.* 6, 715-743.
111. Scala,C., Cenacchi,G., Ferrari,C., Pasquinelli,G., Preda,P., and Manara,G.C. (1992) A new acrylic resin formulation: A useful tool for histological, ultrastructural, and immunocytochemical investigations, *J. Histochem. Cytochem.* 40, 1799-1804.
112. Schrijvers,A.H.G.J., Frederik,P.M., Stuart,M.C.A., Van der Vusse,G.J., and Reneman,R.S. (1989) Dual effect of tannic acid on the preservation and ultrastructure of phosphatidyl choline vesicles, *Mol. Cell. Biochem.* 88, 91-96.
113. Shida,H. and Ohga,R. (1990) Effect of resin use in the post-embedding procedure on immunoelectron microscopy of membranous antigens, with special reference to sensitivity, *J. Histochem. Cytochem.* 38, 1687-1691.

114. Shimizu,H., Masunaga,T., Ishiko,A., Hashimoto,T., Garrod,D.R., Shida,H., and Nishikawa,T. (1994) Demonstration of desmosomal antigens by electron microscopy using cryofixed and cryosubstituted skin with silver-enhanced gold probe, *J. Histochem. Cytochem.* 42, 687-692.
115. Simmons,S.R., Pawley,J.B., and Albrecht,R.M. (1990) Optimizing parameters for correlative immunogold localization by video-enhanced light microscopy, high-voltage transmission electron microscopy, and field emission scanning electron microscopy, *J. Histochem. Cytochem.* 38, 1781-1785.
116. Simon,G.T., Lhoták,S., and Alexopoulou,I. (1989) Immunoelectron microscopic diagnosis in nephropathology, *Am. J. Kidney Dis.* 14, 369-376.
117. Sjöstrand,F.S. (1989) Common sense in electron microscopy. About osmium fixation, *J. Ultrastruct. Mol. Struct. Res.* 102, 1-8.
118. Slater,M. (1991) A method for the examination of the same cell using light, scanning and transmission electron microscopy, *Stain Technol.* 1, 63-68.
119. Slot,J.W. and Geuze,H.J. (1985) A new method for preparing gold probes for multiple-labeling cytochemistry., *Eur. J. Cell Biol.* 38, 87-93.
120. Smiley,J.F. and Goldman-Rakic,P.S. (1993) Silver-enhanced diaminobenzidine-sulfide (SEDS): A technique for high-resolution immunoelectron microscopy demonstrated with monoamine immunoreactivity in monkey cerebral cortex and caudate, *J. Histochem. Cytochem.* 41, 1393-1404.
121. Sparkman,D.R. and White,C.L., III (1989) A simple apparatus for processing large numbers of specimens for colloidal gold immunoelectron microscopy: Application to paired helical filaments of Alzheimer's disease, *J. Electron Microsc. Tech.* 13, 152-153.
122. Steiner,M., Schöfer,C., and Mosgoeller,W. (1994) *In situ* flat embedding of monolayers and cell relocation in the acrylic resin LR White for comparative light and electron microscopy studies, *Histochem. J.* 26, 934-938.
123. Stirling,J.W. (1990) Immuno- and affinity probes for electron microscopy: A review of labeling and preparation techniques, *J. Histochem. Cytochem.* 38, 145-157.
124. Stirling,J.W. (1992) Unfixed tissue for electron immunocytochemistry: A simple preparation method for colloidal gold localization of sensitive epitopes using ethanediol dehydration, *Histochem. J.* 24, 190-206.
125. Stirling,J.W. (1993) Use of tannic acid and silver enhancer to improve staining for electron microscopy and immunogold labeling, *J. Histochem. Cytochem.* 41, 643-648.

Ref ID: 1303

126. Strausbauch,P., Neill,J., Dabbs,D.J., and Silverman,J.F. (1989) The impact of fine-needle aspiration biopsy on a diagnostic electron microscopy laboratory, *Arch. Pathol. Lab. Med.* 113, 1354-1356.
127. Takahashi,R., Okuyama,T., Matsuo,S., and Maeda,S. (1996) Freeze substitution and freeze drying for stable, long-term preservation of cytologic specimens for immunostaining, *Acta Cytol.* 40, 396-400.
128. Takizawa,T. and Robinson,J.M. (1993) Combined immunocytochemistry and enzyme cytochemistry on ultra-thin cryosections: A new method, *J. Histochem. Cytochem.* 41, 1635-1639.
129. Takizawa,T. and Robinson,J.M. (1994) Use of 1.4-nm immunogold particles for immunocytochemistry on ultra-thin cryosections, *J. Histochem. Cytochem.* 42, 1615-1623.
130. Takizawa,T. and Robinson,J.M. (1994) Composition of the transfer medium is crucial for high-resolution immunocytochemistry of cryosectioned human neutrophils, *J. Histochem. Cytochem.* 42, 1157-1159.
131. Tashiro,Y. and Yamamoto,A. (1993) Quantitative immunoelectron microscopy: Its development and application, *Acta Histochem. Cytochem.* 26, 275-275.
132. Thiry,M. and Thiry-Blaise,L. (1989) In situ hybridization at the electron microscope level: An improved method for precise localization of ribosomal DNA and RNA, *Eur. J. Cell Biol.* 50, 235-243.
133. Thiry,M. (1992) Ultrastructural detection of DNA within the nucleolus by sensitive molecular immunocytochemistry, *Exp. Cell Res.* 200, 135-144.
134. Thiry,M. (1993) Immunodetection of RNA on ultra-thin sections incubated with polyadenylate nucleotidyl transferase, *J. Histochem. Cytochem.* 41, 657-665.
135. Thomas,N. and Ap Gwynn,I. (1993) Estimation of gold-labelled macromolecules attached to cell surfaces, *J. Microsc.* 170, 275-281.
136. Thorpe,J.R. (1992) A novel methodology for double protein A-gold immunolabeling utilizing the monovalent fragment of protein A, *J. Histochem. Cytochem.* 40, 435-441.
137. Troxler,M., Pasamontes,L., Egger,D., and Bienz,K. (1990) In situ hybridization for light and electron microscopy: A comparison of methods for the localization of viral RNA using biotinylated DNA and RNA probes, *J. Virol. Methods* 30, 1-14.
138. Turner,C.R., Zuczek,S., Knudsen,D.J., and Wheeldon,E.B. (1990) Microwave fixation of the lung, *Stain Technol.* 65, 95-101.
139. Usuda,N., Ma,H., Hanai,T., Yokota,S., Hashimoto,T., and Nagata,T. (1990) Immunoelectron microscopy of tissues processed by rapid freezing and freeze-

- substitution fixation without chemical fixatives: Application to catalase in rat liver hepatocytes, *J. Histochem. Cytochem.* 38, 617-623.
140. Versura,P., Maltarello,M.C., Bonvicini,F., and Laschi,R. (1989) The lectin-gold technique: An overview of applications to pathological problems, *Scanning Microsc.* 3, 605-621.
  141. Vesk,P.A., Dibbayawan,T.P., and Vesk,M. (1993) Flat embedding of microorganisms on slides with LR white for immunocytochemistry, *Microsc. Res. Tech.* 26, 352-353.
  142. Von Langsdorff,D., Ali,S.S., and Nürnberger,F. (1990) An improved silver staining technique as an alternative nuclear or combined nuclear nerve-fiber impregnation for comparative light-, secondary and backscattered electron scanning microscopy, *J. Neurosci. Methods* 35, 3-8.
  143. Whitlon,D.S. and Baas,P.W. (1992) Improved methods for using glass coverslips in cell culture and electron microscopy, *J. Histochem. Cytochem.* 40, 875-877.
  144. Widéhn,S. and Kindblom,L.-G. (1990) Agarose embedding: A new method for the ultrastructural examination of the in-situ morphology of cell cultures, *Ultrastruct. Pathol.* 14, 81-85.
  145. Woods,P.S., Ledbetter,M.C., and Tempel,N. (1991) Preservation of EDTA-expanded grid-mounted chromosomes and nuclei for electron microscopy using a specially designed freeze-dryer, *J. Electron Microsc. Tech.* 18, 183-191.
  146. Wouterlood,F.G., Boon,M.E., and Kok,L.P. (1990) Immunocytochemistry on free-floating sections of rat brain using microwave irradiation during the incubation in the primary antiserum: Light and electron microscopy, *J. Neurosci. Methods* 35, 133-145.
  147. Wouterlood,F.G. (1992) Techniques for converting Golgi precipitate in CNS neurons into stable electron microscopic markers, *J. Microsc. Res. Tech.* 23, 275-288.
  148. Wouterlood,F.G. (1992) Electron microscopy of Golgi-silver impregnated nervous tissue: Introduction, *J. Microsc. Res. Tech.* 23, 263-263.
  149. Yano,T., Ohtake,K., Kameda,K., Kizaki,M., and Ogawa,T. (1990) Application of the avidin-biotin-peroxidase complex technique for ultraimmunocytochemical characterization of leukemic cells, *Am. J. Hematol.* 34, 140-148.
  150. Yao,C.-H., Kitazawa,S., Fujimori,T., and Maeda,S. (1993) In situ hybridization at the electron microscopic level using a bromodeoxyuridine labeled DNA probe, *Biotech. Histochem.* 68, 169-174.
  151. Yi,J., Michel,O., Sassy-Prigent,C., and Chevalier,J. (1995) Electron microscopic location of mRNA in the rat kidney: Improved post-embedding in situ hybridization, *J. Histochem. Cytochem.* 43, 801-809.

152. Yokota,S. (1993) Quantitative immunoelectron microscopy for proteins contained in the cell organelles: Evaluation with a model system, *Acta Histochem. Cytochem.* 26 , 263-273.
153. Yu,S.-M. and Schwartz,I.R. (1989) An improved flat embedding technique for immunoelectron microscopy, *Stain Technol.* 64, 143-146.
154. Zdolsek,J.M., Roberg,K., and Brunk,U.T. (1993) Visualization of iron in cultured macrophages: A cytochemical light and electron microscopic study using autometallography, *Free Radic. Biol. Med.* 15, 1-11.