References

- 1. Adler, R.G., "Genome Research: Fulfilling the Public's Expectations for Knowledge and Commercialization," *Science* 257:908-914, 1992.
- 2. Adler, R.G., Office of Technology Transfer, National Institutes of Health, Bethesda, MD, personal communication, May 1993.
- 3. Adler, R.G., Office of Technology Transfer, National Institutes of Health, Bethesda, MD, personal communication, March 1994.
- 4. Aldhous, P., "MRC Follows NIH on Patents," *Nature* 356:98, 1992.
- American Society of Human Genetics, Human Genome Committee, "The Human Genome Project and Patents," *Science* 254:710, 1991.
- 6. Anderson, C., "U.S. Patent Application Stirs Up Gene Hunters," *Nature* 353:485-486, 1991.
- 7. Anderson, C., "UC Goes Where Harvard Feared to Tread," *Science* 258:1875, 1992.
- 8. Averch, H., *A Strategic Analysis of Science* and *Technology Policy* (Baltimore, MD: Johns Hopkins University Press, 1985).
- 9. *BioScan* (Phoenix, AZ: The Oryx Press, 1992).
- 10. BIOTECH Patent News, "Antitrust/Intellectual Property Guidelines May Impact Research Tool Licensing," 8:1, 1994.

- 11. Black, H.C., *Black's Law Dictionary*, 5th Ed (St. Paul, MN: West Publishing Co., 1979).
- 12. Blumenthal, D., Epstein, S., and Maxwell, J., "Commercializing University Research," *New England Journal of Medicine* 314: 1621-1626, 1986.
- 13. Blumenthal, D., "Academic-Industry Relationships in the Life Sciences," *Journal of the American Medical Association* 268:3344-3349, 1992.
- 14. Blumenthal, D., and Causino, N., "Sample of Biomedical and Biotechnology Firms for the U.S. Congress Office of Technology Assessment Survey About Firms' Involvement in Joint Projects with National Institutes of Health and the Department of Energy of the Study of Effects of the Federal Technology Transfer Act on the Commercial and Academic Activities of Federal Scientists," contractor document prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, April 1993.
- Blumenthal, D., and Causino, N., "Life Science CRADAs at the National Institutes of Health and Department of Energy Laboratories," contractor document prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, February 1994.

- Botstein, D., White, R.L., Skolnick, M., et al., "Construction of a Genetic Linkage Map in Man Using Restriction Fragment Length Polymorphisms," *American Journal of Hu*man Genetics 32:314-331, 1980.
- 17. Burrill, G. and Lee, K., *Biotech 94: Long-Term Value, Short-Term Hurdles* (San Francisco, CA: Ernst & Young, 1993).
- 18. Cheston, R., U.S. General Accounting Office, Washington, DC, personal communication, April 1993.
- 19. Clutter, M., "Preface," Federally Funded Genome Research: Science and Technology Transfer Issues, Proceedings of a Public Meeting, May 21, 1992, Genome Patent Working Group, Committee on Life Sciences and Health, Federal Coordinating Council for Science, Engineering, and Technology, Office of Science and Technology Policy (Washington, DC: U.S. Government Printing Office, 1992).
- 20. Cook-Deegan, R.M., *The Gene Wars: Science, Politics, and the Human Genome* (New York, NY: W.W. Norton, 1994).
- 21. Coombs, J., *The Biotechnology Directory* (New York, NY: Stockton Press, 1992).
- 22. CorpTech, *The Corporate Technology Directory* (Woburn, MA: CorpTech, 1993).
- 23. Cullen, S., Washington University, St. Louis, MO, "Safeguards of Academic Freedom and Facilitation of Technology Transfer in the Washington University-Monsanto Biomedical Research Agreement," remarks at PRIM&R conference, Boston, MA, December 1993.
- 24. Decker, J.F., "Technology Transfer and the Department of Energy: An Overview," G.R. Bopp (ed.), Federal Lab Technology Transfer: Issues and Policies (New York, NY: Praeger Publishers, 1988).
- 25. Deener, B., "Medical School Uses Patents to Protect Work," *Dallas Morning News* Sept. 3, 1993
- 26. *Diamond* v. *Chakrabarty*, 447 U.S. 303 (1980).

- 27. Dibner, M., *Biotechnology Guide USA* (New York, NY: Macmillan, 1991).
- 28. Dodd, G.G., "GMR Experience with CRADAs: A View from the Trenches," *GM Research Publications*, Mar. 8, 1993.
- Drell, D., Office of Health and Environmental Research, U.S. Department of Energy, Germantown, MD, personal communication, July 1995.
- Eisenberg, R.S., University of Michigan, School of Law, Ann Arbor, MI, remarks at workshop sponsored by the Congressional Biomedical Research Caucus,"Washington, DC, June 1993.
- Eisenberg, R.S., University of Michigan, School of Law, Ann Arbor, MI, remarks at workshop sponsored by the National Center for Human Genome Research, Bethesda, MD, December 1994.
- 32. Etzkowitz, H., and Peters, L., "University-Industry Connections and Academic Values," *Technology in Society* 12:427-440, 1990.
- Fusfeld, H.I., and C.S. Haklisch, "Collective Industrial Research: Initial Concepts," D.O. Gray, T. Solomon, and W. Hetzner (eds.), *Technological Innovation* (New York, NY: North-Holland, 1986).
- 34. Gavaghan, H., "NIH Resolves Dispute On Cancer Gene Patent," *Nature* 373:649, 1995.
- 35. Genetic Engineering & Biotechnology Related Firms Worldwide Directory (Princeton, NJ: Mega-Type Publishing, 1992).
- 36. Gladstone, N.J., "How Not to Promote Technology Transfer," *Technology Review* 89:22-23, 1986.
- 37. Glaser, V., "Genome Firms Lure Pharmaceutical Giants Into Lucrative Collaborations," *Genetic Engineering News* 14(16):8-9, 1994.
- Gotts, I.K., "Introduction to U.S. Antitrust Law and Its Application to Licenses," remarks at Seventh International Biotechnology Meeting and Exhibition, Association of Biotechnology Companies, Research Triangle Park, NC, April 1993.

- 39. Gray, D.O., Solomon, T., and Hetzner, W. (eds.), *Technological Innovation* (New York, NY: North-Holland, 1986).
- 40. Grissom, F.E., and Chapman, R.L., *Mining the Nation's Brain Trust* (Reading, MA: Addison-Wesley Publishing Company, Inc., 1992).
- 41. Gupta, U., "Hungry for Funds, Universities Embrace Technology Transfer," *Wall Street Journal*, p. A1, July 1, 1994.
- 42. Hamilton, J., Smith, G., Armstrong, L., and Carey, J., "Is This Fat Gene Worth Its Fat Tab?," *Business Week*, No. 3416: 100, Mar. 20, 1995.
- 43. Hanna, K., "Commercial Biotechnology and Patenting Human DNA Sequences," contractor document prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, February 1994.
- 44. Healy, B., "Special Report on Gene Patenting," *New England Journal of Medicine* 327:664-668, 1992.
- 45. Hightower, J., Office of General Counsel, U.S. Department of Energy, Washington, DC, personal communication, May 1993.
- 46. Hornig, D.F., "The Role of Government in Scientific Innovation," *Technological Innovation in the 80's*, J.S. Coles (ed.) (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1984).
- 47. Kenney, M., *Biotechnology: The University-Industrial Complex* (New Haven, CT: Yale University Press, 1986).
- 48. Korman, J., "The Human Genome Project: Platform for Biotechnology's Second Coming," remarks at "The Human Genome Project: Commercial Implications," Cambridge Healthtech Institute, San Francisco, CA, February 1994.
- 49. Krimsky, S., *Biotechnics and Society: The Rise of Industrial Genetics* (New York, NY: Praeger Publishers, 1991).
- 50. Lazarus, S., "A Report From Macedonia: Transforming University/Laboratory Science Into Useful Commercial Products—the Intermediating Organization," remarks at annual meeting of the American Association

- for the Advancement of Science, Boston, MA, February 1993.
- 51. Leary, W., "U.S. Gives Up Right to Control Drug Prices," *New York Times*, p. 23, Apr. 12, 1995.
- 52. Lehrman, S., "Stanford Seeks Life After Cohen-Boyer Patent Expires," *Nature* 363:574, 1993.
- 53. Lehrman, S., "UCSF Goes Solo With Venture Fund," *Nature* 366:603, 1993.
- 54. Lewis, R., Office of Technology Utilization, Department of Energy, Washington, DC, "Technology Transfer From Federal Laboratories to Industry," remarks at annual meeting of the American Association for the Advancement of Science, Boston, MA, February 1993.
- Lichtenstein, L.M., "NIH Funding Mechanisms Need Little Defense," *Science* 261:17, 1993.
- Logsdon, J., "Federal Policies Towards Civilian Research and Development," D.O. Gray, T. Solomon, and W. Hetzner (eds.), *Technological Innovation* (New York, NY: North-Holland, 1986).
- 57. Macilwain, C., "Conflict of Interest Debate Stirs Mixed Reaction at NIH," *Nature* 367:401, 1994.
- 58. Maggs, W., "Biotech Transfer at Department of Agriculture Focuses on One Industry Consortium," *New Technology Week*, May 13, 1991.
- 59. Maskell, J., Overview of Ethics and Conflict of Interest Provisions Applicable to Executive Branch Employees, Congressional Research Service, 85-667A (Washington, DC: Library of Congress, 1985).
- 60. McGarey, B., Office of Technology Transfer, National Institutes of Health, Bethesda, MD, personal communication, April 1995.
- 61. National Research Council, *Agricultural Biotechnology* (Washington, DC: National Academy Press, 1987).
- 62. National Research Council, *Mapping and Sequencing the Human Genome* (Washington, DC: National Academy Press, 1988).

- 63. Nelsen, L., "Commercialization vs. Research Freedom," *The Journal of NIH Research* 5:53-54, 1993.
- 64. Patent Policy Board; National Institutes of Health; Alcohol, Drug Abuse, and Mental Health Administration; and Centers for Disease Control and Prevention, *NIH/ADAM-HA/CDC Technology Transfer* (Bethesda, MD: U.S. Department of Health and Human Services, 1992).
- Paul, J., "Federal Tax Considerations of Licensing Transactions," *Drafting License Agreements*, M. Epstein and F. Politano (eds.)(Englewood Cliffs, NJ: Prentice-Hall, Inc., 1992).
- 66. President's Commission on Industrial Competitiveness, *Global Competition, The New Reality, Volume II* (Washington, DC: U.S. Government Printing Office, 1985).
- 67. Rahm, D., Bozeman, B., and Crow, M., "Domestic Technology Transfer and Competitiveness: An Empirical Assessment of Roles of University and Governmental R&D Laboratories," *Public Administration Review* 48:969-978, 1988.
- 68. Reimers, N., "The Government-Industry-University Interface: Improving the Innovative Process," *Technological Innovation in the 80's*, J.S. Coles (ed.) (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1984).
- 69. Roessner, J.D., "Innovation Policy in the United States: An Overview of the Issues," *Government Innovation Policy: Design, Implementation, Evaluation*, J.D. Roessner (ed.) (New York, NY: St. Martin's Press, Inc., 1988).
- 70. Roessner, J.D., "What Companies Want From the Federal Labs," *Issues in Science and Technology* 10:37-42, 1993.
- 71. Rudolph, L., "Review of Federal Technology Transfer Law and Implementation by Federal Agencies," *Federally Funded Genome Research: Science and Technology Transfer Issues*, Proceedings of a Public Meeting, May 21, 1992, Genome Patent Working Group, Committee on Life Sciences and Health,

- Federal Coordinating Council for Science, Engineering, and Technology, Office of Science and Technology Policy (Washington, DC: U.S. Government Printing Office, 1992).
- 72. Rudolph, L., Office of the General Counsel, Arlington, VA, "Overview of Federal Technology Transfer," remarks at "Maximizing the Return from Genome Research," Franklin Pierce Law Center, Manchester, NH, July 1993.
- 73. *Science*, "UC Faculty Shun Research Corporation," 260:1415, 1993.
- 74. Shapiro, B., Merck & Co., Inc., Rahway, NJ, remarks at "Commercial Biotechnology and Patenting Human DNA Sequences," a workshop sponsored by the Office of Technology Assessment, U.S. Congress, Washington, DC, Jan. 7, 1994.
- 75. Spalding, B., "Survey Outlines Forces Affecting Pharmaceuticals," *ASM News* 59:550-551, 1993.
- 76. Stark, E., testimony, U.S. Congress, House of Representatives, Committee on Science and Technology, Subcommittee on Science, Research and Technology, *Technology Transfer*, hearings, May 21-22, 1985, No. H70-84 (Washington, DC: U.S. Government Printing Office, 1985).
- 77. Strohman, R., "Epigenesis: The Missing Beat in Biotechnology?," *Bio/Technology* 12:156-164, 1994.
- 78. U.S. Congress, General Accounting Office, Technology Transfer: Implementation Status of the Federal Technology Transfer Act of 1986, GAO/RCED-89-154 (Gaithersburg, MD: U.S. Government Printing Office, May 1989).
- U.S. Congress, General Accounting Office, Technology Transfer: Barriers Limit Royalty Sharing's Effectiveness, GAO/RCED-93-6 (Gaithersburg, MD: U.S. Government Printing Office, 1992).
- 80. U.S. Congress, General Accounting Office, Technology Transfers: Benefits of Cooperative R&D Agreements, GAO/RCED-95-52

- (Gaithersburg, MD: U.S. Government Printing Office, 1994).
- 81. U.S. Congress, House of Representatives, Committee on Science and Technology, Subcommittee on Investigations and Oversight, *Commercialization of Academic Biomedical Research*, hearings, June 8-9, 1981, No. 97-46 (Washington, DC: U.S. Government Printing Office, 1981).
- 82. U.S. Congress, House of Representatives, Committee on Science and Technology, Subcommittee on Science, Research and Technology, *Technology Transfer*, hearings, May 21-22, 1985, No. H70-84 (Washington, DC: U.S. Government Printing Office, 1985).
- 83. U.S. Congress, Office of Technology Assessment, *Commercial Biotechnology: An International Analysis*, PB84-173608 (Springfield, VA: National Technical Information Service, January 1984).
- 84. U.S. Congress, Office of Technology Assessment, *Mapping Our Genes—Genome Projects: How Big, How Fast?*, PB88-212402 (Springfield, VA: National Technical Information Service, April 1988).
- 85. U.S. Congress, Office of Technology Assessment, *New Developments in Biotechnology:* U.S. Investment in Biotechnology, PB88-246939 (Springfield, VA: National Technical Information Service, July 1988).
- 86. U.S. Congress, Office of Technology Assessment, *Federally Funded Research: Decisions for a Decade*, PB91-198101 (Springfield, VA: National Technical Information Service, May 1991).
- 87. U.S. Congress, Office of Technology Assessment, *Biotechnology in a Global Economy*, PB92-115823 (Springfield, VA: National Technical Information Service, October 1991).
- 88. U.S. Congress, Office of Technology Assessment, *Pharmaceutical R&D: Costs, Risks, and Rewards*, OTA-H-552 (Washington, DC: U.S. Government Printing Office, February 1993).

- 89. U.S. Congress, Office of Technology Assessment, *Defense Conversion: Redirecting R&D*, OTA-ITE-552 (Washington, DC: U.S. Government Printing Office, May 1993).
- 90. U.S. Department of Commerce, Small Business Innovation Research Program Abstracts of Awards for Fiscal Year 1991 (Washington, DC: U.S. Government Printing Office, 1991).
- 91. U.S. Department of Commerce, Small Business Innovation Research Program Abstracts of Awards for Fiscal Year 1992 (Washington, DC: U.S. Government Printing Office, 1992).
- 92. U.S. Department of Energy, Energy Research Advisory Board, *Report of the Multiprogram Laboratories Panel of the Energy Research Advisory Board* (Washington, DC: U.S. Government Printing Office, 1983).
- 93. U.S. Department of Energy, Energy Research Advisory Board, Research and Technology Utilization: A Report of the Energy Research Advisory Board to the Department of Energy (Washington, DC: U.S. Department of Energy, 1988).
- 94. U.S. Department of Energy, *Technology Transfer 92/93* (Washington, DC: U.S. Government Printing Office, 1992).
- 95. U.S. Department of Energy, *DOE New Technology Transfer: Sharing New Frontiers* (Washington, DC: U.S. Government Printing Office, 1992).
- U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, NIH Data Book 1992 (Washington, DC: U.S. Government Printing Office, 1992).
- 97. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, "NIH News" (Washington, DC: U.S. Department of Health and Human Services, April 11, 1995).
- 98. U.S. Department of Health and Human Services, Office of Inspector General, Technology Transfer and the Public Interest: Cooperative Research and Development

- Agreements at NIH (Washington, DC: U.S. Department of Health and Human Services, 1993).
- 99. U.S. Office of Government Ethics, "Conflict of Interest Considerations for Federal Employees Under the Federal Technology Transfer Act," September 1988.
- 100. Vest, C., Massachusetts Institute of Technology, Cambridge, MD, "University-Government-Industry Research Cooperation," re-
- marks at annual meeting of the American Association for the Advancement of Science, Boston, MA, February 1993.
- 101. Washington Fax, "Reasonable Price Clause Causing Industry to Shy Away From NIH Research Partnerships," Dec. 21, 1993.
- 102. Washington Fax, "Roundtable Discussion Vents Frustrations, Generates Recommendations," Jan. 4, 1994.