Response

Lovins questions the conclusion that current regulatory mechanisms are sufficient to oversee foods developed through genetic modification. The fact is that the FDA has absolute legal right over the foods developed by any process. New varieties produced by means of biotechnology must be shown to possess chemical equivalence with the parent materials; such proof is provided by the company making application. After review (generally requiring 12 to 18 months), the FDA rules to accept or reject; it also holds the right to remove any food product at a later date. The EPA evaluates the environmental safety of any new pesticidal product (such as the *Bt* protein), and sets daily allowances of residues of the protein and/or its derivatives in the food or in the environment. The USDA determines whether the new variety does or does not have impacts on the ecology of the environment in which it is planted and, accordingly, determines acceptability. These processes together can require up to 6 years to gain approval of a new variety developed by genetic transformation. Such requirements are not required of varieties produced by chemical or radiation mutagenesis, or by other techniques used in plant breeding.

Lovins and board members of the Council for Responsible Genetics question the independence of the Donald Danforth Plant Science Center. Legal documents that establish the Center are open to the public and confirm the independence from Monsanto Company and other companies. I would not have accepted the position as president and director of the center under other conditions. Like the authors of the letters, I, too, believe in full disclosure. I am currently a member of the Science Advisory Board of Akkadix, in San Diego, a newly established corporation, and Advisor for Biotechnology for the Rohm and Haas Corporation, in Philadelphia. I have not received support for sponsored research from the Monsanto Company since 1991 and have served only as an ad hoc consultant. I have served as an ad hoc consultant and advisor for a variety of other biotechnology companies since 1982.

I respect the right of others to disagree and expect all reputable scientists to present accurate information and honest conclusions. Regardless of the differences of opinions expressed in these letters, I believe that all can agree that the more scientists learn about plants, both within or outside of agriculture, the greater the likelihood that we will develop sustainable methods to meet the challenges of a growing population.

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Common Courtesy

My colleagues should know that some private postdoctoral fellowship agencies now send critiques of applications to applicants. Persons who write letters of reference for applicants are not notified in advance that these letters may be quoted explicitly in the critiques. It is not difficult to match explicit quotations with specific individuals who have been asked to write letters of reference. Such a practice on behalf of the agencies destroys confidentiality and, at the very least, if it is not illegal, it lacks common courtesy.

Sidney Altman

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Credit Due

In the News of the Week article "Keeping bone marrow grafts in check" by Michael Hagmann (16 July, p. 310), which accompanied the report by W. D. Shlomchik *et al.* in the same issue (p. 412), the first au-

NATIONAL ACADEMY OF SCIENCES COLLOQUIUM

VIRULENCE AND DEFENSE IN HOST-PATHOGEN INTERACTIONS

COMMON FEATURES BETWEEN PLANTS AND ANIMALS

DECEMBER 9-11, 1999

The Arnold and Mabel Beckman Center, Irvine, California

Organized by Noel T. Keen, R. James Cook, Brian J. Staskawicz, John J. Mekalanos and Fredrick M. Ausubel

Virulence Mechanisms in Pathogens

Jorge Galan, Yale Univ. School of Medicine, *Modulation of the host-cell actin cytoskeleton by the Salmonella type III secretion system*

Frances Jurnak, UC Irvine, *Structure and function of pectic enzymes--- virulence factors of plant pathogens*

Dan Portnoy, UC Berkeley, *Pathogenicity and immunogenicity of Listeria monocytogenes*

Alan Collmer, Cornell University, *Type III mediated translocation of plant effectors by Pseudomonas syringae*

Guy Cornelis, Catholic University, Brussels, Belgium. *Type III secretion and translocation of Yersinia Yops*

Ulla Bonas, Univ. of Halle, Germany, *Type III secretion and targeting of bacterial proteins from plant and animal pathogens by Xanthomonas campestris pv. Vesicatoria*

Jeff Miller, UCLA, *Signal transduction during the Bordetella infectious cycle*

Lory Rahme, Harvard University, *Multihost pathogenesis systems— Pseudomonas aeruginosa-Coenorhabditis elegans interactive genetics*

Peter Greenberg, Univ. of Iowa, *Communication systems and group behavior in Pseudomonas aeruginosa*

William Goldman, Washington Univ., St. Louis, *Fungal-host interactions as exemplified by Histoplasma capsulatum*

Brett Finlay, Univ. of British Columbia, *Enteropathogenic E. coli*

David Relman, Stanford Univ., *Global host gene expression responses during infection*

Active Defense Mechanisms in Hosts

Kathryn Anderson, Sloan Kettering Inst., *Drosophila Toll receptor pathways*

Jonathan Jones, John Innes Inst., England, *Role of toll-like proteins in disease resistance of plants*

Charles Janeway, Howard Hughes Medical Inst., Yale Univ., *Mammalian Toll-like receptor pathways*

Gourisankar Ghosh, UC San Diego, *The NF-kB pathway in Vertebrates*

Jeff Dangl, Univ. North Carolina, *Perception of pathogen signals by plants*

Gerry Pier, Harvard University, *Innate defense mechanisms on mucosal surfaces*

Matthew Mulvey, Washington Univ. School of Medicine, St. Louis, *Innate Host defenses against uropathogenic E. coli*

Greg Martin, Boyce Thompson Inst., Cornell Univ., *Pathogen recognition and signal transduction mediated by the product of the Pto disease resistance gene*

Carl Nathan, Weill Medical College, Cornell Univ., New York City, *Reactive oxygen and nitrogen species in animal defense: mechanisms of microbial resistance*

Dan Klessig, Rutgers University, *NO and salicylic acid signaling in plant defense*

Robert Hancock, University of British Columbia, *Antimicrobial peptides in animal defense*

Bud Ryan, Washington State Univ., *Defense signaling and response pathways in plants against pests*

Keynote address, David Baltimore, president, California Institute of Technology, *Isn't Microbiology out-dated?*

Space for this meeting is limited, so please register early

For additional information: Email: **epatte@nas.edu** Web: **www.nas.edu/nas/colloquia**

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