

November 18, 2005

**FIFRA SCIENTIFIC ADVISORY PANEL (SAP)
OPEN MEETING
DECEMBER 6-8, 2005
FIFRA SAP WEB SITE <http://www.epa.gov/scipoly/sap/>
OPP Docket Telephone: (703) 305-5805
Docket Number: OPP-2005-0249**

**PLANT-INCORPORATED PROTECTANTS BASED
ON VIRUS COAT PROTEIN GENES: SCIENCE
ISSUES ASSOCIATED WITH
THE PROPOSED RULE**

Judith Bender, Ph.D.

Dr. Judith Bender is an Associate Professor in the Department of Biochemistry and Molecular Biology, Johns Hopkins Bloomberg School of Public Health. Her research interests focus on DNA methylation and gene silencing in Arabidopsis and the regulation of tryptophan metabolism in Arabidopsis. Dr. Bender has a B.S. in Biochemistry from Harvard-Radcliffe College, a Ph.D. in Biochemistry from Harvard University and completed a Postdoctoral Fellowship in Biology from Whitehead Institute for Biomedical Research.

Judith Brown, Ph.D.

Dr. Brown is a Professor in the Department of Plant Sciences at the University of Arizona. Dr. Brown's research interests are (1) begomovirus/satellite DNA diversity and diversification mechanisms, pathogenesis (2) biotype formation- Bemisia tabaci (Genn.) complex, role of endosymbionts in B. tabaci speciation (3) whitefly genome (ESTs)/proteomics to elucidate transmission pathway (4) begomovirus resistance/transgenic plants-gene silencing. Dr. Brown has a Ph.D. in Plant Pathology from the University of Arizona, a MS in Plant Pathology from Washington State University and BS in Horticultural Science from Texas A&M University.

George Cobb, Ph.D.

Dr. Cobb is an Associate Professor of Environmental Toxicology, The Institute of Environmental and Human Health, Texas Tech University & Texas Tech Health Sciences Center. His research entails improving approaches for quantifying exposure and trophic transport of toxicants. He provides coordinated research and education opportunities for students in toxicology, environmental chemistry, environmental chemistry, sensor development, trace analysis, and risk assessment. Dr. Cobb has a Ph.D. in Chemistry from the University of South Florida and a B.S. in Chemistry from the College of Charleston.

Shou-Wei Ding, Ph.D.

Dr. Ding is a Professor in the Department of Plant Pathology and the Institute for Integrative Genome Biology in the College of Natural and Agricultural Sciences, University of California, Riverside. He received his PhD from the Australian National University's Research School of Biological Sciences in 1990, and subsequently completed postdoctoral training in plant molecular virology at the Waite Institute, University of Adelaide, South Australia. He has previously served on the faculty of the Institute of Molecular Agrobiolgy at the National University of Singapore. Dr. Ding has active research programs funded by the NIH, USDA, and California Citrus Research Board to investigate mechanisms of virus-host interactions, primarily focusing on the biology and application of gene silencing as an antiviral immunity in both plant and animal systems. His teaching responsibilities at the University of California, Riverside include undergraduate and graduate courses in virology. Dr. Ding is an editor of *FEBS Letters* (Federation of European Biochemistry Societies). He also serves on the editorial boards of *Virology* and *Phytopathology*.

Bryce W. Falk, Ph.D.

Dr. Bryce Falk is Professor, Dept. of Plant Pathology, University of California, Davis, CA. Dr. Falk received his BS degree in Biology from Cal Poly in San Luis Obispo, California, followed by MS and PhD degrees in Plant Pathology from the University of California, Berkeley. After postdoctoral work at UC Riverside he was an Assistant Professor at the University of Florida, Everglades Research and Education Center in Belle Glade. In 1985 he moved to UC Davis advancing to Full Professor in 1991. He has served on a number of Federal Grant review panels and was the first panel manager for the NRICGP Biology of Plant Microbe Associations program in 2000. He has served on editorial boards for a number of scientific journals, currently for *Virology* and *Molecular Plant Pathology*. His lab research has been focused on various aspects of the biology and molecular biology of plant viruses. His current efforts are mainly with viruses in the family *Closteroviridae*, genera *Crinivirus* and *Closterovirus*. He is examining the replication and host plant interactions/determinants for *Lettuce infectious yellows virus* (LIYV). His lab is using immunological, microscopic and molecular biological tools to assess protein accumulation in cells/whole plants and taking a mutagenic approach to modify specific LIYV-encoded proteins and then analyze effects on function. They are also attempting to understand LIYV-encoded determinants that effect LIYV transmission by the whitefly, *Bemisia tabaci*. His lab is also taking novel approaches to confer resistance to *Citrus tristeza virus* in citrus by engineering plants to respond with a systemic resistance signal, and they are trying to better understand the molecular and biological factors affecting CTV host:plant interactions and virus evolution. He has recently also evaluated how transgenic, virus-resistant plants may affect virus populations and evolution by performing field, laboratory and greenhouse studies to assess the genetic composition of plant virus populations and how selection conferred by transgenic resistance may direct shifts in virus genotype populations. In

2003 and 2004 he was named Fellow of the American Association for the Advancement of Science (AAAS) and the American Phytopathological Society (APS), respectively.

Steven Gendel, Ph.D.

Dr. Gendel received his B.S. in Chemical Engineering from Case Western Reserve University and his Ph.D. in Cell Biology from the University of California, Irvine. He held postdoctoral positions at Harvard University and the University of Toronto before joining the Department of Genetics at Iowa State University. Since 1990 he has been with the FDA at the National Center for Food Safety and Technology in Chicago as Chief of the Biotechnology Studies Branch and now as Biotechnology Program Lead. His research interests focus on the application of bioinformatics to food safety, particularly as related to food biotechnology and food allergens.

Jonathan Gressel, Ph.D.

Dr. Jonathan Gressel is Professor Emeritus in the Department of Plant Sciences, Weizmann Institute of Science, Israel. His areas of expertise are plant and fungal physiology, biochemistry, molecular biology, evolutionary dynamics in agro-ecosystems. His research interests focus on transgenic herbicide resistant crops, introgression and molecular prevention of crop transgenes to weeds, herbicide resistance, herbicide action, parasitic weeds and biotechnological axenic systems. Dr. Gressel has a BS in Plant Science from Ohio State University, a MS in Botany from the University of Wisconsin and Ph.D. in Botany/horticulture from the University of Wisconsin.

Simon P. Hogan, Ph.D.

Dr. Simon Hogan is Assistant Professor of Pediatrics, Division of Allergy and Immunology, Cincinnati Children's Hospital Medical Center, Cincinnati, OH. He received his Ph.D. from the John Curtin School of Medical Research, Australian National University, Canberra, Australia in 1998 and subsequently completed a National Health Medical Research Council NHMRC CJ Martin Fellowship in Allergy and Immunology at Cincinnati Children's Hospital Medical Center, Cincinnati, OH. He was appointed in 2004 to Head of the Gastrointestinal Research laboratory, John Curtin School of Medical Research, ANU, Canberra, Australia as part of the NHMRC funded Program grant to examine Molecular mechanisms in the regulation of allergy and inflammation. Dr Hogan has an active research program investigating inflammation induced gastrointestinal dysfunction. Current projects are (1) to elucidate the cellular and molecular processes involved in gastrointestinal allergic responses using novel models of allergic responses in mice with translational studies in humans, (2) to identify the role of gastrointestinal inflammation in peristaltic reflex and gastrointestinal epithelial cell dysfunction and (3) to characterize food allergen reactive T cells in eosinophilic esophagitis.

Roger Hull, DSc.

Dr. Roger Hull is an Emeritus Fellow at the John Innes Centre in Norwich, United Kingdom. He has a BS in Botany at Cambridge University, a PhD in Plant Pathology at the University of London in 1964 and a DSc in Plant Virology by the University of London in 1980. Other awards include Honorary Professorships at the University of East Anglia, Norwich, UK and at Peking University, China, an Honorary Doctorate at the University of Perpignan, France and Fellowship of the American Phytopathological Society. His research interests are in the area of badnaviruses and tenuiviruses, RNA viruses and designing resistance in plants to virus infection or controlling the spread of viruses from plant to plant. He is also involved in biosafety issues relating to the uptake of transgenic crops in developing countries.

Alexander Karasev, Ph.D.

Dr. Alexander Karasev is an Assistant Professor, Department of Microbiology and Immunology, Thomas Jefferson University, Philadelphia, Pennsylvania. His research focused on the design and construction of novel viral-based vectors for expression of foreign gene sequences in plants and development of plant-based oral vaccines for viral and bacterial infectious diseases. Dr. Karasev has a Ph.D. in Molecular Biology from Moscow State University, Russia.

Steven A. Lommel, Ph.D.

Dr. Steve Lommel is the Assistant Vice-Chancellor for Research at North Carolina State University and is a Professor with joint appointments in the Departments of Plant Pathology and Genetics in the College of Agriculture and Life Sciences. He received his Ph.D. from the University of California, Berkeley in 1983. He has previously served on the faculty at Kansas State University and was Assistant Director of the North Carolina Agriculture Research Service. Dr. Lommel has an active research program funded by the NSF to explore the genetic and molecular mechanisms of plant virus pathogenicity. His laboratory is interested in the structure of robust small plant viruses with the goal of using them as viral based nanotechnology cargo vehicles. Dr. Lommel is the co-Director of the Nicotiana Genome Initiative based at North Carolina State University. His teaching responsibilities at North Carolina State University include graduate courses in Plant Pathology and Plant Virology as well as invited lectures in Biotechnology and Genetics. Dr. Lommel is the editor for the Journal Virus Research and sits on the editorial boards of several other plant biology and virology journals. He was also one of the original organizers and current University representative for PIPRA, the Public Intellectual Property Resource for Agriculture.

Diana Pilson, Ph.D.

Dr. Diana Pilson is an Associate Professor of Biological Sciences at the University of Nebraska, where she has been on the faculty since 1994. She received her Ph.D. from Duke University (Department of Zoology and the University Program in Genetics) in 1990, and then was a member of the research faculty at the University of Montana. Dr. Pilson has an active research program examining the ecological consequences of the escape of transgenes into wild populations (funded by the USDA), including projects evaluating the effects of insect herbivores on the population dynamics of wild sunflower and the effects of virus infection on wild squash populations. Other work (funded by USDA and NSF) has examined the evolution of plant response to herbivore attack and the evolution of plant mating systems. Her teaching responsibilities include undergraduate and graduate courses in evolution and ecology. She has served on proposal review panels for the National Science Foundation and the US Department of Agriculture Competitive Grants Program, and is currently a member of the Editorial Board for Ecology/Ecological Monographs.

Alison Power, Ph.D.

Dr. Alison G. Power is a Professor in the Department of Ecology and Evolutionary Biology and Dean of the Graduate School at Cornell University in Ithaca, New York, USA. She received a B.S. in Biology from the University of Alaska-Fairbanks and a Ph.D. in Zoology from the University of Washington in 1985. Her research focuses on the ecology of viruses in plant communities, including both natural and agricultural communities. Current research also addresses the impact of agriculture on the spread of plant diseases in natural ecosystems and the ecological risks of genetically engineered crops expressing transgenic virus resistance. Other research interests include biodiversity conservation in managed ecosystems, interactions between agricultural and natural ecosystems, agroecology, and tropical ecology. Currently, Power serves as Vice-President for Public Affairs for the Ecological Society of America, on the Executive Committee of the Association of Graduate Schools, and on the Oversight Committee of the Collaborative Crop Research Program of the McKnight Foundation. She has served on the Scientific Advisory Board of the National Center for Ecological Analysis and Synthesis (NCEAS); several committees of the National Research Council; and the Executive Committee of the Organization for Tropical Studies.

Lars Poulsen, Ph.D.

Dr. Lars Poulsen is head of research at the Allergy Clinic at the National University Hospital in Copenhagen, Denmark. In addition, he serves as an adjunct Professor of Immunology at the Danish Technical University and as external associate professor in Basic Allergology at the Faculty of Medicine at the University of Copenhagen. Dr. Poulsen serves as a manager of a national allergy research programme at the Danish Allergy Research Center. Dr. Poulsen has a Ph.D. from the University of Copenhagen Medical Faculty, Danish Doctorate of Medical Sciences at the University of Copenhagen and postdoctoral training at the Department of Immunology at Johns Hopkins University.

Geoffrey I. Scott, Ph.D.

Dr. Geoff Scott is the Director of the Center for Coastal Environmental Health and Biomolecular Research at Charleston, SC, National Centers of Coastal Ocean Science, National Ocean Service, NOAA. Dr. Scott holds adjunct faculty appointments at the Medical University of South Carolina, University of South Carolina, University of Charleston, and Texas Technical University. He received his Ph.D. in marine science from the University of South Carolina in 1979. Research experience includes working as an aquatic toxicologist for the EPA and the Research Planning Institute, as well as, an Associate Professor in the School of Public Health at the University of South Carolina where his research was focused on understanding the impacts of agricultural pesticide NPS runoff and mosquito control agents on estuarine ecosystems, and the health of estuarine organisms as well as methods for measuring bacterial pollution emanating from different septic tanks systems in the coastal zone of SC. Additional research has focused on the impacts of oil and hazardous material spills on coastal ecosystems throughout the U.S. including studies in Alaska, Puget Sound, Texas, Puerto Rico and the Florida Keys. His research at NOAA has focused on agricultural and urban nonpoint source runoff issues throughout the southeastern US. His teaching responsibilities at the University of South Carolina include courses in environmental health sciences and aquatic toxicology. Dr. Scott has served on numerous advisory panels to government and industry including: (1) the Interstate Shellfish Sanitation Conference; (2) EPA's Advisory Board, Panel on Endocrine Disrupting Chemicals; (3) EPA's Food Quality Protection Act Board, Scientific Panel Member; (4) EPA's Environmental Technology Verification Program, Water Stakeholder Committee Member; (5) Governor's Primary Health Care Task Force; (6) the SC Coastal Pesticide Advisory Committee; (7) SC Sea Grant Advisory Board; (8) Editorial Board Aquatic Toxicology; and (9) United Nations Gulf of Guinea Large Marine Ecosystem Study Technical Advisor.