

SCIENCE & CENTS

Exploring the Economics of Biotechnology



Friday, April 19, 2002 • Federal Reserve Bank of Dallas

Agenda

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- 8:25 a.m. **Welcome**
Robert D. McTeer, Jr.
President and Chief Executive Officer, Federal Reserve Bank of Dallas
- 8:30 a.m. **An Economic Perspective on the Biotech Revolution**
Michael R. Darby
Warren C. Cordner Professor of Money and Financial Markets, University of California at Los Angeles
- Frank R. Lichtenberg*
Courtney C. Brown Professor of Business, Columbia University
- 9:45 a.m. **Overview of Basic Biotech Research**
C. Thomas Caskey
President and Chief Executive Officer, Cogene BioTech Ventures Ltd.
- 10:30 a.m. **Break**
- 10:45 a.m. **Legal and Regulatory Issues Facing Biotechnology**
Henry G. Grabowski
Professor of Economics and Director of the Program in Pharmaceuticals and Health Economics, Duke University
- Rebecca S. Eisenberg*
Robert and Barbara Luciano Professor of Law, University of Michigan
- Noon **Luncheon and Keynote Address: Harnessing New Technologies for the 21st Century**
Malcolm Gillis
President and Ervin Kenneth Zingler Professor of Economics, Rice University
- 1:15 p.m. **Financing Biotech Research**
Timothy F. Howe
Founding Partner, Collinson, Howe & Lennox and Adjunct Professor, Graduate School of Business, Columbia University
- Michael S. Lawlor*
Professor of Economics, Wake Forest University
- 2:30 p.m. **Break**
- 2:45 p.m. **Local Determinants of Biotech Research**
Dennis K. Stone
Vice President for Technology Development, University of Texas Southwestern Medical Center
- Lynne G. Zucker*
Professor of Sociology, University of California at Los Angeles
- 4:00 p.m. **Closing Remarks and Adjournment**

Participants

C. Thomas Caskey

President and Chief Executive Officer
Cogene Biotech Ventures Ltd.

Caskey advises on biotechnology and biomedical projects. He is head of Cogene BioTech Ventures Ltd., a venture capital fund supporting early-stage biotechnology companies. He also serves as an adjunct professor for Baylor College of Medicine. Caskey was senior vice president of research at Merck Research Laboratories and trustee and president of Merck Genome Research Institute. Caskey recently received the Distinguished Texas Geneticist Award. He serves on several national research review panels, including the Intramural Human Genome Projects Special Review Committee at the National Institutes of Health, and on the editorial boards of the *Journal of the American Medical Association* and *Science*. He is a member of the Institute of Medicine and the National Academy of Sciences. Caskey earned his medical doctorate from Duke University and is board certified in internal medicine, clinical genetics, metabolic diseases and molecular diagnostics.

Michael R. Darby

Warren C. Cordner Professor of Money and Financial Markets
University of California at Los Angeles

In addition to his position with UCLA's Anderson Graduate School of Management, Darby currently holds appointments as chairman of The Dumbarton Group, research associate with the

National Bureau of Economic Research and adjunct scholar with the American Enterprise Institute. He is also director of UCLA's John M. Olin Center for Public Policy. He recently served as president of the Western Economic Association International. Darby's most recent research has examined the growth of the biotechnology industry in the United States and the role that universities and their faculties play in encouraging local economic development. Darby has also served in the Reagan and Bush administrations as assistant secretary of the Treasury for economic policy, undersecretary of commerce for economic affairs and administrator of the Economics and Statistics Administration. During his appointment, he received the Treasury's highest honor, the Alexander Hamilton Award. Darby holds an undergraduate degree from Dartmouth College and a master's and doctorate from the University of Chicago.

John V. Duca

Vice President and Senior Economist
Federal Reserve Bank of Dallas

Duca co-leads and conducts research in macroeconomics and finance at the Dallas Fed. He also serves as a visiting scholar at the American Institute for Economic Research. Prior to joining the Dallas Fed, Duca was a staff economist at the Federal Reserve Board. Additionally, he was a part-time lecturer at the University of Maryland. Duca received a B.A. from Yale University and a Ph.D. in economics from Princeton University.



Rebecca S. Eisenberg

Robert and Barbara Luciano Professor of Law
University of Michigan

Eisenberg joined the University of Michigan Law School faculty in 1984. She teaches courses in patent law, trademark law and torts. She has been a visiting professor of law, science and technology at Stanford Law School and has received grants from the U.S. Department of Energy Office of Biological and Environmental Research for her work on private appropriation and public dissemination of DNA sequence information. Previously, she served as a law clerk for Chief Judge Robert F. Peckham on the U.S. District Court for the Northern District of California and then practiced law as a litigator in San Francisco. Eisenberg serves on the advisory committee to the director of the National Institutes of Health and on the Panel on Science, Technology and Law of the National Academies. She graduated from Stanford University and Boalt Hall School of Law at the University of California at Berkeley.

Malcolm Gillis

President and Ervin Kenneth Zingler
Professor of Economics
Rice University

Before becoming president of Rice University in 1993, Gillis served as Duke University's dean of the faculty of arts and sciences, graduate school dean and vice provost for academic affairs. He also taught at Harvard University for 15 years. Gillis has published more than 70 articles and several books, including a leading economics

textbook, *Economics of Development* (4th edition), and served five years as co-editor of the *Quarterly Journal of Economics*. In 1997, Gillis was named to the National Academy of Sciences Board on Sustainable Development. He serves as a board member of the National Council for Science and the Environment, the Houston Advanced Research Center and Houston Technology Center. He holds undergraduate and master's degrees from the University of Florida and received his doctorate from the University of Illinois.

Henry G. Grabowski

Professor of Economics and Director
of the Program in Pharmaceuticals
and Health Economics
Duke University

Prior to joining Duke University's faculty in 1972, Grabowski was an assistant professor in economics at Yale University and a research associate for the National Bureau of Economic Research. Grabowski has also been a research fellow at the International Institute of Management in Berlin, and a visiting scholar at the Health Care Financing Administration's Office of Research in Washington, D.C. He has acted as an adviser and consultant to the National Academy of Sciences, Institute of Medicine, Federal Trade Commission, Office of Technology Assessment and the General Accounting Office. Grabowski holds an undergraduate degree from Lehigh University and a master's and doctorate in economics from Princeton University.



Timothy F. Howe

*Founding Partner, Collinson,
Howe & Lennox and Adjunct Professor,
Graduate School of Business,
Columbia University*

Howe is founding partner of a venture capital firm that provides management and advisory services to four closed-end investment pools representing more than \$100 million of committed capital. He has been investing in private equities since 1984 and has been responsible for a number of investments in the biotechnology, medical device and services areas. Previously, Howe was a partner at Schroder Ventures. He also played a leading role in the formation of Biotechnology Investment Group, organized in 1995 to take over management of a portfolio of public and private healthcare companies. Howe earned his B.A. and M.B.A. from Columbia University.

Michael S. Lawlor

*Professor of Economics
Wake Forest University*

Lawlor is a professor of economics and associate in the Social Science Section of the Department of Public Health Sciences at Wake Forest University's School of Medicine. He also directs the interdisciplinary minor in health policy and administration, a program that crosses the traditional divide between the liberal arts campus and the medical school. Lawlor is a financial economist and economic historian who specializes in the economic behavior of health organizations and the role of social influences on

market behavior. He held a fellowship at Clare Hall, Cambridge University, served as a visiting member of the economics faculty at Cambridge and was a visiting associate professor of economics at Duke University. Lawlor received his undergraduate degree in economics and philosophy from the University of Texas at Austin and his doctorate from Iowa State University.

Frank R. Lichtenberg

*Courtney C. Brown Professor of Business
Columbia University*

Lichtenberg is a business professor at Columbia University and a research associate of the National Bureau of Economic Research. Previously, he held teaching positions at Harvard University and the University of Pennsylvania. He has served as an econometrics expert for the Federal Trade Commission and has testified before Congress. Lichtenberg has been a visiting scholar at the Wissenschaftszentrum Berlin and the University of Munich. His research has examined how the introduction of new technology arising from research and development affects the productivity of companies, industries and nations. He has been awarded research fellowships, grants and contracts by the National Science Foundation, National Institute of Standards and Technology, Merck and Co., Fulbright Commission, Brookings Institution, Alfred P. Sloan Foundation and the American Enterprise Institute. Lichtenberg received a B.A. from the University of Chicago and an M.A. and Ph.D. in economics from the University of Pennsylvania.



Robert D. McTeer, Jr.

President and Chief Executive Officer
Federal Reserve Bank of Dallas

McTeer became president of the Dallas Fed in February 1991, after serving as head of the Richmond Fed's Baltimore Branch. As president of the Dallas Fed, he is a member of the Federal Open Market Committee, the Fed's principal monetary policymaking body. McTeer is a strong advocate of free enterprise, and under his leadership, the Dallas Fed has become known as the "free enterprise Fed" and, more recently, the "New Economy Fed." He is a past president of the Association of Private Enterprise Education, a national association of holders of chairs of free enterprise and other scholars who advocate free market solutions to public policy problems. McTeer was an adjunct professor at the University of Richmond, Virginia Commonwealth University and Johns Hopkins University. He also served on the faculty of several state and regional banking schools. McTeer received his undergraduate degree and his doctorate in economics from the University of Georgia.

Harvey Rosenblum

*Senior Vice President and
Director of Research*
Federal Reserve Bank of Dallas

Rosenblum serves as economic policy advisor to the president of the Dallas Fed and as an associate economist for the Federal Open Market Committee, which formulates U.S. monetary policy. He is also president of the National

Association for Business Economics. A recognized expert on the national and Texas economies, Rosenblum is a visiting professor of finance and economics at Southern Methodist University. His research focuses on monetary policy, electronic money and international trade. Rosenblum began his Fed career in 1970 as an economist with the Federal Reserve Bank of Chicago. He holds an economics degree from the University of Connecticut and a Ph.D. in economics from the University of California at Santa Barbara.

Dennis K. Stone

Vice President for Technology Development
University of Texas Southwestern Medical
Center

Stone joined the Office for Technology Development in 1998. He is also a professor of internal medicine, physiology and biochemistry and holder of the NCH Corporation Chair in Molecular Transport. Stone has been the recipient of a Searle Scholarship and an Established Investigator Award of the American Heart Association. He is a member of the American Society for Clinical Investigation and the Association of American Physicians. He received his undergraduate degree from the University of Texas at Austin and completed medical school at UT Southwestern Medical Center at Dallas. He received his house staff training in internal medicine at Columbia Presbyterian Medical Center in New York City and completed clinical and research fellowship training in nephrology at UT Southwestern and Cornell University.



Mine K. Yücel

Assistant Vice President and Senior Economist
Federal Reserve Bank of Dallas

Yücel is head of the Dallas Fed's regional group. Her main research interests are analyzing the effects of energy price shocks, energy markets, regional growth, and growth effects of fiscal and monetary policy. Before joining the Dallas Fed, Yücel was an assistant professor of economics at Louisiana State University. She is on the executive board of the Dallas Chapter of Women in Technology International and has served on the executive board of the United States Association of Energy Economics. Yücel has a B.S. and M.S. in mathematics from Bogazici University in Istanbul and a Ph.D. in economics from Rice University.

Lynne G. Zucker

Professor of Sociology
University of California at Los Angeles

Zucker currently serves as professor of sociology and policy studies at the University of California at Los Angeles. She is also director of the Organizational Research Program at the Institute for Social Science Research and director of the Center for International Science, Technology and Cultural Policy at UCLA. Concurrently, Zucker holds appointments as a research associate with the National Bureau of Economic Research and a fellow of the California Council on Science and Technology. She has been a consulting sociologist with the American Institute of Physics and has served on the editorial boards of *Administrative Science Quarterly*, *American Journal of Sociology* and *American Sociological Review*. Zucker received her A.B. from Wells College and her master's and doctorate in sociology from Stanford University.

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