

*New Developments in Biotechnology:  
Field-Testing Engineered Organisms:  
Genetic and Ecological Issues*

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# Foreword

Since the discovery of recombinant DNA technology in the early 1970s much attention has focused on the potential benefits and risks presented by the new abilities of researchers to manipulate DNA. The importance of ecological issues was heightened in 1982 with the proposal by researchers to field test bacteria engineered to reduce crop losses due to frost damage. Additional pressures have come to bear as a result of developments in the economics of American agriculture and with foreign trade imbalances. In this special report OTA analyzes some of the scientific and public opinion issues surrounding the planned introduction of genetically engineered organisms into the environment.

The assessment of *New Developments in Biotechnology* was requested by the House Committee on Energy and Commerce and the House Committee on Science, Space, and Technology. The first publication in the series was *Ownership of Human Tissues and Cells*, and the second was *Public Perceptions of Biotechnology*. Subsequent studies will examine U.S. investment in biotechnology and issues relevant to the patenting of plants, animals, and microorganisms. This third report in the series illustrates a range of options for congressional action in three major areas of public policy related to this application of biotechnology:

- the criteria for review of planned introductions for potential risk,
- the administrative mechanisms for applying such review criteria, and
- the research base supporting planned introductions.

In gathering information for this study, OTA staff made site visits to the research facilities or proposed field test sites of seven companies developing engineered organisms for environmental applications or doing similar research. The site visits were made to California, Pennsylvania, Delaware, Missouri, Hawaii, and Wisconsin. Staff also attended and participated in numerous professional meetings devoted to scientific aspects of the issue.

OTA was assisted in preparing this study by a panel of advisors and reviewers selected for their expertise and diverse points of view on the issues covered in the assessment. Advisory panelists and reviewers were drawn from industry, academia, medicine, professional societies, environmental organizations, public interest groups, and Federal agencies. Written comments were received from 140 individuals on successive drafts of the report.

OTA gratefully acknowledges the contribution of each of these individuals. As with all OTA reports, the responsibility for content is OTA's alone.

  
**U** JOHN H. GIBBONS  
Director

## **New Developments in Biotechnology Advisory Panel**

Bernadine P. Healy, Panel *Chair*  
The Cleveland Clinic Foundation  
Cleveland, OH

Timothy B. Atkeson  
Steptoe & Johnson  
Washington, DC

David Blumenthal  
Brigham and Women's Hospital Corporation  
Boston, MA

Hon. Edmund G. Brown, Jr.  
Reavis & McGrath  
Los Angeles, CA

Nancy L. Buc  
Weil, Gotshal & Manges  
Washington, DC

Mark F. Cantley  
Concertation Unit for Biotechnology in Europe  
Brussels, Belgium

Alexander M. Capron  
University of Southern California  
Los Angeles, CA

Jerry D. Caulder  
Mycogen Corp.  
San Diego, CA

Lawrence I. Gilbert  
The University of North Carolina  
Chapel Hill, NC

Conrad A. Istock  
The University of Arizona  
Tucson, AZ

Edward L. Korwek  
Hogan and Hartson  
Washington, DC

Tsune Kosuge  
University of California, Davis  
Davis, CA

Richard Krasnow  
Institute for International Education  
Washington, DC

Sheldon Krimsky  
Tufts University  
Medford, MA

William E. Marshall  
Pioneer Hi-Bred International, Inc.  
Johnston, IA

Ronald L. Meeusen  
Rohm and Haas Co.  
Spring House, PA

Robert B. Nicholas  
Nash, Railsback & Plessner  
Washington, DC

Eric J. Stanbridge  
University of California, Irvine  
Irvine, CA

James M. Tiedje  
Michigan State University  
East Lansing, MI

Kunio Toriyama  
ZEN-NOH  
Tokyo, Japan

Pablo D.T. Valenzuela  
Chiron Corp.  
Emeryville, CA

Thomas E. Wagner  
Ohio University  
Athens, OH

NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

# **Field-Testing Engineered Organisms OTA Project Staff**

Roger C. Herdman, *Assistant Director, OTA Health and Life Sciences Division*

Gretchen S. Kolsrud, *Biological Applications Program Manager*

Gary B. Ellis, *Project Director*

**Luther Val Giddings, Study Director**

Robyn Y. Nishimi, *Analyst*

Kevin W. O'Connor, *Analyst*

## **Support Staff**

Sharon Kay Oatman, *Administrative Assistant*

Linda S. Rayford, *Secretary/Word Processing Specialist*

Barbara V. Ketchum, *Clerical Assistant*

## **Contractors**

Linda Starke, *Editor*, Washington, DC

Stephanie L. Forbes, *Editor*, Bowie, MD

David A. Andow, University of Minnesota, St. Paul, MN

John M. Boyle, Louis Harris and Associates, Inc., Washington, DC

William A. Check, Medical & Scientific Communications, Atlanta, GA

Ellen W. Chu, Scientific & Technical Editing, Kirkland, WA

David C. Coleman, University of Georgia, Athens, GA

C.N. Dahm, University of New Mexico, Albuquerque, NM

Andrew P. Dobson, University of Rochester, Rochester, NY

James R. Gosz, University of New Mexico, Albuquerque, NM

Fred Gould, North Carolina State University, Raleigh, NC

Susan S. Hirano, University of Wisconsin, Madison, WI

Robert E. Hodson, University of Georgia, Athens, GA

Conrad A. Istock, University of Arizona, Tucson, AZ

Kathleen H. Keeler, University of Nebraska, Lincoln, NE

D. Matthew Knain, Louis Harris and Associates, Inc., Washington, DC

Richard E. Lenski, University of California, Irvine, CA

Bruce R. Levin, University of Massachusetts, Amherst, MA

Simon A. Levin, Cornell University, Ithaca, NY

Adrianne Massey, North Carolina State University, Raleigh, NC

Elliott A. Norse, Washington, DC

Stuart L. Pimm, University of Tennessee, Knoxville, TN

Frances E. Sharples, Oak Ridge National Laboratory, TN

S.S. Snapp, University of Minnesota, St. Paul, MN

P.S. Teng, University of Minnesota, St. Paul, MN

Christen D. Upper, University of Wisconsin, Madison, WI

Gabor Vali, University of Wyoming, Laramie, WY

## **Acknowledgment to Other OTA Staff**

Robert Cook-Deegan, *Senior Associate*, Biological Applications Program

Robert Friedman, *Senior Associate*, Oceans and Environment Program

**OTA/National Science Foundation Workshop  
Environmental Applications of Recombinant DNA Organisms:  
Genetic Issues, Nov. 21-22, 1985**

David T. Kingsbury, Workshop *Chair*  
National Science Foundation  
Washington, DC

Deb K. Chatterjee  
Environmental Protection Agency  
Gulf Breeze, FL

Ron Chiarello  
IGB Products, Ltd.  
San Leandro, CA

Michael T. Clegg  
University of California, Riverside

James Collins  
Arizona State University  
Tempe, AZ

William R. Engels  
University of Wisconsin  
Madison, WI

Patrick Flanagan  
National Science Foundation  
Washington, DC

Garrett Hardin  
University of California, Santa Barbara  
Santa Barbara, CA

Philip Harriman  
National Science Foundation  
Washington, DC

W. Frank Harris  
National Science Foundation  
Washington, DC

Bruce Levin  
University of Massachusetts  
Amherst, MA

Lois K. Miller  
University of Georgia  
Athens, GA

Stephen J. O'Brien  
National Cancer Institute  
Frederick, MD

Mark Obukowicz  
Monsanto Company  
St. Louis, MO

Philip Regal  
University of Minnesota  
Minneapolis, MN

James A. Shapiro  
University of Chicago  
Chicago, IL

James Tiedje  
Michigan State University  
East Lansing, MI

Richard G. Wiegart  
University of Georgia  
Athens, GA

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