

## References

Note: Additional citations are included in the sidebars in this document.

- Abraham, S. 2004. "The Bush Administration's Approach to Climate Change," *Science* **305**, 616–17.
- Aebersold, R., and J. D. Watts. 2002. "The Need for National Centers for Proteomics," *Nat. Biotechnol.* **20**, 65.
- Annual Energy Outlook 2005 with Projections to 2025*, DOE/EIA-0383. 2005. Energy Information Administration, U.S. Department of Energy ([www.eia.doe.gov/oiaf/aeo](http://www.eia.doe.gov/oiaf/aeo)).
- Appella, E., and C. W. Anderson, eds. Accepted for publication in *FEBS J.*, Fall 2005. Protein Interaction Minireview Series derived from 15<sup>th</sup> Conference on Methods in Protein Structure Analysis (MPSA2004).
- Altschul, S. F., et al. "Protein Database Searches Using Compositionally Adjusted Substitution Matrices."
- Bertone, P., and M. Snyder. "Advances in Functional Protein Array Technology."
- Bowers, P. M., et al. "Utilizing Logical Relationships in Genomic Data to Decipher Cellular Processes."
- Dunker, A. K., et al. "Flexible Nets: The Roles of Intrinsic Disorder in Protein Interaction Networks."
- Field, S. "High-Throughput Two Hybrid Analysis: The Promise and the Peril."
- Houtman, J. C. D., M. Barda-Saad, and L. E. Samelson. "Examining Multiprotein Signaling Complexes from All Angles: Use of Complementary Techniques to Characterize Complex Formation at the Adapter Protein LAT."
- Noble, W. S., et al. "Identifying Remote Protein Homologs by Network Propagation."
- Ramachandran, N., et al. "Emerging Tools for Real-Time Label-Free Detection of Interactions on Functional Protein Microarrays."
- Armbrust, E. V., et al. 2004. "The Genome of the Diatom *Thalassiosira pseudonana*: Ecology, Evolution, and Metabolism," *Science* **306**, 79–86.
- Belkin, S. 2003. "Microbial Whole-Cell Sensing Systems of Environmental Pollutants," *Curr. Opin. Microbiol.* **6**, 206–12.
- Ben-Ari, E. T. 2002. "Microbiology and Geology: Solid Marriage Made on Earth," *ASM News* **68**(1), 13–17.
- Beyenal, H., C. C. Davis, and Z. Lewandowski. 2004. "An Improved Severinghaus-Type Carbon Dioxide Microelectrode for Use in Biofilms," *Sens. Actuators B Chem.* **97**, 202–10.
- Beyenal, H., et al. 2004. "Uranium Immobilization by Sulfate-Reducing Biofilms," *Environ. Sci. Technol.* **38**(7), 2067–74.
- Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply*. 2005. U.S. Department of Agriculture and U.S. Department of Energy.
- Bioremediation of Metals and Radionuclides: What It is and How It Works*, 2<sup>nd</sup> ed., 2003. Natural and Accelerated Bioremediation Research Program, U.S. Department of Energy ([www.lbl.gov/NABIR](http://www.lbl.gov/NABIR)).
- Bioventing Performance and Cost Results from Multiple Air Force Test Sites*. 1996. Prepared by Parsons Engineering Science for the Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas.
- Brady, S. F., and J. Clardy. 2000. "Long-Chain N-Acyl Amino Acid Antibiotics Isolated from Heterologously Expressed Environmental DNA," *J. Am. Chem. Soc.* **122**(51), 12903–4.
- Brady, S. F., C. J. Chao, and J. Clardy. 2002. "New Natural Product Families from an Environmental DNA (cDNA) Gene Cluster," *J. Am. Chem. Soc.* **124**, 9968–69.
- Buckley, M. R. 2004a. *The Global Genome Question: Microbes as the Key to Understanding Evolution and Ecology*, American Society for Microbiology.

- Buckley, M. R. 2004b. *Systems Microbiology: Beyond Microbial Genomics*, American Society for Microbiology.
- Carbon Sequestration Research and Development*. 1999. Office of Science Office of Fossil Energy, U.S. Department of Energy.
- Check, B. 2002. "AAM Sees Bright Prospects for Microbial Ecology Research in the Genomic Era," *ASM News* **68**(9), 427–31.
- Climate Change Science Program (CCSP). 2003. *Strategic Plan for the U.S. Climate Change Science Program*, U.S. Climate Change Science Program and Subcommittee on Global Change Research ([www.climatechange.gov/Library/stratplan2003/final/default.htm](http://www.climatechange.gov/Library/stratplan2003/final/default.htm)).
- Climate Change Technology Program (CCTP) ([www.climatechange.gov](http://www.climatechange.gov))
- Closure Planning Guidance*. 2004. Office of Environmental Management, U.S. Department of Energy (<http://web.em.doe.gov/program.html>).
- Critical Choices: Science, Energy, and Security: Final Report of the Secretary of Energy Advisory Board's Task Force on the Future of Science Programs at the Department of Energy*. 2003. Secretary of Energy Advisory Board, U.S. Department of Energy ([www.seab.energy.gov/publications/FSPFinalDraft.pdf](http://www.seab.energy.gov/publications/FSPFinalDraft.pdf)).
- Croal, L. R., et al. 2004. "The Genetics of Geochemistry," *Annu. Rev. Genet.* **38**, 175–202.
- Demain, A., et al. 2005. "Cellulase, Clostridia, and Ethanol," *Microbiol. Mol. Biol. Rev.* **69**, 124–54.
- The Department of Energy Strategic Plan*, DOE/ME-0030. 2003. Office of Program Analysis and Evaluation, Office of Management, Budget, and Evaluation, U.S. Department of Energy ([strategic-plan.doe.gov](http://strategic-plan.doe.gov)).
- Doney, S. C., et al. 2004. "From Genes to Ecosystems: The Ocean's New Frontier," *Front. Ecol. Environ.* **2**(9), 457–66.
- Dunker, A. K., et al. 1998. "Protein Disorder and the Evolution of Molecular Recognition: Theory, Predictions, and Observation," *Pac. Symp. Biocomp.* **3**, 473–84.
- Edmonds, J. A., et al. 2003. "The Potential Role of Biotechnology in Addressing the Long-term Problem of Climate Change in the Context of Global Energy and Economic Systems," *Greenhouse Gas Control Technologies: Proceedings of the Sixth International Conference on Greenhouse Gas Control Technologies, 1–4 October 2002, Kyoto, Japan*, ed. J. Gale and Y. Kaya (Pergamon, Amsterdam, Netherlands), 1427–32.
- Edmonds J., et al. 2004. "Stabilization of CO<sub>2</sub> in a B2 World: Insights on the Roles of Carbon Capture and Disposal, Hydrogen, and Transportation Technologies," *Energy Econ.* **26**(4), 517–37.
- Elowitz, M. B., et al. 2002. "Stochastic Gene Expression in a Single Cell," *Science* **297**, 1183–86.
- Ellis, D. I., et al. 2004. "From Genomes to Systems: A Report on the 2nd Conference of the Consortium for Post-Genome Science (CPGS) 'Genomes to Systems,' Manchester, U.K., 1–3 September 2004," *Genome Biol.* **5**, 354.
- Endo, Y., and T. Sawasaki. 2003. "High-Throughput, Genome-Scale Protein Production Method Based on the Wheat Germ Cell-Free Expression System," *Biotechnol. Adv.* **21**(8), 695–713.
- Falciatore, A., and C. Bowler. 2002. "Revealing the Molecular Secrets of Marine Diatoms," *Annu. Rev. Plant Biol.* **53**, 109–30.
- Falkowski, P., et al. 2000. "The Global Carbon Cycle: A Test of Our Knowledge of Earth as a System," *Science* **290**, 291–96.
- Falkowski, P. G., and C. de Vargas. 2004. "Shotgun Sequencing in the Sea: A Blast from the Past?" *Science* **304**, 58–60.
- Field, C. B., et al. 1998. "Primary Production of the Biosphere: Integrating Terrestrial and Oceanic Components," *Science* **281**, 237–81.
- Finelli, A., et al. 2003. "Use of In-Biofilm Expression Technology to Identify Genes Involved in *Pseudomonas aeruginosa* Biofilm Development," *J. Bacteriol.* **185**, 2700–2710.
- Frazier, M. E., et al. 2003a. "Realizing the Potential of the Genome Revolution: The Genomes to Life Program," *Science* **300**, 290–93.
- Frazier, M. E., et al. 2003b. "Stepping Up the Pace of Discovery: The Genomes to Life Program," *Proc. IEEE Comput. Soc. Bioinform. Conf. (CSB '03)*.

- Fredrickson, J. K., and D. L. Balkwill. 2005. "Geomicrobial Processes and Biodiversity in the Deep Terrestrial Subsurface," *Geomicrobiol. J.*, in press.
- Fuhrman, J. 2003. "Genome Sequences from the Sea," *Nature* **424**, 1001–2.
- Gaietta, G., et al. 2002. "Multicolor and Electron Microscopic Imaging of Connexin Trafficking," *Science* **296**(5567), 503–7.
- Ghirardi, M. L., et al. 2000. "Microalgae: A Green Source of Renewable H<sub>2</sub>," *Trends Biotechnol.* **18**, 506–11.
- Gold, T. 1992. "The Deep, Hot Biosphere," *Proc. Natl. Acad. Sci.* **89**, 6045–49.
- Greene, N., et al. 2004. *Growing Energy: How Biofuels Can Help End America's Oil Dependence*, Natural Resources Defense Council, New York.
- Handelsman et al. 1998. "Molecular Biological Access to the Chemistry of Unknown Soil Microbes: A New Frontier for Natural Products," *Chem. Biol.* **5**, R245–49.
- Herrera, S. June 2004. "Industrial Biotechnology—A Chance at Redemption," *Nat. Biotechnol.* **22**(6), 671–75.
- Hess, W. R. 2004. "Genome Analysis of Marine Photosynthetic Microbes and Their Global Role," *Curr. Opin. Biotechnol.* **15**(3), 191–98.
- Homegrown for the Homeland: Ethanol Industry Outlook 2005*. 2005. Renewable Fuels Association ([www.ethanolrfa.org/outlook2005.html](http://www.ethanolrfa.org/outlook2005.html)).
- Houghton, J. T., et al., eds. 1995. *Climate Change 1995: The Science of Climate Change: Contribution of Working Group I to the Second Assessment of the Intergovernmental Panel on Climate Change*, Cambridge University Press, U.K.
- The Hydrogen Economy: Opportunities, Costs, Barriers, and R&D Needs*. 2004. National Research Council and National Academy of Engineering, National Academies Press, Washington, D.C.
- International Energy Outlook*, DOE/EIA-0484. 2004. Energy Information Administration, U. S. Department of Energy ([www.eia.doe.gov/oiaf/ieo](http://www.eia.doe.gov/oiaf/ieo)).
- Johnston, C. A., et al. 2004. "Carbon Cycling in Soil," *Front. Ecol. Environ.* **2**(10), 522–28.
- Kawasaki, T., et al. 2003. "Efficient Synthesis of a Disulfide-Containing Protein Through a Batch Cell-Free System from Wheat Germ," *Eur. J. Biochem.* **270**(23), 4780–86.
- Keller, M., and K. Zengler. Feb. 2004. "Tapping into Microbial Diversity," *Nat. Rev. Microbiol.* **2**, 141–50.
- Kigawa, T., et al. 1999. "Cell-Free Production and Stable-Isotope Labeling of Milligram Quantities of Proteins," *FEBS Lett.* **442**, 15.
- King, G. M., et al. 2001. *Global Environmental Change: Microbial Contributions, Microbial Solutions*, American Society for Microbiology.
- Kitano, H. 2002. "Systems Biology: A Brief Overview," *Science* **295**, 1662–64.
- Klaper, R., and M. A. Thomas. 2004. "At the Crossroads of Genomics and Ecology: The Promise of a Canary on a Chip," *BioScience* **54**(5), 403–12.
- Larimer, F. W., et al. 2004. "Complete Genome Sequence of the Metabolically Versatile Photosynthetic Bacterium *Rhodospseudomonas palustris*," *Nat. Biotechnol.* **22**, 55–61.
- Levin, D. B., L. Pitt, and M. Love. 2004. "Biohydrogen Production: Prospects and Limitations to Practical Application," *Int. J. Hydrogen Energy* **29**, 173–85.
- Linking Legacies: Connecting the Cold War Nuclear Weapons Production Processes to Their Environmental Consequences*. 1997. Office of Environmental Management, U.S. Department of Energy.
- Lipton, M. S., et al. 2002. "Global Analysis of the *Deinococcus radiodurans* Proteome by Using Accurate Mass Tags," *Proc. Natl. Acad. Sci.* **99**(17), 11049–54.
- Littlehales, C. 2004. "Industrial Biotech Takes Center Stage at World Congress in 2004: Summary Article on World Congress 2004," Biotechnology Industry Organization ([bio.org/worldcongress/media/20040426.asp](http://bio.org/worldcongress/media/20040426.asp)).
- Luengo, J. M., et al. 2003. "Bioplastics from Microorganisms," *Curr. Opin. Microbiol.* **6**, 251–60.
- Madamwar, D., N. Garg, and V. Shah. 2000. "Cyanobacterial Hydrogen Production," *World J. Microbiol. Biotechnol.* **16**, 757–67.

- Madsen, E. L. 2005. "Identifying Microorganisms Responsible for Ecologically Significant Biogeochemical Processes," *Nat. Rev. Microbiol.* **3**, 439–46.
- Majdalani, N., C. K. Vanderpool, and S. Gottesman. 2005. "Bacterial Small RNA Regulators," *Crit. Rev. Biochem Mol. Biol.* **40**, 93–113.
- Mann, C. 2004. "Ethanol from Biomass," Memorandum to the National Commission on Energy Policy, Appendix IV.4e of NCEP report, *Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges*.
- Marburger, J. H., III, and J. B. Bolten. 2004. "Memorandum for the Heads of Executive Departments and Agencies," M-04-23, Executive Office of the President, Washington, D.C.
- Martinez, D., et al. 2004. "Genome Sequence of the Lignocellulose Degrading fungus *Phanerochaete chrysosporium* strain RP78," *Nat. Biotechnol.* **22**(6), 695–700.
- Melis, A., and T. Happe. 2001. "Hydrogen Production. Green Algae as a Source of Energy," *Plant Physiol.* **127**, 740–48.
- Meyer, J. 2004. "Miraculous Catch of Iron-Sulfur Protein Sequences in the Sargasso Sea," *FEBS Lett.* **570**, 1–6.
- Moller, G. M., et al. 1998. "In Situ Gene Expression in Mixed-Culture Biofilms: Evidence of Metabolic Interactions Between Community Members," *Appl. Environ. Microbiol.* **64**, 721–32.
- Nakicenovic, N., et al. 2000. *Special Report on Emissions Scenarios*, ed. N. Nakicenovic and R. Swart, Cambridge University Press, New York ([www.grida.no/climate/ipcc/emission/index.htm](http://www.grida.no/climate/ipcc/emission/index.htm)).
- Nass, S. J., and B. Stillman. 2003. *Large-Scale Biomedical Science: Exploring Strategies in Future Research*, National Academies Press, Washington, D.C.
- Nath, K., and D. Das. 2004. "Biohydrogen Production as a Potential Energy Resource: Present State-of-Art," *J. Sci. Ind. Res.* **63**, 729–38.
- National Biodiesel Board ([www.biodiesel.org](http://www.biodiesel.org))
- National Hydrogen Energy Roadmap*. 2002. Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy ([www.eere.energy.gov/hydrogenandfuelcells/pdfs/national\\_h2\\_roadmap.pdf](http://www.eere.energy.gov/hydrogenandfuelcells/pdfs/national_h2_roadmap.pdf)).
- Nealson, K. H. 2005. "Hydrogen and Energy Flow as 'Sensed' by Molecular Genetics," *Proc. Natl. Acad. Sci.* **102**(11), 3889–90.
- Nicholson, J. K., et al. 2002. "Metabonomics: A Platform for Studying Drug Toxicity and Gene Function," *Nat. Rev. Drug Discov.* **1**, 153–61.
- O'Toole, G. A. 2003. "To Build a Biofilm," *J. Bacteriol.* **185**(9), 2687–89.
- Pacala, S., and R. Socolow. 2004. "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies," *Science* **305**, 968–72.
- Patrinos, A. 2005. "Biotechnology Reenergized: The Goals and Promise of Genomes to Life Program Have Energy and Environmental Applications," *The Scientist* **19**, 20.
- Pennisi, E. 2003. "Tracing Life's Circuitry," *Science* **302**, 1646–49.
- Prince, R. C., and H. S. Kheshgi. 2005. "The Photobiological Production of Hydrogen: Potential Efficiency and Effectiveness as a Renewable Fuel," *Crit. Rev. Microbiol.* **31**, 19–31.
- Reliable, Affordable, and Environmentally Sound Energy for America's Future: Report of the National Energy Policy Development Group*. 2001. National Energy Policy Development Group, Washington, D.C. ([www.whitehouse.gov/energy/](http://www.whitehouse.gov/energy/)).
- Report on the Imaging Workshop for the Genomes to Life Program, Charlotte, North Carolina, April 16–18, 2002*, DOE/SC-0066. 2002. Prepared by the Office of Advanced Scientific and Computing Research and Office of Biological and Environmental Research, Office of Science, U.S. Department of Energy ([www.doegenomestolife.org/technology/imaging/workshop2002/](http://www.doegenomestolife.org/technology/imaging/workshop2002/)).
- Riesenfeld, C. S., P. D. Schloss, and J. Handelsman. 2004. "Metagenomics: Genomic Analysis of Microbial Communities," *Annu. Rev. Genet.* **38**, 525–52.
- Relman, D. A., and E. Strauss. 2000. *Microbial Genomes: Blueprints for Life*, American Society for Microbiology.
- Roberts, R. J. 2004. "Identifying Protein Function—A Call for Community Action," *PLoS Biology* **2**(2), 1.

- Roberts, R. J., et al. 2004. *An Experimental Approach to Genome Annotation*, American Society for Microbiology.
- Romero, P., et al. 1998. "Thousands of Proteins Likely to Have Long Disordered Regions," *Pac. Symp. Biocomp.* **3**, 437–48.
- Rosenberg, N. J., F. B. Metting, and R. C. Izaurrealde, eds. 2004. *Applications of Biotechnology to Mitigation of Greenhouse Warming: Proceedings of the St. Michaels II Workshop April 2003*, Battelle Press, Columbus, Ohio.
- Rosenberg, N. J., R. C. Izaurrealde, and E. L. Malone, eds. 1999. *Carbon Sequestration in Soils: Science, Monitoring, and Beyond. Proceedings of the St. Michaels Workshop December 1998*, Battelle Press, Columbus, Ohio.
- Saha, B. C. 2004. "Lignocellulose Biodegradation and Applications in Biotechnology," pp. 2–34 in *Lignocellulose Biodegradation*, American Chemical Society, Washington, D.C.
- Sawasaki, T., et al. 2002. "A Cell-Free Protein Synthesis System for High-Throughput Proteomics," *Proc. Natl. Acad. Sci. USA.* **99**(23), 14652–57.
- Schaechter, M., R. Kolter, and M. Buckley. 2004. *Microbiology in the 21<sup>st</sup> Century: Where are We and Where Are We Going?* American Society for Microbiology.
- Schaechter, M., R. Kolter, and S. Maloy. 2005. "Microbiology Happens," *ASM News* **71**(2), 54–55.
- Schloss, P. D., and J. Handelsman. 2003. "Biotechnological Prospects from Metagenomics," *Curr. Opin. Biotechnol.* **14**, 303–10.
- Scott, M. J., et al. 1998. "Research Investment Pays Off: Subsurface Barrier Technology Results in Cost Savings," *Soil and Groundwater Cleanup* (Oct. 6–13, 1998).
- Smith, H. O., et al. 2003. "Generating a Synthetic Genome by Whole Genome Assembly: ΦX174 Bacteriophage from Synthetic Oligonucleotides," *Proc. Natl. Acad. Sci.* **100**(26), 15440–45.
- Smith, S. J., et al. 2004. *Near-Term US Biomass Potential: Economics, Land-Use, and Research Opportunities*, PNWD-3285, Battelle Memorial Institute, Joint Global Change Research Institute, Baltimore, Md.
- Socolow, R. H. July 2005. "Can We Bury Global Warming?" *Sci. Am.* **293**(1), 49–55.
- Spear, J. R., et al. 2005. "Hydrogen and Bioenergetics in the Yellowstone Geothermal Ecosystem," *Proc. Natl. Acad. Sci.* **102**(7), 2555–60.
- Stahl, D. A., and J. M. Tiedje. 2002. *Microbial Ecology and Genomics: A Crossroads of Opportunity*, American Society for Microbiology.
- Staley, J. T., et al. 1997. *The Microbial World: Foundation of the Biosphere*, American Society for Microbiology.
- Stein, J. L., et al. 1996. "Characterization of Uncultivated Prokaryotes: Isolation and Analysis of a 40-Kilobase-Pair Genome Fragment from a Planktonic Marine Archaeon," *J. Bacteriol.* **178**, 591–99.
- Tamagnini, P., et al. 2002. "Hydrogenase and Hydrogen Metabolism of Cyanobacteria," *Microbiol. Mol. Biol. Rev.* **66**, 1–20.
- Toner, B., et al. 2005. "Spatially Resolved Characterization of Biogenic Manganese Oxide Production Within a Bacterial Biofilm," *Appl. Envir. Microbiol.* **71**(3), 1300–1310.
- Tringe, S. G., et al. 2005. "Comparative Metagenomics of Microbial Communities," *Science* **308**, 554–57.
- Tyson, G. W., et al. 2004. "Community Structure and Metabolisms Through Reconstruction of Microbial Genomes from the Environment," *Nature* **428**, 37–43.
- U.S. Congress. 2000. Biomass Research and Development Act of 2000, H.R. 2559.
- Venter, J. C., et al. 2004. "Environmental Genome Shotgun Sequencing of the Sargasso Sea," *Science* **304**, 66–74.
- Vision for Bioenergy and Biobased Products in the United States*. 2002. Biomass Research and Development Technical Advisory Committee ([www.bioproducts-bioenergy.gov/pdfs/BioVision\\_03\\_Web.pdf](http://www.bioproducts-bioenergy.gov/pdfs/BioVision_03_Web.pdf)).
- Winzer, K., K. R. Hardie, and P. Williams. 2002. "Bacterial Cell-to-Cell Communication: Sorry, Can't Talk Now—Gone to Lunch!" *Curr. Opin. Microbiol.* **5**, 216–22.
- Wolfaardt, G. M., et al. 1994. "Multicellular Organization in a Degradative Biofilm Community," *Appl. Environ. Microbiol.* **60**, 434–46.
- Zengler et al., 2002. "Cultivating the Uncultured," *Proc. Natl. Acad. Sci. USA* **99**(24), 15681–86.

