

Features

Dr. Lineback retires	cover
Central Science Laboratory (CSL)	7
JohnsonDiversey International Food Safety Initiative	7

Columns

Internship	2
Partnership	4
Clearinghouse	6



News Brief

New Interim Director at JIFSAN

Dr. Maureen Storey was designated Interim Director of JIFSAN in October following the [retirement of the former Director, Dr. David Lineback](#). In addition to her role at JIFSAN, Storey is also the Director of the Center for Food Nutrition and Agriculture Policy (CFNAP) which recently

moved to the University of Maryland (see [CFNAP article](#)).



Dr. Maureen Storey

Storey previously worked in executive

positions during her 10-year career at the Kellogg Company and was Senior Vice President for Health and Nutrition Marketing at a public relations firm.

Food Safety Risk Analysis Distance Learning 2006 Course Schedule Overview of Risk Analysis

January 31 – February 17

Introduction to Food Safety Risk Communication

February 21 – April 18

Introduction to Food Safety Risk Assessment

April 18 – June 13

Introduction to Food Safety Risk Management

September 20 – November 15

Additional course information is available at <http://www.jifsan.umd.edu/pd2006/>

information on the Summer Integrated Program is available at

<http://www.jifsan.umd.edu/pd2006/sip.cfm>

David Lineback Retires from JIFSAN

1998-2005

By Paul Mazzocchi



Dr. Paul Mazzocchi and Dr. David Lineback

In 1997 I had the opportunity to recruit a director for JIFSAN. We had a number of candidates apply and contacted many individuals who had been nominated. One of those was David Lineback. Dave wrote back to me and declined the invitation to be a candidate, however he was so highly recommended and had such an outstanding reputation that I decided to go one step further. I met Dave at the Institute of Food Technologists meeting in Orlando and, over a couple of hours of cajoling and pleading, convinced him to become a candidate. The rest is history. Dave was appointed Director of JIFSAN and has guided the organization to an internationally recognized position of leadership in food safety.

Dave Lineback's contributions to JIFSAN were important in a number of areas. First was his leadership and ability to work with individuals across institutions with widely different cultures, such as the university and the federal government, and to bring them together with industry to address common goals. He also had the insight and ability to choose projects and issues that were emerging and critical. The perfect example is the acrylamide problem which JIFSAN took an early leadership position in and still remains the world's prime resource on the issue.

Lineback retirement continued on next page

Lineback retirement continued

Equally important to JIFSAN was Lineback's position in the food safety community. His reputation and standing in that community gave JIFSAN credibility in its early stages and was one of the reasons that JIFSAN was given a leadership position in any number of initiatives. Lineback was the face of JIFSAN worldwide and there was virtually no place he would not go to advance its programs, from research to training, all supported by a committed and incredibly loyal staff.

Perhaps Ron Triani from Kraft Foods said it best in a letter to Dave. "As you know I have always been a strong supporter of JIFSAN and the concept that it is based upon. In my opinion the success of JIFSAN is largely the result of your strong scientific and managerial leadership. As you and I have discussed, these kinds of public-private partnerships are extremely valuable in times of limited resources and significant challenge. Through your common sense approach, you have created a real example of how FDA, academia, and industry can address complex science issues that have critical regulatory implications. JIFSAN has represented the best in achieving coordination, cooperation and communication among the various stakeholders, focused on understanding the science in order to make the best regulatory decisions."

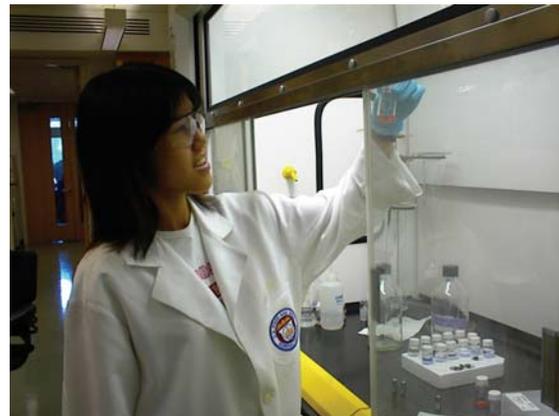
There is no question that David Lineback has been an outstanding leader of JIFSAN. He will be sorely missed by his friends and colleagues at the university and FDA but we are somewhat consoled by the fact that Dave will keep his relationship with JIFSAN by continuing to represent us as "Retired Director" and as a member of our Board of Advisors. We all hope that his retirement is as successful and rewarding as his outstanding career was.

Internship Column

Investigating Semicarbazide in Breads

The use of azodicarbonamide in food related applications has caused concern in the food safety community. The compound is an effective blowing agent for plastic gaskets in metal lids used on food jars; however, it decomposes into semicarbazide when heated. Semicarbazide has been found to be a weak carcinogen in lab animals. In addition to its use as a blowing agent, azodicarbonamide is also approved for use as a flour additive and a dough conditioner. The obvious question is ... does semicarbazide also form in the bread-baking process? And if so, how much?

JIFSAN intern Wenchi "Vicky" Hsu and her mentors, Gregory Noonan; and Dr. Charles Warner, at the Food and Drug Administration (FDA) Center for Food Safety and Applied Nutrition (CFSAN) worked on a research project to find answers these questions. This research on azodicarbonamide in breads was not only new to Hsu who was interning for the first time; it was also new for CFSAN. "When a JIFSAN intern comes in, it is an opportunity for us to investigate some new areas of research. While she's learning, we're learning right along with her. It's a more interesting environment for everyone to find these discoveries together," said Warner, a research chemist in the Office of Food Additive Safety.



Vicky Hsu in a FDA lab at the Wiley Building College Park, MD

PHOTO COURTESY OF DR. WILLIAM LIMM, FDA

Internship continued on next page

News Brief

JIFSAN Intern

JIFSAN intern Wenchi “Vicky” Hsu worked with FDA research chemists Dr. Charles Warner and Dr. Gregory Noonan to investigate the development of semicarbazide in breads. Results of the project were published in the June issue of the [Journal of Agricultural and Food Chemistry](#).

Hsu is a University of Maryland senior majoring in Biological Resources Engineering and a graduate of the University’s prestigious [College Park Scholars](#) living-learning program. Read the [Internship Column](#) for more information on Hsu.

Central Science Laboratory

JIFSAN and the Central Science Laboratory (CSL) hosted their sixth annual international symposium in June. The symposium focused on bioactive food components. More information is available on the JIFSAN website at <http://www.jifsan.umd.edu/csl2005.htm>. For more information on CSL, read the feature article [CSL: Promoting International Science in Food Safety & Nutrition](#) in this issue.

Research Grant Symposium

In conjunction with the annual Advisory Council Meeting, JIFSAN hosted its third annual Research Grant Symposium in November. The symposium featured presentations of projects funded through JIFSAN’s Internal Competitive Research Program. The program pairs University of Maryland faculty with FDA collaborators on various research projects. A [list of research presentations from the symposium](#) is available in this issue.

JIFSAN International Training Center

During the summer, JIFSAN collectively organized its training programs into an international training center. The training center includes successful established programs such as Good Agricultural Practices (GAPs) Program and the WTO-SPS Professional Development Program and new programs such as International Blended Learning In Food Safety Risk Analysis, JohnsonDiversey International Food Safety Initiative, and Good Aquacultural Practices Program. More information on the training center is available on the JIFSAN International Training Center webpage at <http://www.jifsan.umd.edu/itc.htm>. Additional information on the [JohnsonDiversey International Food Safety Initiative](#) is available in this issue.

Food Safety Risk Analysis Clearinghouse

The Cost of Reformulating Foods and Cosmetics final report prepared by Regional Triangle Institute (RTI) for FDA is exclusively available on the JIFSAN Food Safety Risk Analysis Clearinghouse website. More information is available in the [new Clearinghouse column](#) in this issue.

During this project, Hsu had to analyze numerous samples. To do so, she had to learn the operating procedures and principles of a number of techniques including liquid chromatography and liquid chromatography-mass spectrometry. She was also assigned to develop a chemiluminescent detection method, for a separate project, and at times found it challenging to juggle that and the bread sample analysis. In addition to this challenge of multi-tasking, Warner explained that analyzing food samples for chemical contaminants is challenging because of the complex nature of different food matrices. “There’s a lot of work to separate the substance of interest from other components of the bread so that they can measure it easily,” he said.

The results of the project were published in the June issue of the *Journal of Agricultural and Food Chemistry*. Hsu is listed as a co-author of the article. She also received a JIFSAN award this year for Best Student Presentation at the FDA Science Forum for her poster about the project.

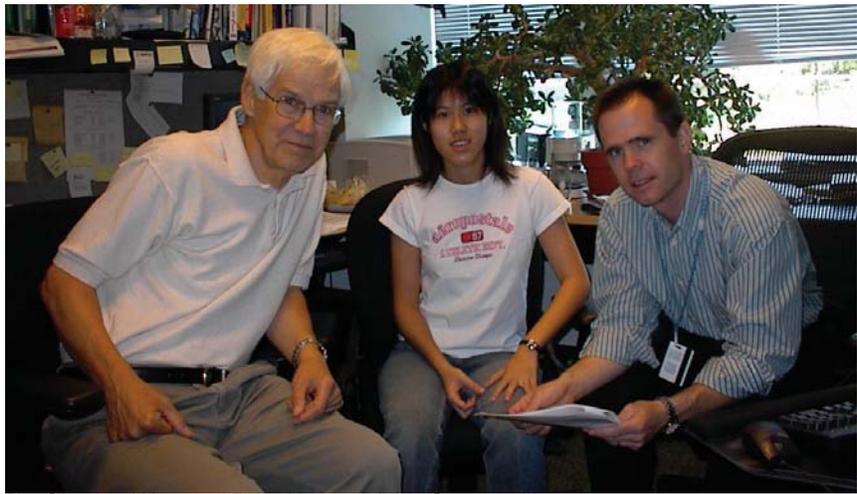
Meticulousness and an aptitude for lab techniques attributed to Hsu’s success on the job. “She’s an excellent analytical chemist,” said Dr. Greg Noonan, a chemist in the Office of Food Additive Safety. Early on, her precision and accuracy were always very good with things like making up standards or processing samples which I think is somewhat unusual for someone who doesn’t have a lot of experience in a lab,” he said. “She picks up the techniques very quickly and now has command of just about

Internship continued

all of them that are required to pursue other work,” said Warner.

These characteristics were also apparent in Hsu while she was a member of the College Park Scholars program. “She’s very careful with her work and always intent on doing things exactly right ... for many students, that’s a struggle,” said Wendy Whittemore, Associate Director of the University of Maryland’s College Park Scholars

Environmental Studies Program. Whittemore assists students in the program with finding internships, monitors their progress while interning, and teaches them an academic style of writing.



Dr. Charles Warner, Vicky Hsu, and Dr. Gregory Noonan

PHOTO COURTESY OF DR. WILLIAM LIMM, FDA

Hsu initially began interning at CFSAN to fulfill a requirement for the College Park Scholars Environmental Studies Program. College Park Scholars is a living-learning program for freshmen and sophomores. These students, in addition to living in the same dorm, attend classes and go on field trips specific to their area of concentration within the program.

Partnership Column

JIFSAN and the University of Maryland welcome the Center for Food, Nutrition, and Agriculture Policy



Previously, JIFSAN has co-sponsored a number of Center for Food, Nutrition, and Agriculture Policy (CFNAP) events in areas of mutual interest. Now, with the two independent organizations both at UM College Park, JIFSAN and CFNAP are looking at ways to interact more closely with each other. “With JIFSAN’s strength in international food safety and CFNAP’s strength in domestic food and nutrition policy, we can maximize each other’s strengths. CFNAP and

JIFSAN together can generate a sum that is greater than the two parts for the University of Maryland,” said Dr. Maureen Storey, Director of CFNAP and Interim Director of JIFSAN.

Using survey-based research, education and outreach programs, CFNAP informs the food, nutrition and agriculture policy process that must consider the scientific, economic, social, psychological, and emotional consequences of particular policies. The not-for-profit

organization uses its Ceres® workshops, seminars, forums, roundtables, and lectures to facilitate open discussion on domestic and international food, nutrition and agriculture policy.

CFNAP, formerly the Center for Food and Nutrition Policy (CFNP), was created in 1992. Initially the center was affiliated with Georgetown University. Nine years later the organization moved to Alexandria, VA and became affiliated with Virginia CFNAP article continued on page 8

Research Grant Symposium Presentations



Facilitating Needed Drug Approvals for Aquaculture: *in vitro* Metabolic Profiles to Characterize and Predict Drug Residues in Finfish

Dr. Andrew Kane

Collaborators: Dr. Badar Shaikh and Dr. Renate Reimschuessel

***Campylobacter jejuni*-host Interaction on the Intestinal Mucosal Surface**

Dr. Wenxia Song

Collaborator: Dr. Shaohua Zhao

The Impact of Risk Messages about Bioterrorism on the U.S. Food Supply on Audience Attitudes and Behaviors

Dr. Linda Aldoory

Collaborators: Dr. Marjorie Davidson, Dr. Brenda Derby, and Dr. Alan Levy

Molecular Mechanisms of Fluoroquinolone and Erythromycin Resistance in *Campylobacter jejuni/coli*

Dr. Jianghong Meng

Collaborators: Dr. Patrick F. Dermott and Dr. David G. White

Modeling the Antimicrobial Effect of Lactate on the Growth and Survival of *Listeria monocytogenes* on Ready-to-Eat Seafood

Dr. Khaled Abou-zeid for Dr. Kisun Yoon

Collaborator: Dr. Richard C. Whiting

Recent Supplementation Studies with Dietary Carotenoids in the Prevention of Age-Related Macular Degeneration

Dr. Frederick Khachik

Study of Nisin and Sublancin in a Strategy for Protection of the United States Food Supply from Pathogenic Bacterial Spores Introduced through Bioterrorism

Dr. Norman Hansen

Collaborator: Dr. Laila H. Ali

Predicting Exposure Estimates: Experimental Food Additive Partitioning Studies and Model Development

Dr. Robert Walker

Collaborators: Mr. Timothy Begley and Dr. William Limm

Moving Whole-Cell Biosensing from a Qualitative to Quantitative Tool: Development of a Dynamic Cell Immobilization Mechanism

Dr. Y. Martin Lo

Collaborator: Dr. Mahendra H. Kothary

Influence of Pre-Harvest Antibiotic Pesticide Treatment on the Microflora of Apple and Pear Blossoms, Leaves, Fruit, and Cider and its Implications for Food Safety

Ms. Andrea Ottesen for Dr. Christopher Walsh

Collaborators: Dr. Arthur Miller and Mr. S. Brian Eblen

Safety Inspection of Fresh-Cut Fruits and Vegetables Using Spectral Sensing and Imaging Techniques

Dr. Alan Lefcourt for Dr. Yang Tao

Collaborators: Dr. Robert Buchanan, Dr. Yoonseok Song, and Dr. Yaguang Luo

An Integrated Approach for Identifying Phototoxic Cosmetic Ingredients

Dr. Daniel E. Falvey

Collaborators: Dr. Wayne G. Wamer and Dr. Patty Fu

Acrylamide Levels and Mitigations in Home Prepared Foods

Dr. George Sadler



Clearinghouse Column

By Jose Galdamez

The JIFSAN Food Safety Risk Analysis Clearinghouse is a web-based resource designed for professionals involved with any aspect of food safety risk analysis. The Clearinghouse collects and catalogues available data and methodology on food safety risk analysis offered by the private sector, trade associations, federal and state agencies, and international sources.

The Clearinghouse is the exclusive online host to several databases, tools, historic U.S. Federal Register documents, presentations, and reports, and also serves as a portal to authoritative information and data on the Internet that supports the work of food safety risk analysis professionals. In addition to providing resources for professionals, we also provide consumer-oriented links.

While initial emphasis was on microbial pathogens and their toxins, we are expanding our scope to encompass chemical hazards, nutrition and weight management,

food defense, functional foods, and other related topics.

Access the Clearinghouse online at <http://www.foodrisk.org>

New Exclusive Item

Cost of Reformulating Foods and Cosmetics

Foods and cosmetics are examples of regulated products that are sometimes reformulated in response to changes in the marketplace or regulatory environment. Regional Triangle Institute and the Economics Team at the FDA's Center for Food Safety and Applied Nutrition (CFSAN) produced this model to help estimate the costs incurred in reformulation due to changes in regulations. The report provides information on the process of reformulation and a description of the underlying assumptions and calculations used in developing the model. A copy of this report is available at http://www.foodrisk.org/reformulation_cost.htm



CSL: Promoting International Science in Food Safety & Nutrition



Dr. Michael Roberts
Chief Executive
Central Science Laboratory

By Michael Roberts

The Central Science Laboratory (CSL) is an agency of 700 staff within the United Kingdom (UK) Department for Environment, Food and Rural Affairs. The Agency's mission is to sustain and safeguard agriculture, food, and the environment through delivery of high quality research, scientific services and consultancy to government, the European Commission and global industry. The broad skill base of risk assessment, mathematics and modeling, wildlife management, molecular diagnostics, analytical chemistry, and knowledge management is organized into interdisciplinary teams to provide policy advice; surveillance and monitoring to support regulatory actions; and contingency capacity to support homeland security.

In the area of food safety and nutrition, CSL provides scientific advice to both the European Food Safety Authority (EFSA) and the UK's Food Standards Agency. This consultancy role is supported by research projects and surveillance programs. In assessing emerging risks to the food chain, CSL scientists undertake desk studies of primary literature, compile and handle complex data sets and make exposure estimates using probabilistic modeling. Where data is missing or

unavailable, CSL has analytical laboratory capability across all sectors of residues and contaminants, and some aspects of food microbiology, to help support surveillance efforts.

CSL has scientists working in all sectors of interest to EFSA (e.g. additives, flavorings, contact materials, pesticides, genetically modified organisms, plant health quarantine and novel food ingredients) and can therefore support harmonized approaches to risk assessments at the European Union level. In addition, CSL evaluates health claims made for food products. In this area, CSL undertakes both laboratory work (e.g. using biomarkers of effect) and scientists undertake desk studies to assess health claims.

Building effective international networks is a critical aspect of CSL's role as a national laboratory. The collaborative agreement with JIFSAN was set up five years ago to promote mutual interest and cooperation in science supporting food safety. Beginning in June 2000, six annual symposia in food safety and applied nutrition have been organized. They covered risk assessment for food safety, food biotechnology, rapid

CSL continued on page 8

JohnsonDiversey International Food Safety Initiative



As part of its focus on education and outreach, JIFSAN expanded its food safety training programs to include the JohnsonDiversey International Food Safety Initiative (JDIFSI). The program, funded through an annual, will function as a component of JIFSAN's International Training Center.

Similar to JIFSAN's Good Agricultural Practices (GAPs) Training Program, JDIFSI will apply the "train-the-trainer" concept to the seafood, red meats, and poultry industries. Program instructors will train trainers in countries that are U.S. food exporters. The trainers are expected to train agricultural and aquacultural workers, food processors, exporters, regulators, and educators in food harvesting, handling, and production.

The initial program will focus on aquaculture and include a small component on wild catch. Tentatively, JIFSAN is planning to offer the first aquaculture program in South East Asia. JIFSAN also plans to further expand the program to include poultry and meats at a later time.

JohnsonDiversey, a global leader in cleaning and hygiene solutions in food and building care industries, has an interest in

JohnsonDiversey continued on page 8

Internship continued

Environmental Studies scholars complete an experimental learning project and academic writing course in the process of earning their citation for the program.

Since this past summer, Hsu has been working more independently on a food defense project investigating the stability of various chemical agents. “The idea was to give her more of a feel for what it would be like if she were to go to graduate school where you’re left on your own quite a bit,” said Noonan.

Overall, Hsu’s internship experience afforded her an opportunity to expand various skills. Not only has she gained practical experience, she also improved her interpersonal skills. “Instead of reading or hearing about something I can experience it first hand ... it really brings what you read in a textbook to life,” she said. This experience has also helped to make her less shy. “In the beginning, I had trouble talking with others and was afraid to ask questions. Now that I am more familiar with everyone, I have become less timid,” she said. Whittemore also noticed a change in Hsu. “This experience has opened her up. She found a place where she likes to be and is more comfortable and outgoing. I’ve watched her grow ...”

Partnership column continued
Polytechnic Institute and State University (Virginia Tech).

The Center expanded its repertoire of food policy issues to include agriculture in response to growing concerns over agroterrorism. Since the U.S. terrorist attacks four

years ago, government, academia, and private industry have taken a closer look the potential and deliberate use of food as a terrorist weapon. Adding agriculture to CFNAP’s focus, Storey explained, would allow the center to fully encompass a wider range of food issues from farm to fork.

As the Director, Storey utilizes her background in nutrition research, outreach, business development and policy to help CFNAP realize its vision of becoming a recognized global leader in food, nutrition, and agriculture policy.

CSL continued

diagnostic methods and bioactive food components. The JIFSAN/CSL collaboration has also stimulated exchange of information and analytical methods on emerging food contaminant issues, as well as staff interaction between the partner institutions.

Additional information is available on the CSL website www.csl.gov.uk

JohnsonDiversey continued
improving food safety to both domestic and international consumers. This interest, in conjunction with a desire to improve agricultural practices among international exporters led the organization to create JDIFSI. Because of JIFSAN’s success with the international GAPs Program and other food safety and nutrition initiatives, the collaboration between the two organizations was a natural decision.

Additional information on the JohnsonDiversey Food Safety Initiative is available on the JIFSAN website at

http://www.jifsan.umd.edu/JDIFSI_train_the_trainer.html

Additional information about JohnsonDiversey is available at

<http://www.johnsondiverse.com/cultures/en/default.htm>

Joint Institute for Food Safety and Applied Nutrition
University of Maryland, College Park
0220 Symons Hall
College Park, MD 20742
(301) 405-1696
<http://www.jifsan.umd.edu>



Judy K. Quigley, University of Maryland
Editor

Sharahn D. Boykin, University of Maryland
Editorial Assistant

Maureen L. Storey, University of Maryland
Interim Director

Paul H. Mazzocchi, University of Maryland
Associate Director

Elizabeth M. Calvey, Food and Drug Administration
Deputy Associate Director

JIFSAN programs are open to all citizens without regard to race, color, gender, disability, religion, age, sexual orientation, marital or parental status, or national origin.