BETTER BUSINESS THROUGH BETTER SCIENCE.

Being a pioneer means being a problem solver. Sometimes, a problem can be solved with a product. Other times, a problem has to be solved by finding a new way of doing things. bioMérieux’s long history of scientific advancements means we are constantly looking for new solutions. With a deep understanding of the challenges faced by industrial manufacturers, the people of bioMérieux Industry help unlock value with expert consultation and a complete line of diagnostic solutions that enable rapid, more confident results.

Let the microbiology experts at bioMérieux customize solutions to meet your unique needs. Learn more at biomerieux-usa.com/food-safety
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Your partner in prevention.

In partnership with Cornell University and other industry experts, 3M has developed the Environmental Monitoring Handbook for the Food and Beverage Industries — the first comprehensive guide to help you build and enhance your environmental monitoring program.

Learn how a holistic environmental monitoring program can help you ensure food quality and safety.

Request a digital copy at 3M.com/FoodSafety/IAFP.

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On behalf of the Executive Board, it is my pleasure to welcome you to IAFP 2019 and to Louisville, Kentucky. Thousands of colleagues and friends from around the globe are here to experience the leading food safety conference and to help fulfill the Association’s mission: To provide food safety professionals worldwide with a forum to exchange information on protecting the food supply.

Food safety remains a top priority in today’s interconnected world. Our meeting will help you stay in touch with current and emerging issues, the latest science, and solutions to new and ongoing problems. Of equal or greater importance is the opportunity to network with colleagues and developing scientists...often the most valuable information one can gather is in an impromptu conversation in the hallway! Plus, we’ve extended our morning and afternoon breaks to allow for additional opportunities to connect with your fellow attendees. Thank you for joining us to be part of the solution for tomorrow’s food safety challenges.

The Executive Board offers a special thank you to Mark Moorman, Program Committee Chair, and the entire Program Committee for organizing another exceptional lineup of symposia, roundtables, technical presentations, posters and interactive sessions. The only thing in short supply will be the time needed to attend all of the interesting presentations! Your greatest challenge will be to determine where best to spend your time, so review the program carefully and plan your time accordingly...preferably using the IAFP 2019 App!

We extend our sincere gratitude to our valued exhibitors, sponsors and long-time attendees for making each IAFP Annual Meeting highly successful every year. This meeting would not be the same without your continued and dedicated support.

Whether you are a new Member, long-time Member, student Member, or even a prospective Member, the Board eagerly welcomes you and encourages you to actively participate in this year’s meeting. And if you see me, or any of our Board members, please come up and say hello. We would love to meet you.

Together, we are Advancing Food Safety Worldwide. !

Tim Jackson
IAFP President
IAFP 2019 SCHEDULE

All events held at Kentucky International Convention Center unless noted.

FRIDAY, JULY 19

IAFP Workshops
- Using Data and Statistical Analysis to Guide Food Safety Decision Making • 1 day – 8:00 a.m. – 5:00 p.m.
- Developing Environmental Monitoring Programs for Small and Midsize Processors • 2 days – 8:00 a.m. – 5:00 p.m., Friday and Saturday
- Validating Pasteurization Processes for Low-moisture Products • 1.5 days – 8:00 a.m. – 5:00 p.m., continues Saturday – 8:00 a.m. – 12:00 p.m.
- Whole Genome Sequencing: A Tutorial and Hands-on Workshop to Understand and Implement This Breakthrough Technology • 1.5 days – Friday, 1:00 p.m. – 5:00 p.m., continues Saturday – 8:00 a.m. – 5:00 p.m.

SATURDAY, JULY 20

IAFP Workshops
- Developing Environmental Monitoring Programs for Small and Midsize Processors • 8:00 a.m. – 5:00 p.m. (continued from Friday)
- Validating Pasteurization Processes for Low-moisture Products • 8:00 a.m. – 12:00 p.m. (continued from Friday)
- Whole Genome Sequencing: A Tutorial and Hands-on Workshop to Understand and Implement This Breakthrough Technology • 8:00 a.m. – 5:00 p.m. (continued from Friday)
- Introduction to FDA-iRISK® 4.0: A Comparative Risk Assessment Tool with New Features and Case Studies • 1 day – 8:00 a.m. – 5:00 p.m.
- Principles for Establishing and Extending Shelf Life • 1 day – 8:00 a.m. – 5:00 p.m.

PDG and Committee Meetings • 2:30 p.m. – 5:00 p.m.
Welcome Reception • 5:00 p.m. – 6:30 p.m. — Sponsored by Eurofins

SUNDAY, JULY 21

Affiliate Council Meeting • 7:00 a.m. – 10:00 a.m.
Committee and PDG Meetings • 8:00 a.m. – 5:15 p.m.
Student Luncheon (ticket required) • 12:00 p.m. – 1:30 p.m. — Sponsored by Prometric
Editorial Board Reception (by invitation) • 4:30 p.m. – 5:30 p.m.
Opening Session and Ivan Parkin Lecture • 6:00 p.m. – 7:30 p.m.
Cheese and Wine Reception • 7:30 p.m. – 9:30 p.m. — Sponsored by Mars, Incorporated • Cheese donated by Land O’Lakes
Exhibit Hours • 7:30 p.m. – 9:30 p.m.

MONDAY, JULY 22

Symposia & Technical Sessions • 8:30 a.m. – 5:15 p.m.
Poster Sessions • 8:30 a.m. – 6:15 p.m.
Exhibit Hours • 10:00 a.m. – 6:15 p.m.
Exhibit Hall Lunch • 11:45 a.m. – 1:45 p.m.
U.S. Regulatory Update • 12:30 p.m. – 1:30 p.m.
Exhibit Hall Reception • 5:15 p.m. – 6:15 p.m. — Sponsored by Merck Animal Health

TUESDAY, JULY 23

Committee and PDG Chairperson Breakfast (by invitation) • 7:30 a.m. – 9:00 a.m.
Symposia & Technical Sessions • 8:30 a.m. – 5:15 p.m.
Poster Sessions • 8:30 a.m. – 6:15 p.m.
Exhibit Hours • 10:00 a.m. – 6:15 p.m.
Exhibit Hall Lunch • 11:45 a.m. – 1:45 p.m.
Business Meeting • 12:30 p.m. – 1:15 p.m.
Exhibit Hall Reception • 5:15 p.m. – 6:15 p.m. — Sponsored by Diversey
President’s Reception (by invitation) • 6:30 p.m. – 7:30 p.m. — (Event to be held at the Omni Louisville Hotel)
Past President’s Dinner (by invitation) • 7:30 p.m. – 9:30 p.m. — (Event to be held at the Omni Louisville Hotel)
Student Mixer • 7:00 p.m. – 9:00 p.m. — Sponsored by Smithfield Foods — (Event to be held at the Seelbach Hilton)

WEDNESDAY, JULY 24

Symposia & Technical Sessions • 8:30 a.m. – 3:30 p.m.
Poster Sessions • 8:30 a.m. – 3:30 p.m.
Networking Lunch • 11:45 a.m. – 1:45 p.m.
Closing Session – John H. Silliker Lecture • 4:00 p.m. – 4:45 p.m.
Awards Reception and Banquet • 6:00 p.m. – 9:30 p.m.
GENERAL INFORMATION

Speaker-Ready Room
The Speaker-Ready Room is located in Room M116 and is available for speakers Sunday through Wednesday, 7:00 a.m. to 5:00 p.m.

Press Release Postings
A Press Release poster board will be available in the Exhibit Hall for Press Releases. Post your Press Release for maximum exposure.

Cell Phone Policy
As a courtesy to our presenters, we request that you turn off cell phones while attending sessions. Thank you for your cooperation.

Recording Policy
Unauthorized video or audio recording will not be allowed without prior approval. By attending the IAFP Annual Meeting, you authorize IAFP to take your picture to be used in our publications.

All sessions, with speaker approval, will be audio recorded by IAFP and posted on the IAFP website for attendees’ access.

Sessions sponsored by ILSI North America will be video recorded.

Meeting App
The IAFP 2019 app is available at the App Store, the Android market and through a web-based version.

Internet Café
The Internet Café is in the IAFP Registration area.

WiFi Internet
Complimentary WiFi Internet is available throughout the lobbies, Exhibit Hall, and meeting rooms. To access:

Use the IAFP2019 “WiFi” Network.
Password: iafp2019

Program Committee
Chairperson
Mark Moorman, U.S. Food and Drug Administration

Vice Chairperson
Manpreet Singh, University of Georgia

Members
Laura Brown, CDC-EHSB
Doris D’Souza, University of Tennessee-Knoxville
Michelle Danyluk, University of Florida
Heidy Den Besten, Wageningen University
Martin Duplessis, Food Directorate, Health Canada
Janell Kause, USDA-FSIS
Laurie Post, Deibel Laboratories
Carrie Rigdon, Minnesota Department of Agriculture
Tori Stivers, University of Georgia
Jarret Stopforth, Kettle & Fire, Inc.
Benjamin Warren, Land O’Lakes
Pamela Wilger, Cargill, Inc.
Christina Wilson, Columbus Public Health

Board Liasons
Kali Kniel, University of Delaware
Tim Jackson, Driscoll’s of the Americas

IAFP Registration Hours
Saturday, July 20 – 12:00 p.m. – 7:00 p.m.
Sunday, July 21 – 7:00 a.m. – 9:00 p.m.
Monday, July 22 – 7:30 a.m. – 5:30 p.m.
Tuesday, July 23 – 8:00 a.m. – 5:30 p.m.
Wednesday, July 24 – 8:00 a.m. – 12:00 p.m.

CONNECT AT IAFP 2019
@IAFPFOOD
#IAFP2019
### PROGRAM BOOK

**SCHEDULE-AT-A-GLANCE**

All sessions will be held at the Kentucky International Convention Center

**SUNDAY, JULY 21**

 Opening Session – Ivan Parkin Lecture – Ballroom C
The Power of Play: Using Media to Educate Our Stakeholders — Barbara Chamberlin, New Mexico State University

**MONDAY, JULY 22**

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<tr>
<th>Room</th>
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<td>12:30 p.m. – 1:45 p.m.</td>
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<td>Room L015</td>
<td>2:00 p.m. – 3:15 p.m.</td>
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<td>3:30 p.m. – 4:45 p.m.</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S1 – Tracking FSMA: Do We Need to Worry?</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S2 – Seek and You Shall Find: The Intricacies of a Robust Listeria Environmental Monitoring Plan</td>
</tr>
<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S64 – Is Cell-Cultured Meat Really Meat?</td>
</tr>
<tr>
<td>1:30 p.m. – 3:30 p.m.</td>
<td>S10 – Listeria monocytogenes and the Produce Industry: Real Practice for Sanitary Design, Control and Monitoring</td>
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<tr>
<td>4:00 p.m. – 4:45 p.m.</td>
<td>S18 – Is Cell-Cultured Meat Really Meat?</td>
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<td>5:00 p.m. – 5:45 p.m.</td>
<td>S24 – 2018 State and Local Foodborne Illness Investigations</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S32 – A Precarious Balancing Act: Co-managing Preharvest Environments to Maximize Food Safety, Sustainability, and Economic Viability of Farm Operations</td>
</tr>
<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S50 – The Use of Rapid Microbial Methods by Government Agencies for “Official” Testing</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S39 – Beyond Slide Decks and Classrooms: Novel Approaches to Food Safety Learning</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S19 – When the Enterochromatexis Win the Far: Wind and Particulate-associated Distribution of Foodborne Pathogens</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S40 – What Do We Know about Microparticles in Food and Their Impact on Human Health?</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S41 – New Research Findings – Control of Listeria in Dairy</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S56 – Are Those Instructions Included? The Role of Regionality and Experimental Designs on the Survival of Foodborne Pathogens in Manure-amended Soils</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S44 – Updates on the Impact of Sampling Plans on Food Safety</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S70 – Challenges in Low-moisture Food Plant Sanitation – A Dairy Perspective</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S17 – Managing Large Multidisciplinary/Multifunctional Food Safety Projects – Effectively, Impactfully, and with Integrity</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S71 – You Cannot Audit Food Safety Culture – Wrong, Here’s How!</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S57 – You Cannot Audit Food Safety Culture – Wrong, Here’s How!</td>
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**Wednesday, July 24**

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<tr>
<td>12:30 p.m. – 1:30 p.m.</td>
<td>Wednesday, July 24</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S52 – Water Re-use in the Food Processing Industry: Risk-based Approaches in Practice</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S25 – You Cannot Audit Food Safety Culture – Wrong, Here’s How!</td>
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<td>8:30 a.m. – 12:15 p.m.</td>
<td>S51 – Why are We Still Having Food Safety Failures? Are We All Miss Food Safety Systems?</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S52 – Water Re-use in the Food Processing Industry: Risk-based Approaches in Practice</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S11 – Why are We Still Having Food Safety Failures? Are We All Miss Food Safety Systems?</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S53 – Does Zero Risk Really Exist? How to Communicate Variability and Uncertainty to Government and Industry Managers</td>
</tr>
<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S61 – Finding the Intricacies of a Robust Listeria Environmental Monitoring Plan</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S54 – Environmental Monitoring – A Cost-effective Tool or Expensive Waste of Resource?</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S47 – Advancing the Science of Risk-based Criteria for Agricultural Water Quality</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S48 – Determining Preventive Controls for Viruses and Pesticides</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S14 – Agricultural Water and Emerging Pathogens in the Age of FSMA: Do We Need to Worry?</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S49 – Environmental Monitoring – A Cost-effective Tool or Expensive Waste of Resource?</td>
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<td>S48 – Determining Preventive Controls for Viruses and Pesticides</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S62 – Safety of Animal Source Foods in Low- and Middle-income Countries</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S66 – Let’s Hear from the Latest Food Safety Scientists on Pathogen Behavior in Ready-to-Eat Foods</td>
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<td>1:30 p.m. – 5:15 p.m.</td>
<td>S67 – Antibiotic Reduction, Alternatives, and the Relationship to Food Pathogen Outbreaks</td>
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<tr>
<td>8:30 a.m. – 12:15 p.m.</td>
<td>S53 – The Impact of Packaging Materials on Food Safety: Testing, Modeling and Regulation</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>S59 – Extraintestinal Pathogenic Escherichia coli (ExPEC): Urinary Tract Infections, Septis, and Avian Colibacillosis</td>
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**Sunday, July 21**

<table>
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<tr>
<td>6:00 p.m. – 7:30 p.m.</td>
<td>Opening Session – Ivan Parkin Lecture – Ballroom C</td>
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<tr>
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<td>S2 – Seek and You Shall Find: The Intricacies of a Robust Listeria Environmental Monitoring Plan</td>
</tr>
<tr>
<td>1:30 p.m. – 3:30 p.m.</td>
<td>S3 – Tracking Produce: Where We Are and What's Next?</td>
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All sessions will be held at the Kentucky International Convention Center.

**Program Book 7**
SPONSORS

Association of Food and Drug Officials
Dairy Management, Inc.
EAS Consulting Group, LLC
Ecolab Inc.
F & H Food Equipment Company
Food Safety Magazine
Foundation for Meat and Poultry
Research and Education
Frozen Food Foundation
Grocery Manufacturers Association
Instant Recall LLC
International Association of Environmental Analytical Chemistry (IAEAC)

International Committee on Food Microbiology and Hygiene (ICFMH)
International Committee on Predictive Modelling in Food (ICPMF)
International Life Sciences Institute, North America (ILSI, N.A.)
International Packaged Ice Association
Marler Clark
MERQ, Inc.
Nature Food
Nelson Jameson
Quality Assurance and Food Safety

Remco Products
ThermoFisher Scientific
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University of Florida, Feed the Future Innovation Lab for Livestock Systems
University of Georgia, Center for Food Safety
University of Georgia, Marine Extension and Georgia Sea Grant
Walmart
Weber Scientific
SPECIAL PRESENTATIONS

SUNDAY, JULY 21
Opening Session
Ivan Parkin Lecture

The Power of Play: Using Media to Educate Our Stakeholders
6:00 p.m. – 7:30 p.m.

Join us for the IAFP 2019 Opening Session, where various awards will be presented, including the Fellow Awards, the Travel Awards, and the Student Travel Scholarship. Enjoy the Cheese and Wine Reception in the Exhibit Hall following the Opening Session.

Barbara Chamberlin, Ph.D.
Professor
New Mexico State University

MONDAY, JULY 22
U.S. Regulatory Update on Food Safety
12:30 p.m. – 1:30 p.m.

Don’t miss the U.S. Regulatory Update on Food Safety. Experts from the U.S. Food and Drug Administration and the U.S. Department of Agriculture will provide the latest updates and changes within their respective agency, followed by a Q&A with attendees.

Frank Yiannas, MPH
Deputy Commissioner for Food Policy and Response
U.S. Food & Drug Administration (FDA)

Mindy Brashears, Ph.D.
Deputy Under Secretary for Food Safety
U.S. Department of Agriculture (USDA)

WEDNESDAY, JULY 24
Closing Session
John H. Silliker Lecture

From Outbreak Catastrophes to Clades of Concern, How Whole Genome Sequencing Can Change the Food Safety Landscape
4:00 p.m. – 4:45 p.m.

Take part in the John H. Silliker Lecture during the Closing Session. The John H. Silliker Lectureship was established in 2004 to honor Dr. Silliker’s contributions to food safety through the Silliker Laboratories, now known as Mérieux NutriSciences.

Robert V. Tauxe, MD, MPH
Director
Division of Foodborne, Waterborne and Environmental Diseases
Centers for Disease Control and Prevention
EXHIBIT HALL EVENTS AND INFORMATION

CHEESE AND WINE RECEPTION
SUNDAY, JULY 21  7:30 p.m. – 9:30 p.m.
Sponsored by MARS Incorporated
Cheese donated by LAND O’LAKE, INC.

EXHIBIT HALL BREAKS
MONDAY, JULY 22
10:00 a.m. Coffee Break
Sponsored by DEIBEL LABORATORIES, INC.
3:00 p.m. Coffee Break

TUESDAY, JULY 23
10:00 a.m. Coffee Break
3:00 p.m. Coffee Break

EXHIBIT HALL LUNCH
MONDAY, JULY 22  11:45 p.m. – 1:30 p.m.
TUESDAY, JULY 23  11:45 p.m. – 1:30 p.m.

EXHIBIT HALL RECEPTIONS
MONDAY, JULY 22  5:15 p.m. – 6:15 p.m.
Sponsored by MICKELSON CORPORATION
TUESDAY, JULY 23  5:15 p.m. – 6:15 p.m.
Sponsored by DIVERSEY

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Neutec Group Inc.
Pall Corporation
Partnership for Food Safety Education
Romer Labs®
SAI Global
Seward Laboratory Systems, Inc.
SGS
## COMMITTEE AND PDG MEETINGS

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<td>International Food Protection Issues</td>
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<td>9:00 AM –12:00 PM</td>
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<td>Student (PDG Meeting)</td>
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<td>Food Safety Culture</td>
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<td>Fruit and Vegetable Safety and Quality</td>
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<td>Developing Food Safety Professionals</td>
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<td>Food Chemical Hazards and Food Allergy</td>
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<td>Food Safety Education</td>
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<td>3:15 PM – 5:15 PM</td>
<td>Microbial Modelling and Risk Analysis</td>
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STUDENT ACTIVITIES

STUDENT PDG MEETING

SUNDAY, JULY 21
10:00 a.m. – 12:00 p.m.
Ballroom B

STUDENT LUNCHEON

SUNDAY, JULY 21
12:00 p.m. – 1:30 p.m.
Ballroom A
Sponsored by Prometric

STUDENT MIXER

TUESDAY, JULY 23
7:00 p.m. – 9:00 p.m.
Seelbach Hilton, Rathskeller
Sponsored by Smithfield Foods

JOB FAIR

Attention Job Seekers and Employers!
Job announcements will be posted at the Student PDG booth.

SUPPORT THE STUDENTS OF IAFP

Purchase a t-shirt at the Student PDG Booth.
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Visit us at IAFP - Booth #427
Your participation in the IAFP Foundation Silent Auction is a fun way to support the IAFP Foundation.

The money raised helps to fund the programs of the IAFP Foundation including:

- Ivan Parkin Lecture
- John H. Silliker Lecture (Funded through a contribution from Mérieux NutriSciences, Inc.)
- Student Travel Scholarships for Annual Meeting
- Student Travel Scholarships for the European Symposium
- Travel Awards for State or Provincial Health or State Agricultural Department Employees
- Travel Awards for Food Safety Professionals in Countries with Developing Economies
- Travel Support for Speakers at Global IAFP Conferences
- Developing Scientist Student Competition
- Undergraduate Student Competition
- IAFP Webinars

Silent Auction Hours

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<td>Sunday, July 21</td>
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<td>Monday, July 22</td>
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<td>Tuesday, July 23</td>
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Final bids must be made by 3:30 p.m. on Tuesday. Bid sheets will be pulled promptly at 3:30 p.m. Successful bidders can claim items immediately following.

Located in the Exhibit Hall

All proceeds benefit the IAFP Foundation
OPENING SESSION

SUNDAY, JULY 21
Kentucky International Convention Center Ballroom 6:00 p.m.

WELCOME TO IAFP 2019
Tim Jackson, IAFP President

PEANUT PROUD STUDENT SCHOLARSHIP
Presented by: Darlene Cowart, Peanut Proud
Kaitlyn Casulli

IAFP FOUNDATION
Gary Acuff, Foundation Chairperson

TRAVEL AWARDS
Presented by: Tim Jackson, IAFP President, Gary Acuff, Foundation Chairperson and Vickie Lewandowski, Past Foundation Chairperson

STUDENT TRAVEL SCHOLARSHIPS
Hiroki Abe
Jennifer Acuff
Justin Anast
Katrien Begyn
Melanie Firestone
Catherine Gensler
Carly Gomez
Gayathri Gunathilaka
John Hodges
Rochelle Keet
Muhammad Nadeem Khan
Sakshi Lambi
Ruiling Lv
Sarah Murphy
Oladipupo Olatunde
Nurudeen Olalekan Olos
Ruth Onin
Elvina Parlindungan
Surabhi Rani
Lester Schonberger
Mary Yavelak

STATE OR PROVINCIAL HEALTH OR AGRICULTURAL DEPARTMENT EMPLOYEES
Gregory Danzeisen
Ashley Giddens
Emily Harvey
Mona Johnson
Lorraine McIntyre

FOOD SAFETY PROFESSIONAL IN A COUNTRY WITH A DEVELOPING ECONOMY
Charles Bashiru Bakin
Abdoulie Jallow
Ismail Odetokun

FELLOWS AWARD
Presented by: Tim Jackson, IAFP President, and Mickey Parish, IAFP Past President
Francisco Diez-Gonzales
Linda Harris
Steve Ricke
Tori Stivers

THE IVAN PARKIN LECTURE
Introduction: Kali Kniel, IAFP President-Elect
The Power of Play: Using Media to Educate Our Stakeholders
Barbara Chamberlin, Ph.D.

CLOSING COMMENTS
Tim Jackson, IAFP President

CHEESE AND WINE RECEPTION
Sponsored by Mars Global Food Safety Center
Cheese provided by Land O’Lakes, Inc.
IAFP Exhibit Hall, Kentucky International Convention Center 7:30 p.m.–9:30 p.m.
Barbara Chamberlin, Ph.D., is an Extension Instructional Design and Education Media Specialist at New Mexico State University (NMSU) in Las Cruces, New Mexico. In her current position, Dr. Chamberlin directs NMSU’s Learning Games Lab in the Innovative Media Research and Extension Department, leading research on game development and serving as an instructional designer on new educational projects.

NMSU’s Innovative Media Research and Extension Department has an established history in creating educational games, animations, videos and other learning tools in food safety areas, including cooking games for kids; viral animations around hand washing; outreach animations for growers and producers; and virtual labs around key scientific concepts. The team has collaborated with partners at more than 40 universities in developing these research-based outreach tools, and produces research-based work on a variety of topics including math, science, health, financial literacy, and agriculture. Current projects include working on apps for pre-school learners and their parents on key movement and tasting behaviors; math games for elementary learners; a government game for middle school students based on food safety concepts; virtual labs on water safety for high school students; and virtual water testing labs and animations for growers, as well as additional animations and videos for various audiences.

A former stand-up comic, Dr. Chamberlin is a science enthusiast, technology evangelist, and passionate about Chile. She received a Ph.D. in Instructional Design from the University of Virginia, and has worked in Extension as an Educational Technology Specialist for nearly 20 years.
The Power of Play: Using Media to Educate Our Stakeholders

Barbara Chamberlin, Ph.D.
New Mexico State University
Las Cruces, New Mexico, USA

Through our research, discoveries and sharing of knowledge, our ultimate goal is usually to change the behavior of consumers, growers, and other educators. The Learning Games Lab at New Mexico State University works with content experts at universities and organizations throughout the nation to develop educational games, animations, videos and interactive labs. Their tools, almost all of which are available free of charge, are developed through a specific development process which is designed to change our clientele.

Dr. Chamberlin will share highlights of the different projects they’ve created, including:

**Ninja Kitchen** (game), ninjakitchengame.org
Speed is important, but in this kitchen, safety comes first. Stop for lunch at a cafe staffed entirely by ninjas. Sophisticated gameplay reveals principles of food safety in this diner game created for kids.

**Potluck Panic** (game), potluckpanic.nmsu.edu
Correct unsafe food preparations before the food is consumed by your friends! Potluck Panic is an interactive game for college students that educates players on safe food-handling procedures, from the factory to the kitchen.

**Virtual Labs**, myfoodsciencelab.org
A collection of eight interactive web modules (Adobe Flash), and eight iPad apps. Students perform common food science lab procedures step by step in a virtual laboratory.

**Don’t Wash Your Chicken!**, dontwashyourchicken.org
Videos, animation, recipes, and printable fotonovelas reinforce the importance of not washing raw poultry.

**Don’t Be Gross**, dontbegross.org
These short, shareable animations convey the importance of hand washing and other health issues.

**Produce Safety Matters**, producesafetymatters.org
Designed for extension training and outreach, growers, packers, and retailers learn tips to prevent contamination from farmer’s field to consumer’s fork in these crisp animations.

The **Transformational Design Model** is an educational design model based on five key ways to change people: their knowledge (what they know), skill (what they can do), behavior (how they act), emotion, (how they feel) and physiology (how they are). When educational designers start the specific ways in which they want a learner to change, the next step is to design the activities that will lead to that change.

Activity design is more complex, as there are hundreds of ways to learn, experience, develop and grow; such as, receiving information, failing, observing, planning, communicating, thinking, and solving problems. This range of activities includes moving a learner from activities that provide simple exposition, through different types of activities to more inquiry-based learning. This range of activities is helpful in guiding designers through a learning experience. The range provided doesn’t offer a continuum of good through bad; rather, it is designed to help developers think through the needs of the player. Sometimes simple exposure to knowledge is useful, when other kinds of learning and change demands reflection, creative activity and building, or learner-centered project development.

Additional resources developed by the Learning Games Lab are available at learninggameslab.org.
Thank you to the following organizations for your generous contributions:

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# MONDAY, JULY 22

## ALL DAY
8:30 a.m. – 6:15 p.m.
Exhibit Hall

### Poster Session 1
- Communication Outreach and Education
- Epidemiology
- Food Law and Regulation
- Food Processing Technologies
- General Microbiology
- Low-water Activity Foods
- Molecular Analytics, Genomics and Microbiome
- Retail and Food Service Safety

P1-01 through P1-123 – Authors present 10:00 a.m. – 11:30 a.m. and 5:15 p.m. – 6:15 p.m.
P1-124 through P1-281 – Authors present 2:15 p.m. – 3:45 p.m. and 5:15 p.m. – 6:15 p.m.

## MORNING
8:30 a.m. – 12:15 p.m.

Room M100 S1
- Tracking FSMA Quantitative and Qualitative Impacts on the Food Industry under Full FDA Enforcement – Stats, Trends, Challenges and Lessons Learned

Room M104 T1
- Technical Session 1 – Pre-harvest Food Safety and Produce

Room M112 T2
- Technical Session 2 – Antimicrobials

8:30 a.m. – 10:00 a.m.

Ballroom A S2
- Seek and You Shall Find: The Intricacies of a Robust Listeria Environmental Monitoring Plan

Ballroom C S3
- Tracing Produce: Where We are and What’s Next?

Ballroom D S4
- Water Management in Food Manufacturing: Be Prepared for Problems

Ballroom E S5
- Does Zero Risk Really Exist: How to Communicate Variability and Uncertainty to Government and Industry Managers

Room M105 S6
- Impact of Robotics and Artificial Intelligence on Food Safety

Room M107 S7
- New Methods in Analytical and Bioanalytical Sensing for Food Safety and Quality

Room M108 S8
- Ensuring Safety by Design: Connecting the Dots of Food Protection throughout the Farm-to-Fork Continuum – A Poultry Case Study

Room M109 S9
- Making Sense of Food Allergen Analysis

10:00 a.m. – 10:45 a.m.

Break – Refreshments Available in the Exhibit Hall

10:45 a.m. – 12:15 p.m.

Listeria monocytogenes and the Produce Industry: Best Practices for Sanitary Design, Control and Monitoring

Why are We Still Having Food Safety Failures If We All Have Food Safety Systems?

Is It Time for Food Safety Performance Standards Since Zero Risk is Not an Option?

Artificial Intelligence and Machine Learning: What They are and Their Potential Applications for Food Safety

Food Microbiome Transfer Dynamics from Farm to Processing – What Can Metagenomics Add to the Picture?

Science and Regulatory Guidance Update: Lethality and Stabilization of Meat and Poultry Products

May Contain Allergens – A Risk-based Approach for Determining the Use of Precautionary Allergen Labelling (PAL)

Lunch Available in the Exhibit Hall

## AFTERNOON
12:30 p.m. – 1:30 p.m.

Room M104 T3
- Technical Session 3 – Produce

Room M107 T4
- Technical Session 4 – Antimicrobials

1:30 p.m. – 3:00 p.m.

Room M100 RT2
- Today’s RTE Redefined – Managing Environmental Controls and the Risk of the “Reasonably Foreseeable”

Room M101 RT3
- Emerging Foods: Seaweed; Superfood, Health and Safety, Challenges and Opportunities

Room M104 S10
- Is Cell Cultured Meat Really Meat?

Room M105 S19
- Beyond Slide Decks and Classrooms: Novel Approaches to Food Safety Learning

Room M107 S14
- International Food Defense Preparation for FSMA and Beyond

Room M108 S18
- Applying Lessons Learned: Keeping STEC Off Our Lettuce

Room M109 S20
- Breaking the Mold: Using Foods to Protect Against Food Allergy

Room M112 S16
- Microbiological Method Verification in Food Manufacturing: Are Your Methods “Fit Enough” for Purpose?

Break – Refreshments Available in the Exhibit Hall

12:00 p.m. – 1:30 p.m.

Room M107 S15
- Managing Large Multidisciplinary/Multi-Institutional Food Safety Projects – Effectively, Impactfully, and with Integrity

1:30 p.m. – 3:00 p.m.

Room M100 RT2
- Today’s RTE Redefined – Managing Environmental Controls and the Risk of the “Reasonably Foreseeable”

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- Emerging Foods: Seaweed; Superfood, Health and Safety, Challenges and Opportunities

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Room M112 S16
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3:00 p.m. – 3:45 p.m.

Room M100 RT2
- Today’s RTE Redefined – Managing Environmental Controls and the Risk of the “Reasonably Foreseeable”

Room M101 RT3
- Emerging Foods: Seaweed; Superfood, Health and Safety, Challenges and Opportunities

Room M104 S10
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3:45 p.m. – 5:15 p.m.

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Room M112 S16
- Microbiological Method Verification in Food Manufacturing: Are Your Methods “Fit Enough” for Purpose?

Break – Refreshments Available in the Exhibit Hall

## EVENING OPTIONS
5:15 p.m. – 6:15 p.m.

Exhibit Hall Reception

- Update on the Produce Safety Alliance – Outreach and Education, Room M109

## AFFILIATE MEETINGS
5:30 p.m. – 6:30 p.m.

China Association for Food Protection and Chinese Association for Food Protection in North America Meeting, Room M104

African Continental Association for Food Protection Meeting, Room M105

Indian Association for Food Protection in North America, Room M107

6:00 p.m. – 7:00 p.m.
MONDAY MORNING
JULY 22
Posters will be on display 8:30 a.m. – 6:15 p.m.
(See details beginning on page 61)

S1 Tracking FSMA Quantitative and Qualitative Impacts on the Food Industry Under Full FDA Enforcement
Stats, Trends, Challenges and Lessons Learned
Room M100
Organizers and Convenors: Allen Sayler, Purnendu Vasavada
Sponsored by EAS Consulting Group, LLC
Developing Food Safety Professionals
FSMA
Food Safety Assessment, Audit and Inspection
8:30 FDA’s Perspective and Experience on FSMA Enforcement and Inspections
GLENN BASS, U.S. Food & Drug Administration, White Oak, MD, USA
9:00 FDA FSMA’s Enforcement Impact on U.S. Food Manufacturers: Experiences, Case Studies and Lessons Learned
KARLEIGH BACON, The Kraft Heinz Company, Chicago, IL, USA
9:30 FSMA Enforcement Impact on Foreign Food Manufacturer – International Experiences, Examples and Feedback
GREGORY PRITCHARD, Nestlé USA, Glendale, CA, USA
10:00 Break – Refreshments Available in the Exhibit Hall
10:45 FDA’s FSMA Enforcement Impact on Non-U.S. Food Manufacturers – Examples: Food Retailer: Examples, Case Studies and Recommendations
ALLEN SAYLER, EAS Consulting Group, Alexandria, VA, USA
11:15 FSPCA Education and Outreach for Facilitating FSMA Implementation in the U.S. and Internationally
PURNE NDU VASAVA DA, University of Wisconsin-River Falls, River Falls, WI, USA
11:45 Legal and Food Industry Liability Challenges Created by FSMA
ELIZABETH FAWELL, Hogan Lovells, Washington, D.C., USA
12:15 Lunch Available in the Exhibit Hall
S2 Seek and You Shall Find: The Intricacies of a Robust Listeria Environmental Monitoring Plan
Ballroom A
Organizers and Convenors: Joelle K. Salazar, Diana Stewart
Dairy Quality and Safety
Meat and Poultry Safety and Quality
Sanitary Equipment and Facility Design
8:30 The Role of Environmental Monitoring in a Preventive Controls System
JENNY SCOTT, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA
9:00 The Food Safety and Inspection Service: Experiences with Listeria to Inform Risk Assessments and Other Guidance Documents
LINDSAY WARD-GOK HALE, U.S. Department of Agriculture – FSIS, Washington, D.C., USA
JOHN DONAGHY, Nestec Ltd., Vevey, Switzerland
10:00 Break – Refreshments Available in the Exhibit Hall
S3 Tracing Produce: Where We are and What’s Next?
Ballroom C
Organizers: Kari Irvin, Sherri McGarry
Convenor: Sherri McGarry
Epidemiology
Fruit and Vegetable Safety and Quality
8:30 Overview of the Produce Traceability Initiative
ED TREACY, PMA, Newark, DE, USA
9:00 It’s Not Just about FSMA; Regulatory Options and Interconnectivity
KATHERINE VIERK, U.S. Food and Drug Administration, College Park, MD, USA
9:30 Enabling Technology to Improve Produce Traceability: The Walmart Experiment
TEJAS BHATT, Walmart, Bentonville, AR, USA
10:00 Break – Refreshments Available in the Exhibit Hall
S4 Water Management in Food Manufacturing: Be Prepared for Problems
Ballroom D
Organizer: Anett Winkler
Convenor: Roy Betts
Food Safety Assessment, Audit and Inspection
HACCP Utilization and Food Safety Systems
Water Safety and Quality
8:30 Spread of Pathogens by Water: What Went Wrong and What Could Go Wrong?
MIEKE UYTTENDAELE, Ghent University, Ghent, Belgium
9:00 Water Treatment Technologies for “Fit for Purpose” Water
PHYLLIS POSY, Strategic Services & Regulatory Affairs Atlantium Technologies, Har Tuv Industrial Park, Israel
9:30 Water Management within the Manufacturing Premises (water lines, treatment, testing)
ANET T WINKLER, Cargill, Inc., Munich, Germany
10:00 Break – Refreshments Available in the Exhibit Hall

Check the Program Addendum for changes to the Program.
**S5**

**Does Zero Risk Really Exist: How to Communicate Variability and Uncertainty to Government and Industry Managers**  
*Ballroom E*

Organizers: Mariem Ellouze, Fernando Perez Rodriguez,  
Convenor: Mariem Ellouze

Sponsored by International Committee on Predictive Modelling in Food (ICPMF) and International Committee on Food Microbiology and Hygiene (ICFMH) and the IAFP Foundation

Communication, Outreach and Education  
International Food Protection Issues  
Microbial Modelling and Risk Analysis

8:30 Variability and Uncertainty in a World of Zero Tolerance  
LAURENT GUILLER, ANSES, University of Paris-Est, Maisons-Alfort, France

9:00 The Devil is in the Tail: Communicating Variability and Uncertainty to Industry Managers  
LEON GORRIS, Food Safety Expert, Nijmegen, The Netherlands

9:30 Variability and Uncertainty: Some Reflections from EU Risk Management Perspective  
KRIS DE SMET, European Commission, Ghent, Belgium

**10:00** Break – Refreshments Available in the Exhibit Hall

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**S6**

**Impact of Robotics and Artificial Intelligence on Food Safety**  
*Room M105*

Organizers and Convenors: Peter Ben Embarek, Ian Jenson

Artificial Intelligence  
Food Defense  
International Food Protection Issues

8:30 Use of Artificial Intelligence in Managing Food Safety Aspects of Online Merchants Platforms  
TBD

9:00 Impact of Robotics on Food Manufacturing Operations  
MIKE HARPER, Soft Robotics, Bedford, MA, USA

9:30 Potential for Robotic Processing of Red Meat: Food Safety Implications  
IAN JENSON, Meat & Livestock Australia, North Sydney, Australia

**10:00** Break – Refreshments Available in the Exhibit Hall

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**S7**

**New Methods in Analytical and Bioanalytical Sensing for Food Safety and Quality**  
*Room M107*

Organizers: Antjie Baeumner, Sam Nugen  
Convenor: Sam Nugen

Sponsored by International Association of Environmental Analytical Chemistry (IAEAC)

Advanced Molecular Analytics  
Applied Laboratory Methods  
Water Safety and Quality

8:30 Surface Enhanced Raman Microscopy for Studying the Behaviors of Pesticides and Nanoparticles on/in Plants in Situ  
LILI HE, University of Massachusetts, Amherst, MA, USA

9:00 Advances in Bacteriophage Engineering for Rapid Pathogen Detection  
EMMA FARQUHARSON, Cornell University, Ithaca, NY, USA

9:30 Engineered Reporter Enzymes for Ultrasensitive Biosensing  
JOEY TALBERT, Iowa State University, Ames, IA, USA

**10:00** Break – Refreshments Available in the Exhibit Hall

---

**S8**

**Ensuring Safety by Design: Connecting the Dots of Food Protection throughout the Farm-to-Fork Continuum – A Poultry Case Study**  
*Room M108*

Organizers: Patrice Arbault, William Chaney, Stephanie Pollard  
Convenors: Patrice Arbault, Jose Emilio Esteban, J. David Legan

Advanced Molecular Analytics  
Applied Laboratory Methods  
Meat and Poultry Safety and Quality

8:30 Pathogen Reduction Strategies in the Pre-harvest Environment  
WILLIAM CHANEY, Diamond V, Cedar Rapids, IA, USA

9:00 Food Safety by Design in Poultry Processing  
JERRI LYNN PICKETT, WBA Analytical Laboratories, Springdale, AR, USA

9:30 Challenges and Considerations for Rapid Pathogen Detection in Complex Matrices  
STEPHANIE POLLARD, Clear Labs Inc., Menlo Park, CA, USA

**10:00** Break – Refreshments Available in the Exhibit Hall

---

**S9**

**Making Sense of Food Allergen Analysis**  
*Room M109*

Organizers: Melanie Downs, Tong-Jen Fu, Marianne Solomotis  
Convenors: Melanie Downs, Tong-Jen Fu

Applied Laboratory Methods  
Food Chemical Hazards and Food Allergy  
Food Safety Assessment, Audit and Inspection

8:30 Selecting an Appropriate Food Allergen Detection Method  
RAKHI PANDA, U.S. Food and Drug Administration, College Park, MD, USA

9:00 Food Allergen Method Performance in the Food Industry  
JUPITER YEUNG, Nestlé, Fremont, MI, USA

9:30 What to Do with a Positive Food Allergen Test Result  
JOSEPH BAUMERT, University of Nebraska-Lincoln, Lincoln, NE, USA

**10:00** Break – Refreshments Available in the Exhibit Hall

---

**S10**

**Listeria monocytogenes and the Produce Industry: Best Practices for Sanitary Design, Control and Monitoring**  
*Ballroom A*

Organizer: Robert Donofrio  
Convenors: Robert Donofrio, Jennifer McEntire, Robert Whitaker

Food Hygiene and Sanitation  
Fruit and Vegetable Safety and Quality  
Sanitary Equipment and Facility Design

10:45 Produce Associations Collaboration Efforts for Industry Education  
JENNIFER MCENTIRE, United Fresh, Washington, D.C., USA

11:15 Sanitization Efficacy and Impact of Sanitary Design for Control of *L. monocytogenes* in the Processing Plant  
TREVOR SUSLOW, University of California-Davis, Davis, CA, USA

---

Check the Program Addendum for changes to the Program.
11:45 Validation and Verification Approaches for *Listeria* Detection Methods
ROBERT DONOFRO, Neogen Corporation, Lansing, MI, USA

11:15 Implementing Automation and Blockchain: An Industry Perspective
WENDY WHITE, Georgia Tech, Greensboro, GA, USA

11:45 Opportunities for Data Science in Preventing and Mitigating Foodborne Disease Outbreaks
ABIGAIL HORN, Center for Applied Network Analysis, University of Southern California, Los Angeles, CA, USA

12:15 Lunch Available in the Exhibit Hall

**S11** Why are We Still Having Food Safety Failures If We All Have Food Safety Systems?
*Ballroom C*
Organizers: Sally Crowley, Lorayn Ledenbach, Mark Moorman
Convenors: Sally Crowley, Mark Moorman
Food Safety Assessment, Audit and Inspection
Foodborne Illness
HACCP Utilization and Food Safety Systems

10:45 Food Recalls and Outbreaks – What are the Root Causes of Unsafe Foods in the Marketplace?
GALE PRINCE, Sage Food Consulting, Cincinnati, OH, USA

11:15 Food Safety Systems - What Does History Tell Us are the Weakest Links?
SALLY CROWLEY, Cargill, Inc., Hopkins, MN, USA

11:45 Foods without Definitive Preventive Controls – What’s Next?
NATHAN ANDERSON, U.S. Food and Drug Administration, Bedford Park, IL, USA

12:15 Lunch Available in the Exhibit Hall

**S12** Water Re-use in the Food Processing Industry: Risk-based Approaches in Practice
*Ballroom D*
Organizers: Leon Gorris, Elisabetta Lambertini
Convenors: Elisabetta Lambertini, Kang Zhou
Sponsored by the IAFP Foundation
Dairy Quality and Safety
Fruit and Vegetable Safety and Quality
International Food Protection Issues

10:45 The JEMRA Risk-based Framework for Water Re-use Under Development
LEON GORRIS, Food Safety Expert, Nijmegen, The Netherlands and KANG ZHOU, FAO, Rome, Italy

11:15 Experience with Water Re-use in Dairy Operations
PHYLLIS POSY, Strategic Services & Regulatory Affairs Atlantium Technologies, Har Tuv Industrial Park, Israel

11:45 Water Reuse in the Fresh Produce Production Chain: What are the Alternatives for the Industry?
ANA ALLENDE, CEBAS-CSIC, Murcia, Spain

12:15 Lunch Available in the Exhibit Hall

**S13** Artificial Intelligence and Machine Learning: What They are and Their Potential Applications for Food Safety
*Room M105*
Organizers: Matthew Moore, Amit Morey, Sarah Murphy
Convenors: Matthew Moore, Sarah Murphy
Sponsored by the IAFP Foundation
Advanced Molecular Analytics
Developing Food Safety Professionals
International Food Protection Issues

10:45 Making Sense of Big Data; Using AI and Machine Learning to Advance Our Knowledge of the Biology of Foodborne Pathogens
HENK DEN BAKKER, Center for Food Safety, University of Georgia, Griffin, GA, USA

11:15 Effects of Product Moisture and Process Humidity on Pathogen Lethality during Continuous Cooking of Meat and Poultry Products
BRADLEY MARKS, Michigan State University, East Lansing, MI, USA

11:45 Validating Growth Models for *Clostridium perfringens*, *Clostridium botulinum*, and *Bacillus cereus* during Cooling of Uncured Meat and Poultry Products
KATHLEEN GLASS, University of Wisconsin-Madison, Madison, WI, USA

12:15 Lunch Available in the Exhibit Hall

Check the Program Addendum for changes to the Program.
### May Contain Allergens – A Risk-based Approach for Determining the Use of Precautionary Allergen Labelling (PAL)

**Room M109**

**Organizer and Convenor:** Sally Klinect

**Food Chemical Hazards and Food Allergy**

10:45 Use of VITAL Reference Doses to Determine PAL

JOSEPH BAUMERT, University of Nebraska-Lincoln, Lincoln, NE, USA

11:15 Supply Chain Approach to PAL

BRENT KOBIELUSH, Cargill, Inc., Wayzata, MN, USA

11:45 CPG Approach to PAL

DAVID CLIFFORD, Nestlé USA, Inc., Dublin, OH, USA

**12:15 Lunch Available in the Exhibit Hall**

### Is It Time for Food Safety Performance Standards Since Zero Risk is Not an Option?

**Ballroom E**

**Organizer and Convenor:** Alison Kretser

Sponsored by ILSI North America Food Microbiology Committee

**Fruit and Vegetable Safety and Quality**

**Meat and Poultry Safety and Quality**

**Performance Standards for Non-Microbiological Hazards**

10:45 Panelists:

CANDACE DOEPKER, ToxStrategies, Newport, KY, USA

DONNA GARREN, American Frozen Food Institute, McLean, VA, USA

CRAIG HEDBERG, University of Minnesota, School of Public Health, Minneapolis, MN, USA

SCOTT HOOD, General Mills, Golden Valley, MN, USA

ANGELA SIEMENS, Cargill, Inc., Towanda, KS, USA

12:15 Lunch Available in the Exhibit Hall

### Technical Session 1 – Pre-harvest Food Safety and Produce

**Room M104**

**Convenors:** Achyut Adhikari, Jiin Jung

10:00 Evaluation of Zero Valent Iron Filtration to Reduce *Escherichia coli* in Agricultural Irrigation Water in Laboratory and Field Trials

SEONGYUN KIM, Rhodel Bradshaw, Prachi Kulkarni, Pei Chiu, Sarah Allard, Amy Sapkota, Eric Handy, Cheryl East, Kali Kniel, Manan Sharma, Mary Institute for Applied Environmental Health, University of Maryland, School of Public Health, College Park, MD, USA

10:05 Environmental Inactivation and Irrigation-mediated Regrowth of *Escherichia coli O157:H7* on Romaine Lettuce When Inoculated in a Fecal Slurry Matrix

JENNIFER A. CHASE, Melissa L Partyka, Ronald F. Bond, Edward R. Atwill, University of California-Davis, Davis, CA, USA

10:15 Pathogen Persistence and Transfer Dynamics as Influenced by Biological Soil Amendments in a Preharvest Environment

PUSHPINDER KAUR LITT, Alyssa Kelly, Quinn Riley, Alexis Omar, Gordon Johnson, Manan Sharma, Kali Kniel, University of Delaware, Newark, DE, USA

10:30 Break – Refreshments Available in the Exhibit Hall

10:45 Establishment of Vegetation Buffer Zone Areas to Reduce Transfer of Enteric Pathogens from Animal Operations to Fresh Produce

MORGAN YOUNG, Ayanna Glaise, Christopher Gunter, Siddhartha Thakur, Eduardo Gutierrez, North Carolina State University, Raleigh, NC, USA

11:00 The Use of Riparian Buffer Zones to Reduce the Risk of *Salmonella* Transmission from Animal Operations to Fresh Produce

AYANNA GLAIZE, Morgan Young, Christopher Gunter, Eduardo Gutierrez-Rodriguez, Siddhartha Thakur, North Carolina State University, Raleigh, NC, USA

11:15 Investigating the Influence of Streptomycin Sprays on Bacterial Populations in the Apple Carposphere and Orchard Soil

MARY THERESA CALLAHAN, Christopher S. Walsh, Shirley A. Micallef, University of Maryland, College Park, MD, USA

11:30 *Salmonella* and Indicator Bacteria Profiles of Produce and Meat Products Sold in Northern California Farmers’ Markets: Implications for Microbial Food Safety

James Stover, Michelle Jay-Russell, Viktoria Hagahani, Peiman Aminabadi, Thais Ramos, ALDA PIRES, University of California, Davis, CA, USA

11:45 The Whole is Greater Than the Sum of Its Parts: Building Cooperative Monitoring Programs among Farms

RONALD F. BOND, Melissa L Partyka, Jennifer A. Chase, Ines Hanrhan, Justin Harter, Edward R. Atwill, University of California-Davis, Davis, CA, USA

12:00 Development of the On-Farm Readiness Review to Prepare Farms for Produce Safety Rule Implementation

Elizabeth Bihn, Travis Chapin, Michelle Danyluk, Christopher Gunter, Wesley Kline, MEREDITH MELENDEZ, Phillip Tocco, Rutgers NJAES Cooperative Extension, Trenton, NJ, USA

12:15 Lunch Available in the Exhibit Hall

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**Check the Program Addendum for changes to the Program.**

- Symposia
- Roundtables
- Technicals
- Developing Scientist Competitor
- Topic Areas

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**Technical Session 2 – Antimicrobials**

*Room M112*

**Convenors:** Govindaraj Dev Kumar, Andrea Moreno Switt

**T2-01**
Phage-like Plasmids Transfer Antibiotic and Heavy Metal Resistance Genes by Transduction, Transformation and Conjugation
Anna Colavecchio, Jeffrey Chandler, Bledar Bisha, Shannon Coleman, Jean-Guillaume Emond-Rheault, Jeremie Hamel, Irena Kukavica-Ibrulj, Roger Levesque, Séamus Fanning, LAWRENCE GOODRIDGE, University of Guelph, Guelph, ON, Canada

**T2-02**
Bio-based Sanitizer Delivery Systems for Improved Sanitation of Bacterial and Fungal Biofilms
Nitin Nitin, Kang Huang, University of California-Davis, Davis, CA, USA

**T2-03**
A Novel Antimicrobial Film for Preventing Cross-Contamination of Fresh Produce
JIYOON YI, Kang Huang, Yue Ma, Gang Sun, Nitin Nitin, University of California-Davis, Davis, CA, USA

**T2-04**
Developing High Performance, Low Cost and Rechargeable Antimicrobial Coatings for Food Safety Applications
MINGYU QIAO, Randy Worobo, Minglin Ma, Cornell University, Ithaca, NY, USA

**T2-05**
Antioxidant-Antibacterial Properties and Nutrition Value of Some Varieties of Libyan Date Palm Fruits (*Phoenix dactylifera*)
Anwar Swedan, Abdurazzqe Auzi, RABYA LAHMER, University of Tripoli, Tripoli, Libya

**T2-06**
Activity of Lavender (*Lavandula officinalis*) Essential Oil Against *Listeria monocytogenes* and Sensory Acceptance of the Effective Concentrations in Fresh-cut Mango
Winnie A. Luciano, Daniela C. Schabo, Vasilis P. Valdravidis, MARCIANE MAGNANI, Federal University of Paraiba, João Pessoa, Brazil

10:00 Break – Refreshments Available in the Exhibit Hall

10:45 Application of Bacteriophages on Beef and Leafy Greens as a Natural Intervention against *E. coli* O157
Joël van Mierlo, Sander Witte, Linda Huijboom, Leoni van de Straat, Steven Hagens, BERT DE VEGT, Micreos Food Safety B.V., Wageningen, The Netherlands

11:00 Nutrient Stress as a Means to Enhance Robustness in *Lactobacillus plantarum* B21 for Improved Food Protection
ELVINA PARLINDUNGAN, Oliver Jones, Bee May, RMIT University, Melbourne, Australia

11:15 Impact of Static and Turned Pile Composting of Dairy Manure on the Persistence of Pathogenic *E. coli* and Transfer to Spinach Leaves
Morgan Young, Idalys Hernandez, Sarah Montoya, Gabriela Arteaga-Arredondo, EDUARDO GUTIERREZ, North Carolina State University, Raleigh, NC, USA

11:30 Effects of *Origanum vulgare* on Physiological Functions of *Salmonella Enteritidis* Sessile Cells in Mature Biofilms
Myrella Cariri Lira, Adma Nadja Ferreira de Melo, Erika Tayse da Cruz Almeida, Evandro L. de Souza, Donald W. Schaffner, MARCIANE MAGNANI, Federal University of Paraiba, João Pessoa, Brazil

11:45 Disrupting Irreversible Bacterial Adhesion and Biofilm Formation with an Engineered Enzyme
HOLLY MAYTON, Sharon Walker, Bryan Berger, University of Virginia, Charlottesville, VA, USA

12:00 Surfactant Type Plays an Important Role in Antimicrobial Efficiency
GOVINDARAJ DEV KUMAR, Abhinav Mishra, Kevin Mis Solval, Dumitru Macarisiun, University of Georgia Center for Food Safety, Griffin, GA, USA

12:15 Lunch Available in the Exhibit Hall
Frank Yiannas, MPH, is the Deputy Commissioner for Food Policy and Response, a position he assumed in December 2018. Mr. Yiannas is the principal advisor to the U.S. FDA Commissioner in the development and execution of policies related to food safety, including implementation of the landmark FDA Food Safety Modernization Act (FSMA), helping reduce food safety risks and achieve high rates of compliance with FDA food safety standards. He previously served in leadership roles with Walmart and the Walt Disney Company.

Mindy Brashears, Ph.D., serves as Deputy Under Secretary for the USDA’s Office for Food Safety. In this position since January 2019, Dr. Brashears oversees development, implementation, and enforcement of all of the Food Safety and Inspection Service’s (FSIS’) regulations, policies, and programs. Prior to this position, Dr. Brashears was Professor of Food Safety and Public Health and the Director of the International Center for Food Industry Excellence at Texas Tech University.

MONDAY, JULY 22
12:30 p.m. – 1:30 p.m.
MONDAY AFTERNOON
JULY 22
Posters will be on display 8:30 a.m. – 6:15 p.m. (See details beginning on page 61)

12:30 p.m. – 1:30 p.m.
U.S. REGULATORY UPDATE ON FOOD SAFETY
FRANK YIANNAS Deputy Commissioner for Food Policy and Response, U.S. Food & Drug Administration (FDA)
Silver Springs, MD, USA
MINDY BRASHEARS, Deputy Under Secretary for Food Safety, U.S. Department of Agriculture (USDA)
Washington, D.C., USA

Ballroom C

S17 Managing Large Multidisciplinary/Multi-Institutional Food Safety Projects – Effectively, Impactfully, and with Integrity
Organizer: Alison Kretser
Convenors: Bradley Marks, Kendra Nightingale, Isabel Walls
Sponsored by ILSI North America Food Microbiology Committee
Developing Food Safety Professionals
Management of Multi-Center Research Projects and Scientific Integrity

1:30 Scholarly Assessment of Large Scholarly Collaboration: Measures of Effectiveness and Impact
DENIS GRAY, North Carolina State University, Raleigh, NC, USA

2:00 Managing Government-Academic-Industry Collaborations
KIMBERLY COOK, U.S. Department of Agriculture – ARS, Beltsville, MD, USA

2:30 Lessons Learned from Managing Norocore, a Large USDA-CAP Project
LEE-ANN JAYKUS, North Carolina State University, Raleigh, NC, USA

3:00 Break – Refreshments Available in the Exhibit Hall

3:45 Managing Food Safety Projects across Multiple Boundaries – Internally and Externally
EDITH WILKIN, Leprino Foods, Denver, CO, USA

LINDA J. HARRIS, University of California-Davis, Davis, CA, USA

4:45 Panel Discussion

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S18 Is Cell Cultured Meat Really Meat?
Organizers and Convenors: Gloria Swick-Brown, Christina Wilson
Sponsored by the IAFP Foundation
Food Law
GMOs and Bioengineering
Meat and Poultry Safety and Quality

1:30 What is It? Where is It From?
PAUL MOZDZIAK, North Carolina State University, Raleigh, NC, USA

Check the Program Addendum for changes to the Program.
2:00 The Outbreak, and CDC Role in Enhancing Water Sampling and Testing
MIA MATTIOLI, Centers for Disease Control and Prevention, Division of Foodborne, Waterborne and Environmental Diseases, Atlanta, GA, USA

2:30 Moving Forward: Changes in Practices or Standards?
TERESSA LOPEZ, Arizona LGMA (Leafy Greens Marketing Agreement), Phoenix, AZ, USA

3:00 Break – Refreshments Available in the Exhibit Hall

S22 Breaking the Mold: Using Foods to Protect Against Food Allergy
Room M109
Organizer: Martin Chapman
Convenor: Paul Hanlon
Sponsored by the IAFP Foundation
Food Chemical Hazards and Food Allergy International Food Protection Issues

1:30 Leaping Forward with Food Products to Prevent Food Allergies
WESLEY SUBLETT, University of Louisville School of Medicine, Louisville, KY, USA

2:00 Food Allergen Assays for the Future: It’s All about Multiplexing
MARTIN CHAPMAN, Indoor Biotechnologies, Inc., Charlottesville, VA, USA

2:30 Clinical Guidelines in a New Era of Food Allergy Prevention
SCOTT COMMINS, University of North Carolina, Chapel Hill, NC, USA

3:00 Break – Refreshments Available in the Exhibit Hall

S23 Microbiological Method Verification in Food Manufacturing: Are Your Methods “Fit Enough” for Purpose?
Room M112
Organizers: William Chaney, J. David Legan
Convenors: William Chaney, Larry Cohen, Stephanie Pollard
Applied Laboratory Methods

1:30 Performance Verification and Application of Rapid Pathogen Test Methods: A Food Company Perspective
BRADLEY ZIEBELL, Conagra Brands, Chicago, IL, USA

2:00 The Testing Lab Dilemma
J. DAVID LEGAN, Eurofins Microbiology Laboratories, Madison, WI, USA

2:30 Comparison of “Fitness for Purpose” in Established Validations Schemes: Is There a Best Approach?
MORGAN WALLACE, Rheonix, Ithaca, NY, USA

3:00 Break – Refreshments Available in the Exhibit Hall

RT2 Today’s RTE Redefined – Managing Environmental Controls and the Risk of the “Reasonably Foreseeable”
Room M100
Organizer and Convenor: Lisa Lupo
Food Safety Assessment, Audit and Inspection
Fruit and Vegetable Safety and Quality
Low Water Activity Foods

1:30 Panelists:
DAVID ACHESON, The Acheson Group, Big Fork, MT, USA
ERIC BROWN, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA
PEYMAN FATEMI, The Acheson Group, Pleasanton, CA, USA
SCOTT HOOD, General Mills, St. Paul, MN, USA
SEAN LEIGHTON, Cargill, Inc., Wayzata, MN, USA
MARTIN WIEDMANN, Cornell University, Ithaca, NY, USA

3:00 Break – Refreshments Available in the Exhibit Hall

RT3 Emerging Foods: Seaweed; Superfood, Health & Safety, Challenges & Opportunities
Room M101
Organizers: Kevin Edwards, Evelyn (Gutierrez) Watts
Convenor: Kevin Edwards
HACCP Utilization and Food Safety Systems
Seafood Safety and Quality
Water Safety and Quality

1:30 Panelists:
ANDREA (TREY) ANGERA, Springtide Seaweed, LLC, Gouldsboro, ME, USA
PATRICIA BIANCHI, Aquaculture Stewardship Council, Utrecht, The Netherlands
WILLIAM BURKHARDT, U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, Mobile, AL, USA
ANOUSHKA CONCEPCION, Connecticut Sea Grant and Department of Extension, University of Connecticut, Groton, CT, USA
BALUNKESWAR (BALU) NAYAK, University of Maine, Orono, ME, USA

3:00 Break – Refreshments Available in the Exhibit Hall

S24 2018 State and Local Foodborne Illness Investigations
Ballroom A
Organizer and Convenor: Steven Mandernach
Sponsored by Association of Food and Drug Officials
Epidemiology
Retail and Foodservice
Viral and Parasitic Foodborne Disease

3:45 10-year Outbreak of Salmonella enterica Serovar Mbandaka in Michigan
LISA HAINSTOCK, Michigan Department of Agriculture, Lansing, MI, USA

4:15 Tennessee Raw Milk E. coli Outbreak Resulting in Multiple Cases of Hemolytic Uremic Syndrome
D.J. IRVING, Tennessee Department of Health, Nashville, TN, USA

4:45 Florida Vibrio paradoxolyticus Outbreak Associated with Grocery Lump Crab
JAMIE DEMENT, Florida Department of Health, Tallahassee, FL, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

Check the Program Addendum for changes to the Program.
S25 You Cannot Audit Food Safety Culture – Wrong, Here’s How!

Ballroom E
Organizers: Andrew Clarke, Lone Jespersen, Helen Taylor, Wendy White
Convenor: Wendy White
Food Safety Assessment, Audit and Inspection
Food Safety Culture
3:45 The Challenges of Incorporating Cultural Assessment into a Food Safety Audit
ANDREW CLARKE, Loblaw, Brampton, ON, Canada
4:15 A Practical Approach to Supporting Small Businesses to Create and Sustain Food Safety Culture
HELEN TAYLOR, ZERO2FIVE Food Industry Centre, Cardiff Metropolitan University, Cardiff, United Kingdom
4:45 The Challenge of Assessing and Strengthening Food Safety Culture
LONE JESPERSEN, Cultivate Food Safety, Hauterive, Switzerland
5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S26 A South/Latin American Perspective on Microbiological Safety and Regulatory Guidelines for Fruit Juices: Issues and Opportunities

Room M105
Organizers and Convenors: Vijay Juneja, Félix Ramos Guerrero
Sponsored by the IAFP Foundation
Beverages and Acid/Acidified Foods
HACCP Utilization and Food Safety Systems
Retail and Foodservice
3:45 Trends in Milder Processing of Fruit Juices: Problems and Foodborne Illness Outbreaks
JOSHUA GURTLE, U.S. Department of Agriculture-ARS, Eastern Regional Research Center, Wyndmoor, PA, USA
4:15 Microbiological Spoilage Issues in Fruit Juices: Prevalence, Problems and Challenges
FÉLIX RAMOS GUERRERO, ICCCIA-Ricardo Palma University, Lima, Peru
4:45 Hurdles, Challenges and Opportunities for Fruit Juices in International Trade: The Case of Camu-Camu and Other Fruits Considered as Novel Foods
MÁRIA DÍAZ ZÚÑIGA, ICCCIA-Ricardo Palma University, Lima, Peru
5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S27 Utilization of Metagenomics Technologies to Enhance Produce Safety and Quality

Room M108
Organizers: Joelle K. Salazar, Kristin M. Schill, Siyun Wang
Convenors: Yingshu He, Joelle K. Salazar, Siyun Wang
Sponsored by the IAFP Foundation
Advanced Molecular Analytics
Applied Laboratory Methods
Fruit and Vegetable Safety and Quality
3:45 The Lettuce Microbiome from Farm through Storage
MARIA BRANDL, U.S. Department of Agriculture – FSIS, Albany, CA, USA
4:15 Using Microbial Community Profiling to Inform Public Health Decisions
KAREN JARVIS, U.S. Food and Drug Administration – CFSAN, Laurel, MD, USA
4:45 What We Can (Not) Expect from Microbiome Studies to Control Human Pathogens in Fresh Produce
MIEKE UYTTENDAELE, Ghent University, Ghent, Belgium
5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S28 Looking to the Future: What Do Decision Makers Want to Know or Need to Know about Managing Chemical Contaminants in Food?

Room M109
Organizers: Yuhuan Chen, Sherri Dennis, Paul Hanlon
Convenors: Yuhuan Chen, Rhoma Johnson
Food Chemical Hazards and Food Allergy
HACCP Utilization and Food Safety Systems
Microbial Modelling and Risk Analysis
3:45 FDA’s Ongoing Initiative to Protect Consumers from Toxic Metals in Foods
CONRAD CHOINIERE, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA
4:15 Analysis of Hazards of Heavy Metals in Infant and Toddler Foods and Communication of Potential Health Risks to Stakeholders
TUNDE AKINLEYE, Consumer Reports, Yonkers, NY, USA
4:45 Industry Perspective on Managing Perceptions of Chemical Hazards and How the Industry Responds to Regulatory Requirements in the World of Social Media and Chemophobia
STEVEN HERMANSKY, Conagra Brands, Omaha, NE, USA
5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S29 Statistical Methods for Microbial Data and Process Validation: The P-value is What?

Room M112
Organizers: Nathan Anderson, Susanne Keller, Bradley Marks
Convenors: Nathan Anderson, Lisa Lucore
Beverages and Acid/Acidified Foods
Low Water Activity Foods
Microbial Modelling and Risk Analysis
3:45 P-hacking: Forcing Statistically Significant Results
JOHN IHRIE, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA
4:15 Design of a Process Validation Based on Statistical Power and Reliability
IAN HILDEBRANDT, Michigan State University, East Lansing, MI, USA
4:45 Practical Restraints to Validation Testing: Industry Perspective
ANTHONY GUALTIERI, Kellogg’s, Battle Creek, MI, USA
5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

RT4 Cyclospora: It’s Not Just an Imports’ Issue

Ballroom C
Organizer and Convenor: Kari Irvin
Epidemiology
Fruit and Vegetable Safety and Quality
Viral and Parasitic Foodborne Disease
Panelists: SAMIR ASSAR, U.S. Food and Drug Administration, College Park, MD, USA
3:45

Check the Program Addendum for changes to the Program.

PROGRAM BOOK 35
JENNIFER MCENTIRE, United Fresh, Washington, D.C., USA
MICHAEL OSTERHOLM, University of Minnesota, Minneapolis, MN, USA
WALTER RAM, Giumarra Companies, Tuscon, AZ, USA
TRISHA ROBINSON, Minnesota Department of Health, Minneapolis, MN, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

RT5 #FoodSafety: Practical Advice for Digital Communication and Science Storytelling
Room M100
Organizers: Minh Duong, Katie Overbey, Mary Yavelak
Convenor: Katie Overbey
Communication, Outreach and Education
Food Safety Culture
Food Safety Education

3:45 Panelists:
MICHAEL BATZ, U.S. Food and Drug Administration, Silver Spring, MD, USA
BENJAMIN CHAPMAN, North Carolina State University, Raleigh, NC, USA
AUBREY PARIS, Institute on Science for Global Policy, Princeton, NJ, USA
TRACIE SEWARD, Association of Schools and Programs of Public Health, Washington, D.C., USA
ADAM YEE, My Food Job Rocks, Sacramento, CA, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

T3 Technical Session 3 – Produce
Room M104
Convenors: Norma Heredia, Kristin Woods

T3-01 Prevalence and Fitness of Produce-Outbreak Associated Salmonella enterica in Tomato Plants
1:30
KELLIE P. BURRIS, Otto Simmons, Robin Grant Moore, Hannah M. Webb, Lee-Ann Jaykus, Jie Zheng, Elizabeth Reed, Christina M. Ferreira, Eric Brown, Rebecca L. Bell, North Carolina State University, Raleigh, NC, USA

T3-02 Logistical Challenges and Lessons Learned in an International Supply Chain Study to Evaluate the Influence of Packaging Type on Broccoli Quality and Food Safety Attributes
1:45
Nicholas Berus, Maria Corridini, Joellen Feirtag, LYNNE MCCLASHERSBOROUGH, University of Massachusetts, Amherst, MA, USA

T3-03 Detection and Prevalence of Listeria in Produce Packing and Fresh-cut Operations.
2:00
GENEVIEVE SULLIVAN, Martin Wiedmann, Cornell University, Ithaca, NY, USA

T3-04 Prevalence and Antimicrobial Resistance of Listeria spp. from Pacific Northwest Produce Processing and Handling Environments
2:15
JOHN JORGENSEN, Joy Waite-Cusic, Jovana Kovacevic, Oregon State University, Portland, OR, USA

T3-05 Impact of Various Post-harvest Wash Water Conditions on the Performance of Peracetic Acid over Time
2:30
AMANDA KINCHA, Tiah Ghostlaw, Maria Corradini, Wes Autio, University of Massachusetts, Amherst, MA, USA

T3-06 Evaluation of Abiotic Bacterial Surrogates for Validation and Verification of One-pass Produce Wash Systems
2:45
Laurie Clotilde, Xiangwu Gu, Yaguang Luo, Eric Wilhelmsen, ADAM IDOINE, Bin Zhou, Samantha Bolten, Ganyu Gu, Antonios Zografos, SafeTraces, Pleasanton, CA, USA

3:00 Break – Refreshments Available in the Exhibit Hall

T3-07 Disinfection of Minimally Processed Pineapple Using Enterococcus faecium as a Surrogate for Salmonella enterica
3:45
CAMILLA NAVALRO, Montserrat Hernández-Iturriaga, Universidad Autónoma de Querétaro, Querétaro, Q, México

T3-08 Application of Ultraviolet Light in Combination of Peracetic Acid Washing to Inactivate Salmonella on Shredded iceberg Lettuce
4:00
SHIYUN YAO, Beth Lipperman, Haiqiang Chen, University of Delaware, Newark, DE, USA

T3-09 A Mathematical Model for Chlorine Kinetics and Pathogen Cross-Contamination in Fresh Produce Wash Processes
4:15
Parthasarathy Srinivasan, Daniel Munther, MOHAMMADZEA ABNAVI, Chandrasekhar Kothapalli, Cleveland State University, Cleveland, OH, USA

T3-10 Fate of Injured Salmonella and Escherichia coli O157:H7 on Granny Smith Apples after Cold Plasma and Organic Acid Treatment
4:30
DIKE UKUKU, Brendan A. Niemira, Sudarsan Mukhopadhyay, U.S. Department of Agriculture-ARS-ERRC-FSIT, Wyndmoor, PA, USA

T3-11 Influence of Bacteriophage in the Control of Stress-adapted Listeria monocytogenes Incoculated on Fresh-cut Produce
4:45
ADEBOLA OLADUNJOYE, Oluwatosin Ademola Jibadeenjiyi, University of Ibadan, Ibadan, Nigeria

T3-12 Some Steps Toward Validating a Fresh-cut Process to Meet the Food Safety Modernization Act Requirements
5:00
ERIC WILHELMSEN, Christopher McGinnis, Steven Huang, Florence Wu, FREMONTA, Fremont, CA, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

T4 Technical Session 4 – Antimicrobials
Room M107
Convenors: Deann Akins-Lewenthal, Yifan Zhang

T4-01 Antimicrobial Resistance in Retail Ground Beef with and without a “Raised without Antibiotics” Claim
1:30
JOHN SCHMIDT, Amit Vikram, Kevin Thomas, Terrance Arthur, Margaret Weinroth, Jennifer Parker, Ayanna Hanes, Ifigenia Georamas, Paul Morley, Tommy Wheeler, Keith Belk, U.S. Department of Agriculture – ARS, Clay Center, NE, USA

T4-02 Antimicrobial Effect of Major Components of Berry Phenolic Extract against Listeria monocytogenes, Campylobacter jejuni, and Pseudomonas aeruginosa
1:45
ARNO POJAVI, Amit Vikram, Kevin Thomas, Terrance Arthur, Margaret Weinroth, Jennifer Parker, Ayanna Hanes, Ifigenia Georamas, Paul Morley, Tommy Wheeler, Keith Belk, U.S. Department of Agriculture – ARS, Clay Center, NE, USA

T4-03 Isolation and Assessment of Poultry-derived Lactic Acid Bacteria for Their Use as Host-specific Probiotics
2:00
ALYXANDRA REED, Amy Mann, Henk den Bakker, Center for Food Safety, University of Georgia, Griffin, GA, USA

Check the Program Addendum for changes to the Program.
T4-04  2:15  Investigation of the In-feed Reduction of the Anti-microbial Tylosin on Antimicrobial Resistance (AMR) in Enterococci in Feedlot Cattle
   TAYLOR DAVEDOW, Claudia Narvaez-Bravo, Rahat Zaheer, Haley Sanderson, Argenis Rodas-Gonzalez, Cassidy Klima, Calvin Booker, Sherry Hannon, Ana Bras, Sheryl Gow, Kim Stanford, Tim A McAllister, University of Manitoba, Winnipeg, MB, Canada

T4-05  2:30  Efficacy of Chlorhexidine Digluconate and Alkytrimethylammonium Bromide for Carcass Decontamination to Ensure Food Safety
   MAJHER SARKER, Wilbert Long III, Bassam A. Annous, George Paoli, U.S. Department of Agriculture – ARS, Wyndmoor, PA, USA

T4-06  2:45  Synergistic Effect of Bacteriophages and Buffered Vinegar on Listeria-contaminated Ready-to-Eat Products
   Sonali Sirdesai, Giovanni Eraclio, Alessandra Moncho, ROBIN PETERSON, Joël van Mierlo, Steven Hagens, Bert de Vegt, Micreos Food Safety B.V., Atlanta, GA, USA

5:00  Break – Refreshments Available in the Exhibit Hall

T4-07  3:45  Use of Medium Chain Fatty Acids to Mitigate Salmonella Typhimurium (ATCC 14028) in Dry Pet Food Kibbles
   JANAK DHAKAL, Charles Aldrich, Kansas State University, Manhattan, KS, USA

T4-08  4:00  Cultural and Genetic Characterization of Escherichia Phage OSYP and Assessing Its Suitability for Food Safety Applications
   MUSTAFA YESIL, En Huang, Ahmed Yousef, The Ohio State University, Columbus, OH, USA

T4-09  4:15  Synergistic Antimicrobial Activity between Physical Treatments and Lauric Arginate: Mechanisms Beyond Membrane Damage
   XU YANG, Rewa Rai, Nitin Nitin, University of California-Davis, Davis, CA, USA

T4-10  4:30  Effect of D-Tryptophan on Psychrotrophic Growth of Listeria monocytogenes and Its Application in Milk
   JIAN CHEN, Zhejiang GongShang University, Hangzhou, China

T4-11  4:45  Development of Antimicrobial Hydrogel Patches to Control Vibrio parahaemolyticus in Raw Fish
   HYEMIN OH, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

T4-12  5:00  Effects of Interventions on Indicator Organism Levels in Beef Slaughter

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

EVENING OPTIONS
5:15 p.m. – 6:15 p.m.
   Exhibit Hall Reception

5:30 p.m. – 7:00 p.m.
   Produce Safety Alliance, Room M109

AFILIATE MEETINGS
5:30 p.m. – 6:30 p.m.
   African Continental Association for Food Protection Meeting, Room M105

5:30 p.m. – 6:30 p.m.
   China Association for Food Protection and Chinese Association for Food Protection in North America Meeting, Room M104

6:00 p.m. – 7:00 p.m.
   Indian Association for Food Protection in North America Meeting, Room M107

Check the Program Addendum for changes to the Program.
TUESDAY

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TUESDAY

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TUESDAY, JULY 23

ALL DAY
8:30 a.m. – 6:15 p.m.
Exhibit Hall

Poster Session 2
Antimicrobials
Dairy
Pre-harvest Food Safety
 Produce
Sanitation and Hygiene
Viruses and Parasites
P2-01 through P2-141 – Authors present 10:00 a.m.– 11:30 a.m. and 5:15 p.m. – 6:15 p.m.
P2-142 through P2-262 – Authors present 2:15 p.m. – 3:45 p.m. and 5:15 p.m. – 6:15 p.m.

MORNING
8:30 a.m. – 12:15 p.m.
Ballroom A
S30
The Use of Rapid Microbial Methods by Government Agencies for “Official” Testing
Room M100
S31
New Research Findings – Control of Listeria in Dairy
Room M105
T5
Technical Session 5 – Laboratory and Detection Methods
Room M109
T6
Technical Session 6 – General Microbiology and Viruses and Parasites

8:30 a.m. – 10:00 a.m.
Ballroom C
S32
A Precarious Balancing Act: Co-managing Pre-harvest Environments to Maximize Food Safety, Sustainability, and Economic Viability of Farm Operations
Ballroom D
RT6
Supply Chain Verification of a Sanitation Program
Ballroom E
S33
Emerging Hazards Associated with Seafood
Room M104
S34
Fact or Fiction: Combatting Consumer Perceptions of Food Safety Myths with Data
Room M107
S35
Future Pains: Assessing the Long-term Consequences of Foodborne Exposure to Microbial and Chemical Hazards
Room M108
S36
Challenges of Sanitation in Dry Processing Environments: What are the Evolving Methods?
Room M112
S37
Campylobacter, Health Impact, Performance Objectives and Effectiveness of Sampling Plans

10:00 a.m. – 10:45 a.m.
Break – Refreshments Available in the Exhibit Hall

10:45 a.m. – 12:15 p.m.
Ballroom C
S38
When the Enterobacteriaceae Hits the Fan: Wind and Particulate-associated Distribution of Foodborne Pathogens
Ballroom E
S39
What Do We Know about Microplastics in Food and Their Impact on Human Health?
Room M107
S40
The Mitigation and Regulation of Heat-formed Substances Produced in Foods during Cooking: What are the Unintended Consequences on Microbial Safety and Public Health?
Room M108
S41
Strategies to Prevent Pathogen Contamination in Post-lethality Dry and Wet Environments
Room M112
S42
Challenges in Campylobacter Detection and Control
Ballroom D
RT7
Home Food Delivery: The Last Mile is Not What It Used to be
Room M104
RT8
Cultural Influences on Food Safety Research and Education Programs in a Global Society

12:00 p.m. – 1:30 p.m.
Lunch Available in the Exhibit Hall

AFTERNOON
12:30 p.m. – 1:15 p.m.
Room M101
IAFP Business Meeting

1:30 p.m. – 5:15 p.m.
Room M105
T7
Technical Session 7 – Microbial Food Spoilage, Dairy, and Sanitation and Hygiene
Room M109
T8
Technical Session 8 – Communication, Education and Outreach and Retail and Food Service Safety

1:30 p.m. – 3:00 p.m.
Ballroom A
S43
Are There Instructions Included? The Role of Regionality and Experimental Choices on the Survival of Foodborne Pathogens in Manure-amended Soils
Ballroom C
S44
Updates on the Impact of Sampling Plans on Food Safety
Ballroom D
RT9
Challenges in Low-moisture Food Plant Sanitation – A Dairy Perspective
Ballroom E
RT10
Food Workers – Technology Approaches and Other Interventions for Keeping Sick People Out of the Operation
Room L015
SF1
Predictive Microbiology and Risk Assessment Software Fair: Spotlight on Case Studies
Room M100
S45
Updates to the Conference for Food Protection and the Food Code
Room M104
RT11
Revitalizing the Future of Food Safety Extension
Room M107
S46
Is Bacillus cereus the Next Big Thing to Worry about in the Food Industry?
Room M108
RT12
Examining the Mutual Benefits of a Defined Supplier Monitoring Program: What is the Value of a Supplier Monitoring Program to the Retailer or Food Service Company and Suppliers?
Room M112
RT13
Scientific Modernization of Meat Inspection – The International High Speed Train – Catch It or Get De-Railed

3:00 p.m. – 3:45 p.m.
Break – Refreshments Available in the Exhibit Hall

3:45 p.m. – 5:15 p.m.
Ballroom A
S47
Advancing the Science of Risk-based Criteria for Agricultural Water Quality
Ballroom C
RT14
The Use of Chemicals in Food Hygiene and Linkage to Microbial Resistance
Ballroom D
RT15
Ballroom E
S48
Determining Preventive Controls for Viruses and Parasites
Room L015
Dubai Food Watch Presentation
Room L017
SF2
Predictive Microbiology and Risk Assessment Software Fair: Demonstrations
Room M100
RT16
Has the Time Come for Complete Adoption of the Food Code?
Room M104
S49
Communicating Benefit/Risk Analysis of Food Processing
Room M107
S50
Clostridium difficile: A Food Safety Risk?
Room M108
RT17
Finding the Needle in the Cheese Block: How Do We Create Robust Sampling Plans for Dairy Products?
Room M112
S51
Challenges and Promises of Using Quantitative Data for Controlling Salmonella in Poultry

EVENING OPTIONS
5:15 p.m. – 6:15 p.m. Exhibit Hall Reception
6:30 p.m. – 7:30 p.m. President’s Reception (by Invitation), Omni Hotel
7:00 p.m. – 9:00 p.m. Student Mixer, Seelbach Hilton, Rathskeller

AFFILIATE MEETINGS
5:30 p.m. – 6:30 p.m. Korea Association for Food Protection, Room M104
5:30 p.m. – 6:30 p.m. Southeast Asia Association for Food Protection, Room M105
6:00 p.m. – 7:00 p.m. Latin America Group Meeting, Room M107
TUESDAY MORNING
JULY 23

Posters will be on display 8:30 a.m. – 6:15 p.m. (See details beginning on page 71)

S30 The Use of Rapid Microbial Methods by Government Agencies for “Official” Testing
Ballroom A
Organizer: DeAnn Benesh
Convenors: DeAnn Benesh, Deon Mahoney
Applied Laboratory Methods
Food Law
International Food Protection Issues
8:30 European Process to Accept the Use of Rapid Microbial Methods
PAUL INT VELD, Netherland Food and Product Safety Authority, Utrecht, The Netherlands
9:00 Dubai Food Safety Process to Accept the Use of Rapid Microbial Methods
BOBBY KRISHNA and FATIMA FIKREE, Food Safety Dubai, Dubai, Dubai Municipality
9:30 U.S. FDA Process to Accept the Use of Rapid Microbial Methods
THOMAS HAMMACK, U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, College Park, MD, USA
10:00 Break – Refreshments Available in the Exhibit Hall
10:45 Inhibition of _Listeria monocytogenes_ on Cheese Using Lactic Acid Bacteria as a Biocontrol System Intervention
KENDRA NIGHTINGALE, Texas Tech University, Lubbock, TX, USA
11:15 Functionalized Mesh Materials for _Listeria_ Mitigation in Milk and Milk-derived Products Processed in Dairy Plants
STEPHAN RITCHIE, University of Alabama, Tuscaloosa, AL, USA
11:45 Understanding Regulation of _Listeria monocytogenes_ Cell Envelope Composition to Facilitate Development and Discovery of Improved Control Strategies
MARTIN WIEDMANN, Cornell University, Ithaca, NY, USA
12:15 Lunch Available in the Exhibit Hall

S32 A Precarious Balancing Act: Co-managing Preharvest Environments to Maximize Food Safety, Sustainability, and Economic Viability of Farm Operations
Ballroom C
Organizers and Convenors: Angela Marie C. Ferelli, Matthew Moore, Daniel Weller
Sponsored by the IAFP Foundation
Food Sustainability
Pre Harvest Food Safety
Water Safety and Quality
8:30 The Ecological Impacts of Food Safety: A Review of the Existing Literature
MICHELE JAY-RUSSELL, Western Center for Food Safety, University of California-Davis, Davis, CA, USA
9:00 Co-managing Farms for Food Safety and Conservation: A Review of Farm Practices and Needs
PATRICK BAUR, University of California, Berkeley, Berkeley, CA, USA
9:30 Co-managing Farm Environments to Promote Biotic Resistance to Foodborne Pathogens
MATTHEW JONES, Washington State University, Pullman, WA, USA
10:00 Break – Refreshments Available in the Exhibit Hall
10:45 Emerging Hazards Associated with Seafood
Ballroom E
Organizer and Convenor: Jessica Jones
Sponsored by the IAFP Foundation
Epidemiology
Seafood Safety and Quality
Viral and Parasitic Foodborne Disease
8:30 Parasites in Finfish. What’s the Risk?
MELANIE GAY, ANSES, Boulouge-sur-Mer, France
9:00 Raw Seafood as a Vector for Hepatitis A Virus: Not the Usual Suspects
JACQUELINA WOODS, U.S. Food and Drug Administration, Dauphin Island, AL, USA
9:30 Diarrhetic Shellfish Poisoning: A Global Spread
STacey MCLOROY, U.S. Food and Drug Administration, College Park, MD, USA
10:00 Break – Refreshments Available in the Exhibit Hall

S33 New Research Findings – Control of _Listeria_ in Dairy
Room M100
Organizers: Sarah Engstrom, Chad Galer, Christina Stam
Convenors: Chad Galer, Timothy Stubbs
Sponsored by Dairy Management Inc.
Dairy Quality and Safety
Developing Food Safety Professionals
Food Hygiene and Sanitation
8:30 Combinations of Acid Type, pH, and Commercial Clean Label Antimicrobial Ingredients on the Growth of _Listeria monocytogenes_ in High-moisture Cheese
KATHLEEN GLASS, University of Wisconsin-Madison, Madison, WI, USA
9:00 Antimicrobial Strategies for the Control of _Listeria monocytogenes_ on High-moisture Cheese
DENNIS D’AMICO, University of Connecticut, Department of Animal Science, Storrs, CT, USA
9:30 Controlling _Listeria monocytogenes_ in High Risk Cheeses by Treatment with High Voltage Atmospheric Cold Plasma (HVACP)
KEVIN KEENER, Iowa State University, Ames, IA, USA
10:00 Break – Refreshments Available in the Exhibit Hall

Check the Program Addendum for changes to the Program.

- Symposia
- Roundtables
- Technicals
- Developing Scientist Competitor
- Topic Areas

PROGRAM BOOK 39
S34  Fact or Fiction: Combatting Consumer Perceptions of Food Safety Myths with Data
Room M104
Organizers: Benjamin Chapman, Rebecca Goulter, Margaret Kirchner
Convenors: Margaret Kirchner, Ellen Thomas
Communication, Outreach and Education
Food Safety Culture
Food Safety Education
8:30  The 5-second Rule/Handwashing Times: What are the Facts?
DONALD W. SCHAFFNER, Rutgers University, New Brunswick, NJ, USA
9:00  Home Food Preservation Myths
ELIZABETH L. ANDRESS, University of Georgia, Athens, GA, USA
9:30  Utilizing Consumer Handling Data on Poultry Washing and Thermometer Use to Develop Methods Addressing Myths
AÄRON LAVALLEE, U.S. Department of Agriculture Food Safety and Inspection Service, Washington, D.C., USA
10:00  Break – Refreshments Available in the Exhibit Hall

S35  Future Pains: Assessing the Long-term Consequences of Foodborne Exposure to Microbial and Chemical Hazards
Room M107
Organizers: Michael Batz, Yuhuan Chen, Barbara Kowalczyk
Convenors: Michael Batz, Peter Ben Embarek
Sponsored by the IAFP Foundation
Epidemiology
Food Chemical Hazards and Food Allergy
Microbial Modelling and Risk Analysis
8:30  Scoping Review of Literature for Long-term Sequelae of Foodborne Infections
KRISTEN POGREBA-BROWN, University of Arizona, Tucson, AZ, USA
9:00  Utilizing Alternative Data Sources to Assess the Long-term Health Outcomes of Foodborne Disease
BARBARA KOWALCYK, The Ohio State University, Columbus, OH, USA
9:30  Advancing the Understanding of Chronic Effects from Chemical Agents Using Novel Predictive Toxicology Tools
SUZANNE FITZPATRICK, U.S. Food and Drug Administration, College Park, MD, USA
10:00  Break – Refreshments Available in the Exhibit Hall

S36  Challenges of Sanitation in Dry Processing Environments: What are the Evolving Methods?
Room M108
Organizers: Elizabeth Grasso-Kelley, Susanne Keller, Aparna Tatavarthy
Convenors: Pablo Alvarez, Aparna Tatavarthy
Food Hygiene and Sanitation
Low Water Activity Foods
Sanitary Equipment and Facility Design
8:30  Use of Purge Materials and Mechanical Cleaning Methods for Allergen Control in Chocolate and Other Difficult-to-Clean Production Environments
LAUREN JACKSON, U.S. Food and Drug Administration, Bedford Park, IL, USA
9:00  Evaluation of Material Purging as a Microbial Risk Reduction Strategy for Low-moisture Equipment
QUINCY SUEHR, U.S. Food and Drug Administration, Bedford Park, IL, USA and ELIZABETH GRASSO-KELLEY, Illinois Institute of Technology, Bedford Park, IL, USA
9:30  Advantages and Practicality of Dry Sanitation Methods to Prevent Cross-contamination on Floors and Entryways, and Dry Gas Methods to Complement Sanitation
ALEX JOSOWITZ, Sterilex Corporation, Hunt Valley, MD, USA and KEVIN LORCHEIM, ClorDiSys Solutions, Lebanon, NJ, USA
10:00  Break – Refreshments Available in the Exhibit Hall

S37  Campylobacter, Health Impact, Performance Objectives and Effectiveness of Sampling Plans
Room M112
Organizers: Jeffrey Farber, Leon Gorris, Marcel Zwietering
Convenor: Leon Gorris
Sponsored by the IAFP Foundation
International Food Protection Issues
Meat and Poultry Safety and Quality
Microbial Modelling and Risk Analysis
8:30  Health Impact of Campylobacter: The Main Zoonotic Pathogen in Many Countries
JEFFREY FARBER, University of Guelph, CRIFS, Guelph, ON, Canada
9:00  Establishing Performance Objectives throughout the Chicken Production Chain to Account for Control Measures
LEON GORRIS, Food Safety Expert, Nijmegen, The Netherlands
9:30  Effectiveness of a (More and More Stringent) Sampling Plan for Campylobacter
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands
10:00  Break – Refreshments Available in the Exhibit Hall

RT6  Supply Chain Verification of a Sanitation Program
Ballroom D
Organizers: Angela Anandappa, Vanessa Cranford, Elise Forward
Convenor: Angela Anandappa, Vanessa Cranford
Food Hygiene and Sanitation
HACCP Utilization and Food Safety Systems
Retail and Foodservice
8:30  Panelists:
RICHARD BROUILLETTE, Commercial Food Sanitation, South Burlington, VT, USA
NADIA NARINE, Lumar Food Safety Ltd., Richmond Hill, ON, Canada
GORDON HAYBURN, Trophy Foods Inc., Mississauga, ON, Canada
JESSICA JONES, Chick-fil-A, Inc., Atlanta, GA, USA
EVAN ROSEN, Tate & Lyle, Hoffman Estates, IL, USA
RICK STOKES, Ecolab Inc., Eagan, MN, USA
10:00  Break – Refreshments Available in the Exhibit Hall

Check the Program Addendum for changes to the Program.
S38 When the Enterobacteriaceae Hits the Fan: Wind and Particulate-associated Distribution of Foodborne Pathogens
Ballroom C
Organizers: Govindaraj Dev Kumar, Divya Jaroni
Convenors: Govindaraj Dev Kumar, Joyjit Saha
Epidemiology
Pre Harvest Food Safety
10:45 Airborne Dispersal of Foodborne Pathogens in Tree Fruit Production Environments
DUMITRU MACARISIN, U.S. Food and Drug Administration, College Park, MD, USA
11:15 Dust, Wind and Produce Safety
DE ANN DAVIS, Church Brothers Farms, Salinas, CA, USA
11:45 Surviving the Storm with FSMA Compliance
DAVID INGRAM, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA

12:15 Lunch Available in the Exhibit Hall

S39 What Do We Know about Microplastics in Food and Their Impact on Human Health?
Ballroom E
Organizer: Tori Stivers
Convenors: Angela Anandappa, Tori Stivers
Sponsored by University of Georgia-Marine Extension and Georgia Sea Grant and the IAFP Foundation
Food Chemical Hazards and Food Allergy
International Food Protection Issues
Seafood Safety and Quality
10:45 Microplastics in the Environment and Food: Sources, Contamination, and the Current State of Research
GARTH COVERNTON, University of Victoria, Victoria, BC, Canada
11:15 Interactions between Microplastics and Shellfish Species
J. EVAN WARD, University of Connecticut, Groton, CT, USA
11:45 Dietary Exposure of Humans to Microplastics and Plastic-associated Chemicals
BART KOELMANS, Wageningen University and Research, Wageningen, The Netherlands

12:15 Lunch Available in the Exhibit Hall

S40 The Mitigation and Regulation of Heat-formed Substances Produced in Foods during Cooking: What are the Unintended Consequences on Microbial Safety and Public Health?
Room M107
Organizer: Imad Saab
Convenor: Steven Hermansky
Sponsored by ILSI North America Food Chemical Safety Committee
Food Chemical Hazards and Food Allergy
Heat Formed Substances in Foods
10:45 Genetic Evidence of Human Adaptation to a Cooked Diet and Its Role in Human Health and Food Safety
STEVEN HERMANSKY, Conagra Brands, Chicago, IL, USA
11:15 Balancing Microbial Food Safety Risks with Mitigating Heat-formed Substances in Foods
SCOTT HOOD, General Mills, St. Paul, MN, USA
11:45 The Need for a Holistic Toxicological Assessment of Heat-formed Substances within a Food Matrix
MICHAEL DOURSON, TERA, Cincinnati, OH, USA

12:15 Lunch Available in the Exhibit Hall

S41 Strategies to Prevent Pathogen Contamination in Post-lethality Dry and Wet Environments
Room M108
Organizer and Convenor: Rocelle Clavero
Food Safety Assessment, Audit and Inspection
HACCP Utilization and Food Safety Systems
Sanitary Equipment and Facility Design
10:45 Areas of Concern in Wet Processes after a Validated Kill Step
LORALYN LEDENBACH, Kraft Heinz Company, Glenview, IL, USA
11:15 Areas of Concern in Dry Processes and Environments
LILIA SANTIAGO, Kellogg's, Battle Creek, MI, USA
11:45 Ancillary Systems and Equipment Design That Can Pose a Risk of Recontamination
JOHN HOLAH, UKIE EHEDG & Holchem Laboratories Ltd., Bury, United Kingdom

12:15 Lunch Available in the Exhibit Hall

S42 Challenges in Campylobacter Detection and Control
Room M112
Organizer and Convenor: Nabila Haddad
Sponsored by the IAFP Foundation
Meat and Poultry Safety and Quality
Microbial Modelling and Risk Analysis
10:45 Challenges of Campylobacter Detection; Effect of Strain Variability and Competitive Flora on Enrichment-based Detection Procedures
HEIDY DEN BESTEN, Wageningen University, Wageningen, The Netherlands
11:15 Survival of Campylobacter in the Food Chain; Robustness of Model Prediction Using Molecular Markers
BENJAMIN DUQUÉ, UMR1014 Secalim, INRA, Oniris, Nantes, France
11:45 Efficacy of Control Measures – Lessons Learned and Regulatory Aspects
MICHÁEL WILLIAMS, U.S. Department of Agriculture – FSIS, Washington, D.C., USA

12:15 Lunch Available in the Exhibit Hall

RT7 Home Food Delivery: The Last Mile is Not What It Used to be
Ballroom D
Organizer and Convenor: Dale Grinstead
Communication, Outreach and Education
Food Law
Retail and Foodservice
10:45 Panelists:
MELANIE ABLEY, U.S. Department of Agriculture–FSIS, Springfield, VA, USA
ALLISON JENNINGS, Amazon, Seattle, WA, USA
JOSEPH NAVIN, Uber, San Francisco, CA, USA
HOWARD POPOOLA, The Kroger Company, Cincinnatti, OH, USA
DONALD W. SCHAFFNER, Rutgers University, New Brunswick, NJ, USA

12:15 Lunch Available in the Exhibit Hall

Check the Program Addendum for changes to the Program.
- Symposia
- Roundtables
- Technicals
- Developing Scientist Competitor
- Topic Areas
RT8  Cultural Influences on Food Safety Research and Education Programs in a Global Society
    Room M104
    Organizers: Jennifer Acuff, Minh Duong, Harry Schonberger
    Convenor: Jennifer Acuff
    Communication, Outreach and Education
    Food Safety Culture
    International Food Protection Issues

10:45  Panelists:
    MARIA TERESA DESTRO, bioMérieux Inc., São Paulo, Brazil
    BOBBY KRISHNA, Dubai Municipality, Dubai, United Arab Emirates
    ROSE OMARI, Science and Technology Policy Research Institute Council for Scientific and Industrial
    Research and EATSAFE Ghana, Accra, Ghana
    CHANNAH ROCK, University of Arizona, Maricopa, AZ, USA
    YOHAN YOON, Soomkyung Women’s University, Seoul, South Korea

12:15  Lunch Available in the Exhibit Hall

T5  Technical Session 5 – Laboratory and Detection Methods
    Room M105
    Convenors: Preetha Biswas, Xiangyu Deng

T5-01  Evaluation of Commercial Molecular Screening Platforms for the Detection of Foodborne Bacterial Pathogens by Food Safety and Inspection Service Field Service Laboratories
    WILLIAM SHAW, Jose Emilio Esteban, U.S. Department of Agriculture-FSIS-OPPD, Washington, D.C., USA

T5-02  Untargeted Screening of the United States Food Supply to Detect Novel and Emerging Contaminants
    ERICA BAKOTA, Robert Levine, U.S. Food and Drug Administration, Lenexa, KS, USA

T5-03  Non-Targeted Identification of Food Adulterants Using Handheld Near Infrared Spectrometers
    RONALD SARVER, Douglas MacRae, Brent Steiner, Robert Donofrio, Greg McNeil, Neogen Corporation,
    Lansing, MI, USA

T5-04  Deep Learning Methods for Classifying Shiga Toxin-producing E. coli with Hyperspectral Microscope Images
    BOSOON PARK, Rui Kang, Matthew Eady, U.S. Department of Agriculture, ARS, Athens, GA, USA

T5-05  A Label-free QCM Biosensor for Sensitive and Rapid Detection of E. coli O157:H7 Based on a Multivalent Aptamer System
    Ronghui Wang, Xiaofan Yu, Tieshan Jiang, Young Min Kwon, Jiangchao Zhao, Mack Ivey, YANBIN LI,
    Department of Biological and Agricultural Engineering, University of Arkansas, Fayetteville, AR, USA

T5-06  Reporter Bacteriophage NRGp4 Utilizes a Novel Nanoluc: CBM Fusion for the Ultrasonic Detection of Escherichia coli in Water
    Troy Hinkley, Spencer Garing, Sangita Gupta, Anne-Laure Le Ny, Kevin Nichols, Joseph Peters, Joey Talbert,
    SAM NUGEN, Cornell University, Ithaca, NY, USA

10:00  Break – Refreshments Available in the Exhibit Hall

T5-07  Validation of the Liquid Crystal-based Immunoassay for Rapid Detection of Salmonella
    Sawsan Abed, Sarah Potter, SOOHYOUN AHN, University of Florida, Gainesville, FL, USA

T5-08  ISO 16140-2 Validation of the GeneDisc STEC Method
    Justine Baguet, Christophe Quere, Cécile Bernez, Maryse Rannou, SYLVIE HALLIER-SOULIER,
    Pall Corporation, Bruz, France

T5-09  Rapid Detection of Enrofloxacin in Poultry Using a Localized Surface Plasmon Resonance Sensor Based on Polydopamine Surface Imprinted Recognition Polymer
    WENQIANG WANG, Ronghui Wang, Ming Liao, Yanbin Li,
    Department of Poultry Science, University of Arkansas, Fayetteville, AR, USA

T5-10  AquaSpark, a Novel Chemiluminescent Technology
    Platform for Dynamic Monitoring of Environmental Bacteria
    MARIO HUPFELD, Nadine Heinrich, Lukas Reinau,
    Lars Fieseler, Julian Ihssen, Nemis Technologies,
    Zürich, Switzerland

T5-11  Modifying the Double Layer Plaque Assay for Accurate Phage Titer Determinations: Effect of Solidifying Agent Type and Concentration
    MUSTAFA YESIL, Ahmed Yousef, The Ohio State University, Columbus, OH, USA

T5-12  Deciphering the Antibiotic Resistance Mechanism of Campylobacter Using Confocal Micro-Raman Spectroscopy
    LUYAO MA, Xiaonan Lu, Food, Nutrition and Health Program, Faculty of Land and Food Systems,
    The University of British Columbia, Vancouver, BC, Canada

12:15  Lunch Available in the Exhibit Hall

T6  Technical Session 6 – General Microbiology and Viruses and Parasites
    Room M109
    Convenor: Bassam A. Annous

T6-01  Photodynamic Inactivation of Human Norovirus Surrogates in Water
    HAMĀDA ABOUBAKR, Yan Feng, Sagar Goyal,
    University of Minnesota, St. Paul, MN, USA

T6-02  Evaluation of Viral Food Safety Risks of Reusing Peracetic Acid-based Sanitizing Solution on Chia Seeds
    XI WU, Erin DiCaprio, University of California-Davis, Davis, CA, USA

T6-03  The Potential of Pulsed UV Light to Inactivate Cryptosporidium parvum Oocysts on High-risk Commodities
    SHANI CRAIGHEAD, Haiqiang Chen, Kali Kniel,
    University of Delaware, Newark, DE, USA

T6-04  Validation of Industrial Equipment Designed to Apply Peracetic Acid-based Sanitizing Solution on Chia Seeds Using a Salmonella Surrogate, Enterococcus faecium
    SRILANKA DEVI SINGH, Erin DiCaprio, University of California-Davis, Davis, CA, USA

T6-05  Charaterization of Bacteriophage T4-Insensitive Escherichia coli via Comparative Correlation of Genomic and Phenotypic Microarray Data
    ZEYAN ZhONG, Jean-Guillaume Emond-Rheault, Jeremie Hamel, Irena Kukavica-Ibrulj, Roger Levesque,
    Yujie Hu, Séamus Fanning, Lawrence Goodridge,
    McGill University, Ste-Anne-de-Bellevue, QC, Canada

T6-06  Ybglg Regulates Cell Membrane Integrity and Fatty Acid Composition of Salmonella Enteritidis in Response to Lysozyme
    XIAOJIE QIN, Zengfeng Zhang, Jingxian Yang, Yan Cui, XiJian Zhou, Xianming Shi, Shanghai Jiao Tong
    University, Shanghai, China

9:45  Break – Refreshments Available in the Exhibit Hall
Check the Program Addendum for changes to the Program.

- Symposia  - Roundtables  - Technicals  - Developing Scientist Competitor  - Topic Areas

**T6-07**  10:45  Prevalent Terpenes and Their Inhibitory Effects on *Escherichia coli* O157:H7 in Fresh Cheese Made with Oregano and Rosemary Essential Oils during Storage
Helena Tainá Diniz-Silva, Larissa Ramalho Brandão, Josean Santos, Evandro L. de Souza, MARCIANE MAGNANI, Federal University of Paraiba, João Pessoa, Brazil

**T6-08**  11:00  Directed Evolution of *Bacillus cereus* Endospores with UV-C Stress Resulted in an Increased UV-C Resistance of Spores But Limited Effect on Their Vegetative Cells
Katrien Begyn, Tom Dongmin Kim, Fatima Taghlaoui, Marc Heyndrickx, Abram Aertsen, Chris Michiels, Andreja Rajkovic, Frank Devlieghere, Ghent University, Ghent, Belgium

**T6-09**  11:15  Investigation of a Lytic *Bacillus cereus* Phage with High Specificity and High Stability Under Various Stressed Conditions
In Young Choi, Leesun Kim, Mi-Kyung Park, Kyungpook National University, Daegu, South Korea

**T6-10**  11:30  *Salmonella* Serotype Fitness in Various Water Types and Habitat Transition from Water to Tomato Fruit
Angela Marie C. Ferelli, Shirley A. Micallef, University of Maryland, College Park, MD, USA

**T6-11**  11:45  Evaluation of a Typing Scheme Based on Deep Amplicon Sequencing to Aid Epidemiological Linkage of Cyclosporiasis Cases
Joel Barratt, Fernanda Nascimento, Katelyn Houghton, Mateusz Plucinski, Eldin Talundzic, Richard Bradbury, Michael Arrowood and Yvonne Qvarnstrom, Centers for Disease Control and Prevention (CDC), Atlanta, GA

**T6-12**  12:00  Safety Status of Some Traditionally Fermented Foods in Nigeria
Adewale Olusegun Obadina, Federal University of Agriculture Abeokuta, Abeokuta, Nigeria

12:15  Lunch Available in the Exhibit Hall
### TUESDAY AFTERNOON

**JULY 23**

Posters will be on display 8:30 a.m. – 6:15 p.m.  
(See details beginning on page 71)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30 p.m. – 1:15 p.m.</td>
<td>IAFP Business Meeting</td>
<td>Room M101</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Organizers</th>
<th>Convenor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>S43</td>
<td>Are There Instructions Included? The Role of Regionality and Experimental Choices on the Survival of Foodborne Pathogens in Manure-amended Soils</td>
<td>Michele Jay-Russell, Keith Schneider, Manan Sharma</td>
<td>Pushpinder Kaur Litt, Manoj Shah</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>1:30</td>
<td>Inside and Outside: Survival of Enteric Bacterial Pathogens in Manure-amended Soils in Field Studies and Greenhouses in the Mid-Atlantic U.S.</td>
<td>MANAN SHARMA, U.S. Department of Agriculture – ARS, Environmental Microbial and Food Safety Laboratory, Beltsville, MD, USA</td>
<td>KEITH SCHNEIDER, University of Florida, Gainesville, FL, USA</td>
<td>Room M100</td>
</tr>
<tr>
<td>2:00</td>
<td>What We Know so Far: Risk Factors for Pathogen Survival in Manure-amended Soils in California and Arizona</td>
<td>MICHELE JAY-RUSSELL, Western Center for Food Safety, University of California-Davis, Davis, CA, USA</td>
<td>KEITH SCHNEIDER, University of Florida, Gainesville, FL, USA</td>
<td>Ballroom A</td>
</tr>
<tr>
<td>2:30</td>
<td>Pieces of the Same Puzzle: <em>E. coli</em> Survival in Manure-amended Soils and Laboratory Microcosms</td>
<td>KEITH SCHNEIDER, University of Florida, Gainesville, FL, USA</td>
<td>KEITH SCHNEIDER, University of Florida, Gainesville, FL, USA</td>
<td>Room M100</td>
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<td>3:00</td>
<td>Break – Refreshments Available in the Exhibit Hall</td>
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<th>Organizers and Convenors</th>
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<tr>
<td>S44</td>
<td>Updates on the Impact of Sampling Plans on Food Safety</td>
<td>Vijay Juneja, Aixia Xu</td>
<td>Pamela Wilger</td>
<td>Room M100</td>
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<tr>
<td>1:30</td>
<td>The Comparison of Different Types of Sampling Plans: Why to Have so Many Different Types?</td>
<td>MARCEL ZWIETING, Wageningen University, Wageningen, The Netherlands</td>
<td>MARCEL ZWIETING, Wageningen University, Wageningen, The Netherlands</td>
<td>Ballroom C</td>
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<tr>
<td>2:00</td>
<td>Recent Developments of Novel Sampling Methods</td>
<td>AIXIA XU, U.S. Department of Agriculture – ARS, ERRC, Wyndmoor, PA, USA</td>
<td>AIXIA XU, U.S. Department of Agriculture – ARS, ERRC, Wyndmoor, PA, USA</td>
<td>Room M100</td>
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<tr>
<td>2:30</td>
<td>Designing Efficient Sampling Plans for Enhanced Microbial Risk Management</td>
<td>URSULA A. GONZALES-BARRON, Polytechnic Institute of Braganza, Braganza, Portugal</td>
<td>URSULA A. GONZALES-BARRON, Polytechnic Institute of Braganza, Braganza, Portugal</td>
<td>Room M100</td>
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<td>3:00</td>
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<tr>
<td>S45</td>
<td>Updates to the Conference for Food Protection and the Food Code</td>
<td>Judy Greig, Ewen Todd</td>
<td>Ewen Todd</td>
<td>Room M100</td>
</tr>
<tr>
<td>1:30</td>
<td>Update for the Upcoming 2020 Conference for Food Protection</td>
<td>DAVID MCSWANE, Conference for Food Protection, Martinsville, IN, USA</td>
<td>DAVID MCSWANE, Conference for Food Protection, Martinsville, IN, USA</td>
<td>Room M100</td>
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<tr>
<td>2:00</td>
<td>Review of Recent Changes to the Food Code and the FDA Process of Evaluating Recommendations for Change</td>
<td>GIRVIN LIGGANS, U.S. Food and Drug Administration, College Park, MD, USA</td>
<td>GIRVIN LIGGANS, U.S. Food and Drug Administration, College Park, MD, USA</td>
<td>Room M100</td>
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<tr>
<td>2:30</td>
<td>An Industry Perspective on the Food Code</td>
<td>BRENDAC BACON, Harris Teeter, Matthew, NC, USA</td>
<td>BRENDAC BACON, Harris Teeter, Matthew, NC, USA</td>
<td>Room M100</td>
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<td>3:00</td>
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<tr>
<td>S46</td>
<td>Is <em>Bacillus cereus</em> the Next Big Thing to Worry about in the Food Industry?</td>
<td>Florence Postollec, Sandra Tallent</td>
<td>Pamela Wilger</td>
<td>Room M107</td>
</tr>
<tr>
<td>1:30</td>
<td>Available Tools to Distinguish <em>Bacillus cereus</em> Hazard</td>
<td>FLORENCE POSTOLLEC, ADRIA - UMT ACTIA19.03 ALTER’IX, Quimper, France</td>
<td>FLORENCE POSTOLLEC, ADRIA - UMT ACTIA19.03 ALTER’IX, Quimper, France</td>
<td>Room M107</td>
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<tr>
<td>2:00</td>
<td>Rethinking the <em>Bacillus cereus</em> Group in the Age of Whole-Genome Sequencing</td>
<td>JASNA KOVAC, The Pennsylvania State University, University Park, PA, USA</td>
<td>JASNA KOVAC, The Pennsylvania State University, University Park, PA, USA</td>
<td>Room M107</td>
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<tr>
<td>2:30</td>
<td>Toxinogenicity of <em>Bacillus cereus</em></td>
<td>SANDRA TALENT, U.S. Food and Drug Administration, College Park, MD, USA</td>
<td>SANDRA TALENT, U.S. Food and Drug Administration, College Park, MD, USA</td>
<td>Room M107</td>
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<tr>
<td>SF1</td>
<td>Predictive Microbiology and Risk Assessment</td>
<td>Mariem Ellouze</td>
<td>Pamela Wilger</td>
<td>Room L015</td>
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<tr>
<td>1:30</td>
<td>Use of FDA-iRisk to Perform Microbial Risk Assessment</td>
<td>YUHUAN CHEN, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA</td>
<td>YUHUAN CHEN, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA</td>
<td>Room L015</td>
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<tr>
<td>1:45</td>
<td>Use of Combase for Formulation, HACCP and Shelf-life Studies</td>
<td>MARK TAMPLIN, Centre for Food Safety &amp; Innovation, Tasmanian Institute of Agriculture, University of Tasmania, Hobart, TAS, Australia</td>
<td>MARK TAMPLIN, Centre for Food Safety &amp; Innovation, Tasmanian Institute of Agriculture, University of Tasmania, Hobart, TAS, Australia</td>
<td>Room L015</td>
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<tr>
<td>2:00</td>
<td>Use of Microhbro for Risk Assessment</td>
<td>FERNANDO PEREZ-RODRIGUEZ, University of Cordoba, Cordoba, Spain</td>
<td>FERNANDO PEREZ-RODRIGUEZ, University of Cordoba, Cordoba, Spain</td>
<td>Room L015</td>
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<td>2:15</td>
<td>Use of Gropin for Shelf-life Assessment and Formulation</td>
<td>PANAGIOTIS SKANDAMIS, Agricultural University of Athens, Athens, Greece</td>
<td>PANAGIOTIS SKANDAMIS, Agricultural University of Athens, Athens, Greece</td>
<td>Room L015</td>
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Check the Program Addendum for changes to the Program.

- **Syposiums**
- **Roundtables**
- **Technical Sessions**
- **Developing Scientist Competitor**
- **Topic Areas**
2:30 Use of CB Premium for Formulation, HACCP and Shelf-life Studies
MARK TAMPLIN, Centre for Food Safety & Innovation, Tasmanian Institute of Agriculture, University of Tasmania, Hobart, TAS, Australia

2:45 Use of Sym’previus for HACCP and Shelf-life Studies
FLORENCE POSTOLLEC, ADRIA - UMT ACTIA19.03 ALTER’IX, Quimper, France

3:00 Break – Refreshments Available in the Exhibit Hall

RT9 Challenges in Low-moisture Food Plant Sanitation – A Dairy Perspective
Ballroom D
Organizers: Chad Galler, Nancy Huls, Annie Piepenhagen
Convenor: Chad Galler
Sponsored by Dairy Management Inc.
Dairy Quality and Safety
Food Hygiene and Sanitation
Low Water Activity Foods
1:30 Panelists:
SHANTANU AGARWAL, MarsWrigley, Chicago, IL, USA
NATHAN ANDERSON, U.S. Food and Drug Administration, Bedford Park, IL, USA
RICHARD BROUILLETTE, Commercial Food Sanitation, South Burlington, VT, USA
RHONDA FRASER, FONTERRA, Palmerston North, New Zealand
DEAN TJORNEHOJ, CDI, Visalia, CA, USA
STEPHEN WALKER, U.S. Food and Drug Administration, Bedford Park, IL, USA

3:00 Break – Refreshments Available in the Exhibit Hall

RT10 Food Workers – Technology Approaches and Other Interventions for Keeping Sick People Out of the Operation
Ballroom E
Organizer and Convenor: Julian Graham
Food Safety Culture
International Food Protection Issues
Retail and Foodservice
1:30 Panelists:
VERONICA BRYANT, NC Dept. of Health & Human Services, Raleigh, NC, USA
BENJAMIN CHAPMAN, North Carolina State University, Raleigh, NC, USA
ARON HALL, Centers for Disease Control and Prevention, Atlanta, GA, USA
JASON HORN, In-N-Out Burger, Baldwin Park, CA, USA

3:00 Break – Refreshments Available in the Exhibit Hall

RT11 Revitalizing the Future of Food Safety Extension
Room M104
Organizers: Nicole Arnold, Angela Marie C. Ferelli, Sarah Murphy, Lily Yang
Convenor: Angela Marie C. Ferelli
Communication, Outreach and Education
Food Safety Education
Fruit and Vegetable Safety and Quality
1:30 Panelists:
MELISSA CHASE, Virginia Tech/Virginia Cooperative Extension, Blacksburg, VA, USA

Check the Program Addendum for changes to the Program.
4:15 Application of Risk-based Approaches to Managing Agricultural Water Quality  
DONALD W. SCHAFFNER, Don Stoeckel, Rutgers University, New Brunswick, NJ, USA

4:45 Knowledge Gained the Hard Way: Observations from Past Outbreaks to Support Risk-based Approaches  
CHARLES GERBA and CHANNAH ROCK, University of Arizona, Tucson, AZ, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S48 Determining Preventive Controls for Viruses and Parasites  
Ballroom E  
Organizers and Convenors: Stephen Grove, Jessica Hofstetter

3:45 Mitigation Strategies at Primary Production and Primary Processing to Minimize the Risk Linked to Foodborne Viruses in Mildly Processed Raw Materials  
SOPHIE CRINCOLI, Nestlé Research Center, Lausanne, Switzerland

4:15 Considerations on the Environmental Resistance and Biological Characteristics of Foodborne Parasites in Foods  
KALI KNIEL, University of Delaware, Newark, DE, USA

4:45 Preventive Controls for Viruses and Parasites in the Industry  
TIMOTHY JACKSON, Driscoll’s, Watsonville, CA, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S49 Communicating Benefit/Risk Analysis of Food Processing  
Room M104  
Organizers: Alex Eapen, Pamela Wilger  
Convenor: Pamela Wilger

3:45 Toxicological Relevance of Process-formed Contaminants Versus Microbiological Risks  
CHRISTINE CRINCOLI, Cargill, Inc., Minneapolis, MN, USA

4:15 BRAFO – Benefit Risk Analysis of Food Processing  
CANDACE DOEPPER, ToxStrategies, Newport, KY, USA

4:45 Everyone Talks to Someone: Best Practices for Food and Chemical Risk Communication  
ANTHONY FLOOD, IFIC, Washington, D.C., USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S50 Clostridium difficile: A Food Safety Risk?  
Room M107  
Organizers and Convenors: Genevieve Flock, Vijay Juneja  
Sponsored by the IAFP Foundation

3:45 Clostridium difficile in Food and the Environment: Significant Sources of C. difficile Community-acquired Infection?  
KEITH WARRINER, University of Guelph, Guelph, ON, Canada

4:15 Survival of Clostridium difficile in Low-moisture Foods  
J. ANTONIO TORRES, Tecnologico de Monterrey, Monterrey, NL, Mexico

4:45 Survival of Clostridium difficile in Beef and Sausage: Effect of Cooking, Chilling and Freezing and Acidity  
GENEVIEVE FLOCK, U.S. Army Combat Capabilities Development Command Soldier Center, Natick, MA, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

S51 Challenges and Promises of Using Quantitative Data for Controlling Salmonella in Poultry  
Room M112  
Organizers: Vikrant Dutta, Manpreet Singh  
Convenors: Mark Carter, Peter Evans, Manpreet Singh  
Sponsored by bioMérieux Inc. and the IAFP Foundation

3:45 Current and Next Generation Quantitative Methods for Raw Poultry  
STEVEN RICKE, University of Arkansas, Fayetteville, AR, USA

4:15 Use of Quantitative Salmonella Results to Mitigate Public Health Risks Associated with Ground Products  
ANGELA SIEMENS, Cargill Meat Solutions, Wichita, KS, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

SF2 Predictive Microbiology and Risk Assessment Software Fair: Spotlight on Case Studies  
Room L017  
Organizer and Convenor: Mariem Ellouze  
Sponsored by International Committee on Predictive Modelling in Food

3:45 Developing Food Safety Professionals  
HACCP Utilization and Food Safety Systems  
Microbial Modelling and Risk Analysis

Demonstration of FDA-iRisk  
YUHUAN CHEN, U.S. Food and Drug Administration–CFSAN, College Park, MD, USA

Demonstration of Combase  
MARK TAMPLIN, Centre for Food Safety & Innovation, Tasmanian Institute of Agriculture, University of Tasmania, Hobart, TAS, Australia

Demonstration of MicroHibro  
FERNANDO PEREZ-RODRIGUEZ, University of Cordoba, Cordoba, Spain

Demonstration of Gropin  
PANAGIOTIS SKANDAMIS, Agricultural University of Athens, Athens, Greece

Demonstration of CB Premium  
MARK TAMPLIN, Centre for Food Safety & Innovation, Tasmanian Institute of Agriculture, University of Tasmania, Hobart, TAS, Australia

Demonstration of Sym’previus  
FLORENCE POSTOLLEC, ADRIA - UMT ACTIA19.03 ALTER’IX, Quimper, France

Check the Program Addendum for changes to the Program.

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TUESDAY PM

- Symposia
- Roundtables
- Technicals
- Developing Scientist Competitor
- Topic Areas

46 PROGRAM BOOK
Dubai Food Watch Presentation

Room L015
3:45
BOBBY KRISHNA and JEHAINA AL ALI, Dubai Municipality, Dubai, United Arab Emirates

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

RT14 The Use of Chemicals in Food Hygiene and Linkage to Microbial Resistance

Ballroom C
Organizer and Convenor: Marie-Claude Quentin
Food Hygiene and Sanitation
International Food Protection Issues
Microbial Resistance

3:45
Panelists:
JOHN DONAGHY, Nestec Ltd., Vevey, Switzerland
DONNA GARREN, American Frozen Food Institute, McLean, VA, USA
LARRY KOHL, Retail Business Services LLC, an Ahold Delhaize USA Company, Salisbury, NC, USA
NICOLE RICKER, University of Guelph, Guelph, ON, Canada

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception


Ballroom D
Organizers: Nicole Arnold, Stephanie Brown, Courtney Crist
Convenor: Courtney Crist
Food Law
Food Safety Education
Low Water Activity Foods.

3:45
Panelists:
ELIZABETH L. ANDRESS, University of Georgia, Athens, GA, USA
ERDOGAN CEYLAN, Mérieux NutriSciences, Crete, IL, USA
ERIC EDMUNDS, The Acheson Group, Boise, ID, USA
JOELL EIFFERT, Virginia Tech, Blacksburg, VA, USA
SERENA GIOVINAZZI, Florida Department of Agriculture and Consumer Services, Tallahassee, FL, USA
ABIGAIL SNYDER, The Ohio State University, Columbus, OH, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

RT16 Has the Time Come for Complete Adoption of the Food Code?

Room M100
Organizers: Ann Marie McNamara, Ben Wagner
Convenor: Ben Wagner
Food Law
Food Safety Assessment, Audit and Inspection
Retail and Foodservice

3:45
Panelists:
VERONICA BRYANT, NC Dept. of Health & Human Services, Raleigh, NC, USA
DARIN DETWILER, Northeastern University, Boston, MA, USA

JASON HORN, In-N-Out Burger, Baldwin Park, CA, USA
GLENDA LEWIS, U.S. Food and Drug Administration, Washington, D.C., USA
ANN MARIE MCNAMARA, Hazel Analytics, Seattle, WA, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

RT17 Finding the Needle in the Cheese Block: How Do We Create Robust Sampling Plans for Dairy Products?

Room M108
Organizer and Convenor: Erin Headley
Applied Laboratory Methods
Dairy Quality and Safety
Low Water Activity Foods

3:45
Panelists:
MARION CASTLE, New Zealand Ministry of Primary Industries, Wellington, New Zealand
TIMOTHY FREIER, Mérieux NutriSciences, Crete, IL, USA
MELINDA HAYMAN, U.S. Food and Drug Association, Washington, D.C., USA
LORALYN LEDENBACH, Kraft Heinz Company, Glenview, IL, USA
MARTIN WIEDMANN, Cornell University, Ithaca, NY, USA
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

T7 Technical Session 7 – Microbial Food Spoilage, Dairy, Sanitation and Hygiene

Room M106
Convenors: Scott Burnett, Jovana Kovacevic

T7-01 Validation of Abiotic Bacterial Surrogates for Surface Sanitation in Food Processing Facilities

1:30
NICOLE HERBOLD, Adam Idoine, Peter Mattei, Julie Atchley, Sky Johnson, Laurie Clotilde, Quin Chou, Lucia Cerillo, Molly Trump, Antonios Zografos, SafeTraces, Pleasanton, CA, USA

T7-02 Synergistic Effects of Ultrasound and Natural Antimicrobials Against Listeria innocua and Escherichia coli K12

1:45
HONGCHAO ZHANG, Rohan Tikekar, University of Maryland, College Park, MD, USA

T7-03 Inactivation of Listeria and E. coli Using UV-C LED: Effect of Substrate on Inactivation Kinetics

2:00
YIFAN CHENG, Eric Atchley, Nicole Ricker, Zhuang Gong, Julie Atchley, Tikekar, University of Maryland, College Park, MD, USA

T7-04 Impact of Co-Culturing with Pseudomonas aeruginosa on Listeria monocytogenes Biofilm Physiochemical Properties and Sanitizer Tolerance

2:15
ERIC MOORMAN, Lee-Ann Jaykus, Department of Food, Bioprocessing, and Nutritional Sciences, North Carolina State University, Raleigh, NC, USA

T7-05 Impact of Residential Bacteria on Product Quality:

2:30
AURELIEN MAILLET, Agnès Bouju-Albert, Steven Robin, Pauline Vassié, Sébastien Leullet, Xavier Dousset, Emmanuel Jaffrès, Jerome Combrisson, Hervé Prévost, UMR 1014 Secalim, UBL, INRA, Oniris, Nantes, France

T7-06 Isolation and Serotyping of Vibrio vulnificus and Vibrio cholerae in Seafood in Korea

2:45
YEWON LEE, Sun-Young Park, Heeyoung Lee, Yohan Yoon, Soomkyung Women’s University, Seoul, South Korea

3:00 Break – Refreshments Available in the Exhibit Hall
**T8-07**
*Evaluation of Commercially Available Protective Cultures to Control Listeria monocytogenes and Shiga Toxin-producing *Escherichia coli* in Soft, Surface Mold-ripened Raw Milk Cheese*
Catherine Gensler, Dennis D’Amico, University of Connecticut, Department of Animal Science, Storrs, CT, USA

**T8-08**
*Effect of Commercial Bacterial Fermentates and Protective Cultures on Listeria monocytogenes Growth in a Refrigerated Model High-moisture Cheese*
Sarah Engstrom, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

**T8-09**
*Identification of Key Environmental Sites to Help Small-scale Raw Milk Cheesemakers Improve Sanitation*
Lisa Caprera, Kerry Kaylegian, The Pennsylvania State University, University Park, PA, USA

**T8-10**
*The Microbial Ecology and Resilience of Raw and Pasteurized Retail Milk*
Jinxin Liu, Michele Jay-Russell, Peiman Aminabadi, Yuanting Zhou, Danielle Lemay, David Mills, University of California Davis, Davis, CA, USA

**T8-11**
*Transcriptome Sequencing of Listeria monocytogenes during Co-Cultivation with Cheese Rind Bacteria*
Justin Anast, Stephan Schmitz-Esser, Iowa State University, Ames, IA, USA

**T8-12**
*Using Machine Learning to Predict Pasteurized Fluid Milk Spoilage Based on Quality Management Practices*
Sarah Murphy, Michael Phillips, Martin Wiedmann, Cornell University, Ithaca, NY, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

T8  Technical Session 8 – Communication, Education and Outreach and Retail and Food Service Safety Room M109
Conveners: Kristina Barlow, Jennifer Morecraft

T8-01
*Observational Assessment of Food Safety Behaviors at Farmers’ Markets in Ontario, Canada*
Ian Young, Aeri Chung, Jennifer McWhirter, Andrew Papadopoulos, Ryerson University, Toronto, ON, Canada

T8-02
*A Sequential Mixed Methods Approach in Assessing Consumers’ Self-Identified At-home Beef Storage, Handling, and Preparation Knowledge and Behaviors*
Lily Yang, Mirah Khalid, Minh Duong, Daniel Gallerger, Tiffany Drape, Robert Williams, Thomas Archibald, Benjamin Chapman, Renee Boyer, Virginia Tech, Blacksburg, VA, USA

T8-03
*Online Professional Training, Consumer Training and Student Training: Symbiosis for Learning Material for Different Target Groups*
Heidy den Besten, Martine Reij, Leon Gorris, Marcel Zwietering, Wageningen University, Wageningen, The Netherlands

T8-04
*Designing Food Safety Training Using the Integrated Behavior Model*
Stephanie Maggio, North Carolina State University, Raleigh, NC, USA

T8-05
*Food Safety Modernization Act Foreign Supplier Verification Rule: Three Years of Data about the Impact on the United States Food Import Chain Under FDA Jurisdiction*
Claudio Gallottini, Franco Rapetti, Andrea Gentili, Ferruccio Marello, Enrica Alberti, Giovanni La Rosa, ITA Corporation, Miami, FL, USA

5:00 Break – Refreshments Available in the Exhibit Hall

**T8-07**
*The Use of Matrix-adapted Bacterial Isolates of *E. coli* O157:H7, L. monocytogenes, and *Salmonella* spp. in Validation of High-pressure Treated Juices*
Catherine Rolfe, Alvin Lee, Nathan Anderson, Glenn Black, Institute for Food Safety and Health, Illinois Institute of Technology, Bedford Park, IL, USA

**T8-08**
*Effect of Sublethal Food Processing and Associated Environmental Conditions on *Salmonella* Mutation*
Leen Baert, Johan Gimonet, Coralie Fournier, Caroline Barretto, Bala Jagadeesan, Nestlé Research, Lausanne, Switzerland

**T8-09**
*Effect of Location and Design of Refrigerated Display Cases on Temperature Control in Retail Stores*
Ana Monge, Angela Shaw, Jeffrey Brecht, Yurui Xie, Scott Steinmaus, Ellen Bornhorst, Yaguang Luo, Bin Zhou, Keith Vorst, Iowa State University, Ames, IA, USA

**T8-10**
*Evaluation of Cantaloupe Contact Surfaces in Retail Stores*
Laura K. Strawn, Christopher Rupert, Loretta Friedrich, Benjamin Chapman, Michelle Danyleuk, Virginia Tech - Eastern Shore AREC, Painter, VA, USA

**T8-11**
*Rapid and Synergistic Antimicrobial Processing for Fresh-cut Vegetables in Fast Food Restaurants*
Xu Yang, Nitin Nitin, University of California-Davis, Davis, CA, USA

**T8-12**
*Restaurant Food Consumption and Diarrheal Illness: What is the Relationship?*
Robert Scharff, The Ohio State University, Columbus, OH, USA

5:15 p.m. – 6:15 p.m. – Exhibit Hall Reception

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### EVENING OPTIONS

5:15 p.m. – 6:15 p.m.
*Exhibit Hall Reception*

6:30 p.m. – 7:30 p.m.
*President’s Reception (by invitation), Omni Hotel*

7:00 p.m. – 9:00 p.m.
*Student Mixer, Seelbach Hilton, Ruthskeller*

### AFFILIATE MEETINGS

5:30 p.m. – 6:30 p.m.
*Korea Association for Food Protection Meeting Room M104*

5:30 p.m. – 6:30 p.m.
*Southeast Asia Association for Food Protection Meeting, Room M105*

6:00 p.m. – 7:00 p.m.
*Latin America Group Meeting, Room M107*

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Check the Program Addendum for changes to the Program.
Along the entire supply chain, Ecolab is your food safety expert.
When you partner with Ecolab, we work with you onsite to create a food safety program that protects your customers and your business.

Visit us at booth #144
WEDNESDAY, JULY 24

ALL DAY
8:30 a.m. – 3:30 p.m.
Exhibit Hall

Poster Session 3
Beverages and Acid/Acidified Foods
Food Toxicology
Meat, Poultry and Eggs
Packaging

Food Chemical Hazards and Food Allergens
Laboratory and Detection Methods
Microbial Food Spoilage
Seafood
Water

P3-01 through P3-145 – Authors present 9:00 a.m. – 11:00 a.m.
P3-146 through P3-255 – Authors present 1:00 p.m. – 3:00 p.m.

MORNING
8:30 a.m. – 12:15 p.m.

Ballroom A
Room M100
Room L015
Room M104

S52
S53
T9
T10

Foodborne Disease Outbreak Update
The Impact of Packaging Materials on Food Safety: Testing, Modeling and Regulation
Technical Session 9 – Meat and Poultry and Seafood
Technical Session 10 – Modeling and Risk Assessment

8:30 a.m. – 10:00 a.m.

Ballroom D
Ballroom E
Room M101
Room M107
Room M105
Room M108
Room M109
Room M112

S54
S55
S56
S57
RT18
RT19
RT20
S58

Agricultural Water and Emerging Pathogens in the Age of FSMA: Do We Need to Worry?
Environmental Monitoring – A Cost-effective Tool or Expensive Waste of Resource?
Poultry Vaccines: What is Working, What are the Gaps, and What is on the Horizon?
Biofilm Removal as a Critical Part of Spoilage and Pathogen Contamination Prevention
Building a National Integrated Food Safety System (IFSS)
Improving Post-mortem Inspection of Beef for Human Health Protection
Application of High-throughput Sequencing by Industry: Potential, Barriers and Opportunities
Protecting Probiotics: Detecting Hazards and Confirming Formulation Accuracy

10:00 a.m. – 10:45 a.m.
Break – Refreshments Available in the Poster Session Area

10:45 a.m. – 12:15 p.m.

Ballroom D
Ballroom E
Room M101
Room M105
Room M107
Room M108
Room M112

RT21
S59
S60
S61
S62
RT22
S63

Food Safety and Trade: Colleagues or Competitors
Extraintestinal Pathogenic Escherichia coli (ExPEC): Urinary Tract Infections, Sepsis, and Avian Colibacillosis
A New Paradigm: Cutting Pathogens Off at the Pass by Understanding Their Evolution Dynamics
Resurgence of Less Recognized and Presumptive Pathogens: Food Safety Implications
Novel and Emerging Technologies for Improving Sanitation
Fresh-cut Processing and FSMA
Application of Principles of Failure Mode Effects Analysis (FMEA) for Effective Verification and Implementation of Food Safety Plans

12:00 p.m. – 1:30 p.m.
Lunch Available in the Poster Session Area

AFTERNOON
1:30 p.m. – 3:30 p.m.

Ballroom A
Ballroom D
Ballroom E
Room M100
Room M101
Room M104
Room M112

S64
S65
S66
S67
S68
S69
S70
Attributing Illnesses to Food Sources in the Face of Uncertainty
Safety of Animal Source Foods in Low- and Middle-income Countries
Let’s Hear from Next Generation Food Safety Scientists on Pathogen Behavior in Ready-to-Eat Foods
Antibiotic Reduction, Alternatives, and the Relationship to Food Pathogen Outbreaks
Using Food Microbiomes
Biofilm and Low-water Activity Foods
Polypropylene Permaculture? Microplastics in Terrestrial Agricultural Systems

3:30 p.m. – 4:00 p.m.
Break – Refreshments Available Outside Ballroom A

4:00 p.m. – 4:45 p.m.
JOHN H. SILLIKER LECTURE

Ballroom A

From Outbreak Catastrophes to Clades of Concern, How Whole Genome Sequencing Can Change the Food Safety Landscape

ROBERT V. TAUXE, MD, MPH, Director, Division of Foodborne, Waterborne and Environmental Disease Centers for Disease Control and Prevention Atlanta, Georgia

EVENING OPTIONS
6:00 p.m. – 7:00 p.m. Reception, Ballroom Foyer
7:00 p.m. – 10:00 p.m. IAFP Awards Banquet, Ballroom C
WEDNESDAY MORNING
JULY 24

Posters will be on display 8:30 a.m. – 3:30 p.m.
(See details beginning on page 81)

**S52 Foodborne Disease Outbreak Update**
*Ballroom A*

Organizers and Convenors: Kari Irvin, Ewen Todd

Food Hygiene and Sanitation
Fruit and Vegetable Safety and Quality
Seafood Safety and Quality

8:30 *Salmonella* Adelaide in Cut Melon Outbreak
BROOKE WHITNEY, U.S. Food and Drug Administration - Coordinated Outbreak Response and Evaluation Network, College Park, MD, USA

9:00 Multistate Outbreak of *Vibrio parahaemolyticus*
Infections Linked to Imported Fresh Crab Meat
JESSICA JONES, U.S. Food and Drug Administration, Gulf Coast Seafood Laboratory, Dauphin Island, AL, USA and PONGPAN LAKSANALAMAI, Maryland Department of Health & Mental Hygiene, Baltimore, MD, USA

9:30 Frozen Corn Source of a *Listeria monocytogenes* Outbreak in Europe
ZSUZSANNA SRÉTERNÉ LANCZ, Food Microbiological National Reference Laboratory, Budapest, Hungary

10:00 Break – Refreshments Available in the Poster Session Area

10:45 Global Food Contact Analytical Protocols for New Substance Notifications and Final Articles Compliance
NAEEM MADY, Intertek, Boca Raton, FL, USA

11:15 Trends in Food Contact Materials and Chemical Residues Analysis
CHARLES NESLUND, Eurofins, Lancaster, PA, USA

11:45 Risk Assessment of Contaminants from Food Packaging
MAEVE CUSHEN, CremeGlobal, Dublin, Ireland

12:15 Lunch Available in the Poster Session Area

**S54 Agricultural Water and Emerging Pathogens in the Age of FSMA: Do We Need to Worry?**
*Ballroom D*

Organizers: Mauricio Durigan, Efstathia Papafragkou, Alexandre da Silva
Convenors: Alexandre da Silva, Efstathia Papafragkou

Applied Laboratory Methods
Viral and Parasitic Foodborne Disease
Water Safety and Quality

8:30 Prevalence of Foodborne Viruses in Irrigation Water
KALI KNIEL, University of Delaware, Newark, DE, USA

9:00 Current Standards for Agricultural Water Quality: Can That Rule Out the Presence of Viruses and/or Parasites?
SOCRATES TRUJILLO, U.S. Food and Drug Administration, College Park, MD, USA

9:30 Efforts from Industry to Improve the Quality of Agricultural Water Related to Parasites
JIM BRENNAN, SmartWash Solutions, LLC, Salinas, CA, USA

10:00 Break – Refreshments Available in the Poster Session Area

**S55 Environmental Monitoring – A Cost-effective Tool or Expensive Waste of Resource?**
*Ballroom E*

Organizer: Anett Winkler
Convenor: Lorayln Ledenbach

Food Hygiene and Sanitation
Food Safety Assessment, Audit and Inspection
HACCP Utilization and Food Safety Systems

8:30 Do We Spend the Money on EM Wisely?
ANETT WINKLER, Cargill, Inc., Munich, Germany

9:00 What Can Indicators Tell Us?
ROY BETTS, Campden BRI, Chipping Campden, United Kingdom

9:30 How to Design and Verify Effective Corrective Actions?
RICHARD BROUILLETTE, Commercial Food Sanitation, South Burlington, VT, USA

10:00 Break – Refreshments Available in the Poster Session Area

**S56 Poultry Vaccines: What is Working, What are the Gaps, and What is on the Horizon?**
*Room M101*

Organizers and Convenors: Stevie Hretz, Scott Updike

Food Safety Assessment, Audit and Inspection
Pre Harvest Food Safety

8:30 Veterinary Biologics: Regulatory Perspectives at Pre-harvest
CONNIE SCHMELIJK-SANDAGE, U.S. Department of Agriculture – APHIS, Ames, IA, USA
9:00 When the Vaccine is Also the Target Pathogen: Lessons Learned  
STEVIE HRETZ, U.S. Department of Agriculture – FSIS, Washington, D.C., USA

9:30 Inclusive Targets: Cross-protective Campy Vaccine Using an E. coli Vector  
CHRISTINE SZYMANSKI, University of Georgia, Athens, GA, USA

10:00 Break – Refreshments Available in the Poster Session Area

S57 Biofilm Removal as a Critical Part of Spoilage and Pathogen Contamination Prevention  
Room M107
Organizers: Margarita Gomez, Emilia Rico-Munoz, Abigail Snyder
Convenors: Margarita Gomez, Emilia Rico-Munoz

Beverages and Acid/Acidified Foods  
Dairy Quality and Safety  
Food Hygiene and Sanitation

8:30 The Role of Biofilm in Spoilage and Pathogen Contamination of Foods and Beverages: Critical Factors for Biofilm Formation, Removal and Verification  
ABIGAIL SNYDER, The Ohio State University, Columbus, OH, USA

9:00 Using Enzyme Technology to Eradicate Problems of Biofilms  
LAURENT DEHALLE, REALCO, Ottignies-Louvain-la-Neuve, Belgium

9:30 Natural Compounds for the Control of Biofilms on Food Contact Surfaces  
CHRISTOPHER MCNAMARA, Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA, USA

10:00 Break – Refreshments Available in the Poster Session Area

S58 Protecting Probiotics: Detecting Hazards and Confirming Formulation Accuracy  
Room M112
Organizers: Andrzej A. Benkowski, Megan S. Brown, J. David Legan
Convenors: Megan S. Brown, J. David Legan

Sponsored by the IAFP Foundation

Dairy Quality and Safety  
Pathogen Detection in Probiotic Matrices  
Probiotics

8:30 JOSEPHINE D. GREVE-PETERSON, Eurofins Food Integrity & Innovation, Madison, WI, USA

9:00 Detecting Allergens and Contaminants in Probiotic Matrices  
SOMSUVRA GHATAK, U.S. Pharma Lab Inc, North Brunswick, NJ, USA

9:30 Protecting Against Mis-Labeling and Adulteration  
CARMEN TARTERA, U.S. Food and Drug Administration, CFSAN, Laurel, MD, USA

10:00 Break – Refreshments Available in the Poster Session Area

RT18 Building a National Integrated Food Safety System (IFSS)  
Room M105
Organizers: Joseph Corby, Steven Mandernach
Convenor: Steven Mandernach

Sponsored by Association of Food and Drug Officials

Food Safety Assessment, Audit and Inspection  
HACCP Utilization and Food Safety Systems  
Retail and Foodservice

8:30 Panelists:
BARBARA CASSENS, U.S. FDA, Alameda, CA, USA
JOSEPH CORBY, Association of Food and Drug Officials, New York, NY, USA
BOB EHART, National Association of State Departments of Agriculture, Arlington, VA, USA
ERNEST JULIAN, Rhode Island Department of Health, Providence, RI, USA
STEVE MORIS, Kansas Department of Agriculture, Manhattan, KS, USA
JERRY WOJTALA, International Food Protection Training Institute, Battle Creek, MI, USA

10:00 Break – Refreshments Available in the Poster Session Area

RT19 Improving Post-mortem Inspection of Beef for Human Health Protection  
Room M108
Organizers: Ian Jenson, Carl Custer
Convenor: Ian Jenson

Food Law  
Meat and Poultry Safety and Quality  
Microbial Modelling and Risk Analysis

8:30 Panelists:
MELANIE ABLEY, U.S. Department of Agriculture–FSIS, Springfield, VA, USA
ANDREW POINTON, APFoodIntegrity Pty Ltd, Grange, Australia
MARK RASMUSSEN, Iowa State University, Ames, IA, USA
BETH RIESS, The Pew Charitable Trusts, Washington, D.C., USA

10:00 Break – Refreshments Available in the Poster Session Area

RT20 Application of High-throughput Sequencing by Industry: Potential, Barriers and Opportunities  
Room M109
Organizer and Convenor: Behzad Imanian

Communication, Outreach and Education  
Food Safety Assessment, Audit and Inspection  
Food Safety Culture

8:30 Panelists:
ROBERT BAKER, Mars Global Food Safety Center, Beijing, China
ERIC BROWN, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA
EMILY GRIEP, United Fresh Produce Association, Washington, D.C., USA
SANJAY GUMMALLA, American Frozen Food Institute, McLean, VA, USA

Check the Program Addendum for changes to the Program.

BEHZAD IMANIAN, Illinois Institute of Technology, Institute for Food Safety and Health, Bedford Park, IL, USA
FABIEN ROBERT, Nestlé, Dublin, OH, USA

10:00 Break – Refreshments Available in the Poster Session Area

S59 Extraintestinal Pathogenic Escherichia coli (ExPEC): Urinary Tract Infections, Sepsis, and Avian Colibacillosis
Ballroom E
Organizers and Convenors: Christopher Sommers, Aixia Xu
Advanced Molecular Analytics
Sponsored by the IAFP Foundation

10:45 The Other Bad E. coli: ExPEC
James Johnson, University of Minnesota, Minneapolis, MN, USA

11:15 Pandemic Exps – of Birds and Man
Lee Riley, University of California, Berkeley, Berkeley, CA, USA

11:45 Treatment Strategies to Provide Broad Protection Against Extra-Intestinal Pathogenic E. coli
Melha Mella, Iowa State University, Ames, IA, USA

12:15 Lunch Available in the Poster Session Area

S60 A New Paradigm: Cutting Pathogens Off at the Pass by Understanding Their Evolution Dynamics
Room M101
Organizers: Marc Allard, Pushpinder Kaur Litt, Kali Kniel, Jane VanDoran
Convenors: Pushpinder Kaur Litt, Kali Kniel
Sponsored by the IAFP Foundation

10:45 How Mathematical Modeling Can Identify Factors That Affect Pathogen Survival in Pre-harvest Environments
Manan Sharma, U.S. Department of Agriculture – ARS, Environmental Microbial and Food Safety Laboratory, Beltsville, MD, USA

11:15 Genetic Elements Associated with Stress Resistance of Foodborne Pathogens
Teresa Bergholz, North Dakota State University, Fargo, ND, USA

11:45 From WGS to Risk Assessment
Francisco Garces-Vega, (Independent Consultant), Cali, Columbia

12:15 Lunch Available in the Poster Session Area

S61 Resurgence of Less Recognized and Presumptive Pathogens: Food Safety Implications
Room M105
Organizers: Alvin Lee, Purnendu Vasavada
Convenors: Roy Betts, Alvin Lee
Sponsored by the IAFP Foundation

10:45 Less Recognized Pathogens and Novel Viruses: An Emerging Threat
Purnendu Vasavada, University of Wisconsin-River Falls, River Falls, WI, USA and Alvin Lee, Institute for Food Safety and Health, Illinois Institute of Technology, Bedford Park, IL, USA

11:15 Hepatitis E and Other Emerging Threats in Europe
Roy Betts, Campden BRI, Chipping Campden, United Kingdom

12:15 Lunch Available in the Poster Session Area

S62 Novel and Emerging Technologies for Improving Sanitation
Room M107
Organizers: Shira Kramer, Richard Brouillette, Dale Grinstead
Convenors: Jeffrey Kornacki, Vanessa Cranford

10:45 Surface Modification for Cleaning and Microbial Control
Julie Goddard, Cornell University, Ithaca, NY, USA

11:15 New Biofilm Control Technology Including Biologics and Synergists
Dale Grinstead, Diversey, Racine, WI, USA

11:45 Digital Analytic Tools for Improved Process Control, New Ways to Train, Drive, and Verify Sanitation Process Compliance
Simha Hussein, Ecolab Inc., Greensboro, NC, USA

12:15 Lunch Available in the Poster Session Area

S63 Application of Principles of Failure Mode Effects Analysis (FMEA) for Effective Verification and Implementation of Food Safety Plans
Room M112
Organizers: Balasubrahmanyam Kottapalli, Lilia Santiago, Aaron Uesugi
Convenors: Lilia Santiago, Aaron Uesugi

10:45 Applications of FMEA Principles in Verification and Implementation Food Safety Plans – A Biological Hazard Perspective
Balasubrahmanyam Kottapalli, Conagra Brands, Omaha, NE, USA

11:15 Use of FMEA to Support Prerequisites and Verification Programs – A Chemical/Toxicological Hazard Perspective
Lilia Santiago, Kellogg’s, Battle Creek, MI, USA

Check the Program Addendum for changes to the Program.
11:45 Utilization of FMEA in the Development of Food Safety Plans – A Physical Hazard Perspective
AARON UESUGI, Kraft Heinz Company, Glenview, IL, USA

12:15 Lunch Available in the Poster Session Area

RT21 Food Safety and Trade: Colleagues or Competitors
Ballroom D
Organizers: Caroline Smith DeWaal, Robert Tuverson
Convenor: Caroline Smith DeWaal
Food Law
Food Safety Assessment, Audit and Inspection
International Food Protection Issues

10:45 Panelists:
ROGER COOK, New Zealand Ministry for Primary Industries, Wellington, New Zealand
BART BARLOW, National Food Safety Authority, Dublin, Ireland
MATT MCKNIGHT, U.S. Dairy Export Council, Arlington, VA, USA
DONALD PRATER, U.S. Food and Drug Administration, Silver Spring, MD, USA

12:15 Lunch Available in the Poster Session Area

RT22 Fresh-cut Processing and FSMA
Room M108
Organizer and Convenor: Vanessa Cranford
Fruit and Vegetable Safety and Quality
HACCP Utilization and Food Safety Systems

10:45 Panelists:
SAMIR ASSAR, U.S. Food and Drug Administration, College Park, MD, USA
JIM BRENNAN, SmartWash Solutions, LLC, Salinas, CA, USA
JOHN GURRISI, Fresh Express, Inc., Orlando, FL, USA
DREW MCDONALD, Church Brothers Produce, Salinas, CA, USA
JENNIFER MCENTIRE, United Fresh, Washington, D.C., USA
TREVOR SUSLOW, University of California-Davis, Davis, CA, USA

12:15 Lunch Available in the Poster Session Area

T9 Technical Session 9 - Meat and Poultry and Seafood
Room L015
Convenors: Max Golden, Clint Stevenson

T9-01 8:30
Evaluation of a New Method for the Enumeration of Campylobacter from Poultry Associated Matrices
ANTHONY PAVIC, Jeremy Chenu, Sarah Williamson, Wylie Armstrong, Biaida Poultry, Bringelly, NSW, Australia

T9-02 8:45
Prevalence of Top Seven Shiga Toxin-producing Escherichia coli in Microbial Populations through Slaughter in Australian Beef Export Abattoirs
SEONG-SAN KANG, Joshua T. Ravensdale, Ranil Coorey, Gary A. Dykes, Robert Barlow, School of Public Health, Curtin University, Bentley, Western Australia, Australia and CSIRO, Agriculture & Food, Brisbane, QLD, Australia

T9-03 9:00
Effect of Dry Aging of Beef on the Survival of E. coli
Hidri, Fangning Jin, Hang Zhao, Chunlei Li, University of Maryland Eastern Shore, Princess Anne, MD, USA

T9-04 9:15
Evaluating the Efficacy of Trim Interventions Against High and Low Levels of Escherichia coli O157/H7 and Their Impact on Ground Beef Color
YOJIIT SAHA, Ravi rajinsinh Jadeja, Ranjith Ramanathan, Pabasara Weeraratne, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

T9-05 9:30
Validation of Immersion Versus Electrostatic Spraying with Commercial Antimicrobials Against Unstressed and Acid-, Starvation-, or Cold-stress Adapted Campylobacter jejuni on Broiler Wings, and Related Cost Effectiveness Analysis
CANG LIANG SHEN, Lacey Lemonakis, Kwa Wang Li, Wentao Jiang, Xiaoli Etienne, Jeremy Adler, West Virginia University, Morgantown, WV, USA

T9-06 9:45
Lactobacillus curvatus: A Natural Food Safety Hurdle for Listeria monocytogenes Inhibition on RTE Chicken Strips
Besnik Hidri, Zdenek Cech, Jenny Triplett, VERONIQUE ZULIANI, Chr. Hansen, Arpajon, France

10:00 Break – Refreshments Available in the Poster Session Area

T9-07 10:45
Multispectral Imaging as a Rapid Method to Detect Adulteration of Fresh and Frozen-Thawed Minced Chicken and Pork
Menardis, Alexandra Fengou, Alexandra Lianou, Panagiotis Tsakanikas, Efstatios Panagou, GEORGE-JOHN NYCHAS, Agricultural University of Athens, Athens, Greece

T9-08 11:00
Isolation and Characterization of Native Lactic Acid Bacteria Toward Their Selection as Poultry Probiotics
RINE REUBEN, Sharmin Akter, Pravas Roy, Shovon Sarkar, Iqbal Jahid, Department of Science Laboratory Technology, Nasarawa State Polytechnic, Lafia, Nigeria

T9-09 11:15
Prevalence and Biofilm Formation of Staphylococcus aureus Isolated from Animal Food in Shanghai, China
CHUJUN OU, Fangning Jin, Hang Zhao, Chunlei Li, Shanghai Jiao Tong University, Shanghai, China

T9-10 11:30
Comparison of Methods for Detection of Total Vibrio naceae as an Indicator of Pathogenic Vibrio Species in Oysters and Seawater
SALINA PARVEEN, John Jacobs, Gulinhal Ozbay, Karuna Chintapenta, Joan Meredith, Sylvia Ossai, Amanda Abbott, Esam Almuahebed, Arquette Grant, Kathy Brohawn, Paulinus Chigbu, Gary Richards, University of Maryland Eastern Shore, Princess Anne, MD, USA

T9-11 11:45
Characterization of a Novel Enzyme from Photobacterium phosphoreum with Histidine Decarboxylase Activity
KRISTIN BJORNSDOTTIR-BUTLER, Sarah May, Marlee Hayes, Ann Abraham, Ronald A. Benner Jr., U.S. Food and Drug Administration, Gulf Coast Seafood Laboratory, Dauphin Island, AL, USA

T9-12 12:00
Effectiveness of a Novel, Rechargeable, Non-leaching Polycationic N-Halamine Antibacterial Coating on Listeria monocytogenes Survival in Food Processing Environments
Gerardo Medina, Harshita Chaudhary, Yang Qiu, Yuchen Nan, Argenis Rodas-Gonzalez, Xianqin Yang, CLAUDIA NARVAEZ-BRAVO, University of Manitoba, Winnipeg, MB, Canada

12:15 Lunch Available in the Poster Session Area
Technical Session 10 – Modeling and Risk Assessment
Room M104
Convenors: Travis Chapin, Hao Peng

T10-01 Development of a User-friendly Software Tool for Validation of Predictive Models
8:30
THOMAS OSCAR, U.S. Department of Agriculture-ARS, Princess Anne, MD, USA

T10-02 Estimation of Growth Cardinal Parameters of Listeria monocytogenes by Meta-Regression
8:45
URSULA A. GONZALES-BARRON, Beatriz Silva Nunes, Mariem Ellouze, Vasco A. P. Cadavez, Polytechnic Institute of Bragança, Bragança, Portugal

T10-03 Using Predictive Pre-processing Risk Scores to Reduce Foodborne Disease
9:00
TIMOTHY BUISKER, Smart Data Science Solutions, Galena, IL, USA

T10-04 Risk Categorization of Federally Registered Meat Establishments in Canada Using the Canadian Food Inspection Agency's Establishment-based Risk Assessment Model
9:15
Manon Racicot, Alexandre Leroux, Romina Zanabria, Genevieve Comeau, Sunny Ng, Haoran Shi, Raphael Plante, Hargun Chandhok, Suzanne Savoie, ANNA MACKAY, Sylvain Quessy, Canadian Food Inspection Agency, Ottawa, ON, Canada

T10-05 Food Source Attribution of Shiga Toxin-producing Escherichia coli Infection by Meta-Analysis of Case Control Studies
9:30
URSULA A. GONZALES-BARRON, Vasco A. P. Cadavez, Anne Thebault, Pauline Kooh, Moez Sanaa, Polytechnic Institute of Bragança, Bragança, Portugal

T10-06 Food Source Attribution of Human Listeriosis by Meta Analysis of Case Control Studies
9:45
VASCO A. P. CADAVEZ, Ursula A. Gonzales-Barron, Anne Thebault, Pauline Kooh, Moez Sanaa, Polytechnic Institute of Bragança, Bragança, Portugal

10:00 Break – Refreshments Available in the Poster Session Area

10:45 Predicting the Food Sources of Sporadic Cases of Listeria Infection Using Whole Genome Multilocus Sequence Typing
WEIDONG GU, Heather Carleton, LaTonia Richardson, Amanda Conrad, Steven Stroika, Zuzana Kucerova, Beau Bruce, Centers for Disease Control and Prevention (CDC), Atlanta, GA, USA

11:00 Gene Expression in Chicken to Incorporate into a Risk Assessment Framework
SHRADDHA KARANTH, Abani Pradhan, University of Maryland, College Park, MD, USA

11:15 Monte Carlo Simulation to Estimate the Behavior and Survival Probability of Bacterial Spores
HIROKI ABE, Kento Koyama, Shinya Doto, Shuso Kawamura, Shige Koseki, Hokkaido University, Sapporo, Japan

11:30 Thermal Inactivation of Salmonella enterica and Non-pathogenic Bacterial Surrogates in Wheat Flour by Baking in a Household Oven
JIIN JUNG, Kaitlyn E. Casulli, Donald W. Schaffner, Rutgers University, New Brunswick, NJ, USA

11:45 Dynamics of Salmonella enterica and Colloid Transport and Deposition on Polydimethylsiloxane Surfaces of Spinach and Lettuce: The Influence of Surface, Solution, and Particle Characteristics
ANNA JURUSIK, Taozhu Sun, Volha Lazouskaya, Yan Jin, University of Delaware, Newark, DE, USA

12:00 Evaluating Uncertainty and Variability Associated with Toxoplasma gondii Survival While Cooking and Freezing Fresh Cut Meats
SURABHI RANI, Jitender P. Dubey, Abani Pradhan, University of Maryland, College Park, MD, USA

12:15 Lunch Available in the Poster Session Area
WEDNESDAY AFTERNOON

JULY 24

Posters will be on display 8:30 a.m. – 3:00 p.m.
(See details beginning on page 81)

S64 Attributing Illnesses to Food Sources in the Face of Uncertainty
Ballroom A
Organizers: Michael Bazaco, Beau Bruce, Joanna Zablotsky Kufel
Convenors: Michael Bazaco, Joanna Zablotsky Kufel

1:30 Variability and Uncertainty are a Reality; But Decisions Need to be Discrete
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands

2:00 Reviewing Recent Literature for Campylobacter Source Attribution
MICHAEL BATZ, U.S. Food and Drug Administration, Silver Spring, MD, USA

2:30 Multi-ingredient Foods and the Point of Contamination: Uncertainties in Analyzing Foodborne Disease Outbreaks
BEAU BRUCE, Centers for Disease Control and Prevention, Atlanta, GA, USA and CARY CHEN PARKER, U.S. Food and Drug Administration, CFSAN, College Park, MD, USA

3:00 Attribution of Diseases to Multiple Transmission Routes Based on Structured Expert Judgment
ARIE HAVELAAR, University of Florida, Gainesville, FL, USA

3:30 Refreshments Available Outside Ballroom A

S65 Safety of Animal Source Foods in Low- and Middle-income Countries
Ballroom D
Organizers: Arie Havelaar, Jessie Vipham
Convenors: Jeffrey LeJeune, Jessie Vipham

1:30 Global Disease Burden of Pathogens in Animal Source Foods
ARIE HAVELAAR, University of Florida, Gainesville, FL, USA

2:00 Safe Food, Fair Food in South East Asia: Research and Policy
HUNG NGUYEN VIET, ILRI, Hanoi, Vietnam

2:30 Safety of Traditional Dairy Products in East Africa
KEBEDE AMENU, Addis Ababa University, Bishoftu, Ethiopia

3:00 Developing a Risk-based Framework for Food Safety in Low and Middle Income Countries
BARBARA KOWALCYK, The Ohio State University, Columbus, OH, USA

3:30 Refreshments Available Outside Ballroom A

S66 Let’s Hear from Next Generation Food Safety Scientists on Pathogen Behavior in Ready-to-Eat Foods
Ballroom E
Organizer: Alison Kretser
Convenors: Laurie Post, Edith Wilkin

1:30 Survival, Inactivation and Detection of Foodborne Viruses during Long Term Storage in Chocolate, Pistachios and Cornflakes
NEDA NASHERI, Health Canada, Ottawa, ON, Canada

2:00 Survival and Virulence of L. monocytogenes during Storage on Low-moisture Foods and Characterization of the Low-moisture Foods’ Microbiome
VIVIAN LY, University of Guelph, CRIFS, Guelph, ON, Canada

3:00 Non-traditional Decontamination Methods for Salmonella Reduction in Dried Fruits and Cereals
KAYLA MURRAY, University of Guelph, Guelph, ON, Canada

3:30 Refreshments Available Outside Ballroom A

S67 Antibiotic Reduction, Alternatives, and the Relationship to Food Pathogen Outbreaks
Room M100
Organizers: Jessica Meisinger, Rodrigo Santibanez
Convenors: Bassam A. Annous, Rodrigo Santibanez

1:30 How Antibiotic Alternatives Could Address Food Safety Concerns in Pre-harvest Stages
WILLIAM CHANEY, Diamond V, Cedar Rapids, IA, USA

2:00 Areas of Concern When Reducing and/or Eliminating the Use of Antibiotics
SCOTT GUSTIN, Tyson Foods, Springdale, AR, USA

2:30 Best Alternatives to Mitigate Issues That Antibiotic Reduction Could Heighten (Global Perspective)
LINNEA WILLIAM CHANEY, North Carolina State University, Raleigh, NC, USA

3:00 Food Safety Concerns Due to Antibiotic Reduction—How Have Countries That Have Pioneered in This Area Such as the United Kingdom Address These Issues?
RICHARD GRIFFITHS, UK Poultry Association, London, United Kingdom

3:30 Refreshments Available Outside Ballroom A

Check the Program Addendum for changes to the Program.
S68  Using Food Microbiomes  
*Room M101*  
**Organizers:** Douglas Marshall, Gregory Siragusa  
**Convenor:** Gregory Siragusa  
Advanced Molecular Analytics  
Applied Laboratory Methods  
Probiotic Analysis  

1:30  Tracking Antibiotic Resistance Genes in the Environment  
NUR HASAN, CosmosID, Rockville, MD, USA  
2:00  Understanding the Microbial Communities of Water  
MENU LEDDY, Orange County Water Board, Orange City, CA, USA  
2:30  Sewage Microbiomes as Bellwethers of Foodborne Diseases  
LAWRENCE GOODRIDGE, University of Guelph, Guelph, ON, Canada  
3:00  What’s in Your Tool Kit? Case Studies of Microbiomes for Food Microbiologists  
GREGORY SIRAGUSA, Eurofins Microbiology, New Berlin, WI, USA  
3:30  Refreshments Available Outside Ballroom A  

S69  Biofilm and Low-water Activity Foods  
*Room M104*  
**Organizers:** Vanessa Cranford, Dale Grinstead, Shira Kramer, Michele Sayles  
**Convenors:** Dale Grinstead, Shira Kramer  
Dairy Quality and Safety  
Food Hygiene and Sanitation  
Low Water Activity Foods  

1:30  What are Dry Biofilms, and How Do They Survive in Low Moisture or Dry Environments?  
DIANE WALKER, MSU Center for Biofilm Engineering, Bozeman, MT, USA  
2:00  Beware Biofilm! Are Dry Surface Biofilms in Healthcare Settings Applicable in the Food Industry?  
KATARZYNA LEDWOCH, Cardiff University, Cardiff, United Kingdom  
2:30  Biofilm in a Dry Environment Industry Case Study  
KARL THORSON, General Mills, Minneapolis, MN, USA  
3:00  Biofilm Formation and Decontamination of Pressure-stressed and Wild-type *Cronobacter sakazakii*, *Listeria monocytogenes* and Shiga Toxin-producing *Escherichia coli*  
ALIYAR FOULADKHAH, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA  
3:30  Refreshments Available Outside Ballroom A  

S70  Polypropylene Permaculture? Microplastics in Terrestrial Agricultural Systems  
*Room M107*  
**Organizers and Convenors:** Sarah Allard, Angela Marie C. Ferelli  
**Sponsored by the IAFP Foundation**  
Food Chemical Hazards and Food Allergy  
Fruit and Vegetable Safety and Quality  
Water Safety and Quality  

1:30  Microplastics in the Terrestrial Food Chain: The Case of Plastics in Chicken  
ESPERANZA HUERTA LWANGA, El Colegio de la Frontera Sur/Wageningen University and Research, Campeche, Mexico  
2:00  Potential of Microplastic Transport through Surface Water Irrigation and Biosolids Application  
SHANNON BARTELT-HUNT, University of Nebraska-Lincoln, Omaha, NE, USA  
2:30  Biodegradable Plastics in Soils: Solution or Pollution?  
MARIAN BRODHAGEN, Western Washington University, Bellingham, WA, USA  
3:00  Panel Discussion  
3:30  Refreshments Available Outside Ballroom A  

S71  Revolutionary Diagnostic Changes are Shifting the Epidemiological Landscape and Posing Challenges for Outbreak Identification  
*Room M108*  
**Organizers and Convenors:** Francisco Diez-Gonzalez, Shari Shea  
**Sponsored by University of Georgia, Center for Food Safety and the IAFP Foundation**  
Advanced Molecular Analytics  
Applied Laboratory Methods  
Epidemiology  

1:30  From Petri Dishes to Multiplex PCR Panels: The Modernization Age of the Clinical Laboratory  
MELISSA MILLER, University of North Carolina, Chapel Hill, NC, USA  
2:00  The Tidal Wave Affecting FoodNet Incidence and the Sinking Outbreak Detection Power  
HEATHER CARLETON, Centers for Disease Control and Prevention (CDC), Atlanta, GA, USA  
2:30  Closing the Transitional Gap: From Reflux Cultures to Emerging Metagenomics  
ROBYN ATKINSON-DUNN, State Laboratory, Salt Lake City, UT, USA  
3:00  Why Should the Food Industry Care about CIDT?  
MICHAEL ROBERSON, Publix Super Markets, Inc., Lakeland, FL, USA  
3:30  Refreshments Available Outside Ballroom A  

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Check the Program Addendum for changes to the Program.
S72 Distribution of Foodborne Pathogens – Geographical Insight from the Use of WGS  
*Room M112*  
**Organizer:** Peter Ben Embarek  
**Convenors:** Peter Ben Embarek, Eric Stevens  
Advanced Molecular Analytics  
International Food Protection Issues  
Whole Genome Sequencing  

1:30 Trials and Tribulations of Using WGS to Predict Pathogen Sources: Insights from WGS of *Listeria* and *Salmonella*  
Martín Wiedmann, Cornell University, Ithaca, NY, USA  

2:00 Location, Location, Location: Using WGS to Tease Apart Where a Foodborne Outbreak Occurred  
Heather Carleton, Centers for Disease Control and Prevention, Atlanta, GA, USA  

2:30 How the Genetic Information from Food Sample Isolates Have Informed the Source of an Outbreak  
Marc Allard, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA  

3:00 Panel Discussion  

3:30 Refreshments Available Outside Ballroom A  

T11 Technical Session 11 – Low-water Activity Foods, Food Toxicology and Food Defense  
*Room M105*  
**Convenors:** Pablo Alvarez, Nathan Mirdamadi  

T11-01 Desiccation in Oil Protects Bacteria in Thermal Processing  
2:00 Ren Yang, Yuchen Xie, Jie Xu, Juming Tang, Washington State University, Pullman, WA, USA  

T11-02 Key Factors Influencing Thermal Resistance of Bacterial Pathogens in Low-moisture Foods  
2:15 Ren Yang, Juming Tang, Washington State University, Pullman, WA, USA  

T11-03 Decontamination of *Salmonella enterica* in Low-moisture Foods by Cold Atmospheric Plasma  
2:00 Claudita Diaz, Carlos Somoza, Chris Timmons, Kedar Pai, Li Ma, National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, USA  

T11-04 Microbiological Profile, Incidence and Behavior of *Salmonella* in Seeds Commercialized in Mexican Markets  
2:15 Cristian Juárez-Arana, Montserrat Hernández-Iñurriaga, Universidad Autónoma de Querétaro, Querétaro, QA, Mexico  

T11-05 Survival of *Salmonella* and Surrogate Microorganisms in Whole Wheat and All Purpose Flour during Long-term Storage  
2:30 Jiin Jung, Matthew Igo, Donald W. Schaffner, Rutgers University, New Brunswick, NJ, USA  

T11-06 Studies of Aflatoxin Production by *Aspergillus flavus* and *Aspergillus parasiticus* on Ground Flax Seeds  
2:45 DAWIT Gizachew, Chih-Hsuan Chang, W.T. Evert Ting, Purdue University Northwest, Department of Chemistry and Physics, Hammond, IN, USA  

T11-07 Influence of the Germination Time on Aflatoxins Production during Malting of Wheat for Use in Craft Beer  
3:00 Danieli C. Schabo, Janeeyre F. Maciel, Beatriz T. Lamanaka, Marta H. Taniwaki, Donald W. Schaffner, Marciane Magnani, Federal Institute of Education, Science and Technology of Rondonia, Colorado do Oeste, Brazil  

T11-08 Rapid Identification of Lineage Types and Phylogenetic Relationships of *Clostridium botulinum* Strains by Whole Genome Sequencing  
Narjol González-Escalona, Nagarajan Thirunavukkarasu, Travis Wentz, Eric Brown, Thomas Hammack, Shashi Sharma, U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, College Park, MD, USA  

3:30 Refreshments Available Outside Ballroom A  

T12 Technical Session 12 – Molecular Analytics, Genomics and Microbiome and Epidemiology  
*Room M109*  
**Convenors:** Kerry Cooper, Kieran Jordan  

T12-01 Maternal Dietary Risk Factors for Neural Tube Defects in Guatemala  
1:30 Olga Torres, Jorge Matute, Ronald Riley, Vanessa Apodaca, Joyce Rudy, Barbara Kowalczyk, The Ohio State University, Columbus, OH, USA  

T12-02 A Summary of Foodborne Illness Outbreaks Investigated by FDA’s Coordinated Outbreak Response and Evaluation Network from January 2011 to December 2018  
1:45 Sheila Pack MerrIweather, Tami Craig Clody, Marianne Fatica, Kevin Garner, Cerise Hardy, Donald Obenhuber, Sabina Reilly, U.S. Food and Drug Administration, CFSAN, Coordinated Outbreak Response and Evaluation Network, College Park, MD, USA  

T12-03 When Unregulated Food Sales Go Wrong: *Clostridium perfringens* from a Church Fundraiser in North Carolina  
2:00 Veronica Bryant, Nicole Lee, Tammy Morrison, Benjamin Chapman, NC Dept. of Health & Human Services, Raleigh, NC, USA  

T12-04 Impact of Prospective Whole Genome Sequencing on Fate of Antibiotic Resistance in the Environment: From Frozen Raw Breaded Chicken Products in Canada  
2:15 Yuhui Xu, Tanis Kershaw, Rachel McCormick, Rima Kandar, Ashley Kerr, Lorelee Tschetter, Kelvin Chau, Rita Finley, Mythri Viswanathan, Public Health Agency of Canada, Outbreak Management Division, Centre for Foodborne, Environmental and Zoonotic Infectious Diseases, Ottawa, ON, Canada  

T12-05 Presence and Identification of *Campylobacter* spp. in East Tennessee Rivers  
2:30 Molly West, Jennifer Richards, Faith Critzer, The University of Tennessee, Knoxville, TN, USA  

T12-06 Fate of Antibiotic Resistance in the Environment: From Beef Cattle Production through Manure Storage and Land Application  
2:45 Ece Bult, Darshan Baral, Xu Li, Galen Erickson, Amy Schmidt, John Schmidt, Bing Wang, University of Nebraska-Lincoln, Lincoln, NE, USA  

T12-07 The Fecal Resistome of Dairy Cattle is Associated with Diet during Nursing and Weaning  
3:00 Xinxin Liu, David Mills, University of California Davis, Davis, CA, USA  

T12-08 Viability-linked Metagenomic Analysis of the Disposable Glove Microbiome  
3:15 Barry Michaels, Jenna Brooks, Katherine Sandoval, Stephen Ardagh, B. Michaels Group Inc., Palatka, FL, USA  

3:30 Refreshments Available Outside Ballroom A
4:00 p.m. – 4:45 p.m.  JOHN H. SILLIKER LECTURE
Ballroom A

From Outbreak Catastrophes to Clades of Concern, How Whole Genome Sequencing Can Change the Food Safety Landscape
ROBERT V. TAUXE, MD, MPH, Director, Division of Foodborne, Waterborne, and Environmental Disease Centers for Disease Control and Prevention Atlanta, Georgia, USA

EVENING OPTIONS

6:00 p.m. – 7:00 p.m.
IAFP Awards Banquet Reception, Ballroom Foyer

7:00 p.m. – 9:30 p.m.
IAFP Awards Banquet, Ballroom C

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Robert V. Tauxe, MD, MPH, is Director of the Division of Foodborne, Waterborne and Environmental Diseases for the National Center for Emerging and Zoonotic Infectious Diseases at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia.

Within the Division, Dr. Tauxe oversees the prevention and control of foodborne, waterborne and fungal infections, monitoring the frequency of these infections in the U.S.; investigates outbreaks; and develops strategies to reduce the disease, disability and deaths they cause.

Dr. Tauxe’s interests include bacterial enteric diseases; epidemiology and pathogenesis of infectious diseases; epidemiologic and clinical consequences of bacterial genetic exchange; antimicrobial use and resistance to antimicrobial agents; and teaching epidemiologic methods.

Dr. Tauxe graduated from Yale University and received his M.D. from Vanderbilt Medical School. He completed an internal medicine residency, trained at the CDC in the Epidemic Intelligence Service, and joined its staff in 1985. His faculty appointments include the School of Public Health and the Department of Biology at Emory University in Atlanta.

Dr. Tauxe has authored/co-authored 254 journal articles, letters and book chapters. He has been an IAFP Member since 2010.
JOHN H. SILLIKER ABSTRACT

From Outbreak Catastrophes to Clades of Concern, How Whole Genome Sequencing Can Change the Food Safety Landscape

Robert V. Tauxe, MD, MPH
Director, Division of Foodborne, Waterborne and Environmental Diseases
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention
Atlanta, Georgia, USA

Public health plays an important role in food safety. In the changing landscape of foods, tastes and processes, pathogens can find a niche, persist and emerge. Public health surveillance and investigations can identify problems and help target solutions to prevent foodborne illnesses. The tools public health uses for surveillance have also been evolving. Better microbiological methods improve definition of individual strains, separating “signal” from “noise.” These improvements mean finding more outbreaks, helping to drive immediate control efforts and longer term prevention policies.

The transition to whole genome sequencing is now underway in our public health surveillance network PulseNet. These new tools already provide better strain resolution and new ways of looking at food safety problems. Whole genome sequencing differs in several important ways from the standard PFGE subtyping PulseNet used for the past 23 years. Resolving differences down to single nucleotides provides a scale of similarity that can be as precise as needed. From sequence, other strain characteristics can be predicted including serotype, antibiotic-resistance profile, and virulence. This is changing the workflow in our public health labs, so more characteristics are known when a cluster of related infections is detected. Unlike the previous closed PFGE database of PulseNet, the sequence database is open access. As public health scientists and partners at FDA and USDA will add ~60,000 bacterial sequences a year, the database will be a rich source for future research.

We anticipate that as sequencing is applied to surveillance, investigation of the many smaller outbreaks detected should find more specific control points and guide prevention, including harborage in processing, reservoirs in production and new sources from other countries. As we find even smaller outbreaks, the line blurs between traditional outbreaks and the background of individual “sporadic” cases.

Beyond the traditional role of helping public health find and stop outbreaks, this new surveillance system can do much more to prevent illnesses.

• We can more easily track “clades of concern,” investigating them even in the absence of an outbreak. For example, we can track strains with greater confidence that caused major repeated outbreaks in the past, are still present at lower incidence now, and could yet cause future outbreaks. We can see other strains that emerge, increase over time, and may be investigated and controlled before they cause a large traditional outbreak, preventing more foodborne infections.
• Other countries are rapidly adopting similar surveillance strategies. Canada, the European Union, and Australia are in the vanguard with the U.S., and many more are starting soon. By comparing sequences across borders, all can better understand the spread of pathogens through travel and trade.
• As tools for interpreting sequences become more accessible, many in food science will find tracking specific strains useful to examine the ecology of bacterial pathogens in food production and processing. By comparing them with strains in the public database, internal control efforts can be focused.
• It will be possible to use more genetic markers for virulence, persistence, or adaptation to specific reservoirs and hosts. The potential to understand better the biology of these bacteria is growing rapidly.
• The next transition, building on sequencing experience, will someday bypass traditional culture and go directly to metagenomic analyses to construct genomes directly from specimens. We stand at a threshold in microbial food safety, with the opportunity to accelerate research, investigation and prevention. I hope to learn and relearn much more, together with all of you.
We are a full-service microbiology and mycology laboratory.

WE ARE EXPERTS IN:

Mold spoilage investigation and prevention.

Pathogen contamination investigation and prevention.

Culture identification services.

Pathogen lethal step validation and verification.

Air/environment monitoring problems.

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POSTER SESSIONS

Located in the Exhibit Hall

POSTER SESSION 1
MONDAY, JULY 22 • 8:30 a.m. – 6:15 p.m.

Communication Outreach and Education
Epidemiology
Food Defense
Food Law and Regulation
Food Processing Technologies
Food Safety Systems
General Microbiology
Low-water Activity Foods
Modeling and Risk Assessment
Molecular Analytics, Genomics and Microbiome
Retail and Food Service Safety

P1-01 through P1-123 – Authors present 10:00 a.m. – 11:30 a.m. and 5:15 p.m. – 6:15 p.m.
P1-124 through P1-281 – Authors present 2:15 p.m. – 3:45 p.m. and 5:15 p.m. – 6:15 p.m.

POSTER SESSION 2
TUESDAY, JULY 23 • 8:30 a.m. – 6:15 p.m.

Antimicrobials
Dairy
Pre-harvest Food Safety
Produce
Sanitation and Hygiene
Viruses and Parasites

P2-01 through P2-141 – Authors present 10:00 a.m. – 11:30 a.m. and 5:15 p.m. – 6:15 p.m.
P2-142 through P2-262 – Authors present 2:15 p.m. – 3:45 p.m. and 5:15 p.m. – 6:15 p.m.

POSTER SESSION 3
WEDNESDAY, JULY 24 • 8:30 a.m. – 3:30 p.m.

Beverages and Acid/Acidified Foods
Food Chemical Hazards and Food Allergens
Food Toxicology
Laboratory and Detection Methods
Meat, Poultry and Eggs
Microbial Food Spoilage
Packaging
Seafood
Water

P3-01 through P3-145 – Authors present 9:00 a.m. – 11:00 a.m.
P3-146 through P3-255 – Authors present 1:00 p.m. – 3:00 p.m.
MONDAY POSTERS
8:30 AM – 6:15 PM

P1 POSTER SESSION 1

Communication Outreach and Education
Epidemiology
Food Defense
Food Law and Regulation
Food Processing Technologies
Food Safety Systems
General Microbiology
Low-water Activity Foods
Modeling and Risk Assessment
Molecular Analytics, Genomics and Microbiome
Retail and Food Service Safety

Kentucky International Convention Center, Exhibit Hall

P1-01 Sterilization of Food Contact Surfaces Using Chlorine Disinfectants to Control Planktonic Cells and Biofilms of Salmonella spp. — KYUNG WON NA, Kye-Hwan Byun, Jin Hee Kim, Angela Ha, Ji-Young Lee, Sang-Do Ha, Advanced Food Safety Research Group, Brain Korea 21 Plus, Chung-Ang University, Ansan, South Korea

P1-02 Validation of the RapidChek Select Salmonella Test Method for the Detection of Salmonella species on 12” by 12” Stainless Steel Environmental Surfaces — Lois Fleck, MEREDITH SUTZKO, Romer Labs, Inc., Newark, DE, USA

P1-03 One Mississippi, Two Mississippi: Phylogenetic Analysis Supports That Salmonella enterica subsp. enterica Serovar Mississippi is Polyphyletic — RACHEL CHENG, Martin Wiedmann, Cornell University, Ithaca, NY, USA

P1-04 Heat Inactivation of Listeria monocytogenes on Pecans, Macadamia Nuts, and Sunflower Seeds — MEGHAN DEN BAKKER, Francisco Diaz-Gonzalez, Research Specialist, Griffin, GA, USA

P1-05 Culture Supernatants of Lactobacillus plantarum Reduces Sporulation, and Biofilm Formation, of Clostridium perfringens by Downregulating Transcription of Agr-like Quorum Sensing Genes — ALBERTO AGUAYO-ACOSTA, Eduardo Franco, Ángel Merino, Jorge Dávila-Aviña, Jorge Vidal, Norma Heredia, Santos García, Departamento de Microbiología e Inmunología, Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, San Nicolás, Mexico

P1-06 A Pilot Study Evaluating Oxford Nanopore Sequencing Technology for Salmonella Serotype Prediction — FENG XU, Silin Tang, Chongtao Ge, Hao Luo, Guangtao Zhang, Robert Baker, Martin Wiedmann, Xiangyu Deng, Mars Global Food Safety Center, Beijing, China

P1-07 Enterococcus faecium NRRL B-2354 as a Salmonella Surrogate in Validating Thermal Treatment of Dairy Powders with Different Lactose and Milk Protein Compositions — NURUL HAWA AHMAD, Elliot Ryser, Bradley Marks, Michigan State University, East Lansing, MI, USA

P1-08 Investigation of Relationship between Desiccation Tolerance of Salmonella spp. and Glass Transition Temperature — KYEONG-MIN LEE, Masaki Shoda, Kiyoashi Kawai, Shige Koseki, Hokkaido University, Sapporo, Japan

P1-09 Performance of an Improved Thermal Death Time Sandwich System for Determining the Thermal Death Kinetics of Salmonella enterica subsp. enterica in Hot Liquid — XIANYAO WEI, Long Chen, Soon Kiat Lau, Harshvardhan Thipparreddi, Jeyamkondan Subbiah, University of Nebraska-Lincoln, Lincoln, NE, USA

P1-10 Whole Genome Sequencing Analysis for Top Seven Shiga Toxin-producing Escherichia coli — JIAOJIE ZHENG, Xuwen Wieneke, Sarita Raengpradub Wheeler, Timothy Freier, Mérieux NutriSciences, Crete, IL, USA

P1-11 A Whole Genome Sequence Workflow for Characterization of Shiga Toxin-producing Escherichia coli Using Bioinformatics — REBECCA LINDSEY, Peyton Smith, Morgan Schroeder, Sung Im, Hannes Pouseele, Nancy Stockbine, Heather Carlton, Centers for Disease Control and Prevention, Atlanta, GA, USA

P1-12 The Relationship between Inactivation and Morphological Damage of Aspergillus flavus Treated by High Hydrostatic Pressure — Bang-Yuan Chen, Yun-Ting Hsiao, CHUNG-YI WANG, National Formosa University, Yunlin, Taiwan

P1-13 Influence of Asymptomatic Escherichia coli Inhabiting the Gut on Inflammation, Cell Proliferation, Oxidative Stress, and Angiogenesis in the Intestines — JEEYEON LEE, Wook Kim, Yoonjeong Yoo, Kyoung-Hee Choi, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P1-14 Sporulation of Planktonic and Sessile Clostridium perfringens in Response to Chemical and Oxidative Stress — WENSI HU, Ok Kyung Koo, Da Min Nam, Gyeongsang National University, Jinju, South Korea

P1-15 Use of Water Activity vs. Moisture Content in Response Surface Models for Predicting Microbial Lethality during Extrusion of Low-moisture Foods — TUSHAR VERMA, Jeyamkondan Subbiah, University of Nebraska-Lincoln, Lincoln, NE, USA

P1-16 Thermal Inactivation of Salmonella Enteritidis PT 30 and Enterococcus faecium in Egg Powders at Different Water Activities — MARCO ESTEBAN PEREZ REYES, Je Xu, Mei Jun Zhu, Juming Tang, Gustavo Víctor Barbosa Canovas, Washington State University, Pullman, WA, USA

P1-17 Assessing Efficacy of Vacuum-assisted, Low-temperature Steam Decontamination of Salmonella spp., Listeria monocytogenes, Shiga Toxin-producing Escherichia coli, and a Surrogate (Pedococcus acidilactici) on Raisins — JENNIFER ACUFF, Jian Wu, Claire M. Mark, Michael Hughes, Daniel Gallagher, Monica Ponder, Virginia Tech, Blacksburg, VA, USA

P1-18 Inactivation of Salmonella enterica and Enterococcus faecium in Cumin Seeds Using Gaseous Ethylene Oxide — LONG CHEN, Xinyao Wei, Soon Kiat Lau, Jeyamkondan Subbiah, University of Nebraska-Lincoln, Lincoln, NE, USA

P1-19 The Prevalence and Characteristics of Acid-resistant E. coli in Foodborne and Clinical Isolates in Korea — SOO HWAN SUH, Ji Hyon Kim, Soon Min Lau, Yoon Jong Heo, Suk Hyun Hong, Byung Hak Kang, Mi-Gyeong Kim, Hyo-Sun Kwak, Ministry of Food and Drug Safety, Cheongju, South Korea

P1-20 Comparison of Biofilm Components and Resistance of Biofilm-forming Staphylococcus aureus at Different Biofilm Formation Temperatures — SOOHWAN KIM, Woo-ju KIM, Dong-Hyun Kang, Seoul National University, Seoul, South Korea

P1-21 Withdrawn

P1-22 Ethylene Oxide Fumigation for Inactivation of Salmonella and Enterococcus faecium NRRL B-2354 in Black Pepper — XIANYAO WEI, Long Chen, Soon Kiat Lau, Harshvardhan Thipparreddi, Jeyamkondan Subbiah, University of Nebraska-Lincoln, Lincoln, NE, USA

P1-23 Behavior of Shiga Toxin-producing Escherichia coli, Salmonella spp., and Listeria monocytogenes on Dried Apricots Made with and without Sulfur Dioxide — Zhusheung Liu, Chao Liao, LUXIN WANG, University of California Davis, Davis, CA, USA
Inactivation of *Salmonella Typhimurium* during Red Chile Drying — WAYNE SALAZAR, Willis Fedio, New Mexico State University, Las Cruces, NM, USA

P1-25 A Non-Ionizing Radiation Method (UV-C) to Control *Aspergillus flavus* and *Aspergillus parasiticus* on Roasted Coffee Beans — KYE-HWAN BYUN, Md. Furkanur Rahaman Mizan, Shamsun Nahar, Hyun-Jung Joo, Kyung Won Na, Sang-Do Ha, Advanced Food Safety Research Group, Brain Korea 21 Plus, Chung-Ang University, Ansan, South Korea

P1-26 Inactivation of *Salmonella* and Surrogate Bacteria on Brazil Nuts and Pine Nuts Exposed to Commercial Propylene Oxide Processing Conditions — JIAN WU, Monica Ponder, Jennifer Acuff, Kim Waterman, Virginia Tech, Blacksburg, VA, USA

P1-27 Study of *Listeria monocytogenes* in Turkey Meat Samples from Independent, Urban Delis Provides a Critical Triangulation Point for a Multistate Outbreak Investigation — Sana Majhaj, JAMES ROGERS, Consumer Reports, Yonkers, NY, USA

P1-28 Comparison of Food Establishment Characteristics between Viral and Bacterial-caused Foodborne Outbreaks Reported to the National Environmental Assessment Reporting System — ADAM KRAMER, Centers for Disease Control and Prevention (CDC), Atlanta, GA, USA

P1-29 Determining the Perceived Cost of Implementing a Vomit Clean-up Plan — ANGELA FRASER, Kathy Boys, Clemson University, Clemson, SC, USA

P1-30 Perceived Benefits and Barriers to Implementation of a Traceability System in School Foodservice Establishments in North Carolina, South Carolina and Georgia — ANGELA FRASER, Kathryn Boys, Clemson University, Clemson, SC, USA

P1-31 Characterization of *Escherichia coli* O157:H7 Stationary Phase Acid Resistance and Survival in a Model Vegetable Fermentation System — Clara M. Jones, FRED BREIDT, U.S. Department of Agriculture–ARS, Raleigh, NC, USA

P1-32 A Buffer Capacity Model for Predicting pH Changes Due to Addition of Low Acid Ingredients in Acid Foods — Madelyn Longtin, Robert Price, Suzanne Johannesmeier, Summer Payton, Don Bitzer, FRED BREIDT, U.S. Department of Agriculture–ARS, Raleigh, NC, USA

P1-33 The Ability of Collection Solutions to Maintain the Viability of *Listeria monocytogenes* after Sampling Inoculated Stainless Steel Surfaces — GEOFF BRIGHT, Nerie Roa, N. Robert Ward, World Bioproducts, Bothall, WA, USA

P1-34 Survival and Growth of *Arcobacter* spp. in Human Consumption Water at Different Temperatures — MARIA LAURA ARIAS, Ana Laura Rodriguez, University of Costa Rica, San José, Costa Rica

P1-35 Evaluating the Impact of Cooling Techniques on *Escherichia coli* Populations in Taco Meat — Lindsay Beardall, Paola Paez, Randall Phebus, Tracee Watkins, SARA GRAGG, Kansas State University, Manhattan, KS, USA

P1-36 Strengthening Food Safety Provisions on Cruise Ships: The Vessel Sanitation Program Cooperative Revision Model — LUIS O. RODRIGUEZ, Centers for Disease Control and Prevention (CDC), Fort Lauderdale, FL, USA

P1-37 Predictive Modeling of the Effect of c-Polylysine Hydrochloride on Growth and Thermal Inactivation of *Listeria monocytogenes* in Fish Balls — ZHEN JIA, Changcheng Li, Ting Fang, Jinquan Chen, Fujian Agriculture and Forestry University, Fujian, China

P1-38 The Evaluation of Facilities and Hygiene Prerequisites within the National School Nutrition Programme in South African Schools — JUGEN M MANYATSA, Mangosuthu University of Technology, Durban, South Africa

P1-39 Implementation of Novel Technology and Its Implications for a Food Safety Culture in University Dining Halls — SAVANA EVERHART, Eric Moore, Lee-Ann Jaykus, Benjamin Chapman, North Carolina State University, Raleigh, NC, USA

P1-40 Characterization of *Salmonella enterica* Isolates from Selected United States Swine Feed Mills by Whole-genome Sequencing — GABRIELA MAGOSSI, Cassandra Jones, T G Nagaraja, Randall Phebus, Jason Woodworth, Elisabetta Lambertini, Valentina Trinetta, Kansas State University, Food Science Institute, Manhattan, KS, USA

**Epidemiology**

P1-41 Prevalence of *Salmonella* and *Escherichia coli* in Selected United States Swine Feed Mills and Assessment of Potential Contamination Risk Factors — GABRIELA MAGOSSI, Cassandra Jones, T G Nagaraja, Randall Phebus, Jason Woodworth, Elisabetta Lambertini, Valentina Trinetta, Kansas State University, Food Science Institute, Manhattan, KS, USA

P1-42 Knowledge Discovery from Epidemiological Data for Assisting Foodborne Outbreak Investigation — DANDAN TAO, Hao Feng, University of Illinois at Urbana-Champaign, Urbana, IL, USA

P1-43 Scoping Review of Chronic Sequelae Associated with Common Foodborne Illnesses — KRISTEN POGREBA-BROWN, Erika Austhof, Alexandra Armstrong, Kenzlie Schafer, Lorenzo Villa, Ama Owusu-Domney, Chad Porter, Mark Riddle, Michael Batz, Michael Bazaco, Maria Kuecken, University of Arizona, Tucson, AZ, USA

P1-44 *Salmonella* Food Poisoning Outbreaks and Climate Factors in South Korea — JONG-GYU KIM, Joong-Soon Kim, Jeong-Gyoo Kim, Keimyung University, Dalseo-Gu, Daegu, South Korea

P1-45 A Large Outbreak of *Salmonella* Food Poisoning Due to Egg White and Possible Preventive Measures — JONG-GYU KIM, Joong-Soon Kim, Jeong-Gyoo Kim, Keimyung University, Daegu, South Korea

P1-46 Occurrence of Cyclospora cayetanensis in Florida, 2014–2018 — LORDWIGE ATIS, Jamie DeMent, Maria Torres, Ynes Ortega, University of Georgia, Griffin, FL, USA

P1-47 A Systematic Review of Older Consumers’ Food Safety Knowledge and Practices at Home — ABHINAND THAI/VALAPILL, Ian Young, Charles Paco, Aparijay Jayapalan, Andrew Papadopoulos, University of Guelph, Guelph, ON, Canada


P1-49 1+1=3: Whole Genome Mlst and Whole Genome SNP, a Powerful Combination for Typing and Outbreak Surveillance of Cronobacter spp. — KYLE KINGSLEY, Dieter De Coninck, bioMérieux Data Analytics, Austin, TX, USA

P1-50 Whole Genome MTST as a Tool to Screen for Potential Outbreaks Quickly and Easily, Applied to a *Listeria monocytogenes* Outbreak in South Africa — KYLE KINGSLEY, Klaatien Vranckx, bioMérieux Data Analytics, Austin, TX, USA

P1-51 Biosecurity Evaluation and Compliance in Broiler Breeder Farm Units in Southwest Nigeria: Implications for Poultry Farm Workers’ Health and Chicken Meat Consumers — NURUDEEN AYOADE, T G Nagaraja, Randall Phebus, T G J, University of Guelph, Guelph, ON, Canada

P1-52 Prevalence and Serotyping of *Salmonella* spp. in Broiler Production Value Chains and the Environment in Nigeria: Implications for Public Health — NURUDEEN OLAKEKAN OLOSO, Ismail Adewuyi Adeyemo, Ismail Odetokun, Adebola Olayemi Odeseye, Chiawat Pulskirn, Henriette Van Heerden, Folorusun Oluodayo Fasina, University of Pretoria, South Africa

P1-53 Prevalence, Molecular Characteristics and Whole Genome Sequence Analysis of CTX-M Type ESBL-producing *Escherichia coli* Isolated from Raw Milk Cheese in Egypt — AHMED MADAM, Maria Hoffmann, Najarol Gonzalez-Escalona, Nasser Abbas, Hadeer Alaa El Din, Kuan Yao, Anna Allué Guardia, Mark Epping, University of Sadat City, Sadat City, Egypt

P1-54 *Megasphaera elsdenii* and Ruminally-protected Lysine Impact on *Escherichia coli* O157:H7 Prevalence in Finishing Cattle — JOSHUA AMA, James Drouillard, Mark Riddle, Michael Battz, Michael Bazaco, Maria Kuecken, University of Arizona, Tucson, AZ, USA

P1-55 Molecular Screening for ESBL Genes in *Escherichia coli* Strains Isolated from Livestock and Bivalve Molluscs in Sicily, Italy — MARIANTA VITALE, Maria Cristiana Pantaleo, Flavia Pruchi, Vincenzo Di Marco Lo Presti, Istituto Zooprofilattico Sperimentale di Sicilia, Palermo, Italy
Use of a Multidisciplinary Program Approach to Assist Food Entrepreneurs in Mitigating Business, Financial and Food Safety Risks — COURTNEY CRIST, Elizabeth Canales, Mississippi State University, Starkville, MS, USA

Development of a Hands-on and Demonstration-based Produce Food Safety Training Curriculum — CHAPIN, Michelle Danyulk, Sebastian Galindo-Gonzalez, Mary Beth Henry, Robert Hochmuth, Matthew Krug, Jose Perez, Danielle Treadwell, University of Florida CREC, Lake Alfred, FL, USA

Health Professionals as a Trusted Source for Food Safety Education: A Pilot Study in China and Peru — HAN CHEN, Valeria Martinez, Yaohua (Betty) Feng, Purdue University, West Lafayette, IN, USA

Effective Delivery of an Online Good Manufacturing Practices Course to Teach Regulatory Requirements and Food Safety Practices — ELIZABETH DEMMINGS, Robert Way, Elizabeth Bihn, Cornell University, Geneva, NY, USA

Investigating the Effect of Washing Raw Chicken on Cross-Contamination to Kitchen Surfaces and Ready-to-Eat Food Products — MARGARET KIRCHNER, Rebecca Goulter, Savana Everhart, Lydia Goodson, Lisa Shelley, Chris Bernstein, Ellen Shumaker, Sheryl Cates, Lee-Ann Jaykus, Benjamin Chapman, North Carolina State University, Raleigh, NC, USA

Understanding Poultry Washing and Post-washing Cleaning and Sanitizing Behaviors of Consumers — LYDIA GOODSON, Lisa Shelley, Rebecca Goulter, Savana Everhart, Chris Bernstein, Ellen Shumaker, Sheryl Cates, Lee-Ann Jaykus, Benjamin Chapman, North Carolina State University, Raleigh, NC, USA

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Needs Assessment Survey of Processors of Human Food in Tennessee for Meeting the Requirements of the Food Safety Modernization Act — ABIMBOLA ALLISON, Monica Henry, Aliyar Fouladkhah, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Sensitivity of Bacillus amyloliquefaciens, Geobacillus stearothermophilus, and Bacillus atrophaeus to Elevated Hydrostatic Pressure in the Presence of Mild Heat, Nisin and Lysozyme — ABIMBOLA ALLISON, Niamul Kabir, Sadyee Aras, Shahid Chowdhury, Aliyar Fouladkhah, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Updates on a Planning Activity Project for Development and Implementation of an Intercollegiate MPH Degree Tracked in Food Safety and Foodborne Diseases Epidemiology — ALIYAR FOULADKHAH, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Advances in Validation Studies for Pressure-based Pasteurization of Microbial Pathogens, Pressure-adapted Microorganisms, and Bacterial Spores — ALIYAR FOULADKHAH, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Pressure-based Pasteurization of Wild-type and Acid-adapted Escherichia coli O157 and Non-typhoidal Salmonella Serovars in Orange Juice — JAYASHAN ADHIKARI, Abimbola Allison, Monica Henry, Shahid Chowdhury, Aliyar Fouladkhah, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Photodynamic Treatment of Bacillus cereus Strains: Estimating the Inactivation Kinetic Parameters of Four Strains from Different Sources — Leonardo Prado-Silva, Leonardo Ramos, Verônica Ortiz Alvarenga, Gilberto U. L. Braga, ANDRESSEN DE SOUZA SANTANA, Department of Food Science, College of Food Engineering - University of Campinas, Campinas, Brazil

Processing of Dried Beef (Biltong) without a Heat Lethality Step to Achieve USDA-FSIS Validation (Five-Log Reduction) of Salmonella — CAITLIN KAROLENKO, Arjun Bhushal, Jacob Nelson, Peter Muriana, Oklahoma State University, Stillwater, OK, USA

Inactivation of Shiga Toxin-producing Escherichia coli, Salmonella enterica and Natural Microflora on Artificially Inoculated Wheat Grains by Atmospheric Cold Plasma — EMALIE THOMAS-POPO, Aubrey Mendonca, NN Misra, Alison Little, Zilfan Wan, Ria Moulti, Shannon Coleman, Kevin Keener, Iowa State University, Ames, IA, USA

Survival and Inactivation of Wild-type and Rifampicin-resistant Cronobacter sakazakii and Background Microflora of Infant Formula Using Mild Hydrostatic Pressure — Kailie Karim, Kayla Sampson, Monica Henry, NIAMUL KABIR, Aliyar Fouladkhah, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

Effects of Come-up and Come-down Times on Efficacy of Pressure-based Pasteurization of Escherichia coli O157:H7, Listeria monocytogenes, and Non-Typhoidal Salmonella Serovars — NIAMUL KABIR, Shahid Chowdhury, Aliyar Fouladkhah, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

How Virginia Extension Agents Engage with the Public about Food Processing Perceptions — NICOLE ARNOLD, Melissa Chase, Tiffany Drape, Lily Yang, Robert Willaims, Renee Boyer, Virginia Tech, Blacksburg, VA, USA

Exploring Engineered Water Nanostructures as an Antimicrobial Platform for Fresh Produce Decontamination — RUNZE HUANG, Nachiket Vaze, Philip Demokritou, Center for Nanotechnology and Nanotoxicology, Harvard T. H. Chan School of Public Health, Boston, MA, USA

Evaluation of Initial and Post-High Pressure Pasteurization Treatment Storage Temperatures as Critical Process Factors — SHIRIN ABD, Carrie Ferstl, Eurofins, Livermore, CA, USA

Adaptive Response in E. coli O157:H7 to Light and Acidic Base Antimicrobial Treatments — QINGYANG WANG, Robert Buchanan, Rohan Tikekar, University of Maryland, College Park, MD, USA

Ensuring Food Emergency Response Network Laboratory Preparedness for Detecting B. anthracis and Y. pestis from Food — SHANNON PICKENS, Matthew Kmet, Robert Newkirk, Vishnu Patel, Donald Burr, Ravinder Reddy, Tara Doran, Illinois Institute of Technology / IFSH, Bedford Park, IL, USA

Evaluation of Freeze-drying Conditions for Extension of Bacteriophage Shelf Life — DOMINIQUE PACITTO, Philip Pivarnik, Andre Senecal, U.S. Army NSRDEC, Natick, MA, USA

Food Safety Modernization Act Subpart M: An Evaluation of Pathogen Testing Requirements — EMILY KELLY, Maha Hajmear, Michael Needham, California Department of Public Health, Sacramento, CA, USA

North Central Region Pre- and Post-Grower Training Knowledge Assessment — BRIDGET PERRY, Arlene Enderton, Shannon Coleman, Angela Shaw, Iowa State University, Ames, IA, USA

Louisiana Wild-Caught Catfish under USDA Inspection — KATHERYN PARRAGA, Evelyn Watts, Louisiana State University, Baton Rouge, LA, USA

Mycoflora and Aflatoxin Levels in State Retail Pepper Marketed in Ogun State, Nigeria — ENIOLA OMI, Amina Badmos, Federal University of Agriculture Abeokuta, Abeokuta, Nigeria

Food Contact Polymer Safety Vulnerabilities and Use of Failure Mode Effects Criticality Analysis for Effective Worker and Food Safety and Chemo-Biotorremior Management — BARRY MICHAELS, Christopher Griffith, Stephen Ardagh, B. Michaels Group Inc., Palatka, FL, USA

Inactivation of Enterococcus faecium and Salmonella in Fried Potato-based Snacks — Abdullatif Nay, Rio Suhalim, Amy Parks, ERDOGAN CEYLAN, Mérieux NutriSciences, Crete, IL, USA

An Assessment of Food Safety Training Needs and Preferences among Ohio Food Processors of Various Sizes — NICHOLAS BARONE, Abigail Snyder, The Ohio State University, Columbus, OH, USA

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P1-122 Comparing Efficacy of Hydrocooling with Different Concentrations of Free Chlorine in Reducing Microbial Load from Whole Corn — JAY-SANKAR DE, Bruna Bertoldi, Christopher Pabst, Christopher Baker, Steven Sargent, Keith Schneider, University of Florida, Gainesville, FL, USA

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P1-131 Quantitative Assessment of Listeriosis Risk from Domestic Cheese Consumption in Korea — JU YOUNG LIM, Ha Yeon Jo, Kun-Ho Seo, Ki Sun Yoon, Kyung Hee University, Seoul, South Korea

P1-132 Quantitative Microbial Risk Assessment of Listeria monocytogenes in Smoked Salmon from Retail Market to Home — KI YOUNG SONG, Jeong Yeon Lee, Eun Woo Lee, Ki Sun Yoon, Kyung Hee University, Seoul, South Korea

P1-133 Model Development for Survival and Growth of Vibrio para-hae-molyticus in Tuna Sashimi as a Function of Temperature — Yun Jin Lee, Mi Jin Kwon, KI YOUNG SONG, Ki Sun Yoon, Kyung Hee University, Seoul, South Korea

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P1-136 Knowledge, Attitudes and Practices of Hygiene and Food Safety in Health Professionals in a University Hospital of Lisbon — Cecilia Gomes, António Fernandes, CARLOS BRANDÃO, Estoril Higher Institute for Tourism and Hotel Studies - Department of Food Sciences, Estoril, Portugal

P1-137 Evaluation of Food Defense in Hospitality — Marcos Jerónimo, Cátia Morgado, António Fernandes, CARLOS BRANDÃO, Estoril Higher Institute for Tourism and Hotel Studies - Department of Food Sciences, Estoril, Portugal

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P1-141 Quantitative Microbial Risk Assessment of Vibrio parahaemolyticus from the Consumption of Ready-to-Eat Foods Containing Seafood Available in Retail Markets — JIN HWA PARK, Min Suk Rhee, Yohan Yoon, Hyun Jung Kim, Korea Food Research Institute, Wanju, South Korea

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P1-144 Monetizing the Impact of Food Safety Recalls on the Low-moisture Food Industry — CARLY GOMEZ, Bradley Marks, Michigan State University, East Lansing, MI, USA

P1-145 Creating a Risk Model for Nosocomial Listeriosis in Cancer Patients Who Consume Ready-to-Eat Salad — CARLY GOMEZ, Bradley Marks, Sanja Ilic, Holly Paden, Elliot Ryser, Jade Mitchell, Michigan State University, East Lansing, MI, USA

P1-146 Heterologous Stress Adaptation to Gentamicin in Four Strains of Listeria monocytogenes after Sublethal Adaptive Response to Quaternary Ammonium Compound (QAC) — DIVYA KODE, Ramakrishna Nannapaneni, Mohit Bansal, Wen-Hsing Cheng, Chander Shekhar Sharma, Aaron Kiess, Mississippi State University, Mississippi State, MS, USA

P1-147 Distribution of Toxin Genes and Antimicrobial Resistance Genes among Staphylococci Isolated from Clinical and Food Samples in Algeria — Rachid Achek, Leila Bouayad, Radia Bouhamed, Zineddine Ganlekin, TAHIA MOSSADAK, HAMDI, Laboratory of Food Hygiene and Quality Insurance System (HASAQ), High National Veterinary School, Algiers, Algeria

P1-148 Homologous Stress Adaptation in Four Strains of Listeria monocytogenes to Quaternary Ammonium Compounds after Sublethal Exposure — DIVYA KODE, Ramakrishna Nannapaneni, Mohit Bansal, Wen-Hsing Cheng, Chander Shekhar Sharma, Aaron Kiess, Mississippi State University, Mississippi State, MS, USA

P1-149 Application of Metagenomics to Define Microbiomes and Detect Listeria monocytogenes in Smoked Fish and Ice Cream Facilities — BRANDON KOCUREK, Karen Jarvis, Christopher Grim, Paul Morin, Laura Howard, Andrea Ottesen, Ruth Timme, Padmini Ramachandran, Susan Leonard, Hugh Rand, Daniel Tadesse, Errol Steen, James Pettingill, David Lacher, Mark Mammel, U.S. Food and Drug Administration – CFSAN, Laurel, MD, USA
P1-150 Development of Kinetic Models with Salmonella isolates from Poultry to Describe the Kinetic Behavior in Chicken and Duck Tenderloins — HYEMIN OH, Heeyaounge Lee, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P1-151 Evaluation of Kinetic Responses of Pathogenic Escherichia coli in Smoked Duck under Dynamic Conditions — EUNYOUNG PARK, Joo-Sung Kim, Doyeon Kim, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

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P1-156 Development of a Dynamic Model to Describe the Fate of Escherichia coli in Diced Cucumbers under Dynamic Temperatures — JIMYEONG HA, Joo-Sung Kim, Doyeon Kim, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

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P1-158 A Risk Assessment Study of Staphylococcus aureus and Bacillus cereus in Beans Based on the Potential for Product Accumulation during Food Processing — AMANDA SISNEY, Christopher Showalter, Conagra Brands, Omaha, NE, USA

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P1-160 Determining Food Safety Modernization Act Compliance in Produce Packinghouses in the Dominican Republic — LAUREL DUNN, Lynette Orellana, Neil James, Ernest Jones, Quintin Gray, Rachel Fernandez, Johnhessa Jackson, Gregory McNealy, Halimah Wynn, Jorge Del’Angel, Harriet Paul, University of Georgia, Athens, GA, USA

P1-161 Growth of Clostridium perfringens in Cooked Chicken during Cooling: One-step Dynamic Inverse Analysis, Sensitivity Analysis, and Markov Chain Monte Carlo Simulation — LIHAN HUANG, Eastern Regional Research Center, Agricultural Research Service, USDA, Wyndmoor, PA, USA

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P1-173 Occurrence and Profiles of Pthalates in Processed Food from Taiwan and Their Implications for Human Exposure — CHING-CHANG LEE, Wei-Hsiang Chang, Guan-Liang Wu, Department of Environmental and Occupational Health, National Cheng Kung University, Tainan, Taiwan

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P1-176 A Comparative Study of Heavy Metal Exposure Risk from the Consumption of Some Common Varieties of Cultured and Captured Fishes in Bangladesh — MOHAMMAD RUZLAN HABIB, Shahjalal University of Science and Technology, Dhaka, Bangladesh

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P1-180 The GenomeTrakr Database Global WGS Network for Foodborne Pathogen Traceback — MARC ALLARD, Ruth Timme, Maria Sanchez, Eric Stevens, Maria Hoffmann, Kuan Yang, George Kastanis, Daniela Miller, Tim Muruvanda, Sara Lomonaco, Errol Strain, Justin Payne, Arthur Pightling, Hugh Rand, James Pettengil, Yuri Luo, Narjol Gonzales-Escalaona, David Melka, Phillip Curry, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA

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P1-209 Comparative Evaluation of Salmonella Recovery from Cinnamon Bark and Oregano Leaves Using Either Aluminosilicate Molecular Sieves in Pre-Enrichment Media or the FDA BAM Method — Uma Babu, Lisa Harrison, Isma Patel, Mark Mammel, Elmer Bigley III, KANNAN BALAN, U.S. Food and Drug Administration — CFSA, Laurel, MD, USA

P1-210 Isothermal Inactivation of Enterococcus faecium NRRL B-2354 in Individual Ingredients and Formulated Cookie Dough — XIYANG LIU, Quincy Sweehr, Elizabeth Grasso-Kelley, Nathan Anderson, IFSH, Bedford Park, IL, USA

P1-211 Long-term Survival of Listeria monocytogenes on Nuts and Seeds as Affected by Relative Humidity Storage Conditions — JOELLE K. SALAZAR, Vidya Natarajan, Diana Stewart, Quincy Sweehr, Tanvi Mhetras, Lauren J. Gonsalves, Mary Lou Tortorello, U.S. Food and Drug Administration, Bedford Park, IL, USA
P1-212 Efficacy of a Patented Peracetic Acid-based Sanitizing Solution Against a Shiga Toxin-producing *Escherichia coli* Surrogate during Wheat Tempering — Fatemeh Rahmany, Alma Fernanda Sanchez-Maldonado, REBECCA KAREN HYLTON, Pooneh Peyvandi, Amir Hamidi, Fadi Dagher, Agri-Neo Inc., Toronto, ON, Canada

P1-213 Patented Peracetic Acid-based Sanitizing Solution Achieves >4 log CFU/g Reduction in *Salmonella* and Its Surrogate, *Enterococcus faecium* NRRRL B-2354, on Alfalfa Seeds While Maintaining High Germination Rates — REBECCA KAREN HYLTON, Alma Fernanda Sanchez-Maldonado, Pooneh Peyvandi, Fatemeh Rahmany, Fadi Dagher, Amir Hamidi, Agri-Neo Inc., Toronto, ON, Canada

P1-214 Performance Evaluation of a Fluorescence Resonance Energy Transfer-based Real-time PCR Assay for the Detection of Pathogens in 25 g and 375 g Walnut Samples — VIKRANT DUTTA, Thomas Jones, Kyla Ihde, bioMérieux Inc., Hazelwood, MO, USA

P1-215 Evaluating Steam Treatment as a Potential Intervention for Microbial Risk Reduction of In-Shell Pecans — KARUNA KHAREL, Achyut Adhikari, Louisiana State University AgCenter, Baton Rouge, LA, USA

P1-216 U.S. Food and Drug Administration’s Total Diet Study (TDS): Process and Challenges Faced in Modernizing the Food List — STEPHANIE KÉNÉZ, Dana Hoffman-Pennesi, Alexandra Gavelek, Judith Spungen, Edward Nyambok, Terry Counsell, Mark Wirtz, U.S. Food and Drug Administration, College Park, MD, USA

P1-217 Rapid Bioluminescence Detection of Bacteria in Cannabis-infused Foods Using Microsnap — Paul Meghan, Delia Calderon, Brandon Katz, RICHARD TODD, Jack Garrett, Hygiena, Guildford, United Kingdom

P1-218 Is It Safe to Use Drinking Water Treatment Residues from Harmful Algal Bloom-affected Waters for Land Application? — YUEHAI AI, Seungjun Lee, Jiyoung Lee, The Ohio State University, Columbus, OH, USA

P1-219 Quantification of Aflatoxin B1 in *Aspergillus parasiticus* and *A. flavus* in Peanuts Treated with Plant-based Antimicrobial Compounds — YAWA ZOLOME, Shideh Khorsandi, Premila Achar, Huggins Msimanga, Kennesaw State University, Kennesaw, GA, USA

P1-220 Validation of an ELISA-based Assay for Specific Detection and Quantification of Pecan and Macadamia Protein in Food Matrices, Clean-in-Place Rinse Water and Environmental Samples — Gabriela Lopez Velasco, Mara Celt, Patrick Mach, Sarah Sykora, RAJ RAJAGOPAL, Burcu Yordem, 3M Food Safety, St. Paul, MN, USA

P1-221 Stability Study of Milk, Egg and Peanut Protein in Swabs Utilized for Environmental Sampling Including Stability during Shipping and Storage after Sample Collection — Gabriela Lopez Velasco, Mara Celt, Patrick Mach, Sarah Sykora, Burcu Yordem, RAJ RAJAGOPAL, 3M Food Safety, St. Paul, MN, USA

P1-222 Enzymatic Treatments to Reduce the Allergenicity of Almond Milk — JINGJING CHEN, Qianqian Zhu, Bo Jiang, Jiangnan University, Wuxi, China

P1-223 Western Blot Analysis of Fermented-Hydrolyzed Foods Utilizing Gluten-specific Antibodies Employed in a Novel Multiplex-Competitive ELISA — RAJKISHORE PANDA, Eric Garber, U.S. Food and Drug Administration, College Park, MD, USA

P1-224 Growth Temperature and Salt Affect Thermal Resistance of Potential Hepatitis A Virus Surrogates *Staphylococcus carnosus* CS 299 and CS 300 — MARY PATWARDHAN, Doris D’Souza, University of Tennessee, Knoxville, TN, USA

P1-225 Antibiotic Resistance Profiles and Detection of Enterotoxigen *E. coli* in Staphylococcus *epidermidis* Isolates from Pork Production — HAENG HO LEE, Gi-Yong Lee, Hong Sik Eom, Soo-Jin Yang, Chung-Ang University, Anseong, South Korea

P1-226 Wide Host Range Phages of the Genus *Felix* *O*viruses are Potential Candidates for *Salmonella* Infants Biocontrol — Dacil Rivera, Lauren Hudson, Thomas G. Denes, ANDREA MORENO-SWITT, Universidad Andres Bello, Santiago, Chile

P1-227 Determinants of Specificity of the *Escherichia coli* O157:H7 Bacteriophage Phv1010 — MICHAEL OATS, Luca Rotundo, Claudia Cornel, Carla Rosenfeld, Trevor Lim, Andrew Kanach, George Paoli, Andrew Gehring, Arun Bhumia, Bruce Applegate, Purdue University, West Lafayette, IN, USA

**General Microbiology**

P1-228 Population Dynamics of *Listeria monocytogenes* during Rehydration of Dehydrated Potato — VIDYA NATARAJAN, Joelle K. Salazar, Girvin Liggans, Mary Lou Tortorello, U.S. Food and Drug Administration, Bedford Park, IL, USA

P1-229 Glove-mediated Transfer of *Listeria monocytogenes* on Fresh-cut Cantaloupes — YAN QI, Yingshu He, Wei Zhang, Xiangyu Deng, University of Georgia, Center for Food Safety, Griffin, GA, USA

P1-230 Growth of *E. coli* and *Salmonella* spp. at Low pH and Temperature Levels — PAMELA MCKELVEY, Andrew Scollon, Gina Masanz, Daniel Belina, Land O’Lakes, Inc., St. Paul, MN, USA

P1-231 Photocatalytically Enhanced Inactivation of Internalized *Salmonella* Typhimurium and *E. coli* in Fresh Lettuce Using UV with TiO2 — SEUNGJUN LEE, Chulkyoon Mok, Jiyong Lee, The Ohio State University, Columbus, OH, USA

P1-232 Isolation and Molecular Characterization of Shiga Toxin-producing *Escherichia coli* from Food and Clinical Samples — ASHRAF KHAN, Khulud Alotaibi, Division of Microbiology, Regulatory Compliance and Risk Management National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, USA

P1-233 Thermal Inactivation of Extraintestinal Pathogenic *Escherichia coli* Suspended in Ground Chicken Meat and the Effect of Virulence and Antibiotic Resistance Factors — AIXIA XU, Shiwushu Sheen, James Johnson, Christopher Sommers, University of Maryland, Department of Nutrition and Food Science, College Park, MD, USA

P1-234 Inactivation of *Klebsiella pneumoniae* in Ground Chicken Meat by High-pressure Processing, Gamma Radiation, and Thermal Processing — AIXIA XU, Shiwushu Sheen, Christopher Sommers, University of Maryland, Department of Nutrition and Food Science, College Park, MD, USA

P1-235 Characterizing the Microbiome of Recycled Bedding, the Environmental Persistence of *Salmonella enterica*, and the Implications for Preharvest Bovine Health — HANNAH PILCH, Charles Czuprynski, Garret Suen, Nicole Aulik, Donald Sackett, University of Wisconsin-Madison, Department of Pathobiological Sciences, Madison, WI, USA

P1-236 Antibiotic Resistance of Lactic Acid Bacteria Isolated from Diary Products in Tianjin, China — KAI DI WANG, Hongwei Zhang, Jingsong Feng, Shenniao Li, Xiaonan Lu, Food, Nutrition and Health Program; Faculty of Land and Food Systems, The University of British Columbia, Vancouver, BC, Canada

P1-237 *Salmonella* Detection from Large Milk Powder Samples Using the Thermo Scientific SureTect *Salmonella* Species PCR Assay — Charlotte Cooper, Katharine Evans, David Crabtree, Annette Hughes, Dean Leak, Agata Dzgiezel, AMANDA MANOLIS, Thermo Fisher Scientific, Austin, TX, USA

P1-238 Food Authenticity Testing with Next-Generation Sequencing — Tiina Karla, Nicole Prentice, AMANDA MANOLIS, Thermo Fisher Scientific, Austin, TX, USA

P1-239 Isolation and Genome Analysis of Lactococcus lactis Strains Characterized for the Potential Utilization of Allulose — Chang Joo Lee, HYUN-JOONG KIM, Kyung Hee University, Yongin, South Korea

P1-240 Modulation of Gut Intestinal Microbiota during Prevention of Salmonellosis with *Lactobacillus* in BALB/cJ Mice — MENGFEI PENG, Jianghong Meng, Debabrata Biswas, University of Maryland, College Park, MD, USA

P1-241 Real-time PCR Assay for the Simultaneous Detection of *Lactobacillus* Species by Comparative Genome Analysis — EISEUL KIM, Hae-Yeong Kim, Kyung Hee University, Yongin, South Korea

P1-242 Comparison of Gastrointestinal Tolerance and Antimicrobial Effects of Probiotic Bacteria Isolated from Dietary Supplements — PIN-WEN WANG, W.T. Evert Ting, Purdue University Northwest, Hammond, IN, USA

P1-243 Protective Effects of β-Glucan Extracted from Spent Brewer’s Yeast during Freeze-drying and Storage of Probiotic Lactobacilli — Jéssica da Silva Guedes, Tatiana Colombo Pimentel, Evandro L. de Souza, Estefânia Fernandes Garcia, MARCIANE MAGNANI, Federal University of Paraíba, João Pessoa, Brazil
P1-276  Effects of Food Safety Training on Achieving Food Safety Knowledge and Practices in Restaurants in the Emirates of Dubai — ABDUL AZEEZ MULLATTU EBRAIM, M R S International Food Consultants, Dubai, United Arab Emirates

P1-277  Occurrence of Campylobacter jejuni and Campylobacter coli in Chilled Poultry Carcasses in Algeria — RADIA BOUHAMED, Leila Bouayad, Rachid Achek, Cemil Kurekci, Taha Mossadak Hamdi, Laboratory of Food Hygiene and Quality Insurance System (HASAQ), High National Veterinary School, Algiers, Algeria

P1-278  Transcriptomic Analysis of Botulinum Neurotoxin Expression in Clostridium botulinum Strain 62A in Culture Media Using RNA Sequencing — KRISTIN M. SCHILL, Yan Qi, Shaoting Li, Xiangyu Deng, Yun Wang, N. Rukma Reddy, Travis Morrissey, U.S. Food and Drug Administration, Bedford Park, IL, USA

P1-279  Fate of Listeria monocytogenes in Frozen Strawberries — Melanie Butler, Thomas Hammack, Dumitru Macarisin, Jianghong Meng, Yi CHEN, U.S. Food and Drug Administration — Center for Food Safety and Applied Nutrition, College Park, MD, USA

P1-280  Effect of Growth Conditions on Desiccation Tolerance in Salmonella enterica, Escherichia coli, and Listeria monocytogenes — RACHEL STREUFERT, Susanne Keller, Nathan Anderson, Elizabeth Grasso-Kelley, U.S. Food and Drug Administration, Bedford Park, IL, USA

P1-281  Applications of DNA Sequencing in Food Microbiology: Looking Beyond Outbreak Investigations — MEGAN S. BROWN, J. David Legan, Eurofins Microbiology Laboratories, Madison, WI, USA
TUESDAY POSTERS
8:30 AM – 6:15 PM

P2 POSTER SESSION 2

Antimicrobials
Dairy
Pre-harvest Food Safety
Produce
Sanitation and Hygiene
Viruses and Parasites

Kentucky International Convention Center, Exhibit Hall

P2-01 through P2-141 – Authors present 10:00 a.m.– 11:30 a.m. and 5:15 p.m. – 6:15 p.m.
P2-142 through P2-262 – Authors present 2:15 p.m. – 3:45 p.m. and 5:15 p.m. – 6:15 p.m.

Antimicrobials

P2-01 Polyphenolic Compounds Kill Escherichia coli or Affect Growth, Swarming Motility and Virulence Gene Expression at Sublethal Concentrations — Jorge Dávila-Aviña, Carolina Gil, Santos García, NORMA HEREDIA, Departamento de Microbiología e Immunología, Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, San Nicolás, Mexico

P2-02 Differential Antimicrobial Activity of Thymol and Oregano Oil against Listeria monocytogenes Strains — Maria Grazia Cusimano, Domenico Schillaci, Maria La Giglia, Vincenzo Arizzia, Ilenia Calabrò, Vincenzo Di Marco Lo Presti, MARIA VITALE, Istituto Zooprofittico Sperimentale di Sicilia, Palermo, Italy

P2-03 Antimicrobial Activity of Rosemary officinalis Leaves against Foodborne Pathogens and Application as a Natural Disinfectant on Food Contact Surfaces — KYUNG MIN PARK, Minseon Koo, Tae Ho Choi, University of Science and Technology, Daejoen, South Korea

P2-04 Dried Spices and Their Role in Final Product Quality – A Case Study — JACK MOURADIAN, Shelly Gebert, Matt Hundt, Third Wave Bioactivities, Wauwatosa, WI, USA

P2-05 Identification of Nonpathogenic Surrogate Bacteria Applicable for Industrial-Scale Gaseous Chlorine Dioxide Treatment on Baby Carrots — JIEWEN GUAN, Junming Tang, Alison Lacombe, David F. Bridges, Bhargavi Rane, Shyam Sablani, Vivian Chi-Hua Wu, Western Regional Research Center, Agricultural Research Service, USDA, Albany, CA, USA

P2-06 Phenolic Extracts of Chokeberry Pomace Have Inhibitory Effects on E. coli 0157:H7 But Not on Probiotic Bacteria and Normal Bacterial Flora — ARPIDA ADITYA, Zabdiel Finn Martínez, Mengfei Peng, Debabrata Biswas, University of Maryland, College Park, MD, USA

P2-07 Assessing Bacterial Viability by Monitoring Adenine Nucleotides and Adenylate Charge in Response to Biocide Treatment — SAID GOUELI, Subhanjan Mondal, Kevin Hsiao, Promega Corp., Madison, WI, USA

P2-08 Fermentation Optimization to Maximize Production of Scarcely Produced Paenibacillus by Paenibacillus polymyxa OSY-EC — EMILY CAMPBELL, Ren Pengkang, Ahmed Yousif, The Ohio State University, Columbus, OH, USA

P2-09 Synergistic Antimicrobial Effects of Metal Oxide Nanoparticles and Ajene against Campylobacter jejuni — SHENMIAO LI, Jinsong Feng, Xiaojian Lu, Food, Nutrition and Health Program, Faculty of Land and Food Systems, The University of British Columbia, Vancouver, BC, Canada

P2-10 Evaluation of Bacterial Effects of Phenylacetic Acid on Shiga Toxin-producing E. coli in Beef Products — Ruisheng Zheng, TONG ZHAO, Koushik Adhikari, Yen-Con Hung, University of Georgia, Griffin, GA, USA

P2-11 Synergistic Antimicrobial Activities of Gaseous Essential Oils against Bacillus cereus Vegetative Cells and Spores on a Laboratory Medium — YURIM CHO, Jeongmin Lee, Jee-Hoon Ryu, Department of Biotechnology, College of Life Sciences and Biotechnology, Korea University, Seoul, South Korea

P2-12 Withdrawn

P2-13 Assessing the Efficacy of Sodium Bisulfate in Tempering Water to Control Shiga Toxin-producing Escherichia coli in Wheat — AISWARiya DELiEPiCHAN, Janak Dhakal, Charles Aldrich, Kansas State University, Manhattan, KS, USA

P2-14 Screening Cultures for Nitrate Reduction and Their Use in the Fermentation of Vegetable Extracts to Generate ‘Natural Nitrile’, a Clean Label Ingredient — ARJUN BHUSAL, Peter Muriana, Oklahoma State University, Stillwater, OK, USA

P2-15 Listeria monocytogenes Control in Cold Smoked Salmon Using Natural and Sodium-free Preservatives — EELCO HEINTZ, Paw Dalgaard, Henkjan van Lent, Michael Eliesan, Leonardo Vega, Niacet, Tiel, The Netherlands

P2-16 Antimicrobial Activity of Different Cabbages Based on In Vitro and In Silico Methods — Ramachandran Chelliaiah, Kandasamy Saravanakumar, MOMNA RUBAB, Deog-Hwan Oh, Kangwon National University, Chuncheon, South Korea

P2-17 Physiological Damages Caused to Cells of Salmonella Enteritidis PT4 by Continuous Exposure to Mint (Mentha piperita L.) Essential Oil — Adma Nadja Ferreira de Melo, Geany Targino de Souza Pedrosa, Erika Tayse da Cruz Almeida, Evandro L. de Souza, Donald W. Schaffner, MARCIANE MAGNANI, Federal University of Paraíba, João Pessoa, Brazil

P2-18 Cell Damage Caused by Mandarin Essential Oil to Autochthonous Spoilage Lactic Acid Bacteria in Orange Juice — Geany Targino, Adma Snaza Pedrosa, Adma Nadja Ferreira de Melo, Erika Tayse da Cruz Almeida, Evandro L. de Souza, Rafael Pagan, MARCIANE MAGNANI, Federal University of Paraíba, João Pessoa, Brazil

P2-19 Antimicrobial Resistance of Salmonella Recovered from Environmental Samples on Three North Carolina Tomato Farms — ROBIN GRANT MOORE, Diane Ducharme, Otto Simmonds, Kevin Keelly, Burris, Lee-An Jaykus, Jie Zheng, Eric Brown, Rebecca L. Bell, North Carolina State University, Raleigh, NC, USA

P2-20 Assessment of Antibiotic Usage and Oxytetracycline Residues in Eggs from Commercial Poultry Farms in Ilorin, Nigeria — IBRAHEEM GHALI-MOHAMMED, Ismail Odetokun, Shukurat Omotayo Ghali, Ismail Adewuyi Adeyemo, Isaac Olufemi Olatayo, University of Ilorin, Department of Veterinary Public Health and Preventive Medicine, Ilorin, Nigeria

P2-21 Effect of Nutrient Enrichment on Antimicrobial-resistance Dynamics of Native Soil Bacteria — TERRANCE ARTHUR, Amit Vikram, Eric Miller, Getahun Agga, John Schmidt, U.S. Department of Agriculture – ARS, U.S. Meat Animal Research Center, Clay Center, NE, USA

P2-22 Influence of pH on the Effectiveness of a Natural Antimicrobial to Control Listeria monocytogenes on Ready-to-Eat, Clean Label, Smoked Pork Sausage during Extended Storage at 4° and 10°C — JOHN LUCHANSKY, Stephen Campano, Paul Hargarten, Trevor Schueler, Corey Janquart, Bradley Shoyer, Laura Shane, Elizabeth Henry, Manuela Osorio, Anna Porto-Fett, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

P2-23 Investigation into the Detection of Semicarbazide, a Nitrofurazone Indicator, in Chicken — RANDOLPH DUVERNA, Rita Kishore, John Johnston, John Jarosh, Catalina Yee, U.S. Department of Agriculture – FSIS, Washington, D.C., USA

P2-24 Survival and Inactivation of Listeria monocytogenes from Common Specialty Crop Food Contact and Non-Food Contact Surfaces Using Different Antimicrobials — Trevor Suslow, ADRIAN SBODIO, Janneth Pinzon, David Hill, Mariya Skots, University of California-Davis, Davis, CA, USA

P2-25 Susceptibility of Listeria monocytogenes Isolates from Food, Environmental, and Clinical Origin in South Africa against a Commercial Bacteriophage — ROCHELLE KEET, Diane Rip, Stellenbosch University, Stellenbosch, South Africa

P2-26 Antimicrobial Effect of Citral-based Emulsions against Escherichia coli (MTCC 443) on Fresh-cut Papaya Surface — Irshaa Syed, Preetam Sarkar, PRATIK BANERJEE, University of Memphis, Memphis, TN, USA
P2-27 The Effect of Cranberry Pomace Ethanol Extract on the Growth of Meat Starter Cultures, Escherichia coli O157:H7, Salmonella Enteritidis, and Listeria monocytogenes — TSUN YIN ALEX LAU, Shai Barbut, S. Balamurugan, University of Guelph, Guelph, ON, Canada

P2-28 Evaluation of Maqui (Aristotelia chilensis) extract and Copper against Biofilm Production in Listeria monocytogenes — Ana Maria Queiselle-Villalobos, Patricia Madrid, Patricia Gallardo, Leonardo Vasquez, Magaly Toro, ANGELICA REYES-JARA, INTA, Universidad de Chile, Santiago, Chile

P2-29 Antimicrobial and Physical Properties of Chitosan/Acetylated Starch Edible Films Containing Cinnamon and Clove Essential Oils — KAI WEN CHOO, Wei Wang, Azlin Mustapha, University of Missouri, Columbia, MO, USA

P2-30 Evaluation of Two Antimicrobial Treatments, Chlorine and Peroxyacetic Acid, to Effectively Control Listeria monocytogenes, Salmonella spp., and Escherichia coli O157:H7 on Celery Stalks — PETER NIELSEN, Gary Wamble, Alliance Analytical Laboratories Inc., Coopersville, MI, USA

P2-31 Influence of Pre-adaptation to Sub-lethal Concentrations of a Sanitizer on the Susceptibility of Fecal Coliforms to Antibiotics — HIMABINDU GAZULA, Jinru Chen, Department of Food Science and Technology, The University of Georgia, Griffin, GA, USA

P2-32 Bacterial Contamination of Touch Screens in Restaurants and Grocery Stores — CHARLES GERBA, Luisa Ikeren, Derek Lopez, James Arboagost, University of Arizona, Tucson, AZ, USA

P2-33 Potential Application of the Photosensitiser Curcumin in Inactivating Foodborne Pathogens on Chicken — JINGWEN GAO, Karl Matthews, Rutgers University, New Brunswick, NJ, USA

P2-34 How Water Antimicrobials and Produce Volume Influence Cross-Contamination during Batch Washing in Retail Operations — Hyein Jang, JINGWEN GAO, Licheng Huang, Karl Matthews, Rutgers University, New Brunswick, NJ, USA

P2-35 Identifying Nonpathogenic Salmonella Surrogates for Industrial Scale Treatment of Almonds Using Gaseous Chlorine Dioxide — BHARGAVI RANE, Alison Lacombe, Shyam Sablani, David F. Bridges, Jumeng Tang, Jiewen Guan, Vivian Chi-Hua Wu, Derek Arbogast, University of Arizona, Tucson, AZ, USA

P2-36 Efficacy of Cinnamon Oil Nanoemulsion in Inhibiting Salmonella spp. and Listeria spp. on Mung Bean Sprouts — ELAINE SAWYER, Hari Kotturi, Kanika Bhargava, University of Central Oklahoma, Edmond, OK, USA

P2-37 Evaluation of Cranberry Antimicrobial Properties by TLC-Bioautography — CHAYAPA TECHATHUVAN, Yu-Ting Hung, Christopher McNamara, Margarita Gomez, Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA, USA

P2-38 Long-term Survival Phase Cells of Listeria monocytogenes Exhibit Increased Tolerance to Cinnamaldehyde in 0.85% Saline and Apple Juice — SAMUEL KIPROTICH, Iowa State University, Ames, IA, USA

P2-39 Comparison of a Novel Lactic Acid-based Antimicrobial Solution (Furac Evolve) to Lactic Acid and Water as a Final Pre-Dip Beef Carcass Wash to Reduce Shiga Toxin-producing Escherichia coli Contamination — SAURABH KUMAR, Nicholas Severt, Daniel Vega, Randall Phebus, Kansas State University, Manhattan, KS, USA

P2-40 Isolation of Antimicrobial- and Lactate-producing Lactic Acid Bacteria from Farm Animals and Produce — ERICA JOHNSON, Guadalupe Meza, Hung Tiong, University of West Alabama, Livingston, AL, USA

P2-41 Implementation of Fluorescent Assays to Measure Membrane Damage to Escherichia coli O157:H7 after Exposure to Chlorine Dioxide — DAVID F. BRIDGES, Alison Lacombe, Vivian Chi-Hua Wu, Western Regional Research Center, Agricultural Research Service, USDA, Albany, CA, USA

P2-42 The Use of Bacillus spp. Isolated from Ready-to-Eat Date Fruits to Control Listeria monocytogenes — TSUN YIN ALEX LAU, Shai Barbut, S. Balamurugan, University of Guelph, Guelph, CRIFS, Department of Food Science, Guelph, ON, Canada

P2-43 Sanitizer Susceptibility of Recurrent and Sporadic Listeria monocytogenes from Meat Processing Environments When Grown in Planktonic and Biofilm States — JOVANA KOVAVEC, Deana Rolheiser, Valerie Bohaychuk, Lynn McMullen, Oregon State University, Portland, OR, USA

P2-44 The Use of Flow Cytometry for the Rapid Detection of Fluorescent-tagged Salmonella spp. in Food and Environmental Samples — MEGAN S. BROWN, Andrzej A. Benkowski, J. David Legan, Eurofins Microbiology Laboratories, Madison, WI, USA

P2-45 Tracing Contamination Issues and Challenges with Listeria spp. in an Artisan Dairy Plant in British Columbia, Canada Over a Nineteen-year Period — JOVANA KOVAVEC, Lorraine Mctytre, Sion Shyng, Oregon State University, Portland, OR, USA

P2-46 Efficacy of a Food Acid to Inhibit Escherichia coli O157:H7 and Disrupt Its Biofilms on High Density Polyethylene Surface — LAUREN NADEN, Joshua Payne, Carl Knuveun, Tony Kountoupis, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

P2-47 Validation of the USDA Official Method Neutralization Step/Buffer for a Novel Antimicrobial Solution of Five Percent Lactic Acid Plus Surfactants — Daniel Urnruh, SARA LASUER, Garrett McCoy, Robert Ames, Saurabh Kumar, Corbin, Lenexa, KS, USA

P2-48 Antimicrobial Properties of Ohelo Berry (Vaccinium reticulatum) Fractions: Anthocyanins, Non-Anthocyanin Phenolics, and Organic Acids — XIAOHAN LIU, Stuart Nakamoto, Yong Li, University of Hawaii at Manoa, Honolulu, HI, USA

P2-49 Comparison of the Antimicrobial Activities of Ohelo Berry (Vaccinium reticulatum) and Cranberry (Vaccinium macrocarpon) — XIAOHAN LIU, Stuart Nakamoto, Yong Li, University of Hawaii at Manoa, Honolulu, HI, USA

P2-50 Effects of Sodium Lactate on the Growth of Bacillus cereus in a Rice-based Model Food — Jing Ni Tan, CHENG-AN HWANG, Wei Wang, Lihan Huang, Hsin-I Hsiao, Eastern Regional Research Center, Agricultural Research Service, USDA, Wyndmoor, PA, USA

P2-51 Discovery of Novel Small Molecules, Metabolites and Probiotic Strains from Plant Ecosystems to Control Foodborne Pathogens — BOWORNNAN CHANTAPAKUL, valeria R. Parreira, Manish N. Raizada, Jeffrey Farber, University of Guelph, CRIFS, Department of Food Science, Guelph, ON, Canada

P2-52 Effect of Gallic Acid and Protocatechuc acid on Salmonella Typhimurium — ZABDIEL ALVARADO-MARTINEZ, Debabrata Biswas, University of Maryland, College Park, MD, USA

P2-53 Validation of Vinegar Powder to Control Listeria monocytogenes, Salmonella enterica, Shiga Toxin-producing Escherichia coli, and Lactic Acid Bacteria in Fresh Chicken Salad — DANIEL UNRUH, Sara LaSuer, Garrett McCoy, Thomas Rourke, Saurabh Kumar, Corbin, Lenexa, KS, USA

P2-54 Assessment of Five Percent Lactic Acid Plus Surfactants and Ten Percent Lactic Acid Antimicrobial Interventions for Spoilage Microorganism Growth and Survival on Beef Tissues — DANIEL UNRUH, Sara LaSuer, Garrett McCoy, Audrey Boekey, Robert Ames, Saurabh Kumar, Corbin, Lenexa, KS, USA

P2-55 Optimization of the Functionality of Sanitizers and Nisin Using Response Surface Methodology: Control of E. coli O157:H7 ATCC 43888 and L. monocytogenes ATCC 7644 Biofilm — STANLEY DULU, Oluwasotin Ademola Ijabadeniyi, Durban University of Technology, Durban, South Africa

P2-56 Purification and Structural Elucidation of Parapantaracin TC318, a Novel Natural Antimicrobial Food Preservative Produced by Lactobacillus parapantarum — WALAA HUSSEIN, En Huang, Ismet Ozturk, Xu Yang, Ahmed Yusuf, The Ohio State University, Columbus, OH, USA

P2-57 Assessment of Probiotic Traits, Antimicrobial Characteristics and Safety of Enterococcus durans Osy-Egy Isolated from Artisanal Hard Cheese — WALAA HUSSEIN, Ahmed Abdelhamid, Ahmed Yusuf, The Ohio State University, Columbus, OH, USA

P2-58 Effect of Heat (Cooking) on the Concentration of Gentamicin Residue in Chicken — EKENE EZENDUKA, Chika Onyeaun, Anu Anaga, John Nwanta, University of Nigeria, Nsukka, Nsukka, Nigeria
Viruses and Parasites

Nigeria

Jaykus, North Carolina State University, Raleigh, NC, USA

Arbogast, ESCUDERO-ABARCA

Micallef, University of Maryland, College Park, MD, USA

Environmental Detection of Noroviruses — KATIE OVERBEY, Lagos, Viruses Island, Ynes cultural Research Service, USDA, Albany, CA, USA

Bacterial Infection with

Detection in Environmental Source Waters: A Conserve Study

Kristen Gibson, University of Arkansas, Fayetteville, AR, USA

Preliminary Study on the Prevalence of Hepatitis A and E

Foust, Rico Duncan, Sarah Allard, Mary Theresa Callahan, —

Optimization and Evaluation of a Viradel Method for Viral

Chemical Inactivation of

Virus Recovery Affected by Contact Surface Physicochemistry of

Diverse Shiga Toxin-producing

E. coli (STEC) and Its Correlation with STEC

Escherichia coli

A. porcinus, Toxoplasma gondii,

Hashem, Sarah Allard, Amy Sapkota, Kali Kniel, University of

Foust, Rico Duncan, Chanelle White, Salina Parveen, Fawzy

Viral

BRIENNA

LENNON

ALARAPE

Georgia, USA

ALICE

R. Miller, Ricardo Ortega, Rebecca LeClair, De De, Alexandra

Michele Foust, Rico Duncan, Sarah Allard, Mary Theresa Callahan,

Sampson, Tad Station, Kali Kniel, University of Delaware, Newark, DE, USA

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<td>University of CaliforniaDavis, Davis, CA, USA</td>
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<td>Salmonella Prevalence, Concentration, and Diversity in Poultry Litter</td>
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<td>in the Southern United States — LAUREL DUNN, Loretta Friedrich, Vijendra</td>
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<td>Sharma, Travis Chapin, Keith Schneider, Michelle Danyuk, University</td>
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<td>of Georgia, Athens, GA, USA</td>
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P2-213 Characterization of Tree Fruit Bacterial Communities during Harvest — KERRY COOPER, Janneth Pinzon, Margarethe Cooper, Mariya Skots, Gilberto Flores, Rachel Mackelprang, Trevor Suslow, The University of Arizona, Tucson, AZ, USA

P2-214 Microbial Quality of Peach Wash Water and Gloves Worn by Packers in Peach Packinghouses and Peach-Handling WANG, Jocelyn K. Quansah, Hamibindu Gazuva, Kate B. Pitts, Dario J. Chavez, Duke Lane III, Jinru Chen, Department of Food Science and Technology, The University of Georgia, Griffin, GA, USA

P2-215 Assessment of the Efficacy of Rapid Tests on Predicting Bacterial Growth on Apple Packinghouse Equipment Surfaces — ALEXIS M. HAMILTON, Ines Hanrahan, Marcella Galeni, Victor Villegas, Martin Blackburn, Monique Aguilar Borba, Cecilia Yu, Daniel Gleason, Faith Critzer, Washington State University, School of Food Science, Pullman, WA, USA

P2-216 The Use of Advanced Oxidation Process to Depurate Chlorpyrifos and Reduce Colonies of Escherichia coli O157:H7 on Apples — JORDAN HO, University of Guelph, Guelph, ON, Canada

P2-217 Attachment Strength of Foodborne Pathogens on Different Melon Varieties from Various Regions in the United States — QI WEI, Monique Torres, Martin Porchas, Ting Fang, Paul Brierley, Sadhana Ravishankar, University of Arizona, Tucson, AZ, USA

P2-218 Survival of Salmonella spp. on Cantaloupe Field Pack Food Contact Surfaces — LORETTA FRIEDRICH, Benjamin Chapman, Laura K. Strawn, Michelle Danyluk, University of Florida CREC, Lake Alfred, FL, USA

P2-219 Aqueous Chlorine Dioxide Inactivates Salmonella on Whole Papaya — LIANG DONG, Yong Li, University of Hawaii at Manoa, Honolulu, HI, USA

P2-220 Prevalence, Virulence and Antimicrobial Resistance of Salmonella Isolated from Mango “Ataulfo” — ÁGÉLICA GODÍNEZ- OVIEDO, Montserrat Hernández-Irurtiaga, Universidad Autónoma de Querétaro, Querétaro, Mexico

P2-221 Internalization of Salmonella spp. in Mangoes (Mangifera indica) Variety Tommy Atkins — CARLOS HENRIQUE TERSAROTTO, Bernadette DGM Franco, Faculty of Pharmaceutical Sciences, University of Sao Paulo, Sao Paulo, Brazil

P2-222 Listeria Contamination and Identification of Potential Growth Niches in a Ready-Meal Manufacturing Small- and Medium-sized Enterprise: A Case Study — Alín Turilla, ELLEN W. EVANS, Elizabeth C. Redmond, ZERO2 FIVE Food Industry Centre, Cardiff Metropolitan University, Cardiff, United Kingdom

P2-223 Stress and Sanitizer Resistance Characterization of Persistent and Transient Listeria monocytogenes Isolates from a Cold-Smoked Salmon Processing Facility — ANNA SOPHIA HARRAND, Renato Orsi, Bala Jagadesan, Leen Barent, Martin Wiedmann, Cornell University, Ithaca, NY, USA

Pre-harvest Food Safety

P2-224 Blue Light Exposure Kills Escherichia coli Cells Treated at Close Range and May Enhance Microgreen Food Safety — ELLEN R. TURNER, Yaguang Luo, Robert Buchanan, U.S. Department of Agriculture–ARS, Beltsville, MD, USA

P2-225 Effects of Switchgrass Fast Pyrolysis Biochar Generation Temperature on Survival of E. coli O157:H7 in Soil — JOSHUA GURTTLER, Akwasi Boateng, Charles Mullen, U.S. Department of Agriculture-ARS, Eastern Regional Research Center, Wyndmoor, PA, USA

P2-226 Survival of Desiccation-resistant Salmonella on Apple Slices after Dehydration and Following Antimicrobial Immersion Treatments — JOSHUA GURTTLER, Susanne Keller, Xue tong Fan, Modesto Olanyo, Tony Jin, U.S. Department of Agriculture-ARS, Eastern Regional Research Center, Wyndmoor, PA, USA


P2-228 Establishing Baseline Inhibition of Escherichia coli in Aqueous Dairy Manure Prior to Treatment by a Fungal Biocontrol Agent — ALEXIS OMAR, Sivaranjani Palani, Pushpinder Kaur Litt, Anastasia E. Chirnside, Kali Kniel, University of Delaware, Newark, DE, USA

P2-229 Bioremediation Practices to Reduce Human Pathogen Contamination for Agricultural Soils — MORGAN YOUNG, Carl Knueven, Siddhartha Thakur, Eduardo Gutierrez, North Carolina State University, Raleigh, NC, USA

P2-230 Effects of Manuring on Survival of E. coli in Certified Organic Field Soils and Transfer to Fresh Produce in the Delmarva Region — ANNETTE KENNEY, Faywzy Hashem, Alida Pires, Michele Jay-Russell, Patricia Millner, University of Maryland Eastern Shore, Princess Anne, MD, USA

P2-231 Strain, Soil Type, and Irrigation Regime Influence Salmonella Survival in Poultry Litter Amended Sandy and Clay Soils — LAURA K. STRAWN, Cameron Bardsley, Steve Rideout, David Ouyang, Virginia Tech - Eastern Shore AREC, Painter, VA, USA

P2-232 A Longitudinal Study Using 16s rRNA Gene Sequence Analysis of Soil Amended or Unamended with Heat-treated Poultry Pellets Contaminated with Salmonella Newport — MANOJ SHAH, Christopher Grim, Karen Jarvis, Teresa Bergholz, Manan Sharma, North Dakota State University, Fargo, ND, USA

P2-233 Factors Affecting Salmonella Newport Survival in Soil and Subsequent Transfer to Spinach Plants — MANOJ SHAH, Rhodel Bradshaw, Eric Handy, Cheryl East, Teresa Bergholz, Manan Sharma, North Dakota State University, Fargo, ND, USA

P2-234 Serotypes and Antimicrobial Resistance of Salmonella Recovered from Chicken Litter in Florida Operations — ALAN GUTIERREZ, Jaysankar De, Keith Schneider, University of Florida, Gainesville, FL, USA

P2-235 Survival of Escherichia coli O157 Recovered from Bovine Manure in Autoclaved and Unautoclaved Florida Sandy Soil by — CHRISTOPHER BAKER, Shinyoung Lee, Jaysankar De, KwangCheol Casey Jeong, Keith Schneider, University of Florida, Gainesville, FL, USA

P2-236 Bacterial Survival as a Factor of Variation in Extrinsic and Intrinsic Soil Parameters with Biological Soil Amendments of Animal Origin — PUSHINDER KAUR LITT, Alyssa Kelly, Quinn Rilley, Alexis Orsi, Gordon Johnson, Manan Sharma, Kali Kniel, University of Delaware, Newark, DE, USA

P2-237 Application of Rhizobacteria as a Biocontrol by Tackling Plant-Pathogen Interactions — PUSHINDER KAUR LITT, Nick Johnson, Harsh Bais, Manan Sharma, Kali Kniel, University of Delaware, Newark, DE, USA

P2-238 Estimating Salmonella and Campylobacter Cell Density in Animal Feces and Their Potential to Lead to Significant Contamination Events — Taal Levi, Jennifer Allen, JOY WAITE-CUSIC, Oregon State University, Corvallis, OR, USA

P2-239 Isolation and Characterization of Extended Spectrum β-Lactamase (ESBL) Producing Non-Shiga-toxigenic Escherichia coli (nSTE C) from Healthy Food Animals and Their Environment — SHIVASHARANAPPA NAYAKAVADI, Dhananjay Desai, Shivaramu Keelara, Paula J. Fedorka-Cray, Chethan Kumar HB, Eknath B Chakurkar, Visiting Scholar, Raleigh, NC, USA

P2-240 Incidence of Coagulase-positive Staphylococcus and Staphylococcus aureus on Fries from Cattle Sources — LUYAO ZHAO, Jinru Chen, Department of Food Science and Technology, The University of Georgia, Griffin, GA, USA

P2-241 Whole Genome Sequence Analysis of Seven Broad Host Range Salmonella enterica bacteriophages — SUDHAKAR BHANDARE, Anna Colavecchio, Jean-Guillaume Emond-Rheault, Jeremy Hamel, Irena Kukavica-Ibrulj, Brian Boyle, Roger Levesque, Lawrence Goodridge, McGill University, Ste-Anne-de-Bellevue, QC, Canada

Dairy

P2-242 Addition of Probiotics Affects the Physicochemical and Microbiological Properties of Yogurt Made from Soy Milk and Cow’s Milk during Refrigerated Storage — Li Cui, Sam Chang, YAN ZHANG, Ramakrishna Nannapaneni, Mississippi State University, Pascagoula, MS, USA

P2-243 Evaluation of Two Prototypes of Intelligent Packaging with a pH Indicator to Determine Spoiled Cow Milk — ANA ROMERO, Marcia Ferreira, Murilo Sanson, Courtney Stewart, Jessica Martin, Kay Cooksey, Clemson University, Clemson, SC, USA

Blue Text - Developing Scientist Competitor
Green Text - Undergraduate Student Competitor
P2-244 Antimicrobial Susceptibility Monitoring of Bacterial Pathogens Isolated from Korean Black Goat — Woo Kyung Jung, Sook Shin, Chan Lan Kim, Kun Taek Park, YONG HO PARK, Seoul National University, Seoul, South Korea

P2-245 Sporeformer Presence in a Milk Fractionation Process — Kristi Gowans, Reece Larson, Tina Lin, JEREMY ARBON, Greyden Clark, Frost Steele, Bradley Taylor, Brigham Young University, Provo, UT, USA

P2-246 Determining the Effect of Individual or Combined Protective Cultures on the Growth of Listeria monocytogenes and Shiga Toxin-producing Escherichia coli in Raw Milk — SULAIMAN ALJASIR, Catherine Gensler, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

P2-247 Detection of Listeria spp. in Unpasteurized Retail Dairy Products in Maine — DHAFA ALSHAIBANI, Jennifer Perry, University of Maine, Orono, ME, USA


P2-249 Occurrence and Antimicrobial Resistance Patterns of Escherichia coli O157:H7 and Non-Typhoidal Salmonella in Milk and Feces of Lactating Dairy Cows and Camels in Borana, Southern Ethiopia — Diriba Hunduma, Silvia Alonso, Getahun Agga, Oudesse Kerro Diego, Barbara Wieland, Hiwot Desta, Delia Grace, KEBEDE AMENU, Addis Ababa University, Bishoftu, Ethiopia

P2-250 The Evaluation and Implementation of Two Automated Enzyme-linked Fluorescent Assays for the Detection of Salmonella and Listeria monocytogenes from Large Gram Size Dairy Samples — ASHLEY ENGEL, Jennifer Bipes, Patricia Rule, Stan Bailey, First District Association, Litchfield, MN, USA

P2-251 Fast (under 19 minutes) Fully-automated or Medium-throughput Semi-automated Multi-contaminant Screening of Milk Samples with the Evidence Series Biochip Analysers — J. Mahoney, K. Crosse, J. Porter, D. Hamm, M.L. Rodriguez, R.I. McConnell, S.P. Fitzgerald, RACHEL FULLERTON, Randox Food Diagnostics, Crumlin, United Kingdom

P2-252 Microbiological Safety of Pulses-based Fermented Foods Developed and Prepared in the Laboratory — Oluwatosin Ademola Ijabadeniyi, Amina Yusuf, Melissa Jula, AJIBOLA OYEDEJII, Durban University of Technology, Durban, South Africa


P2-254 16S rRNA Analysis of Bacterial Genera Present on Wooden Boards at Different Depths from Several Cheese-aging Facilities — KIRTY WADHAWAN, Scott A Rankin, Garret Suen, Charles Czuprynski, University of Wisconsin-Madison, Department of Pathobiological Sciences, Madison, WI, USA

P2-255 The Safety of Raw Milk Cheese and Raw Milk Used for Cheese-making in Ireland — KIERAN JORDAN, Antonio Lorenco, Martin Danaher, Mary Moloney, Teagasc, Fermoy, Ireland

P2-256 Source Tracking and Succession of Microbial Communities during the Production of a Farmstead Cheese — LANG SUN, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

P2-257 Assessing Growth and Survival of Listeria monocytogenes in Wash Solutions Used in Artisanal Washed Rind Cheese Production — ROSALIND NEALE, Catherine Donnelly, University of Vermont, Burlington, VT, USA

P2-258 Differential Growth of Listeria monocytogenes in Soft Ripened Cheeses at Refrigerated Temperatures — JUSTIN FALARDEAU, Siyun Wang, Food, Nutrition and Health, University of British Columbia, Vancouver, BC, Canada

P2-259 Understanding of Microbial Communities Potentially Associated with Quality and Safety in Cheddar, Provolone and Swiss Cheeses — Jungmin Choi, Sang In Lee, Sushumna Canakapalli, Bryna Rackerby, Ian Moppert, SI HONG PARK, Oregon State University, Corvallis, OR, USA

P2-260 Modelling Population Dynamics of Listeria monocytogenes Strain in Lactic Soft Cheese Following Acid and Osmotic Stress Exposures — Thulani Sibanda, ELNA BUYS, University of Pretoria, Pretoria, South Africa

P2-261 Impact of Use of Natural Whey Starter on the Microbiological Characteristics of Artisanal Brazilian Canastra Cheese during Ripening — Cynthia Jurkiewicz, Vancie Natera, Giovanna F. Ripari, Julia Bevilacqua, Vanessa Occhipinti, Raquel Oliveira, MARIZA LANDGRAF, Uelinton Manoel Pinto, Gustavo Augusto Lacorte, Christian Hoffmann, Bernadette DGM Franco, Food Research Center, Faculty of Pharmaceutical Sciences, University of São Paulo, São Paulo, Brazil

P2-262 Diversity of Oxacillin-Resistant Staphylococcus aureus Isolated from Cheese — CAROLINA CHAVES, César Rodríguez, Melissa Montenegro, Irina Piedra, Marta Perez, Maria Laura Arias, CIET, San Jose, Costa Rica
WEDNESDAY POSTERS
8:30 AM – 3:30 PM

P3 POSTER SESSION 3
Beverages and Acid/Acidified Foods
Food Chemical Hazards and Food Allergens
Food Toxicology
Laboratory and Detection Methods
Meat, Poultry and Eggs
Microbial Food Spoilage
Packaging
Seafood
Water

Kentucky International Convention Center, Exhibit Hall

P3-01 Genetic Analysis of Natural Microflora in Stored Joraengyi Rice Cakes and Their Capability for Propanolic Acid Production — HEEDAE PARK, Jung Yoo Chae, Iqbal Hossain, Sazzard Hossain Toushikh, Ha Lim Jeong, Sang-Do Ha, Advanced Food Safety Research Group, Brain Korea 21 Plus, Chung-Ang University, Ansung, South Korea

P3-02 Mass Spectrometry Analysis for Evaluation of Gluten Residues in Wheat Beers — WANYING CAO, Joseph Baumert, Melanie Downs, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-03 The Application of Enzymatic Histamine Assay for Fermented Foods — Kazuhiro Shimoji, MIKIO BAKKE, Kikkoman Biochemica Company, Noda, Japan

P3-04 Mitigation Strategies for Acrylamide in Bread — CARLOS BRANDÃO, Cátia Morgado, Inês Coelho, Inês Henrique, Isabel Castanheira, Manuela Guerra, Nelson Félix, Patricia Bernardo, Susana Jesus, Estoril Higher Institute for Tourism and Hotel Studies, Estoril, Portugal

P3-05 Single Kernel Aflatoxin and Fumonisin Levels in Commercial Corn from Texas with Different Mycotoxin Levels — RUBEN CHAVEZ, Xianbin Cheng, Timothy Herrman, Matthew J. Stasiewicz, University of Illinois at Urbana-Champaign, Urbana, IL, USA

P3-06 Significance of Anti-heat Processed Milk Antibody on ELISA-based Detection in a Dark Chocolate Matrix — ANN NGUYEN, Kristina Williams, Daniel Lee, Lauren Jackson, Binafer Bedford, Jhiyum Kwon, Peter Scholl, Sefat Khuda, U.S. Food and Drug Administration, Laurel, MD, USA

P3-07 Quality Characteristics and Aflatoxin Contents of Homemade Doenjang (Korean Traditional Fermented Soybean Paste) — So Yeong Ryu, SANG YOO LE, Seongun Heo, Sheen-Hee Kim, Gil Jin Kang, Hyang Sook Chun, Advanced Food Safety Research Group, BK21 Plus, School of Food Science and Technology, Chung-Ang University, Anseong, South Korea

P3-08 Occurrence and Exposure Analysis of Deoxynivalenol, Nivalenol and Their Glucosides in Cereal and Cereal-based Foods in Korea — SANG YOO LE, So Young Woo, Su Kyung Jang, Sheen-Hee Kim, Gil Jin Kang, Hyang Sook Chun, Advanced Food Safety Research Group, BK21 Plus, School of Food Science and Technology, Chung-Ang University, Anseong, South Korea

P3-09 Combined Effects of Temperature and oxidative Stress on the Growth, Aflatoxin Production, and Gene Expression of Aspergillus flavus — FEI TIAN, Sang Yoo Lee, So Young Woo, Gun Hee Cho, Hyang Sook Chun, Advanced Food Safety Research Group, BK21 Plus, School of Food Science and Technology, College of Biotechnology and Natural Resources, Chung-Ang University, Anseong, South Korea

P3-10 Effects of Nzu (Calabash Clay) on Mineral and Aflatoxin Contents in Cows’ Milk from Abeokuta, Nigeria — AMINA BADMOS, Flora Oluwafemi, Federal University of Agriculture Abeokuta Ogun State, Nigeria, Abeokuta, Nigeria

P3-11 Effect of Storage Techniques on Aflatoxin Load in Maize Ogi from Uyo Metropolis, Akwa Ibom State, Nigeria — ADENIYI SANYAOLU, Inemesit Bassey, Humphrey Udoofot, Nyakno Willey, University of Uyo, Uyo, Nigeria

P3-12 Aflatoxin Production by Aspergillus flavus and Aspergillus parasiticus on Nyjer Seed Cake — CHIH-HSUAN CHANG, W.T. Evert Ting, Dawi Gizachew, Purdue University Northwest, Hammond, IN, USA

P3-13 Reduction of Ochratoxin a in Rice and Oat Porridge by an Indirect Steaming Process with Baking Soda — HYUN JUNG LEE, Keija Gu, Shufang Li, Dojin Ryu, University of Idaho, Moscow, ID, USA

Laboratory and Detection Methods

P3-14 Detection of Salmonella Typhimurium in Pooled Environmental Sponge Swab Enrichment Cultures Using the bioMérieux VIDAS SLM and Easy SLM Immunocassays and the FDA BAM Culture Method — Ryan Zimmerman, LeAnne Hahn, Sue Kelly, LAURIE POST, Brian Farina, Charles Deibel, Patricia Rule, Stan Bailey, John Mills, Deibel Laboratories, Inc., Bethlehem, PA, USA

P3-15 Test for Detection of Listeria spp. from Environmental Surfaces without Enrichment — NAWAL BAKIR, Quynh-Nhi Le, Preetha Biswas, Brooke Roman, Mark Mozola, Robert Donofrio, Benjamin Bastin, Nicole Klass, Patrick Bird, Neogen Corporation, Lansing, MI, USA

P3-16 Evaluation of the turcots Environmental Listeria spp. Detection Kit for the Detection of Listeria spp. on Environmental Surfaces: AOAC Performance Tested Method 101802 — JOHN BODNER, Benjamin Bastin, Nicole Klass, Erin Crowley, CERTUS Food Safety, Chicago, IL, USA

P3-17 Qualitative Comparison of Environmental Swabbing Devices for Recovery of Listeria monocytogenes from Stainless Steel — ALVIALENE SHAZER, Joelle K. Salazar, Diana Stewart, Mary Lou Tortorello, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-18 Use of 3M Molecular Detection Assays for Detection of Salmonella spp., E. coli O157:H7 and Listeria monocytogenes in Fresh Spinach and Environmental Samples — Erick Reyes, Fabiola Ramirez, Angel Trejo, Alejandro Armiga, GUSTAVO GONZALEZ-GONZALEZ, Maltie Erandy Cabello-Aceves Angélica Alejandra De la Torre-Anaya, 3M Food Safety México, Guadalajara, Mexico

P3-19 In-house Validation of a Loop Mediated Isothermal Amplification (LAMP)-Bioluminescent Technology for the Detection of Listeria spp. and Salmonella spp. in Three Different Matrices — Olivia Lugo-Magaña, Nallely Saucedo-Brivesca, Adrián Rojas-Avila, Brenda Arianna Sánchez-Vera, Abigail Castro-Juárez, Carlos Sepúlveda-Ibarra, GUSTAVO GONZÁLEZ-GONZÁLEZ, 3M Food Safety México, Guadalajara, Mexico

P3-20 Independent Validation of a Proprietary Service-based Method for Detection and Identification of E. coli O26, O45, O103, O111, O121, O145 and O157:H7 — ERIN CROWLEY, Edan Hosking, Brooke Roman, Susan Alles, Susanne Hinkley, Karen Cooper, Danielle Keys, Mark Mozola, Robert Donofrio, Benjamin Bastin, Wesley Thompson, Q Laboratories, Inc., Cincinnati, OH, USA

P3-21 Evaluation of the of the MC-Media Pad Yeast and Mold Device for the Enumeration of Yeast and Mold: A Collaborative Study — ERIN CROWLEY, Benjamin Bastin, Dane Brooks, James Agin, David Goins, Charlotte Lindhardt, Renaud Chollet, Q Laboratories, Inc., Cincinnati, OH, USA

P3-22 Enumeration of Total Aerobic Counts in a Variety of Foods by the MC Media Pad™ Rapid Aerobic Count Device: A Collaborative Study — ERIN CROWLEY, Benjamin Bastin, Nicole Klass, James Agin, David Goins, Charlotte Lindhardt, Renaud Chollet, Q Laboratories, Inc., Cincinnati, OH, USA

P3-23 Evaluation of the GENE-Up® SLM for the Detection of Salmonella spp. in Various Chocolate Products — JOY DELL’ARINGA, John Mills, Stan Bailey, Erin Crowley, Benjamin Bastin, Nicole Klass, bioMérieux Inc., Hazelwood, MO, USA
P3-24 Evaluation of the Biomérieux VIDAS/GENE-UP® Top7 Shiga Toxin-producing E. coli Detection System — ROBERT BARLOW, Kate McMillan, CSIRO Agriculture & Food, Brisbane, Australia


P3-26 Performance Evaluation of 3M Molecular Detection Assay 2 — Campylobacter for Detection of Campylobacter spp. in Unpasteurized Milk Products and Poultry Matrices — ELAINE CHIU, Olga Sagatu, Vaishali Saliya, Sarah Tutua, John Fam, Eurofins Food Analytics NZ Ltd., Auckland, New Zealand

P3-27 Characterization of Bacteriophage Targeting Citrobacter spp., Escherichia coli, and Klebsiella oxytoca Used in a Selective Salmonella Enrichment Broth by Transmission Electron Microscopy and Whole Genome Sequencing — MARK MULDOON, Vera Gonzalez, Meredith Sutlko, Shannon Modla, Shawn Polson, Brewer Kirkham, Romer Labs, Inc., Newark, DE, USA

P3-28 Development of a Next Generation Sequencing Workflow for Food DNA Analysis: How to Identify Meat and Fish Species in Complex Food Products — AMANDA MANOLIS, Sofia Nogueria, Mario Gadanho, Sandra Chaves, Tiina Karla, Thermo Fisher Scientific, Austin, TX, USA

P3-29 Thermo Scientific BrillianceCampycount Enumeration Method Microval Validation in Comparison to EN ISO 10272:2-2017 in Accordance with ISO 16140-2:2016 — AMANDA MANOLIS, Jessica Williams, Ana-Maria Leonte, Gail Betts, Thermo Fisher Scientific, Austin, TX, USA

P3-30 Thermo Scientific Listeria Precis Enumeration Method: NF Validation EN ISO 16140-2:2016 — AMANDA MANOLIS, Jessica Williams, Ana-Maria Leonte, Francois Le Nestroy, Thermo Fisher Scientific, Austin, TX, USA

P3-31 Thermo Scientific Brilliance Staph 24 Enumeration Method Microval Validation ISO 16140-2:2016 — AMANDA MANOLIS, Jessica Williams, Ana-Maria Leonte, Gail Betts, Thermo Fisher Scientific, Austin, TX, USA

P3-32 Thermo Scientific Listeria Precis Detection Method: NF Validation EN ISO 16140-2:2016 — AMANDA MANOLIS, Ana-Maria Leonte, Maryse Rannou, Muriel Bernard, Jessica Williams, Thermo Fisher Scientific, Austin, TX, USA

P3-33 Thermo Scientific Surect Lactococcus Species PCR Assay: NF Validation Using the Applied Biosystems Quantstudio 5 PCR Instrument — AMANDA MANOLIS, Liz Harrison, Ana-Maria Leonte, Jessica Williams, Maryse Rannou, Muriel Bernard, Thermo Fisher Scientific, Austin, TX, USA

P3-34 Thermo Scientific Surect E. coli O157:H7 PCR Assay: AOAC-RI PTM Validation Using the Applied Biosystems Quantstudio 5 PCR Instrument — AMANDA MANOLIS, Jessica Williams, Liz Harrison, Benjamin Bastin, Thermo Fisher Scientific, Austin, TX, USA

P3-35 Thermo Scientific Surect Listeria monocytogenes Assay: AOAC-RI PTM and NF Validation Using the Quantstudio 5 PCR Instrument — AMANDA MANOLIS, Ana-Maria Leonte, Maryse Rannou, Muriel Bernard, Jessica Williams, Benjamin Bastin, Thermo Fisher Scientific, Austin, TX, USA

P3-36 Improved Salmonella Detection from Primary Production Samples Using Multiplex PCR Methodology — Charlotte Cooper, Katharine Evans, David Crabtree, Annette Hughes, AMANDA MANOLIS, Thermo Fisher Scientific, Austin, TX, USA

P3-37 Superior Detection of Multiple Salmonella Serovars from Meat and Environmental Samples Using a Multiplex PCR Method — Charlotte Cooper, Katharine Evans, David Crabtree, Annette Hughes, AMANDA MANOLIS, Thermo Fisher Scientific, Austin, TX, USA

P3-38 Apteram-based Platform for Optical Detection of Salmonella Enteritidis — ALEXANDER MILLS, Lili He, University of Massachusetts Amherst, Amherst, MA, USA

P3-39 Validating a Method for Multiplex Screening of Salmonella Mutants for Survival on Dry Surfaces — OURANIA RAFTOPOULOU, Victor Jayeola, Steffen Porwollik, Weiping Chu, Michael McClelland, George- John Nychas, Sophia Kathariou, Agricultural University of Athens, Athens, Greece

P3-40 ISO 16140-2 (2016) Validation of Genedic for the Detection of Shiga Toxin-producing Escherichia coli from O157, O111, O26, O103 and O145 Groups — Justine Baguet, Cécile Bernex, SABRINA MACE, Nicolas Nguyen Van Long, Christophe Quere, Maryse Rannou, ADRIA Food Technology Institute - UMT14.01 SPOR RISK, Quimper, France

P3-41 Prevalence and Characterization of Thermophilic Spoilfermers in French Dairy Products — Louis Delaunay, SABRINA MACE, Emeline Cozen, Florence Postollec, Ivan Leguerinel, Anne-Gabrielle Mathot, ADRIA Food Technology Institute - UMT14.01 SPOR RISK, Quimper, France

P3-42 Strains Used as Biopesticides from Foodborne Contaminants — Emeline Cozen, Pierre Gehan, Nassim Mouhali, Nadine Henaff, SABRINA MACE, Anne-Gabrielle Mathot, Florence Postollec, ADRIA Food Technology Institute - UMT14.01 SPOR RISK, Quimper, France

P3-43 ISO 16140-2 (2016) Validation of RAPID’B. cereus Method for the Enumeration of Presumptive Bacillus cereus group in Dairy Products, Ready to Eat and Ready to Reheat Products and Cereals, Spices, Dehydrated Fruits and Vegetables — Lila Lefebvre, Nicolas Nguyen Van Long, Sarah Peron, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA - UMT ACTIA19.03 ALTER’IX, Quimper, France

P3-45 Salmonella Typhimurium-specific Signatures for Targets Detection by Using DNA Apteramers in Foods and the Environment — AZRA NAWAIWI, Srinand Sreeravesan, Michigan State University, East Lansing, MI, USA

P3-46 Amplified Nucleic Acid Single Temperature Reaction for Detection of Genogroup II Human Norovirus — JEREMY FAIRCLOTH, Edan Hosking, Eric Tovar, Lee-Ann Jaykys, North Carolina State University, Raleigh, NC, USA

P3-47 Assessment and Comparison of Molecular Subtyping and Characterization Methods for Salmonella — SILIN TANG, Renato Orsi, Hao Luo, Chongtao Ge, Guangtao Zhang, Robert Baker, Martin Wiedmann, Mars Global Food Safety Center, Beijing, China

P3-48 Detection of Salmonella spp. and Listeria monocytogenes in Artificially Contaminated Processed Egg Products Using the Assurance GDS Pathogen Detection System — KHYATI SHAH, Kalyani Solivan, Andrew Lienau, Lisa John, MilliporeSigma, Bellevue, WA, USA

P3-49 Use of the Assurance® GDS EHEC ID Assay to Genetically Confirm E. coli O157:H7-Positive Contaminated Beef and Carcass Cloth Samples According to the Newly Revised USDA FSIS EHEC Definition — KHYATI SHAH, Ta Deng, Andrew Lienau, Markus Jucker, Lisa John, MilliporeSigma, Bellevue, WA, USA

P3-50 Performance Comparison of Shiga Toxin-producing E. coli Multiple Molecular Assays — JANI HOLOPAINEN, Laura Vahtoranta, Hanna Lehmusto, Eetu Harukainen, Jonna Roilainen, Suvi Airkka, Ahmed Al-Mosawi, Charlotte Cooper, Amanda Manolis, Dean Leak, Nina Wijkstra, Thermo Fisher Scientific, Vantaa, Finland

P3-51 Validation of a Novel Loop-mediated Isothermal Amplification Method for the Detection of Salmonella Enteritidis in Shell Eggs — LULU HU, Melanie Butler, Li Ma, Thomas Hammack, Eric Brown, Guodong Zhang, U.S. Food and Drug Administration, College Park, MD, USA

P3-52 Development of a Colorimetric Loop-mediated Isothermal Amplification Assay Using Molecular Beacon HRM-Mimicking for the Rapid Detection of Listeria spp. in Mushrooms — JEBONG-EUN LEE, Sol-A Kim, Hye-Ok Kim, Won Bo Shim, Gyeongsang National University, Jinju, South Korea

P3-53 Rapid Detection of Campylobacter in Poultry Matrices Using a Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assay — Jerri Lynn Pickett, Melissa Sisemore, Jamie Goseland, Jesse Goseland, Christina Barnes, John David, RAJ RAJAGOPAL, 3M Food Safety, St. Paul, MN, USA

P3-55 Rapid Detection of stx1, stx2 and Eae from Shiga Toxin-producing Escherichia coli in Meat, Produce and Raw Dairy Samples Using Loop Mediated Isothermal Amplification and Bioluminescence Detection — Christina Barnes, Neil Percy, Tonya Bonilla, Cynthia Zook, Lisa Monteroso, RAJ RAJAGOPAL, 3M Food Safety, St. Paul, MN, USA

P3-56 Performance Evaluation of a Loop-mediated Isothermal Amplification-Bioluminescent Assay for Rapid Detection of Salmonella spp. in Boot Swabs and Animal Feed from Brazil — Vanessa Tshuako, Pedro Beretta, Daiane Martini, Andréia Maroli, Sidiiane Castanha, Douglas Rizzotto, RAJ RAJAGOPAL, 3M Food Safety, St. Paul, MN, USA

P3-57 Performance Evaluation of a Loop-mediated Isothermal Amplification-Bioluminescent Assay for Rapid Detection of E. coli O157 in Brazilian Raw Beef and Hamburger Patties. — Vanessa Tshuako, Danielle Almeida, Maria Thereza Moura, Camila Cristina Bernardoni, Vanessa Erika Mural, Amanda Leficza Silva, Patricia de Freitas Pereira, Ana Cláudia Bernardoni, RAJ RAJAGOPAL, 3M Food Safety, St. Paul, MN, USA

P3-58 Performance Evaluation of a Fluorescence Resonance Energy Transfer Based Real-time PCR in a Unit Dose Format (SLM) for the Detection of Salmonella spp. in 375 g Dark Chocolate — Deborah Briese, Peter Ladell, Ron Johnson, John Mills, Stan Bailey, Vikrant Dundita, bioMérieux Inc., Hazelwood, MO, USA

P3-59 Withdrawn

P3-60 Surface Plasmon Resonance-based Salmonella Typhimurium Detection Using Antibody-linked Magnetic Nanoparticles for Capturing, Purification, and Signal Amplification — DEVENDRA BHANDARI, Fur-Chi Chen, Tennessee State University, Nashville, TN, USA

P3-61 Sensitivity of Petrifilm Staph Express Count Plate for Enumeration of Staphylococcus aureus in Various Foods — JIMYEONG HA, Yoongjeong Yoo, Yunja Choi, Byoung-Ik Sohn, Hyun-Jo Bang, Seung-Ho Choi, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P3-62 Characterization and Analysis of Campylobactor Flagellin Protein Using a Panel of Monoclonal Antibodies — SHREYA SINGH HAMIL, Fur-Chi Chen, Tennessee State University, Nashville, TN, USA

P3-63 Quality Indicator Testing of Chocolate and Other Confectionery Products with the TEMPO® Automated Enumeration System — JOHN MILLS, Joy Dellaringa, bioMérieux Inc., Hazelwood, MO, USA

P3-64 A Comparative Evaluation of the GENE-UP Listeria spp. Assay for the Detection of Listeria Species in Deil Ham and on Stainless Steel Environmental Surfaces Unit Dose Format — JOHN MILLS, Stan Bailey, Deborah Briese, Vikrant Dundita, Ron Johnson, Michelle Keener, Patricia Rule, Nikki Taylor, bioMérieux Inc., Hazelwood, MO, USA

P3-65 Performance of 3M Petrifilm Rapid Aerobic Count Plates for Determining Aerobic Counts in Cocoa Products in Comparison to the Traditional Culture Method — Dariel Intriglio-Bermudez, Anyl Gutierrez-Sterling, Sheyla Yali, CARI LINGLE, 3M Food Safety, St. Paul, MN, USA

P3-66 Performance of Rapid Enumeration Methods for Lactic Acid Bacteria in Cured Meat Products from Brazil — Vanessa Tshuako, Danielle Almeida, Maura Chiapinotto, Alceu Marafon, Sandra Heidtmann, CARI LINGLE, 3M Food Safety, St. Paul, MN, USA

P3-67 Performance of a Rapid E. coli Enumeration Method in Brazilian Dairy Products — Vanessa Tshuako, Pedro Beretta, Fabiana Ferreira, Tiago Olegário, Patricia Bloemker, CARI LINGLE, 3M Food Safety, St. Paul, MN, USA

P3-68 Evaluation of an Alternative Method for Enumeration of Lactic Acid Bacteria in Brazilian Bacon — Lara Maria Vieira Flores Carvalho, Caio Fialho de Freitas, Cristina De Abreu Constantino, Luis Augusto Nero, CARI LINGLE, 3M Food Safety, St. Paul, MN, USA

P3-69 Elimination of Sampling Error through Commination of Food — Cameron Owens, Nicole Mitchell, Patricia Hanson, Jason Crowe, Diane Pickett, LYNDSEY CAULKINS, Florida Department of Agriculture and Consumer Services, Tallahassee, FL, USA

P3-70 One-Step Enrichment Broth for the Simultaneous Recovery of Salmonella enterica and Cronobacter sakazakii in Powdered Infant Formula — AFIA BOUMAIL, Anne Helmer, Marie Goret Nicizanye, Anna Yattara, Michael Giuffre, Sergiy Oliheyzskyy, FoodChek Laboratories Inc., Saint-Julie, QC, Canada

P3-71 Evaluation of the Universal Enrichment Broth Salmonella, Staphylococcus, Shigella, Listeria and E. coli for the Detection of the Main Food Pathogens in Cheeses — Joseé Houlé, KARINE SEYER, Vincent Martineau, Canadian Food Inspection Agency, St-Hyacinthe, QC, Canada

P3-72 Selective Supplement for One-Step Enrichment of Low Numbers of Sublethally Stressed Salmonella in the Presence of Competitive Flora — JEAN-FELIX SICARD, Mouinia Aksassou, Elva De la Rosa, Anna Galliccia, Michael Giuffre, Sergiy Oliheyzskyy, FoodChek Laboratories Inc., Saint-Julie, QC, Canada

P3-73 Rapid Quantitative Enumeration of E. coli and Coliforms in Foods — SAILA CHANDRAPATI, Cari Lingle, Haley Saddoris, 3M Food Safety, St. Paul, MN, USA

P3-74 Rhamnose-substituted Buffered Listeria Enrichment Broth Increases Listeria monocytogenes Enrichment Populations in Select Seafood Matrices — RONALD SMILEY, U.S. Food and Drug Administration/ORA/Arkansas Laboratory, Jefferson, AR, USA

P3-75 Evaluation of the 3M Petrifilm Rapid E. coli/Coliform Count Plate and 3M Petrifilm Rapid Aerobic Count Plate for Enumeration Microorganisms in Raw Milk Samples in Thailand — SOMCHAI KONGSAMOOT, Paruch Kunprom, Kotchaphan Bowoncharit, Panida Pisaatsaw, Nongnuch Promla, Wanida Mukkana, Wipa Kongsukal, Yodiak Saengphrao, Bureau of Quality Control of Livestock Products, Department of Livestock Development, Bangkok, Thailand

P3-76 Development of an Amperometric Biosensor Integrated with Biotinylated Bacteriophages as Novel Sandwich Biocognition Elements for the Detection of Shiga Toxin-producing Escherichia coli — IRWIN QUINTELA, Vivian Chi-Hua Wu, Western Regional Research Center, Agricultural Research Service, USDA, Albany, CA, USA

P3-77 Direct and Rapid Detection of Shiga Toxin-producing — IRWIN QUINTELA, Vivian Chi-Hua Wu, Western Regional Research Center, Agricultural Research Service, USDA, Albany, CA, USA

P3-78 Construction of a GFP-tagged Listeria innocua Strain for Use in Detection of Cross-Contamination in Food Testing Laboratories — SAMUEL ELLIS, Christopher Kvaal, St. Cloud State University, St. Cloud, MN, USA

P3-79 Comparing Anaerobic Systems, Culture Vessels and Initial Temperature of Enrichment Broth in the Recovery of Shigella flexneri from a High Background Level Food Type — OLUWASEUN AGBAJE, Clinton Thompson, Robert Duvall, Rachel Binet, U.S. Food and Drug Administration, College Park, MD, USA

P3-80 Optimizing the Recovery of Wild Type Shigella from High Background Level Food Matrices — OLUWASEUN AGBAJE, Clinton Thompson, Robert Duvall, Rachel Binet, U.S. Food and Drug Administration, College Park, MD, USA

P3-81 Compatibility of Polymorphic Locus Sequence Typing with Commercially Available Environmental Sampling Tests for Listeria and Salmonella — Tom Edlind, YANHONG LIU, U.S. Department of Agriculture–ARS, Eastern Regional Research Center, Wyndmoor, PA, USA

P3-82 Culture-independent Typing of Foodborne Pathogens in Poultry Products — Tom Edlind, YANHONG LIU, U.S. Department of Agriculture–ARS, Eastern Regional Research Center, Wyndmoor, PA, USA

P3-84 Detection of Botulinum Neurotoxins A, B, E and F in Fifteen Selected Problematic Food Matrices Using the Endopeptidase-Mass Spectrometry Assay — TRAVIS MORRISSEY, Viviana Aguilar, Kristin M. Schill, N. Rukma Reddy, Gyu Skinner, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-85 Detection of Mislabeled Canned Seafood Products Using DNA Barcoding — SARAH STADIG, Jonathan Deeds, Amanda Windsor, U.S. Food and Drug Administration, College Park, MD, USA

P3-86 Detection of Staphyloccocal Enterotoxins A and B in Chicken Salad with RIDASCREEN and VIDAS Methods — HOSSEIN DARAYEI, Shannon Pickens, Matthew Kmet, Tara Doran, Donald Burr, Ravinder Reddy, Illinois Institute of Technology/ IIF, Bedford Park, IL, USA

P3-87 Development of a Molecular Serotyping Assay for Escherichia coliVia Targeted Sequencing of the O-Antigen Gene Cluster — JACOB ELDER, Pina Fratamico, Yanhong Liu, Lori Bagi, Robert Tebbs, Adam Allred, Prasad Siddavatam, Krishna Reddy Gjulija, Haktan Suren, Chintia DebRoy, Edward Dudley, David Needleman, Xiangye Han, U.S. Department of Agriculture–ARS, Eastern Regional Research Center, Wyndmoor, PA, USA


P3-89 Differentiation and Screening of Foodborne Bacterial Pathogen Strains Using Colorimetric Gold Nanoparticles — HONGSHENG HUANG, Jacob Kroposki, Lina Liu, Marc-Olivier Dubois, Sanaz Karami, Marlena Scaffidi, Paul Chen, Frank Gu, Ottawa Laboratory — Fallowfield, Canadian Food Inspection Agency, Ottawa, ON, Canada

P3-90 ID Fungi Plates and Mass Spectrometry Complement Each Other to Facilitate Mold Identification — Semchendina Cherrad, Markus Kostrzewa, Katharina Mueck, DANIELE SOHIER, Markus Timke, Sebastien Vacher, Bruker, Bremen, Germany

P3-91 Reproducibility of MALDI-TOF MS for Pathogen Confirmation and Identification of Non-pathogenic Bacterial Isolates: Assessment According to the AOAC Guidelines — Benjamin Bastin, Patrick Bird, Erin Crowley, Claudie Le Dœuff, Sarah Feron, Maryse Rannou, DANIELE SOHIER, Markus Timke, Bruker, Bremen, Germany

P3-92 A Rapid, Simultaneous and Simple Method for the Detection of Salmonella and Escherichia coli in Wheat Flour — FEREIDOUN FORGHANI, David A. Mann, Shaokang Zhang, Xiangyu Deng, Henk den Bakker, Francisco Diez-Gonzalez, University of Georgia, Center for Food Safety, Griffin, GA, USA

P3-93 Injet Printed Nano-patterned Aplater-based Sensors for Improved Optical Detection of Foodborne Pathogens — SUSANA DIAZ-AMAYA, Min Zhao, Li-kai Lin, Jan Allebach, George Chiu, Amanda Deering, Lia Stanciu, Purdue University, West Lafayette, IN, USA

P3-94 Colorimetric Detection of Clostridium perfringens in a Model Meat System Using Paper-based Microfluidics — CODI JO BROten, John B. Wydallis, Thomas Reilly, III, Bledar Bisha, Department of Agriculture–ARS, Univesity of Wyoming, Laramie, WY, USA

P3-95 Evaluation of Salmonella and Shiga Toxin-producing Escherichia coli Presence in Various Pet Foods Using Rapid PCR-based Assay as Pre-screening Method — AYOJEDEJI ADENIYI, Remo Moreira, Darvin Cuelar, Alejandro Echevery, Texas Tech University, Lubbock, TX, USA

P3-96 Enumeration and Pathotyping of Escherichia coli in Agricultural Water — BIYU WU, Jin Dong, Solange Saxby, Yen Nguyen, Lynn Nakamura-Tang, Yong Li, University of Hawaii at Manoa, Honolulu, HI, USA

P3-97 Development of an Ultra-Sensitive and Specific Multiplex Single-Tube Nested qPCR Assay for Simultaneous Detection of Campylobacter jejuni and Salmonella spp. — BIYU WU, Yong Li, University of Hawaii at Manoa, Honolulu, HI, USA

P3-98 Quantification and Discovery of PCR Inhibitors Found in Food Matrices Commonly Associated with Foodborne Viruses — CASSANDRA R. SUTHER, Matthew D. Moore, University of Massachusetts, Amherst, Amherst, MA, USA

P3-99 Evaluation of Roka Atlas-based Assay for Major Foodborne Pathogens in Food and Environmental Samples — CHRISTINA M. FERREREA, Jie Zheng, Elizabeth Reed, Yi Chen, Thomas Hammack, Laila Ali, U.S. Food and Drug Administration — Center for Food Safety and Applied Nutrition, College Park, MD, USA

P3-100 From Stools to Water: Contamination of Irrigation Water Using an Artificial Hand Tool Exposed to Stool Samples Containing Oocysts of Cyclospora cayetanensis — EMMA PATREGNAI, Mauricio Durigan, Cathy Snider, Chun Wang, Katie Kneupper, Fernando J. Bornay-Linares, Alexandre daSilva, U.S. Food and Drug Administration — CFSAN, Laurel, MD, USA

P3-101 Isolation and Identification of Three Gram Negative Bacterial Species from Powdered Milk Formula Using MALDI-TOF Mass Spectrometry and rRNA Sequence Analysis — IRSHAD SULAIMAN, Nancy Miranda, Steven Simpson, U.S. Food and Drug Administration, Atlanta, GA, USA

P3-102 Matrix Extension of a Loop-mediated Isothermal Amplification (LAMP) Assay for Screening Salmonella in Raw Pet Food — KELLY DOMESLE, Sheniya Young, Belei Ge, U.S. Food and Drug Administration, Laurel, MD, USA

P3-103 Matrix Impact on the Variation of Test Results and Measurement Uncertainty in Proficiency Testing Data from Milk, Infant Formula and Oyster Samples — SAMANTHA LINDEMANN, Bertrand Colson, Ravinder Reddy, Steffen Uhlig, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-104 Method Performance of Two Aerobic Plate Count Methods in the Longstanding Milk Proficiency Testing Program — RAVINDRA REDDY, Samantha Bertram, Robert Newkir, Vishnu Patel, Christian Bläul, Kirsten Simon, Steffen Uhlig, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-105 Rapid Detection of Salmonella against Other Bacterial Strains Using Hyperspectral Microscope Images — MATTHEW EADY, Bosoon Park, USDAs, ARS, Athens, GA, USA

P3-106 Detection of Salmonella and Listeria from Multiple Dairy Products Using the BAX System Real-time PCR Assays — LESLIE THOMPSON-STREHLOW, Nathan Clemens, Julie Weller, Anastasia Likanchuk, Priyanka Surwade, Stacy Stoltenberg, SGS Vanguard Sciences, North Sioux City, SD, USA

P3-107 Application of Improved Genetically Modified Detection Methods using Screening Multiplex PCR for Authorized Genetically Modified Soybean Processed Food — HYE LIM KWAK, Kyung Young Kwon, Kwang Yong Ko, CJ Chelijedang, Suwon, South Korea

P3-108 Development of a Rapid and Accurate Detection Method for Listeria monocytogenes in Golden Needle Mushrooms, Using Quantitative Real-time PCR — SOOMIN LEE, Won-II Kim, Hyeonheui Ham, Kyoung-Hee Choi, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P3-109 Droplet Digital PCR for Detection of Foodborne Pathogens — JOSEPH CAPOBIANCO, Cheryl Armstrong, Mike Clark, Astrid Carrou, Adelaide Leveau, Sophie Priere, U.S. Department of Agriculture–ARS, Eastern Regional Research Center, Wyndmoo, PA, USA

P3-110 Development of Sensitive DNA Primers to Detect Listeria monocytogenes in Pleurotus eryngii Directly after Enrichment by Quantitative Real-time PCR — YEONGEUN SEO, Soomin Lee, Won-II Kim, Hyeonheui Ham, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P3-111 A Reduced 90 ml Enrichment to Detect Salmonella from Environmental Surfaces Using the BAX System — Anastasia Likanchuk, Priyanka Surwade, JULIE WELLER, Victoria Kuhnel, Andrew Farnum, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P3-112 Validation of the BAX System Real-time PCR Assay for Salmonella in Fresh Cut Mango — Anastasia Likanchuk, Victoria Kuhnel, JULIE WELLER, Priyanka Surwade, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P3-113 Validation of Detection of Listeria monocytogenes in 125g Natural Cheese Product by Real-time BAX LM PCR and VIDAS LMO2 Methods — WENDY MCAHON, Helen Andrews, Jaccu Zimmerman, Cheng Zhang, Upasana Harirarn, Mériteu NutrSciences, Crete, IL, USA
Food Chemical Hazards and Food Allergens

P3-146 Effectiveness of Cleaning Strategies for Removing Milk Chocolate from Pilot-scale Chocolate Processing Equipment — Liyun Zheng, Binaifa Bedford, Girdhari Sharma, Allison Brown, Helene Hopfer, Gregory Ziegler, LAUREN JACKSON, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-147 Transfer of Shrimp Allergens to Oil and French Fries Using Shared Fryers — Anirudh Raja, Binaifa Bedford, Anne Einsheid, Steven Bloodgood, Jane Cluster, Karen Swajian, LAUREN JACKSON, U.S. Food and Drug Administration, Bedford Park, IL, USA

P3-148 Sandwich ELISA Targeting Ara h 2 and Ara h 3 for Improved Detection and Quantitation of Peanut in Foods — GIRDHAR SHARMA, Ajay Chatim, Ann Nguyen, Sefat Khuda, Kristina Williams, U.S. Food and Drug Administration - CFSAN, Laurel, MD, USA

P3-149 Development and Validation of a Quantitative Monoclonal Antibody-based ELISA for the Detection of Sesame in Common Food Products — John Gray, Henry Grise, JASON ROBOTHAM, Ken Roux, BioFront Technologies, Tallahassee, FL, USA

Beverages and Acid/Acidified Foods

P3-151 An Extended Bigelow-type Meta-Regression Model Describing the Heat Resistance of Byssochlamys Spores — VASCO A. P. CÁDAVEZ, Verónica Ortiz Alvarenga, Leonardo do Prado Silva, Anderson de Souza Sant’ana, Ursula A. Gonzales-Barron, Polytechnic Institute of Bragança, Bragança, Portugal

P3-152 Making Sulfur-free White Wine through the use of α-Pinene — CHIH-YAO HOU, Yu-Wei Chen, Yu-Heng Lai, Zheng-Ting Hou, National Kaohsiung University of Science and Technology (NKUST), Kaohsiung, Taiwan

P3-153 Factors That Impact Survival of Salmonella during Storage of Beans and Batch Production of Cold Brew Coffee — JIA YAN, William Ristenpart, Linda J. Harris, University of California, Davis, Food Science and Technology Dept., Davis, CA, USA

P3-154 Evaluation of a CO2 Monitoring System for the Early Quality Testing for a Variety (Chocolate, Vanilla, Coffee) of High Protein Beverage Drinks — PATRICIA RULE, Jessica Battisto, Austin Pettit, Michelle Keener, Brian Mayer, Stan Bailey, bioMérieux Inc., Hazelwood, MO, USA

P3-155 Microbial Source Tracking of Fecal Contamination in Maipo and Maule Rivers in Central Chile — AIKO ADELL, Constanza Diaz, Carla Barria, Gabriela Gaona, Nicolas Villagra, Leonardo Vera, Woulima Smith, Minji Kim, Universidade Andres Bello, Santiago, Chile

P3-156 Microbial Evaluation of ‘Adoyo’ Drink Sold in Ogun State, Nigeria — MOJISOLA ADEGUNWA, Yejide Da-Silva, Emmanuel Alamu, Adeogke Bakare, Federal University of Agriculture, Abeokuta, Nigeria

P3-157 Does the Indigenous Microbial Community of Kombucha Prevent Survival and Growth of Pathogens? — SHERIDAN BREWER, Maria Torres, Mark Harrison, Larry B. Beuchat, Ynes R. Ortega, University of Georgia Center for Food Safety, Griffin, GA, USA

P3-158 Withdrawn

P3-159 Inactivation of Foodborne Pathogens in Opaque Fluid Using a Thin-film UV Reactor — BRAHMAIAH PENDYALA, Ankit Patras, Michael Sasses, Tennessee State University, Nashville, TN, USA

P3-160 Effects of High Pressure and High Temperature Short Time Processing on Microbiological Shelf Life, Physicochemical Properties, and Non-Enzymatic Browning in Atemoya Juice — BANG-YUAN CHEN, Yun-Ting Hsiao, Chung-Yi Wang, Fu Jen Catholic University, Taipei, Taiwan

Water

P3-161 Prevalence and Characteristics of Selected Foodborne Bacterial Pathogens in Post-Hurricane Florence Floodwaters — JEFFREY NIEDERMeyer, William (Bill) Miller, Angela Harris, Ryan Emanuel, Theo Jass, Sophia Kathariou, North Carolina State University, Raleigh, NC, USA

P3-162 The Relationship between E. coli Levels and Pathogen Detection in Surface Water Samples is Mediated by Environmental Conditions — DANIEL WOLLER, Natalie Brassil, Channah Rock, Sherry Roof, Renata Ivanek, Martin Wiedmann, Cornell University, Ithaca, NY, USA

P3-163 Occurrence and Levels of Salmonella Species in Primary Irrigation Water Canals and Return Flows in Arizona and the Risk of Contamination of Lettuce Crops — KELLY BRIGHT, Monique Torres, Patricia Gundy, Huruy Zerzghi, Brianna Leja, Candace Garrett, Charles Gerba, University of Arizona, Tucson, AZ, USA

P3-164 Incidence of Fecal Indicator and Pathogenic Bacteria in Reclaimed and Return Flow Waters in Arizona, United States — Libin Zhu, Monique Torres, Walter Betancourt, Manan Sharma, Shirley A. Micallef, Charles Gerba, Amy Sapkota, Amir Sapkota, Salina Parveen, Fawzy Hashem, Eric May, Kali Kniel, Mihai Pop, SADHANA RAVISHANKAR, University of Arizona, Tucson, AZ, USA

P3-165 Listeria monocytogenes Levels and Population Diversity in Surface Waters in the United States Mid-Atlantic Region — DUMITRU MACARISIN, Jin Qing, Dana Harriger, Rachael Picard, Edward Wells, Yakov Pachepsky, Marc Allard, Eric Brown, Yi Chen, Dumitru Macarisin, U.S. Food and Drug Administration, College Park, MD, USA

P3-166 Occurrence and Population Diversity of Listeria monocytogenes in Two Irrigation Ponds in Maryland — JIN QING, Alec Barlow, Matthew Stocker, Yakov Pachepsky, Marc Allard, Eric Brown, Yi Chen, Dumitru Macarisin, U.S. Food and Drug Administration, College Park, MD, USA

P3-167 Evaluation of Nontraditional Irrigation Water Sources for Shiga Toxin-producing and Atypical Enteropathogenic Escherichia coli in the United States Mid-Atlantic Region — JOSEPH HAYMAKER, Manan Sharma, Salina Parveen, Fawzy Hashem, Eric May, Eric Handy, Channelle White, Cheryl East, Rodhel Bradshaw, Shirley A. Micallef, Mary Theresa Callahan, Sarah Allard, Brienna Anderson, Shani Craighead, Samantha Gartley, Adam Vanore, Kali Kniel, Sultana Solaima, University of Maryland Eastern Shore, Princess Anne, MD, USA

P3-168 Presence of Salmonella and Listeria monocytogenes in Reclaimed and Surface Irrigation Water Sources on Maryland’s Eastern Shore: A Conserve Study — CHANELLLE WHITE, Fawzy Hashem, Salina Parveen, Eric May, Joseph Haymaker, Eric Handy, Cheryl East, Sarah Allard, Shirley A. Micallef, Manan Sharma, Kali Kniel, Amy Sapkota, University of Maryland Eastern Shore, Princess Anne, MD, USA

P3-169 Evaluation of Survival and Infectivity of Environmental Listeria monocytogenes Isolates in Tidal Brackish Irrigation Water — SAMANTHA GARTLEY, Shani Craighead, Brienna Anderson-Coughlin, Manan Sharma, Eric Handy, Rolf Joerger, Dallias Hoover, Kali Kniel, University of Delaware, Newark, DE, USA

P3-170 Variability of Generic E. coli Along the Tualatin River during the 2018 Blueberry Growing Season — Alex Emch, Sarah Guffey, Nicole Berg, Lauren Gwin, Jovana Kovacevic, JOY WAITE-CUSIC, Oregon State University, Corvallis, OR, USA

P3-171 Biofilm Formation by Pseudomonas aeruginosa Isolated from Mineral Water Samples Marketed in the State of São Paulo, Brazil — Beatriz Silva, Mariana Miranda Furtado, Laura Buenia Vieira Junior, Aline Cinro Trevisan, ANDERSON DE SOUZA SANTA, University of Campinas, Campinas, Brazil

P3-172 Characterization of Pseudomonas aeruginosa Isolates in Mineral Water of São Paulo, Brazil, Using Pulsed-Field Gel Electrophoresis — Beatriz Silva, Sarah Lee, Christian Silva, Carlos Oliveira, ANDERSON DE SOUZA SANTA, University of Campinas, Campinas, Brazil

P3-173 Photodynamic Treatment as an Alternative for Alicyclobacillus spp. Inactivation — Leonardo Prado-Silva, Ana T. P. C. Gomes, Mariana Q. Mesquita, Maria G. P. M. S. Neves, Maria A. F. Faustino, Adelaide Almeida, Gilberto U. L. Braga, ANDERSON DE SOUZA SANTA, University of Campinas, Campinas, Brazil
P3-205 Comparison Effect of NaCl and KCl on *Clostridium sporogenes* PA3679 as Surrogate for *C. botulinum* in Shelf-stable Mortadella — Suzana Eri Yotsuyanagi, Ana Lucia da Silva Corrêa Lemos, MARISTELA DA SILVA NASCIMENTO, University of Campinas, Campinas, Brazil

P3-206 Effect of Different Dry Aging Temperatures on *Listeria innocua* as Surrogate for *Listeria monocytogenes* — Astrid Caroline Muniz Silva, Pâmela de Oliveira Pena, Sérgio Bertelli Pflanzer, MARISTELA DA SILVA NASCIMENTO, University of Campinas (UNICAMP), Department of Food Technology, Faculty of Food Engineering (FEA), Campinas, Brazil

P3-207 Fat Contributes to the Effect of Heat against *Salmonella* in Red Meat Juice — AMREETA SARJIT, Joshua T. Ravensdale, Ranil Coorey, Narelle Fegan, Gary A. Dykes, School of Public Health, Curtin University, Bentley, Western Australia, Australia

P3-208 Using Model Miniature Ham and Response Surface Methodology as a High-throughput Tool to Screen Antimicrobials Targeting *L. monocytogenes* — Shannon Rezac, Michael Miller, MATTHEW J. STASIEWICZ, University of Illinois at Urbana-Champaign, Urbana, IL, USA

P3-209 Effectiveness of Organic Acid Interventions for Reduction of *Escherichia coli* on Pork Carcasses in a Small-scale Pork Harvest Facility — KEELYN HANLON, Andrea English, Alejandro Echeverry, Mark Miller, Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P3-210 Effectiveness of Organic Acid Interventions for Reduction of *Escherichia coli* on Pork Carcasses in a Large-scale Pork Harvest Facility with Blast Chilling — ANDREA ENGLISH, Keelyn Hanlon, Alejandro Echeverry, Mark Miller, Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P3-211 Impact of Storage Temperature on the Survival of *Salmonella* in Finished Salami — BRANDON SELOEVER, Joy Waite-Cusic, Oregon State University, Corvallis, OR, USA

P3-212 Microbiological Safety of *Staphylococcus aureus* and *Escherichia coli* in Dry-aged Beef Requiring Long Aging Time — Hyemin Oh, Younjeong Yoo, Yoohan Yoon, HEEYOUNG LEE, Korean Food Research Institute, Wanju, South Korea

P3-213 Comparative Evaluation of Sanitizers for the Control of *E. coli* O157:H7 in Ground Beef — GOVINDARAJ DE V KUMAR, Joyjit Saha, Divya Jaroni, University of Georgia Center for Food Safety, Griffin, GA, USA

P3-214 Comparison of Culture Preparation and Incoculum Levels of *Listeria monocytogenes* in Challenge Studies Applied to Cooked Ready-to-Eat Meat Products — UPASANA HARIRAM, Wendy McMahon, Sandra Kelly-Harris, Mariana Ramirez, Mérieux NutriSciences, Crete, IL, USA

P3-215 Comparison of Clean Label Antimicrobials with Nitrile on the Inhibition of *Clostridium perfringens* during Extended Cooling of a Model Deli-Style Ham Product — MAX GOLDEN, Brandon Wanless, Kathleen Glass, University of Wisconsin-Madison, Madison, WI, USA

P3-216 Humidity Affects *Salmonella* Lethality and USDA FSIS Appendix A Compliance for Impingement-cooked Meat and Poultry Products — IAN HILDEBRANDT, Nicole Hall, Michael James, Elliot Ryser, Bradley Marks, Michigan State University, East Lansing, MI, USA

P3-217 The Effect of Recurring Cooling and Reheating on *Clostridium perfringens* Growth in Uncured Turkey and Cured Beef — HAYRIYE CETIN-KARACA, Gene Bartholomew, Smithfield Foods, Cincinnati, OH, USA

P3-218 The Effect of Pulsed Light Energy Delivery Mode on Inactivating *Salmonella* spp. in Vitro — DANIELA MENGARDA BUOSI, Yifan Cheng, Bruno A. M. Carciofi, Carmen Morarou, Cornell University, Ithaca, NY, USA

P3-219 Independent Performance Evaluation of ViDAS Spt for the Detection of *Salmonella* spp. in Poultry Primary Production Samples — VIKRANT DUTTA, STAN BAILEY, bioMérieux Inc., Hazelwood, MO, USA

P3-220 Detection of Multiple Serotypes of *Salmonella* on Pre-chilled Chicken Carcasses by Whole Carcass Rinse or Whole Carcass Incubation — MARK BERRANG, Nelson Cox, Nikkhi Shariat, Kimberly Cook, Jonathan Frye, Richard Meinersmann, U.S. Department of Agriculture-ARS-USNPC, Athens, GA, USA

P3-221 Survival of *Salmonella* Typhimurium and *Salmonella* Enteritidis after Treatment with Stress Conditions: Heating, Chilling, Salt and Freezing Temperatures — Pichet Kooma, Sorntcharlem Sukst, PHUNNATHORN PHUCHIVATANAPONG, Jirarjun Neamnak, bioMérieux, Bangkok, Thailand

P3-222 The Effects of Feeding Original XPC on Reducing *Salmonella* Prevalence and Numbers in Ceca Samples and Carcass Rinses Taken from Commercial Broilers — JAMES MCGINNIS, J. Allen Byrd, Hilary Pavlidis, William Chaney, Diamond V, Cedar Rapids, IA, USA

P3-223 Control of *Salmonella* in Chicken Meat Using the Combination of a Commercial Bacteriophage and Plant-based Essential Oil Antimicrobial Compounds — Sun Hee Moon, EN HUANG, University of Arkansas for Medical Sciences, Little Rock, AR, USA


P3-226 Viability of *Listeria monocytogenes* and Shiga Toxin-producing *Escherichia coli* Cells on Slices of Commercially-produced Bresaola, a Dry-Cured Beef product, during Extended Storage at 4° and 10°C — Ashley McCoy, Laura Shane, Elizabeth Henry, Manuela Ostor, Yangjin Jung, Brandon Shoyer, Dennis Burson, John Luchansky, ANNA PORTO-FEIT, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

P3-227 Recovery of *Enterobacteriaceae* Indicator Organisms in Raw Poultry Rinse Testing Using Buffered Peptone Water and Neutralizing Buffered Peptone Water — LINDSEY ROSS, April Skinner, Robert Salter, Miekel Brewster, Charm Sciences, Inc., Lawrence, MA, USA

P3-228 Fate of Spore-forming Pathogens in High and Reduced-moisture, Shelf-stored Moistened Meat and Poultry Products Subjected to Post-packaging Pasteurization — SARA MUNOZ, Andrea English, Ilan Arvelo, Mark Miller, Marcos X. Sanchez-Plata, Texas Tech University, Lubbock, TX, USA

P3-229 Detection of Chicken Vaccine Strain *Salmonella* Enteritidis 441/014 (ade-his-) and Differentiation between *Salmonella* Field Strains and the Vaccine Strain — OLAF DEGEN, Anne Roelfz, Cordt Groenewald, Kornelia Berghof-Jaeger, Biotecon Diagnos, Potsdam, Germany

P3-230 Thermal Inactivation of *Salmonella*, Campylobacter jejuni and *Listeria monocytogenes* in Moisture Enhanced Non-intact Chicken Patties by Double Pan-broiling Under Dynamic Conditions — WEN TAO JIANG, Lacey Lemonakis, Ka Wang Li, Cangliang Shao, West Virginia University, Morgantown, WV, USA

P3-231 Systematic Review and Meta-Analysis on the Effects of Processing Stages and Interventions to Control Campylobacter Contamination in Broiler Chicks — ONAY BURAK DOGAN, Anand Aditya, Juan Ortuzar, Jennifer Clarke, Fabio Mattos, Bing Wang, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-232 Effect of Ozonated Water on the Microbiological Profile of Chicken Parts — CARMEN CANO, Yulie Meneses, Xinjuan Hu, Carly Rain Adams, Byron Chaves, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-233 Inactivation of *Listeria monocytogenes* in Model Chilling Brines for Hard Cooked Eggs — SUBASH SHRESTHA, Shelly Riemann, Bryan Talus, Cargill, Inc., Wichita, KS, USA

P3-234 Optimizing Ozone Use in a Heat-Ozone Combined Treatment Designed to Inactivate *Salmonella* Enteritidis Grown in the Yolk of Shell Eggs — YUMIN XU, David Kasler, Ahmed Youssef, The Ohio State University, Columbus, OH, USA

P3-235 Effect of Percent NaCl and Incubation Temperature on the Growth of *Salmonella* and Background Flora in Raw Chicken Samples from Thailand — CHANON KHAMTA, Sorntcharlem Sukst, Pichet Kooma, Panida Pisaisawat, Nongnuch Promla, Wanida Mukkana, Saengrawee Jongvanchai, Wipa Kongsakul, Yodiak Saengnond, Laboratory Accreditation Subdivision, Bureau of Quality Control of Livestock Products, Department of Livestock Development., Bangkok, Thailand
Microbial Food Spoilage

P3-236 Inactivation of Several Fruit Spoilage Molds Using Visible Light Emitting Diodes — VINAYAK GHATE, Isabelle Yew, Hyun-Gyun Yuk, Weibiao Zhou, National University of Singapore, Singapore, Singapore

P3-237 Efficacy of Different Disinfectants against Isolated and Biofilm Associated Yeasts from a Fruit Juice Production Facility — Roshan Aara Abdul, OLGA DE SMIDT, Hanita Swanepeol, Center for Applied Food Security and -Biotechnology (CAFSaB), Central University of Technology, Free State, Bloemfontein, South Africa

P3-238 Bioaerosols in a Fruit Juice Manufacturing Facility – Harmful, Harmless or Perhaps Helpful? — Shirleen Theisinger, OLGA DE SMIDT, Ryk Lues, Center for Applied Food Security and Biotechnology (CAFSaB), Central University of Technology, Free State, Bloemfontein, South Africa

P3-239 Inactivation of Alicyclobacillus acidoterrestris Spores in Different Types of Juices by 222-Nanometer Krypton-Chlorine Excilamp Irradiation and Identification Sporidal Mechanism — HAK-NYEONG HONG, Jun-Won Kang, Dong-Hyun Kang, Seoul National University, Seoul, South Korea

P3-240 Withdrawn

P3-241 Food Safety Knowledge, Attitudes and Practices of Street Food Vendors in Thailand — Chanchana Siripanwattana, Kamonwan Saengprao, Chucheep, Panida Pisaisawat, Nongnuch Promla, Wanida Vendors in Thailand — Chanchana Siripanwattana, Kamonwan Saengprao, Chucheep, Panida Pisaisawat, Nongnuch Promla, Wanida Saengprao, SUTHWIMON KEERATIPIBUL, Chulalongkorn University, Bangkok, Thailand

P3-242 Validation of the Use of Acetic Acid Incorporated with Chitosan to Prolong Shelf Life of Grass-fed Ground Beef — TAYLOR LADNER, Shecoya White, Dennis Burnett, Mississippi State University, Starkville, MS, USA

P3-243 Evaluation of the Microbiological Quality of Minced Pork Using Visible and Fluorescence Spectroscopy Methods in Tandem with Multivariate Analysis — Lemonia-Christina Fengou, Alexandra Lianou, Panagiotis Tsakanikas, Efstatios Panagou, GEORGE-JOHN NYCHAS, Laboratory of Microbiology and Biotechnology of Foods, Department of Food Science and Human Nutrition, Agricultural University of Athens, Athens, Greece

P3-244 Application of Fluorescence Spectroscopy as a Tool for Microbial Spoilage Assessment in Fresh-cut Pineapple — Evangelia Manthou, Alexandra Lianou, Panagiotis Tsakanikas, Evangelos Dagres, Efstatios Panagou, GEORGE-JOHN NYCHAS, Laboratory of Microbiology and Biotechnology of Foods, Department of Food Science and Human Nutrition, Agricultural University of Athens, Athens, Greece

P3-245 Comparison of Six Methods for Quantification of Lactic Acid Bacteria in Spoiled Sliced Turkey — CHENG ZHANG, Wendy McMahon, Sandra Kelly-Harris, Mérieux NutriSciences, Crete, IL, USA

P3-246 Microbial Profiling of Subprimals Before and After Water Spray and Dry Chilling of Beef Carcasses Subjected to Hot Water Rinses during Long-term Storage — DIEGO CASAS, Savannah Forgey, Rosine Manishimwe, Mark Miller, Marcos X. Sanchez-Piata, Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P3-247 Impact of Carcass Spray-Chilling, Dry Chilling and Hot Water Washes on the Shelf Life and Microbial Profiles of Beef Ribeye Rolls — SAVANNAH FORGEY, Diego Casas, Rosine Manishimwe, Mark Miller, Mindy Brashears, Marcos X. Sanchez-Piata, Texas Tech University, Lubbock, TX, USA

P3-248 Identification of Microbial Hazards in the Production Process of a Typical Cheese, Wara, in Alabama, Abeckotta, Nigeria — FEYISOLA AJAYI, Adewale Olusegun Obadina, Federal University Gashua, Nigeria, Gashau, Nigeria

P3-249 Predictive Microbiology Analysis of Dairy Products Stored in Home Refrigerators — J. ANTONIO TORRES, Veronica Rodriguez-Martinez, Daniela Gonzalez de la Garza, Gonzalo Velazquez, Fabian Fagotti, Reynaldo de la Cruz Quiroz, Jorge Welli-Chanes, Tecnologico de Monterrey, Monterrey, NL, Mexico


P3-251 Microbial Quality during Storage, Prevalence of Foodborne Pathogens and Salmonella Colonization Based on Variances in Netting Densities of Melons Grown in Different Regions of the United States — AISHWARYA RAO, Richard Park, Martin Porchas, Paul Briery, Sadhana Ravishankar, University of Arizona, Tucson, AZ, USA

P3-252 Identification of Tomato Paste Spoilage Bacteria Using Vibrational Spectroscopy Technologies — YADWINDER SINGH RANA, Luis Rodriguez-saona, Abigail Snyder, The Ohio State University, Columbus, OH, USA

P3-253 A Machine Learning Approach to Analyze Micro-Isothermal calorimetry as a Function of Microbial Growth in Fresh and Processed Foods — IMRAN AHMAD, Yujie Li, Michael Cheng, Florida International University, North Miami, FL, USA

P3-254 Extraction and Characterization of Extracellular Polymeric Substances — EVADWIN R. NDUGU, ATCC 43888 and Listeria monocytogenes ATCC 7644 Molecular Biofilms Growth under Different Growth Conditions — STANLEY DULA, Oluwatosin Ademola Ijabadenyi, Durban University of Technology, Durban, South Africa

P3-255 Antibacterial Properties of High Voltage Cold Atmospheric Plasma and its Effect on Quality of Asian Sea Bass Slices — OLADIPUPO OLATUNDE, Scottawat Benjakul, Kitya Vongkalanjan, Department of Food Technology, Faculty of Agro-Industry, Prince of Songkla University, Hat Yai, Songkhla, Thailand
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Start Where You Are!

Make a difference! Unite with other food safety professionals by joining or forming an IAFP Affiliate in your area. IAFP currently has fifty-six Affiliates on six continents whose objectives are consistent with those of our Association. If you are an IAFP Member or an IAFP Annual Meeting attendee, your knowledge of and dedication to food safety will contribute toward the many opportunities your local Affiliate can offer.

Start now by getting involved today!

Find IAFP Affiliate opportunities and contacts at www.foodprotection.org
The Black Pearl Award is presented annually to a company for its efforts in advancing food safety and quality through consumer programs, employee relations, educational activities, adherence to standards and support of the goals and objectives of the International Association for Food Protection. We invite you to nominate your company for this prestigious recognition. Contact the Association office for nomination information.

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Black Pearl Recipients

2019  General Mills
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2018  Eurofins Scientific, Inc.
Des Moines, Iowa

2017  Panda Restaurant Group, Inc.
Rosemead, California

2016  Meijer
Grand Rapids, Michigan

2015  Tyson Foods, Inc.
Springdale, Arkansas

2014  Sodexo, Inc.
Gaithersburg, Maryland

2013  Publix Super Markets, Inc.
Lakeland, Florida

2012  The Kroger Co.
Cincinnati, Ohio

2011  bioMérieux, Inc.
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2010  Fresh Express, Inc.
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2008  3M Microbiology
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2005  DuPont
Wilmington, Delaware

2004  Jack in the Box Inc.
San Diego, California

2003  Wegmans Food Markets Inc.
Rochester, New York

2002  Darden Restaurants
Orlando, Florida

2001  Walt Disney World Company
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2000  Zep Manufacturing Company
Atlanta, Georgia

1999  Caravelle Foods
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1997  Papetti’s of Iowa Food Products, Inc.
Lenox, Iowa

1996  Silliker, Inc.
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1995  Albertson’s Inc.
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1994  H-E-B Grocery Company
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Steve Ricke
Linda J. Harris
Tori Stivers

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Gary Acuff

HONORARY LIFE MEMBERSHIP
Stan Bailey
John Holah
Pina Fratamico
Keith Ito
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A DEVELOPING ECONOMY
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Ashley Giddens
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Ruiling Lv
Katrien Begyn
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Oladipupo Olatunde
Catherine Gensler
Nurudeen Olalekan Oloso
Carly Gomez
Ruth Oni
Gayathri Gunathilaka
Elvina Parlindungan
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Surabhi Rani
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J. MAC GOEPFERT DEVELOPING SCIENTISTS
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To be determined

UNDERGRADUATE STUDENT COMPETITION
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To be determined

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Black Pearl Award

General Mills
Minneapolis, Minnesota

With iconic brands like Cheerios, Annie’s, Yoplait, Nature Valley, LÄRABAR, Pillsbury, Blue Buffalo and more, General Mills has been making food people love for more than 150 years. We’re proud to offer something for everyone, including breakfast, lunch, dinner and everything in-between. We work with farmers to source raw materials, produce food across more than 100 brands, and distribute that food to customers in retail, e-commerce, and convenience and foodservice settings, landing in the homes of consumers across 100 global markets. Throughout this process, General Mills generates $17 billion in sales annually. Food safety is our priority every step of the way.

We also make it our business to strengthen our communities and planet. With 38,000 employees, we believe in using our size as a force for good, and we’re doing that by advancing sustainable farming, combating climate change, fighting hunger, and supporting local schools.

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**Fellow Award**

Dr. Francisco Diez-Gonzalez is a recipient of the 2019 IAFP Fellow Award. Dr. Diez-Gonzalez is the Director of the Center for Food Safety and a Professor in the Department of Food Science and Technology at the University of Georgia in Griffin.

In 1999, Dr. Diez-Gonzalez joined the University of Minnesota’s Department of Food Science and Nutrition as Assistant Professor in Food Safety Microbiology. He was promoted to Associate and full Professor in 2005 and 2011, respectively, and served as Department Head from 2014–2016, teaching courses on food safety and food microbiology.

An IAFP Member since 1999, Dr. Diez-Gonzalez has served on numerous PDGs and Committees, including as a current member of the Program Committee and on the Editorial Boards for both the *Food Protection Trends* and the *Journal of Food Protection*. He also serves on the Editorial Boards for *Applied and Environmental Microbiology*; *Frontiers*; and *Microbiology Spectrum*.

Dr. Diez-Gonzalez has participated as a panel member of multiple USDA granting programs and was a member of the National Research Council’s Committee on Risk Ranking. He currently serves on the USDA’s National Advisory Council for Microbiological Criteria in Foods, and conducts research on ecology, control, and detection of foodborne bacteria in different food commodities.

Dr. Diez-Gonzalez graduated with a B.S. in Food Science from the Instituto Tecnológico y de Estudios Superiores de Monterrey in Queretaro, Mexico, and worked as an R&D Manager for Griffith Laboratories in Mexico. He earned his M.S. and Ph.D. in Food Science from Cornell University and continued at Cornell as a postdoctoral Research Associate in the Department of Microbiology. He has authored more than 90 peer-reviewed articles and 13 book chapters.

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Dr. Linda J. Harris is a recipient of the 2019 IAFP Fellow Award. Dr. Harris is a Specialist in Cooperative Extension in Microbial Food Safety, Chair of the Department of Food Science and Technology at the University of California – Davis, and a collaborator for the Western Center for Food Safety.

Throughout her nearly 40-year career as a food scientist, Dr. Harris has developed an impactful and internationally recognized research and education program. She was a pioneer in the study of the microbial food safety of fresh fruits and vegetables, fresh juices, and in the ecology of *Salmonella* and other foodborne pathogens in tree nuts, particularly almonds, walnuts, and pistachios, and their production and processing environments. Through her research and extension programs, she has had the opportunity to mentor many talented students and postdoctoral scholars.

Dr. Harris has been a member of IAFP since 1988 and has served as a leader on numerous PDGs; as Chair of the Dairy, Food and Environmental Sanitation Management Committee; as a member of several Award Selection Committees and the Program Committee; and through organizing and participating in many local, national, and international meetings. She has also served on both the Management Committee and the Editorial Board for the *Journal of Food Protection*.

Dr. Harris has been recognized for her research and education accomplishments as a recipient of the Elmer Marth Educator Award (2004), the Frozen Food Foundation Research Award (2010), and by nomination as Fellow of the Institute of Food Technologists (2018). In 2013, she was elected Secretary of IAFP and proudly served as President of the Association in 2016–2017.
Dr. Steven C. Ricke is a recipient of the 2019 IAFP Fellow Award. Dr. Ricke is a Professor in the Department of Food Science and Cellular and Molecular Graduate Program at the University of Arkansas (UA) in Fayetteville.

Dr. Ricke joined UA in 2005, where he became the university’s first holder of the Donald “Buddy” Wray Endowed Chair in Food Safety and Director of the Center for Food Safety. He received his B.S. and M.S. from the University of Illinois and his Ph.D. with a joint major in Bacteriology and Animal Science from the University of Wisconsin. He was a USDA-ARS post-doctoral candidate in the Microbiology Department at North Carolina State University before joining Texas A&M University as a Professor in the Poultry Science Department.

Dr. Ricke’s Salmonella research projects spanning more than 25 years have emphasized studies on the growth, survival, and pathogenesis during food animal production and processing. In recognition of his research, he received both the Poultry Science Association (PSA) Research Award and the American Egg Board Award; became a Texas Agricultural Experiment Station Faculty Fellow; received the UA Division of Agriculture – John White Outstanding Research Award; and most recently was named a PSA Fellow.

Dr. Ricke has been active in IAFP since 1993, with his group publishing 26 research and review articles in IAFP’s scientific journals and presenting 28 research presentations at IAFP’s Annual Meetings. He has presented three invited talks at IAFP meetings and served on the Editorial Board of the Journal of Food Protection. He is a co-founder and former President of the IAFP Affiliate, the Arkansas Association of Food Protection (AAFP), and was named an AAFP Fellow.

Tori Stivers is a recipient of the 2019 IAFP Fellow Award. Ms. Stivers is a Seafood Specialist with the University of Georgia’s Marine Extension and Georgia Sea Grant. She focuses on seafood safety outreach and training and encourages consumption of Georgia seafood. Her most recognized work includes efforts to prevent deadly Vibrio vulnificus infections from raw shellfish consumption or marine-related wounds, especially through her SafeOysters.org website.

Ms. Stivers also teaches HACCP courses for the seafood industry and looks for niche markets for Georgia-harvested saltwater seafood to keep it from being shipped out-of-state or country. One challenge is to develop a U.S. market for cannonball jellyfish typically exported to Asian countries.

A 26-year IAFP member, Ms. Stivers is convinced of the importance of the Association’s role to foster the exchange of food safety ideas between countries, government agencies, industry, and academia. Her service with IAFP includes as Chair of the Affiliate Council; serving on the Executive Board; serving on the Program and Nominating Committees; organizing and convening symposia; and as a member of the Seafood Safety and Quality PDG and the Food Safety Education PDG. Participating in IAFP’s mission to protect the global food supply has been one of the most fulfilling parts of her career.

Ms. Stivers has been a member of the IAFP Affiliate, the Georgia Association for Food Protection, since 1993, and has served as President, as well as a ten-year term as Delegate. She is also a member of the Seafood HACCP Alliance Steering Committee and the Interstate Shellfish Sanitation Conference.
Dr. Gary R. Acuff is the recipient of the 2019 IAFP President’s Lifetime Achievement Award. This award is given at the discretion of the Association’s President to recognize an individual who has made a lasting impact on “Advancing Food Safety Worldwide” through a lifetime of professional achievement in food protection. Dr. Acuff is the managing member of Acuff Consulting, LLC, founded in 2018 to provide food microbiology expertise in commercial food production systems. Previously, Dr. Acuff was a Professor of Food Microbiology at Texas A&M University in College Station and served on the faculty for 39 years. He served as Director of the Texas A&M Center for Food Safety and as Head of the Department of Animal Science at the university.

Dr. Acuff’s research has focused on improving the microbiological quality and safety of red meat and poultry in all areas of production and utilization, and most recent activities have centered on the effective use of surrogate bacteria for validation of process control in HACCP and Food Safety systems. Additional research interests have included characterizing the presence of Campylobacter jejuni in turkey processing and survival of pathogenic bacteria in low-moisture foods. Dr. Acuff has authored or co-authored more than 100 peer-reviewed research publications in scientific journals and numerous chapters in various references and textbooks.

An IAFP Member since 1982, Dr. Acuff was the Association’s President from 2007–2008. Throughout his Membership, he has served on numerous committees, including the Foundation Committee, the Nominating Committee, several Award Selection Committees, and on both the IAFP Organizing Committee and the European Organizing Committee. He also served on both the Journal of Food Protection’s Editorial Board and Management Committee and on the Food Protection Trends Management Committee, and is a member of several of IAFP’s Professional Development Groups (PDGs). Dr. Acuff received the IAFP Fellow Award in 2013 and presented the IAFP 2018 Ivan Parkin Lecture. He is also a Fellow of the American Academy of Microbiology.

Dr. Acuff obtained his B.S. in Biology from Abilene Christian University and both his M.S. and Ph.D. in Food Science and Technology, specializing in food microbiology, from Texas A&M University.
Dr. J. Stan Bailey is a recipient of the 2019 IAFP Honorary Life Membership Award. Dr. Bailey is the Senior Director of Scientific Affairs for bioMérieux Industry. Before joining bioMérieux, he was a Research Scientist for the USDA’s Agricultural Research Service (ARS) for 35 years. In 2002, Dr. Bailey was named the USDA’s ARS Outstanding Senior Research Scientist.

Dr. Bailey has authored or co-authored more than 500 scientific publications in the area of food microbiology, concentrating on controlling *Salmonella* in poultry production and processing; *Salmonella* methodology; *Listeria* methodology; and rapid methods of identification.

An active member of IAFP for nearly 33 years, Dr. Bailey has organized and moderated many symposia and served on numerous committees, including the Program Committee, the European Organizing Committee and the *Journal of Food Protection (JFP)* Management Committee. He also served on the *JFP* Editorial Board. Dr. Bailey received the IAFP Fellow Award in 2005 and the Maurice Weber Laboratorian Award in 2003. He is also a Fellow of the American Academy of Microbiology, received the 1997 Federal Laboratory Consortium Technology Transfer Award, and holds seven U.S. patents. Internationally, Dr. Bailey served as an expert consultant to both the Foreign Agriculture Organization and the U.S. State Department and has presented invited talks in numerous countries around the world.

Dr. Bailey received his B.S. in Environmental Health Sciences, M.S. in Food Science, and Ph.D. in Poultry Science, all from the University of Georgia.

Dr. Pina Fratamico is a recipient of the 2019 IAFP Honorary Life Membership Award. Dr. Fratamico retired from the USDA, Agricultural Research Service (ARS), Eastern Regional Research Center (ERRC) in 2018, where she served as Research Leader of the Molecular Characterization of Foodborne Pathogens Research Unit. She now serves as a Collaborator (Emeritus) scientist with ARS.

Dr. Fratamico received a Ph.D. in Microbiology and Immunology in 1990 and conducted post-doctoral work at the ARS ERRC, where she was then hired as a permanent scientist. Her research focuses on methods for detection and typing of foodborne pathogens; and genomic, proteomic, and other technologies to investigate pathogen survival, virulence, biofilm formation, cell-to-cell communication systems, and mechanisms for adaptation to environmental stress. Dr. Fratamico works with and serves as an advisor with academic institutions, regulatory agencies, and the food industry, as well as the World Health Organization, the Food and Agriculture Organization, and others. She has authored more than 200 publications, including 38 book chapters, has edited nine books, and holds two patents.

An IAFP Member since 1995, Dr. Fratamico has been a member of the *Journal of Food Protection* Editorial Board since 1995, and served on the *Journal of Food Protection* Management Committee (2005–2008). In 2006, Dr. Fratamico and her team received the GMA Food Safety Award.

Other awards received for her research accomplishments include the Presidential Early Career Award for Scientists and Engineers; the IFT Food Microbiology Division Outstanding Service Award; and the ARS Technology Transfer Award. Dr. Fratamico is a Fellow of both the Institute of Food Technologists and the American Academy of Microbiology. She was Chair of both the ASM’s Division P (Food Microbiology) and the IFT Biotechnology Division.
Honorary Life Membership Award

Keith A. Ito is a recipient of the 2019 IAFP Honorary Life Membership Award. Mr. Ito is a Specialist, Emeritus at the Laboratory for Research in Food Preservation, administered by the Food Science and Technology Department, at the University of California – Davis. He retired in 2012 as Director from the laboratory, part of the State of California’s botulinum control program, and is currently a consultant in the food industry.

Mr. Ito joined the university after his retirement in 2003 from the National Food Processors Association, a non-profit food trade association, where he served as Senior Vice President of the Technical Assistance Center.

Mr. Ito’s research interests are in the thermal and germicidal resistance of Clostridium botulinum, food safety of fresh produce, and the thermal resistance of vegetative pathogens in low-moisture foods. He has served as an advisor to numerous groups including as a technical advisor to the National Conference on Interstate Milk Shipment; Aseptic Program Committee (2004–2018); as a member of the Washington State University Microwave Processing Consortium (2002–2004); as consultant to the California Strawberry Commission (2007–2014); and as a member of the Almond Board of California’s Technical Expert Review Panel (2012–2018). He is the co-editor of the Compendium of Methods for the Microbiological Examination of Foods (4th edition) and served on the Editorial Board for the Compendium (5th edition).

An IAFP Member since 1997, Mr. Ito is a member of several Professional Development Groups (PDGs), including the Microbial Modeling and Risk Analysis PDG; the Beverage and Acid/Acidified Foods PDG; the Low Water Activity PDG; the Pre-Harvest Food Safety PDG; and the Fruit and Vegetable Safety and Quality PDG.

Mr. Ito holds a B.A. in Bacteriology from the University of California, Berkeley.

Dr. John Holah is a recipient of the 2019 IAFP Honorary Life Membership Award. Since 2014, Dr. Holah has served as the Technical Director at Holchem Laboratories, the UK’s largest supplier of food hygiene services to the food industry, located in Bury. His current responsibilities include the development of innovative cleaning and disinfection technologies and their successful utilization to practically implement Good Hygiene Practices (GHPs).

Prior to his current position, Dr. Holah served for 25 years as Head of the Food Hygiene Department at Campden BRI, where he worked on the prevention of microbial contamination of food during its manufacture, distribution and retail. Working with more than 500 food factories and catering establishments throughout the world, Dr. Holah and his group were responsible for establishing many GHPs used in the food industry for the control of pathogens, particularly Listeria, Salmonella and E. coli, and allergens.

Dr. Holah is also an Honorary Professor of Food Safety and Hygienic Design at Cardiff Metropolitan University in Cardiff, and is involved in research projects on food safety culture, specifically applied to sanitation and hygienic design, that may help to ensure the successful application of such GHPs.

Throughout his career, Dr. Holah has led several European and UK research projects; written more than 150 publications; given more than 250 external presentations; edited a trilogy of books on Food Hygiene; has a wide range of teaching experience from industry to university M.Sc. courses; and has been external supervisor to more than 20 Ph.D. students.

Dr. Holah joined IAFP in 1990 and has served on the Food Protection Trends Editorial Board and presented at several of the Association’s Annual and European Meetings. He received the IAFP International Leadership Award in 2014. Dr. Holah has represented the UK on CEN/TC 216/Chemical disinfectants and antiseptics; chaired ISO/TC 199/WG2 on the Hygienic Design of Machinery; and was a member of the UK National Health Service Rapid Review Panel. Since its formation in 1989, he has been an active member of the EHEDG.

Dr. Holah has also chaired the GFSI Technical Working Group on the Hygienic Design of Food Processing Facilities and Equipment since October 2018.
Jenny Scott is a recipient of the 2019 IAFP Honorary Life Membership Award. Ms. Scott is a Senior Advisor to the Director of the Office of Food Safety at the U.S. Food and Drug Administration’s (FDA's) Center for Food Safety and Applied Nutrition (CFSAN). She began her career as a Research Specialist at the Food Research Institute at the University of Wisconsin before joining the National Food Processors Association, holding various positions, such as research microbiologist; head of microbiology; director of processing technology and microbiology; and (following the merger with the Grocery Manufacturers Association) Vice President of Food Safety Programs. She joined the FDA in 2009 and serves as the technical lead on the Preventive Controls for Human Food regulation and guidance.

Ms. Scott has been an active member of IAFP since 1982. She has participated in several PDGs and served on the Program Committee, the Constitution and Bylaws Committee, the Foundation Fund Committee, the Nominating Committee, and several awards committees. In 1997, she was elected to the IAFP Executive Board, becoming IAFP President in 2000–2001. Ms. Scott also serves as Delegate for the IAFP Affiliate, the Capital Area Food Protection Association. She received the Harold Barnum Industry Award (2007); the Harry Haverland Citation Award (2014); the President’s Lifetime Achievement Award (2018); the GMA Food Safety Award (2018); and was elected an IAFP Fellow (2005). She was the Ivan Parkin Lecturer at IAFP 2012.

In addition, Ms. Scott served on the National Advisory Committee on Microbiological Criteria for Foods (2002–2009 and 2018–present) and on the U.S. Delegation to the Codex Alimentarius Committee on Food Hygiene (1991–present), where she has led the delegation since 2010.

Ms. Scott obtained her B.A. in Biology and Psychology from Wellesley College, an M.S. in Bacteriology from the University of Wisconsin, and an M.S. in Food Science from the University of Maryland.
Dr. Randy Worobo is this year’s recipient of the Harry Haverland Citation Award. This award honors Dr. Worobo for his many years of dedication and devotion to the Association’s ideals and objectives. He is a Professor of Food Microbiology in the Department of Food Science at Cornell University's College of Agriculture and Life Sciences, teaching undergraduate and graduate food safety assurance classes that provide CGMP, HACCP, and SQF certification for his students, a unique offering that positions Cornell Food Science students with key food safety certifications at the onset of their careers.

Dr. Worobo has developed an internationally recognized research program on alternative approaches to enhance microbial safety and reduce microbial spoilage of foods by designing and validating new, non-thermal processing techniques for juice and beverages, which has been adopted by industry. His research on improving our understanding of pathogen transmission and survival on fruits and vegetables has made a significant impact on the safety of fresh and minimally processed produce. In collaboration with Mr. Phil Hartman, an electrical engineer, Dr. Worobo developed a commercial ultraviolet light processing unit that was validated to meet the 5-log performance standards prescribed in the Juice HACCP regulation and is now in use in more than 900 commercial applications.

Dr. Worobo currently serves as the Director of the Cornell University HPP Validation Center, which provides validation studies for the food industry who employ HPP processing technology for their food products. Through his extension program, he engages with the industry through workshops, conferences, and direct contact with various sectors of the food industry around the world. He was one of the founding members of the Juice HACCP Curriculum Committee and has trained thousands of juice industry professionals, as well as state and federal inspectors, on juice HACCP principles for 20 years.

An IAFP since 1997, Dr. Worobo has served on the Journal of Food Protection Editorial Board, participated in several symposia, and presented more than 40 posters at IAFP Annual Meetings. He has also served as a judge for the IAFP Developing Scientist Competition and poster competitions. He is a member of the Fruit and Vegetable Safety and Quality PDG and the Beverage and Acid/Acidified Foods PDG, and is active in IAFP’s Affiliate, the New York State Association for Food Protection, giving numerous presentations over the years. Dr. Worobo holds a Ph.D. from the University of Alberta.

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Clēan Works Corporation is the recipient of the 2019 Food Safety Innovation Award for its development of patent pending processes for sanitizing the surface of produce and other foods without using water. The concept of the technologies was to devise methods that could reduce pathogens and spoilage microflora more effectively than post-harvest washing. The technologies manufactured and distributed by Clēan Works stemmed from the need to have effective, preventative controls for candied apple production in the wake of a 2014 Listeria outbreak centered in California.

Clēan Works was established in 2017 through a collaboration between Moyers Apple Products Ltd. and Court Holdings to commercialize the four years of research and development. It includes support from Dr. Keith Warriner of the University of Guelph; Paul Moyer of Moyers Apple Products Ltd.; and Mark VanderVeen of Court Holdings. The technologies include an Advanced Oxidative Process (Clēan Flow) and Forced Air Ozone Reactor (Clēan Batch). The Clēan Works team developed units that can be applied in the laboratory, pilot or commercial scale. Clēan Works has installed custom built units in several fruit processing facilities within North America, with additional installations at the construction stage. Future plans include expanding into Europe, Asia, India, and Australia.

Clēan Works continues its research to demonstrate the far-reaching potential of these technologies to treat a diverse range of foods, including low-moisture ingredients, in addition to food contact surfaces such as utensils and containers.

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International Leadership Award

The 2019 International Leadership Award goes to Dr. Marcel Zwietering for his dedication to the high ideals and objectives of IAFP and his promotion of the mission of the Association in countries outside the U.S. and Canada. Dr. Zwietering is a Professor of Food Microbiology at Wageningen University in Wageningen, The Netherlands, focusing on research subjects in the domain of food safety management, risk analysis, fermentation, detection and hygiene, eco-physiology, and functional genomics. He has supervised more than 30 Ph.D. students and currently supervises 10 Ph.D. candidates.

Dr. Zwietering graduated cum laude in Biotechnology at Wageningen University with his Ph.D. research project, “Modeling of the Microbial Quality of Food.” He continued in the Food Process Engineering group, first as a tenured Assistant Professor, then as an Associate Professor. His research focused on quantitative microbiology and risk assessment. In 1995, during his sabbatical, Dr. Zwietering joined the Unilever Research Lab in the United Kingdom. In 1998, he moved to the research lab of Danone in France, where he worked on starter cultures, symbiosis, metabolic flux analysis, and quantitative risk assessment. He returned to Wageningen University in 2003.

Dr. Zwietering has published more than 200 papers and has an h-factor of 42. He is Editor of the International Journal of Food Microbiology and serves on the Editorial Board of the Journal of Food Protection. Dr. Zwietering is Co-Chair of the ILSI – Europe Microbiological Food Safety Task Force and is regularly invited for international expert consultations for FAO/WHO, EFSA, and Codex working groups. He is a member of the International Commission on Microbiological Specifications for Foods, the Dutch Health Council, and the Academic Board of Wageningen University.

GMA Food Safety Award

The recipient of the 2019 GMA Food Safety Award is the Almond Board of California (ABC), located in Modesto. Formed in 1950, ABC has overseen the responsible growth of the industry, from 91,500 bearing acres producing 41.6 million pounds of almonds annually to 1,070,00 bearing acres today, producing 2.29 billion pounds of almonds, with a farm value exceeding $5.5 billion.

The Board directs a full-time professional staff engaged in key program areas, including food safety research, food safety programs, industry outreach, and education. The Board and the ABC staff represent 6,500 growers and 100 almond handlers throughout the state of California. ABC supports the almond industry through its research-based approach toward all aspects of production, processing, and marketing on behalf of the California Almond growers and handlers. A key focus and core value of ABC is the commitment to ensuring food safety.

Since 2000, ABC has invested more than $10 million in research and pathogen/analytical surveys, resulting in the publication of more than 30 almond food safety and quality peer-reviewed scientific journal articles and numerous technical bulletins, serving as the basis for several ABC programs, including the mandatory treatment program for Salmonella reduction. The mandatory rule, enacted by the industry and codified under 7 CFR Part 981.442, went into effect September 1, 2007.

Today, ABC continues to make investments in food safety with the goal of protecting consumers as well as ensuring the integrity of California Almonds and the low-moisture food category in general.
Frozen Food Foundation Freezing Research Award

Dr. Martin Wiedmann is the recipient of the 2019 Frozen Food Foundation Freezing Research Award. This award honors an individual, group or organization for pre-eminence and outstanding contributions to research that impacts food safety attributes of freezing.

Dr. Wiedmann is the Gellert Family Professor of Food Safety at Cornell University in Ithaca, New York, where he has been a faculty member since 1999. His research focuses on farm-to-table microbial food quality and safety and the application of modern molecular and modeling tools to study the transmission of foodborne pathogens and spoilage organisms. His program also includes a strong emphasis on translation of research findings to reduce foodborne illnesses and microbial food spoilage. Dr. Wiedmann’s team and collaborators have published more than 350 peer-reviewed publications, which have been cited more than 10,000 times. His research includes broad collaborations with industry, universities, and government agencies.

Dr. Wiedmann joined IAFP in 2000 and currently serves on the Editorial Board for the Journal of Food Protection.

Noted awards received by Dr. Wiedmann include the Foundation Scholar Award from the American Dairy Science Association (2002); the Samuel Cate Prescott Award from the Institute of Food Technologists (2003); the International Life Science Institute North America Future Leader Award (2004); and the American Meat Institute Foundation Scientific Achievement Award (2011). He has been named a Fellow of the American Association for the Advancement of Science (AAAS); the Institute of Food Technologists (IFT); the American Academy of Microbiology (AAM); and the International Academy of Food Science and Technology.

Dr. Wiedmann received a veterinary degree and a doctorate in Veterinary Medicine from Ludwig-Maximilians University in Munich in 1992 and 1994, respectively. He also earned a Ph.D. in Food Science from Cornell in 1997. His research career began in 1992 with investigations on Listeria monocytogenes, which remains a key research focus.  

Institut Mérieux Young Investigator Award in Antimicrobial Resistance

Dr. Jasna Kovac is the recipient of the 2019 Institut Mérieux Young Investigator Award in Antimicrobial Resistance. New this year, the award recognizes an active IAFP Member who has shown outstanding ability and professional promise as a researcher in food microbiology/food safety, focusing on antimicrobial resistance.

Dr. Kovac is an Assistant Professor in the Department of Food Science at Pennsylvania State University in State College. She conducts research focused on precision food safety, integrating microbiological and omics methods to improve understanding of the foodborne pathogen and antimicrobial resistance transmission in the food supply chain. Dr. Kovac is using the Bacillus cereus group as a model for diverse foodborne pathogen species complex that necessitates strain-level characterization for food safety risk assessment. She made significant contributions to the development of the bioinformatics tool, BTyper, for genome-based characterization of the B. cereus group isolates. The BTyper was recently implemented in the first whole genome sequence-based B. cereus group foodborne outbreak investigation. Dr. Kovac continues studying the epidemiology of antimicrobial resistance in Campylobacter, one of the most common bacterial foodborne pathogens. She is collaborating with partners from academia and government agencies active in the food safety and public health space to address some of the pressing questions related to antimicrobial resistance detection and spread.

Dr. Kovac graduated from the University of Ljubljana with a bachelor’s in Microbiology and a Ph.D. in Biosciences/Biotechnology, with a focus on antimicrobial resistance of Campylobacter. She was a postdoctoral associate in the Department of Food Science at Cornell University before taking her current position at Pennsylvania State University.

Sponsored by
Food Safety Magazine Distinguished Service Award

Ms. Theodora Morille-Hinds is the recipient of the 2019 Food Safety Magazine Distinguished Service Award. Ms. Morille-Hinds is the Vice President of Global Food Safety and Quality, accountable for food safety, sanitation, quality management systems, auditing, supplier quality management, supplier certification, premiums, packaging quality, and compliance to design, process optimization and co-manufacturer quality for the Kellogg Company in Battle Creek, Michigan.

Ms. Morille-Hinds joined Kellogg as a Senior Director of Global Food Safety and Sanitation in July 2011, and was promoted to Vice President of Global Quality Food Safety and Regulatory in November 2013. Prior to joining Kellogg, she spent 25 years with Kraft Foods in various leadership roles including microbiology, research, and R&D.

Ms. Morille-Hinds is on the Editorial Advisory Board of Food Safety Magazine and the Food Safety Advisory Board of both the University of Georgia and Tuskegee University. She is currently on the board and a Past President of SSAFE, a global nonprofit organization that works with intergovernmental partners to address emerging issues that have potential to affect the safe supply of food around the world. She is also affiliated with numerous other industry associations.

Ms. Morille-Hinds holds a B.Sc. from York College, City University of New York, and an M.Sc. in Food Microbiology from Long Island University, City University of New York.

Sponsored by

Maurice Weber Laboratorian Award

Dr. Larry Beuchat is the recipient of the 2019 Maurice Weber Laboratorian Award. This award recognizes an IAFP Member for dedicated and exceptional contributions in the laboratory, and commitment to the development and/or application of innovative and practical analytical approaches in support of food safety.

Dr. Beuchat is a Distinguished Research Professor Emeritus of the Center for Food Safety at the University of Georgia in Griffin. Areas of his research have included microbiology of produce and nuts; methodologies for detecting and enumerating foodborne pathogenic bacteria; yeasts and molds; metabolic injury and resuscitation of bacteria and fungi; relationships of water activity to pathogen survival and growth; antimicrobial compounds; and food preservatives and sanitizers.

Dr. Beuchat has published more than 530 peer-reviewed articles (131 in the Journal of Food Protection) and five books on these topics, and has served as an advisor for the National Academy of Sciences; the World Health Organization; Food and Agriculture Organization; and the International Committee on Food Microbiology.

An active member of IAFP since 1972, Dr. Beuchat received the GMA Food Safety Award in 2005; the Harry Haverland Citation Award in 2003; the IAFP Elmer Marth Educator Award and the President’s Recognition Award, both in 2001; and the Fellow Award in 1998. He served as Co-Scientific Editor of the Journal of Food Protection from 1994–2001. He is also a Fellow of both the Institute of Food Technology and the American Society of Microbiology.

Dr. Beuchat holds a B.S. in Horticulture from Pennsylvania State University and M.S. and Ph.D. in Food Science from Michigan State University.

Sponsored by
Ewen C.D. Todd Control of Foodborne Illness Award

Dr. Tanya Roberts is the recipient of the 2019 Ewen C.D. Todd Control of Foodborne Illness Award. This award recognizes an individual for dedicated and exceptional contributions to the reduction of risks of foodborne illness. Dr. Roberts is currently the Chair of the Board of Directors for the Center for Foodborne Illness Research & Prevention (CFI), serving as a leader in developing policy positions and advocacy efforts. CFI is an all-volunteer food safety and food-borne illness prevention non-profit organization based out of Grove City, Pennsylvania.

Dr. Roberts has been involved in food safety since the late 1970s when the U.S. Department of Agriculture’s Economic Research Service (ERS) assigned her the task of conducting a Benefit/Cost Analysis of meat and poultry inspection. Her pioneering work on estimating the human cost of foodborne illness (medical costs and productivity losses) helped raise awareness of the significance of foodborne illness. In 1987, Dr. Roberts testified before the U.S. Senate’s Hearing on “Foodborne Illnesses and Deaths.” The Centers for Disease Control and Prevention (CDC) was a critical collaborator and provided estimates of the number of cases of foodborne illness and deaths. The Council for Agricultural Science and Technology asked Dr. Roberts to co-chair a study, with Dr. Peggy Foegeding, on “Foodborne Pathogens, Risks and Consequences.”

Given the importance of data in providing economic incentives for pathogen prevention and control, Dr. Roberts spear-headed ERS’s 1995 conference, “Tracking Foodborne Pathogens from Farm to Table: Data Needs to Evaluate Control Options.” The USDA invited her to lead the slaughterhouse module of the E. coli O157 risk assessment, leading to publications on the costs of slaughterhouse controls, economics of innovation, and analysis of company strategies.

After retiring from ERS in 2008, Dr. Roberts volunteered with CFI. At the request of IAFP’s Springer Book Publishing Committee, she developed the book, Food Safety Economics: Incentives for a Safer Food Supply. Intended to communicate economic principles to IAFP Members, the 2018 book includes 18 chapters by international experts.

Sponsored by MARLER CLARK
Sanitarian Award

The 2019 Sanitarian Award goes to Dr. Scott Burnett. The Sanitarian Award honors an IAFP Member for dedicated and exceptional service to the profession of the sanitarian serving the public and the food industry. Dr. Burnett is a Principal Scientist with Post Consumer Brands’ Corporate Quality and Food Safety Department in Lakeville, Minnesota. His work focuses on enhancing and verifying environmental microbiological and hygiene controls; food manufacturing sanitation technology development; and thermal process validation of low-moisture food products. Previously, Dr. Burnett was the Research and Development Director of Food Safety in Ecolab’s Global Food and Beverage Division, and has held food safety and sanitation leadership positions at MOM Brands and Land O’Lakes, all in Minnesota.

An IAFP Member since 1999, Dr. Burnett was co-founder of the Student Professional Development Group, has presented at many IAFP Annual Meetings, actively participates in PDGs, and has served on several award selection committees. He is currently on the Editorial Board for the Journal of Food Protection and is a member of the IAFP Affiliate, the Minnesota Food Protection Association. He received the IAFP President’s Recognition Award in 2000.

Dr. Burnett has authored or co-authored 12 peer-reviewed scientific publications, seven issued patents, and has presented or taught at multiple food safety-focused venues around the world. He earned his Ph.D. at the Center for Food Safety at the University of Georgia and holds a B.Sc. in Microbiology and a B.A. in Spanish from Montana State University.

Sponsored by

Elmer Marth Educator Award

Dr. Marcel Zwietering is the recipient of the 2019 Elmer Marth Educator Award, which recognizes an IAFP Member for dedicated and exceptional contributions to the profession of education. Dr. Zwietering is a Professor at Wageningen University in Wageningen, The Netherlands, where he currently instructs students in B.Sc. and M.Sc. programs, as well as courses for Ph.D.

After obtaining his M.Sc. in Biotechnology at Wageningen University in 1987 and his Ph.D. in 1993, Dr. Zwietering continued at the university in the Food Process Engineering group as a tenured Assistant Professor. As an Associate Professor in 1996, he taught core engineering courses, such as mass transfer, and applied courses, such as food fermentation.

Dr. Zwietering worked for Danone in France from 1998–2002 and returned to Wageningen in 2003 as Professor in Food Microbiology. His research chair developed a private online B.Sc. course for NTU University in Singapore, as well as courses for an online international M.Sc. food technology program. With the Toxicology Chair, Dr. Zwietering developed the Food Safety MOOC that has received a large international audience.

Dr. Zwietering joined IAFP in 2009, and has served on the Organizing Committee for several European symposia. He currently serves on the Editorial Board for the Journal of Food Protection.

In 2005, Dr. Zwietering was elected as member of the International Commission on Microbiological Specifications for Foods and has contributed to various sampling plan workshops all over the world, as well as a series of YouTube knowledge clips. He serves as Co-Chair of the ILSI – Europe Microbiological Food Safety Task Force.

Sponsored by
As the recipient of the 2019 Harold Barnum Industry Award, Dr. Ken Davenport is being honored for his dedication and exceptional service to IAFP, the public, and the food industry.

Dr. Davenport is a Laboratory Manager at the 3M Food Safety Department in Saint Paul, Minnesota, responsible for product and technology development teams for novel food safety solutions. Under his leadership, his team launched impactful products, including 3M™ Molecular Detection System, Rapid Petrifilm™ Products, and Lactic Acid Bacteria Petrifilm™ Plate.

While at 3M Food Safety, Dr. Davenport has also served as a Global Technical Services Specialist, a Six Sigma Black Belt, and Product Development Manager. His career began at Biotrace, becoming Vice President of Technical Services in 2003.

Dr. Davenport has presented hundreds of food safety educational seminars and workshops in more than thirty countries. He has spoken on topics spanning Biofilms, ATP Detection, Risk-based Sampling, Listeria Control, Pathogen Detection, Environmental Monitoring, and Leadership.

Dr. Davenport joined IAFP in 2007 and has been a very active Member, chairing the Food Chemical Hazard and Food Allergy PDG and the Food Packaging PDG. He is also a member of the Hygiene and Sanitation PDG. He has co-led the Chair/Vice Chair team and introduced a novel Parallel Ideation Process to streamline the collection of ideas for symposia and roundtables in PDG meetings. He is also a Member of the IAFP Affiliate, the Wisconsin Association for Food Protection.

Dr. Davenport holds a degree in Chemistry from Spring Arbor University, an M.B.A. from the University of Minnesota, and a Ph.D. from the Department of Biochemistry at Rice University. He has been married to Theresa for 26 years, has three children, and tends a vineyard in western Wisconsin, making wine in his spare time.
Travel Award for Food Safety Professionals in a Country with a Developing Economy

Charles Bashiru Bakin is a recipient of the 2019 Travel Award. Mr. Bakin is a Food Safety Officer with the Food and Drugs Authority in Ghana, where he provides training and technical assistance in the implementation of food safety systems and is responsible for auditing food businesses to ensure they demonstrate commitment to responsible safe food production. Prior to his current position, he worked briefly with MARS GmbH, European Headquarters in Verden, Germany, in the Supplier Quality Assurance Department.

Mr. Bakin has a broad range of interests that cover many aspects of food safety and quality, including food safety and quality management systems; food safety risk analysis; food safety inspections; food regulation and control; antimicrobial resistance; and sustainable food systems.

Mr. Bakin holds an M.Sc. in Sustainable Food Systems, a European joint degree offered by a consortium of six universities (University of Kassel and Fulda University of Applied Science, both in Germany; Ghent University in Belgium; Aarhus University in Denmark; Institut Supérieur d’Agriculture et d’Agroalimentaire Rhône-Alpes, ISARA-Lyon in France; and the University of Agricultural Science and Veterinary Medicine of Cluj-Napoca, USAMV Cluj in Romania). He earned his B.Sc. in Nutrition from the University for Development Studies in Ghana.

Charles Bashiru Bakin  
Food and Drugs Authority  
Wa, Upper West Region, Ghana

Abdoulie Jallow is a recipient of the 2019 Travel Award. Mr. Jallow is a Scientific Officer at the Food Safety and Quality Authority of The Gambia, the sole national competent authority in charge of official control of food safety and quality control in the country. In this role, he is responsible for identification of food safety risks in the national food value chain, along with risk profiling and data collection and analysis, among other responsibilities. Mr. Jallow recently completed the development of a risk profile of *Salmonella* in Gambian raw cow milk. He has undergone training in microbiological and chemical risk assessment, all supported by the Food and Agriculture Organization (FAO).

Mr. Jallow is an executive member and co-founder of the Gambian Quality Association, a youth-led professional association that seeks to advocate and work towards standardization and implementation of safety and quality systems in Gambian products and processes with a special focus on agricultural products. Its main objective is to considerably reduce the frequency of rejections that Gambian food products face in the international market, especially due to food safety-related issues. Within this association, Mr. Jallow is currently working with Aspuna Gambia LTD, a local cassava processing company, helping the company attain HACCP certification to boast export market access.

Under a government scholarship, Mr. Jallow obtained his bachelor’s in Food Processing Engineering in 2016.

Abdoulie Jallow  
Food Safety and Quality Authority of The Gambia  
Serrekunda, Gambia

Sponsored by
Ismail Ayoade Odetokun is a recipient of the 2019 Travel Award. Dr. Odetokun is a Senior Lecturer/Assistant Professor and acting Head in the Department of Veterinary Public Health and Preventive Medicine at the University of Ilorin in Ilorin, Nigeria, where he teaches undergraduate students within the Doctor of Veterinary Medicine (DVM) program. Though he is an early career academics/researcher, he is highly motivated to conduct food safety research as it affects public health. His specific interests are in the areas of foodborne diseases, food hygiene, and antimicrobial resistance (AMR) in the food chain.

At the university, Dr. Odetokun also serves on various committees in an administrative capacity. He is a former member of the Scientific Committee of the first GHI Conference on Food Safety and Security, and is a current member of several professional and scientific associations, with several publications to his credit. Dr. Odetokun completed his Doctor of Veterinary Medicine (DVM); Master of Veterinary Public Health; and Ph.D. in Veterinary Public Health, all from the University of Ibadan. During his studies, he received several national and international scholarships and prizes, including the 2013 IAFP Student Travel Scholarship.

As an early career researcher, Dr. Odetokun seeks strong collaborative networks, mentorship, and guidance in his goal to be a next generation expert on food safety and AMR. He hopes to eventually become a university professor, with a highly competitive scientific capability, producing accomplished undergraduate and postgraduate students while conducting evidence-based scientific research leading to disease control and the establishment of food safety policies to improve public health, especially in developing countries like Nigeria.

At IAFP 2019, Dr. Odetokun is eager to interact with the stakeholders in food protection from around the world to foster regional and international cooperation with the aim of developing cutting-edge research in the near future.

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IAPF Foundation
Travel Award for State or Provincial Health or Agricultural Department Employees

Gregory Danzeisen is a recipient of the 2019 Travel Award. Mr. Danzeisen is a Research Scientist with the Microbiology Section of the Minnesota Department of Agriculture (MDA) Laboratory Services Division in Saint Paul, Minnesota. He earned his B.S. and M.S. in Microbiology from North Dakota State University in Fargo.

Mr. Danzeisen began his career in Food Microbiology in 2010 working for MDA before moving to Eurofins Microbiology Laboratories, where he spent five years as a Senior Microbiologist. He recently returned to state service with MDA as a Research Scientist. In this role, his primary focus is evaluating, validating, and employing detection methods for various foodborne pathogens, including Campylobacter, Salmonella, Shiga-toxin producing E. coli, and Listeria. In addition, he is working on rapid confirmation methods for pathogens, including MALDI-TOF.

Mr. Danzeisen is an instructor with the USDA Food Safety Inspection Services (FSIS) FERN Training Center in Minnesota. He teaches current methodology for detection and isolation of foodborne pathogens to FERN scientists from across the country. He also serves as the Vice President for the IAFP Affiliate, the Minnesota Food Protection Association, whose mission is to provide a forum for information exchange pertaining to the protection of the food supply to food safety professionals in the state.

Mr. Danzeisen is grateful for the opportunity to attend IAFP 2019 and is looking forward to learning new information from the conference and from fellow attendees.

Ashley Giddens is a recipient of the 2019 Travel Award. Ms. Giddens is an Environmental Health Specialist IV for the Worth County Health Department in Sylvester, Georgia. She has been employed as an Environmental Health Specialist in the State of Georgia for twelve years. She began her career in Environmental Health at Lowndes County Health Department in Valdosta, Georgia in 2007, where she served as the District/Standard Trainer and the Food Program Manager before the position was eliminated.

With an expertise in the Food Service Program, Ms. Giddens currently works in all areas of the Environmental Health Program including Food, On-Site Sewage Management, Rabies, Tourist Accommodations, Pools, Body Art, Well Water, and Emergency Preparedness. Since joining the department, she has trained in all aspects of the Food Program and currently serves as the sole District Standard/Trainer for the 14-county health district. Ms. Giddens’ duties include ensuring that staff are properly trained in the Food Program and that all staff are standardized to State requirements. Working in both metropolitan and rural communities as well as having food safety responsibilities during two natural disasters has given her a unique perspective.

Ms. Giddens earned her B.S. in Biology from Valdosta State University. She is a member of the Georgia Environmental Health Association and the Georgia Environmental Health Strike Team.

Ms. Giddens is thrilled with the opportunity to attend IAFP 2019.
Emily Harvey is a recipient of the 2019 Travel Award. Ms. Harvey is an Epidemiologist in the Bureau of Infectious Disease and Laboratory Sciences for the Massachusetts Department of Public Health (MDPH) in Boston. She is currently one of two Foodborne/Waterborne Disease Project Coordinators, sharing her duties with past Travel Award recipient, Johanna Vostok. Together, they oversee the investigation and reporting of foodborne illness outbreaks to the Centers for Disease Control and Prevention (CDC).

Ms. Harvey is also one of the founding members and current coordinators of the Department’s Working Group on Foodborne Illness Control, a collaboration of epidemiology, environmental health, local boards of health, and laboratory peers who meet regularly to discuss current foodborne illness outbreaks and best practices in outbreak and case investigation. She assists in the development of protocols related to epidemiological response for non-vaccine preventable diseases and serves as a resource for local health departments, academia, and other public health professionals.

Ms. Harvey has enjoyed a long and fulfilling career in public health since joining MDPH’s Bureau of Environmental Health Food Protection Program in 1983, where she has honed her environmental health specialist skills as a wholesale food inspector, and became both a Registered Sanitarian and federally certified as an Evaluation Officer in Food Service and Retail Foods. She concluded her tenure in the Food Protection Program as the Supervisor of the Local Health Operations Unit, which oversaw the audits of local food establishment programs, training, and education to local health and industry partners.

Upon joining the Division of Epidemiology in 1988, Ms. Harvey has been the fortunate recipient of numerous trainings, workshops, and seminars, allowing her continued growth as a public health professional. She holds a B.S. in Public Health from the University of Massachusetts in Amherst.

Ms. Harvey is honored and excited to attend her first IAFP Annual Meeting in Louisville.

Mona Johnson is a recipient of the 2019 Travel Award. Ms. Johnson is the Senior Scientist for the Food Emergency Response Network (FERN) at the Virginia Division of Consolidated Laboratory Services (DCLS) in Richmond. Her responsibilities include validation of new methods to isolate and/or characterize foodborne pathogens; providing QA guidance and technical training for personnel within the section; and overseeing QA procedures of the lab in support of ISO/IEC 17025 standards.

With a B.S. in Biological Sciences and an M.S. in Food Science and Technology, both from Virginia Tech, Ms. Johnson started her career in food safety as the Project Manager for Product Development and Quality for a prepared foods and bakery manufacturer in Richmond. Since joining DCLS in 2017, she has worked in the Food Microbiology laboratory, overseeing daily operations within the lab, which provides testing for the Commonwealth of Virginia. The lab also provides testing performed in collaboration with federal partners at the U.S. Department of Agriculture’s Food Safety and Inspection Service and the Food and Drug Administration within the FERN Microbiology Program.

Ms. Johnson is grateful for the opportunity to attend a meeting that provides a platform to learn about new testing technologies, as well as information regarding novel pathogens, food vehicles, and emerging issues in food safety.
Travel Award for State or Provincial Health or Agricultural Department Employees

Lorraine McIntyre is a recipient of the 2019 Travel Award. Ms. McIntyre is a Food Safety Specialist with Environmental Health Services at the British Columbia Centre for Disease Control (BCCDC) in Vancouver, British Columbia, Canada. She earned her B.Sc. from the University of British Columbia and M.P.H.Sc. from the University of Hertfordshire in Hatfield, United Kingdom.

Ms. McIntyre’s career began as a plant pathologist technician working on canola, as a research technician on Giardia, and as a medical assistant before joining BCCDC in 1993, where she has worked for more than 25 years. Beginning in the laboratory division, she supervised and coordinated water, food, and gastroenteritis outbreaks before moving to Environmental Health. Ms. McIntyre investigates food issues and outbreaks, conducts applied research, and serves as a technical specialist providing advice to health inspectors. In addition, she has led several multi-stakeholder groups to create guidance on a range of topics, such as best practices for sous vide and food distribution organizations, and enjoys mentoring student projects.

Ms. McIntyre currently chairs a national working group to create fermented food guidance and serves on the Health Canada food expert advisory group. She has been a proud Member of IAFP since 2003 and of the IAFP Affiliate, the British Columbia Food Protection Association, since 2005.

Ms. McIntyre is grateful for the opportunity to attend IAFP 2019 in Louisville to learn about current food safety issues.
Hiroki Abe is a first-year Ph.D. candidate in the Department of Agriculture at Hokkaido University in Sapporo, Japan, where he also obtained his undergraduate and master’s degrees. Inspired by an early childhood experience of intense food poisoning, Mr. Abe elected to focus his academic studies on conducting research on predictive microbiology. He is currently working on developing a stochastic approach describing individual cell heterogeneity during thermal inactivation and, most recently, in the human body. He has authored/co-authored four articles published in three food safety journals.

Mr. Abe is tremendously honored to be chosen as a recipient of the Student Travel Scholarship to attend IAFP 2019, allowing him to share his recent results in stochastic model describing individual cell heterogeneity, as well as developing relationships with the most prestigious researchers in the microbiological field. His goals are to contribute to build a world where people can enjoy delicious food without worry of food poisoning.

Jennifer Acuff is a Ph.D. student in the Department of Food Science and Technology at Virginia Tech in Blacksburg, under the direction of Dr. Monica Ponder, as well as Drs. Robert Williams, Haibo Huang, and Daniel Gallagher. Ms. Acuff earned a B.S. in Biology at Abilene Christian University and an M.S. in Food Science at Kansas State University, where her research focused on food microbiology and safety.

Ms. Acuff currently researches low water activity food (LWAF) safety, specifically regarding nuts and dried fruits. LWAF producers face unique challenges when addressing the safety of their ready-to-eat products while still maintaining quality standards. Ms. Acuff is passionate about learning what challenges food processors face and how scientists can provide tools and solutions to promote LWAF safety. Her current research examines the efficacy of low-temperature, vacuum-assisted steam on various LWAF that are contaminated with STEC, L. monocytogenes, and Salmonella spp., while also seeking a suitable surrogate organism for this process.

As a teaching assistant, Ms. Acuff also helps instruct Food Microbiology and Fermentation Microbiology courses at Virginia Tech. She enjoys teaching and working with undergraduate students, believing these courses offer unique opportunities to provide food safety education to students and promote positive food safety practices that they may share in their respective communities.

Since joining IAFP in 2013, Ms. Acuff has participated in numerous PDGs and presented her research at several Annual Meetings. IAFP activities and Members have played an integral role in her scholarship and professional development by providing her with valuable opportunities to help plan symposia and work with other food safety enthusiasts.

Ms. Acuff is extremely honored to receive the IAFP Student Travel Scholarship to attend this year’s Annual Meeting, where she will present findings from recent experiments that examine the efficacy of steam in reducing pathogens on raisins. She is excited for this opportunity to share her research, learn from experts in the field, and develop partnerships with other members of the food safety industry.
Justin Anast is currently a Ph.D. student in the Interdepartmental Microbiology program at Iowa State University in Ames, Iowa, under the supervision of Dr. Stephan Schmitz-Esser. Mr. Anast received his B.S. in Microbiology from the University of Idaho in 2016. During his undergraduate studies, he worked as a research assistant in biology and chemistry research labs, as well as a teaching assistant for the Chemistry Department.

Mr. Anast’s doctoral thesis research focuses on the foodborne pathogen, *Listeria monocytogenes*, during competition with food bacteria. He aims to uncover what genes are utilized by *Listeria* during co-culture using transcriptomics. Another focus of his research is to elucidate the role of a rearrangement hotspot protein (RHS) in competition. RHS proteins have been shown in other bacteria to mediate competition. This work may reveal novel targets of counter measures to *Listeria* in human foods and the food production environment.

Mr. Anast also studies the genomes of *Brevibacterium* strains from Austrian mountain cheese rinds and how they may adapt to the cheese rind environment. This study has uncovered a novel *Brevibacterium* plasmid and the ability to degrade histamine. Elevated levels of histamine in fermented foods have led to histamine intoxication in susceptible people. This study has yielded him a first author publication.

Mr. Anast is pleased to receive the Student Travel Scholarship to attend IAFP 2019, hoping to use this opportunity to learn as much as possible about the food industry challenges regarding improvement of food security, as well as network with food safety professionals. After completion of his doctorate degree, he hopes to have a career in the food industry to continue his goal of contributing to better food safety.

Katrien Begyn is a Ph.D. student at the Research Unit of Food Microbiology and Food Preservation (FMFP-UGent) of the Department of Food Technology, Safety and Health, located at the Faculty of Bioscience Engineering of Ghent University, Ghent, Belgium. Since graduating in 2014 with her M.Sc. in Biomedical Sciences, Ms. Begyn has been working on different short-term research projects, i.e., *Clostridium botulinum* spores, microwave heating, and detection of food pathogens in food products using PCR.

Ms. Begyn’s doctoral research focuses on the impact of *Bacillus cereus* endospore evolution on food safety, with an emphasis on UV and wet heat stress. This research project is a cooperation between three Belgian institutes with extended knowledge of *B. cereus*: FMFP-UGent (Ghent University); the Centre for Food and Microbial Technology, Department M2S, member of Leuven Food Science and Nutrition Centre (LFoRCe, KU Leuven); and Flanders Research Institute for Agriculture, Fisheries and Food, Technology and Food Science, Food Safety Unit (ILVO). The project’s objective is to assess the potential impact of *B. cereus* endospore evolution in the food production chain at the molecular, population, and industrial levels.

Ms. Begyn received the 2018 European Student Travel Scholarship to attend IAFP’s European Symposium on Food Safety in Stockholm, Sweden, and is grateful to receive this year’s Student Travel Scholarship. She looks forward to meeting and networking with food safety professionals from academia, government, and industry to exchange knowledge and establish new collaborations. Ms. Begyn will present some of her latest research results during IAFP 2019.
Melanie Firestone is a Ph.D. candidate in the Division of Environmental Health Sciences at the University of Minnesota’s School of Public Health in Minneapolis, under the supervision of Dr. Craig Hedberg, co-director of the Minnesota Integrated Food Safety Center of Excellence. Ms. Firestone received her B.S. in Health and Exercise Science from Wake Forest University and her M.P.H. in Epidemiology from Columbia University. After completing her master’s degree, she worked as a research scientist at the New York City Department of Health and Mental Hygiene, where she first developed an interest in foodborne illness epidemiology.

Ms. Firestone’s current doctoral work focuses on developing a framework to enhance understanding of the relationship between restaurant inspections, food exposures, and risk of illness to identify opportunities for foodborne illness prevention. She recently published an article in the CDC’s journal, *Emerging Infectious Diseases*, showing a decline in *Salmonella* infections in New York City after the implementation of a letter grade program for restaurant inspections. Additionally, she co-authored an article in *Food Protection Trends* about root cause analysis in the food industry as a direct result of her attendance at IAFP 2017.

Upon completing her Ph.D., Ms. Firestone is interested in continuing research that can directly inform public policy to reduce the burden of foodborne illnesses. She is honored to be a recipient of this year’s IAFP Student Travel Award and looks forward to representing the public health perspective while expanding her understanding of the global food system.

Catherine Gensler is completing her M.Sc. in the Department of Animal Science at the University of Connecticut in Storrs, under the direction of Dr. Dennis D’Amico. Ms. Gensler received a B.S. in Food Science from the University of Massachusetts – Amherst in 2016. Her interest in food safety grew out of high school experiences competing in the Science Olympiad event, “Disease Detectives,” which focused on foodborne illness outbreaks.

Ms. Gensler’s research focuses on evaluating the use of commercially available protective cultures to control *Listeria monocytogenes* and Shiga-toxin producing *Escherichia coli* in soft, surface-mold ripened raw milk cheese. Manufacturing pathogenic cheese in the lab has been a highlight for her this past year – ask her about it! She is passionate about educating everyday consumers about the wonders of food science and safety. After graduation, she looks forward to supporting food safety education work with small producers and entrepreneurs in an extension capacity.

Ms. Gensler is honored to receive a Student Travel Scholarship to attend IAFP 2019. She is excited to share her research, connect with other students, and network with extension professionals and members of the food safety community. Ms. Gensler would like to acknowledge the unwavering support of her research advisor, Dr. D’Amico, undergraduate mentor Amanda Kinchla, her lab mates, and the student PDG Officer team.
Student Travel Scholarship Award

Carly Gomez is an M.S. candidate in Biosystems Engineering at Michigan State University in East Lansing, under the supervision of Dr. Bradley Marks, and where she also completed her B.S. As an undergraduate, Ms. Gomez studied high-temperature water activity of low-moisture foods, modeled the negative economic impact of low-moisture food recalls, and developed a risk model for listeriosis in cancer patients who consume fresh salad.

During her graduate studies, Ms. Gomez is continuing the risk modeling project, using engineering approaches to develop improved risk models for foodborne illness in cancer patients, modeling bacterial survival during hyper-hygienic preparation processes, and conducting risk analyses of foodborne illness and nutritional impacts in immunocompromised populations following neutropenic diets. She plans to continue this work through her doctoral studies, with the end goal of developing patient-centered educational materials and training for produce preparation in healthcare facilities.

Ms. Gomez is honored to be a recipient of this year’s IAFP Student Travel Scholarship. It will be her first time attending IAFP’s Annual Meeting, where she plans to share her work with recall and risk modeling. She is excited to meet food safety experts from around the world, engage in conversations about integral problems and solutions in food safety, and receive feedback on her work.

Gayathri Gunathilaka is a Ph.D. candidate in the Department of Food Science and Human Nutrition at Michigan State University in East Lansing, under the supervision of Professor Elliot Ryser. Ms. Gunathilaka earned her M.Sc. in Food Science and Nutrition with a concentration on food microbiology from Wayne State University and received her B.Sc. in Agriculture, Technology and Management from the University of Peradeniya in Sri Lanka.

Ms. Gunathilaka’s research findings on food safety were documented in several peer-reviewed publications, where she was the first author for two high-impact publications in the field. Her current research focuses on optimizing the conditions for engineered nanoparticles (ENP) removal in an existing fresh-cut pilot-scale processing line. In her research, residual ENPs on fresh produce are evaluated and the conditions are optimized for ENP removal in processing practices, thus contributing to the reduction of ENP-related food safety risks and protecting humans.

Ms. Gunathilaka is incredibly honored to be a recipient of the Student Travel Scholarship to attend IAFP 2019, where she will be presenting her current research findings in a poster session. She is excited to share her research with food safety professionals from around the world, which will provide her the opportunity to broaden her knowledge on food safety and obtain more information related to her research.
Student Travel Scholarship Award

John “Jack” Hodges is a junior undergraduate student at the Conrad N. Hilton College of Hotel and Restaurant Management at the University of Houston in Houston, Texas. Mr. Hodges is jointly pursuing a B.S. in Hotel and Restaurant Management and an M.S. in Hospitality Management. He plans to pursue his Ph.D. in Hospitality Administration to enter academia and apply innovative analytics and technology to the foodservice industry.

Mr. Hodges comes from an extensive background in the hospitality industry, which aids him in developing practical applications for food safety training and education. Over the past year, he has been studying the effect of foodborne illness on restaurant patrons’ satisfaction through online review channels and the use of big data analytics to monitor foodborne illness outbreaks nationwide. He also studies food safety in emerging foodservice concepts such as food trucks and mobile app food delivery.

Mr. Hodges is extremely grateful to be a recipient of the 2019 Student Travel Scholarship and attend this year’s Annual Meeting. While he has presented his work at hospitality conferences, he notes that food safety only takes up a small portion of the proceedings. He is excited to see the full breadth and depth of food safety research and interact with colleagues and experts. Mr. Hodges would like to thank Drs. Sujata Sirsat, Agnes DeFranco, and Minwoo Lee for their invaluable support and mentorship.

Rochelle Keet is an M.Sc. student in the Department of Food Science at Stellenbosch University in Stellenbosch, Western Cape, South Africa, under the supervision of Dr. Diane Rip. Ms. Keet received her B.Sc. in Food Science from the university in 2017 and was one of the few recipients awarded the Rector’s Award for Excellent Achievement in Academics.

Ms. Keet’s master’s study is focused on the well-known food pathogen, *Listeria monocytogenes*, and its related virulent strains, which are responsible for causing listeriosis, a disease often fatal for immunocompromised individuals. Despite the significant public health risk posed by virulent strains of *L. monocytogenes*, very little research output has been generated from sub-Saharan Africa regarding the distribution of *L. monocytogenes* strains in the food environment and the associated public health risk. Thus, this study aims to fill in the gap between food and clinical strains, and to investigate potential links between these two areas. She is also investigating the efficacy of a current known listeriaphage to determine whether these phages are effective in controlling virulent strains of *L. monocytogenes*.

Ms. Keet is pleased to receive the Student Travel Scholarship to attend IAFP 2019. She is especially excited to meet researchers working on the same topic and to interact with them, gaining valuable insights that she can apply back home on her own studies. By attending this meeting, she is eager to learn about new advancements in research, innovative ways to utilize resources, and discover new skills or scientific approaches that can help assist with future experiments.
Muhammad Nadeem Khan is a Ph.D. candidate in the Department of Microbiology, Faculty of Biological Sciences at Quaid-I-Azam University in Islamabad, Pakistan, under the supervision of Dr. Muhammad Imran, where he also received his master’s in Food and Nutritional Microbiology. He holds a B.Sc. in Microbiology from Hazara University in Mansehra, Pakistan. Mr. Khan is currently working on a project aimed to develop economical and effective starter cultures for the dairy industry. He is also researching probiotics and their role in control and management of metabolic diseases. He has co-authored two publications.

During his master’s studies, Mr. Khan evaluated the impact of intermittent energy restriction on human physiology and gut microbiome. The aim of this study was to understand the effect of intermittent fasting on the diversity of microorganisms present in the intestine, an effort toward the development of a cost-effective, acceptable and convenient method for the beneficial modulation of human gut microbiota to prevent and manage metabolic diseases. His undergraduate work included isolating, identifying and characterizing Salmonella spp. from raw milk, eggs and poultry of the locale and relating its occurrence with the hygienic conditions of dairy farms, poultry farms and slaughter points in the area.

Mr. Khan is honored to receive a Student Travel Scholarship to attend IAFP 2019, with the opportunity to share his knowledge with the global food safety community. He looks forward to such a great platform to meet food safety experts and fellow students, network, and create new contacts in the food safety industry, which are important for his future work and collaborations.

Sakshi Lamba is pursuing her Ph.D. in Molecular Microbiology in the Centre for Food Safety at the University College Dublin (UCD) in Dublin, Ireland, where she also received her M.Sc. in Food Safety and Risk Analysis. A native of India, Ms. Lamba received both an M.S. and a bachelor’s in Applied Science in Food Technology from Haryana Agricultural University and the University of Delhi (respectively), both in India.

Ms. Lamba’s current research project, “No-Spores-DFI,” is funded by the Department of Agriculture, Food and the Marine (Ireland), and integrates fundamental with molecular microbiology to investigate the prevalence, resistance profile, and biofilm production characteristics of spore-forming bacteria within the low-moisture food (LMF) manufacturing environment to further assess the effect of novel control strategies for their decontamination. Her research findings will contribute toward the identification of “hot-spots” translating into quality improvements in LMF production environments. The targeted control measures are expected to enhance the efficiency, performance, and sustainability in the LMF chain. Potential commercialization of the novel approaches will benefit food business operators, in addition to advanced spore and biofilm control in food production industries.

Ms. Lamba has more than five years of professional experience in food safety compliance, academia, and research. Over the years, she has participated in several scientific events, delivered webinars, and developed e-courses addressing food safety professionals.

Ms. Lamba is grateful to receive the Student Travel Scholarship and participate in IAFP 2019. She is excited to present her research findings, engage with the experts in the area, and develop future collaborations with global food safety professionals.
Ruiling Lv is a Ph.D. candidate at Zhejiang University in Hangzhou, Zhejiang, China, under the supervision of Professor Donghong Liu. Ms. Lv’s doctoral research focuses on investigating the effects and mechanisms of ultrasound in combination with other treatments as innovative hurdle technology to inactivate bacterial spores (e.g., Bacillus cereus) in different agri-food products.

Ms. Lv is currently a visiting Ph.D. student at the University of British Columbia in Vancouver, Canada, under the supervision of Dr. Xiaonan Lu. Her ongoing research project focuses on the determination and characterization of VBNC Campylobacter under stress. As Campylobacter remains the leading cause of foodborne bacterial disease in large parts of the developed world, much effort is devoted to improving the detection and elimination of the pathogen. Campylobacter may enter a viable but non-culturable (VBNC) state in which it may have the potential to cause human infection but is not detected by the culture method. It is necessary to establish a quick, accurate, and sensitive method to detect VBNC Campylobacter.

Ms. Lv has published three first-author papers in top peer-reviewed journals, including Food Control; Applied Microbiology and Biotechnology; and the Journal of Food Safety.

Ms. Lv is honored to be a recipient of the Student Travel Scholarship Award, offering an opportunity to attend IAFP 2019 and meet with thousands of food safety professionals from around the world. She believes that this meeting will be of great benefit for her research.

Ms. Ruiling would like to thank Dr. Lu and Professor Liu for their immense support and help.

Sarah Murphy is a Ph.D. candidate in the Department of Food Science at Cornell University in Ithaca, New York, working under the guidance of Dr. Martin Wiedmann and Dr. Renata Ivanek. She holds a B.S. in Biological Chemistry from Bates College.

Ms. Murphy’s background is in the dairy industry, having worked for more than two years in quality assurance at Darigold in Bozeman, Montana, prior to graduate school. Her graduate research is focused on expanding knowledge of microbial dynamics in food systems to develop evidence-based practices that promote lasting impacts to food quality and safety throughout the supply chain. In addition to her research, Ms. Murphy is involved in the Cornell Dairy Foods Extension program, having administered several training sessions and on-site consulting to dairy processors over the past three years. She enjoys mentoring students as well as teaching, and was recently awarded the 2019 Outstanding Graduate TA award in Food Science. Her goal is to establish her own research program focused on food quality systems.

Ms. Murphy is excited to receive the Student Travel Scholarship and looks forward to presenting her research using machine learning to identify predictors of milk spoilage based on quality management practices. She also plans on participating in professional development activities and networking throughout IAFP 2019.
Oladipupo Odunayo Olatunde is a Ph.D. candidate in the Department of Food Technology at Prince of Songkla University in Songkhla, Thailand, under the supervision of Dr. Soottawat Benjakul, and co-supervision of Dr. Kitiya Vongkamjan. Mr. Olatunde received his B.Sc. and M.Sc. in Food Science and Technology, both from the Federal University of Agriculture Abeokuta in Nigeria. During his master's studies, he isolated probiotic lactic acid bacteria from effluents generated during the fermentation of Ogi, a fermented cereal (maize, millet, and sorghum) and investigated its antimicrobial properties against pathogenic microorganisms.

Currently, Mr. Olatunde's research focuses on the application of non-thermal processing technologies, particularly dielectric barrier discharge high-voltage cold atmospheric plasma (DBD-HVCAP) for inactivation of both pathogenic and spoilage microorganisms in fish. He proposed different inactivation mechanisms for Gram-positive and Gram-negative bacteria. This technology could be implemented in fish processing industries for assuring safety and extending the shelf life of fish and fish products.

Throughout his studies, Mr. Olatunde has attended several international conferences on food microbiology, processing, and waste utilization to share his current research work while developing side projects and publishing seven articles as a first author in international journals with high impact factors. He has also co-authored one additional publication.

Mr. Olatunde is profoundly grateful to receive the Student Travel Scholarship. He will present his recent findings during IAFP 2019, and looks forward to learning about current and emerging trends from worldwide food safety experts with vast experiences.

Nurudeen O. Oloso graduated in April 2019 after conducting full-time postdoctoral work in the Department of Production Animal Studies in Epidemiology at the University of Pretoria in Pretoria, South Africa, under the supervision of Professor Folorunso Fasina Oludayo and Professor Henriette van Heerden. Dr. Oloso is also part of the Faculty of Veterinary Science at the university. He holds a Doctor of Veterinary Medicine (DVM) from the University of Ibadan in Nigeria, where he also earned his master’s in Preventive Veterinary Medicine.

A native of Nigeria, Dr. Oloso’s eight-chapter doctoral thesis is on “Prevalence and characterization of Salmonella isolates originating from the broiler production value chain in Nigeria.” From this research and other projects related to food safety in Nigeria, Dr. Oloso has published six manuscripts, which are currently under review or in the course of submission to the university’s peer-reviewed journals. One of his research studies demonstrated Salmonella as a neglected zoonotic foodborne pathogen in Africa due to the lack of joint continental wise surveillance. Another study contributed data to a project situation analysis of antimicrobial resistance in Nigeria. These and other studies led him to establish the “ONE HEALTH PLATFORM” in disease management in Nigeria.

At IAFP 2019, Dr. Oloso looks forward to meeting professionals from different fields of food safety and interacting with participants from diverse sources to gain knowledge and possible collaborations for future research endeavors. He hopes to pursue the possibility of a postdoctoral program toward becoming an established researcher in food safety and security with the potential of supporting developing countries.
Student Travel Scholarship Award

Ruth Oni is a Ph.D. candidate in the Nutrition and Food Science Department at the University of Maryland – College Park. Ms. Oni also obtained both her B.Sc. and M.Sc. in Food Science with a concentration in food microbiology and safety from the university. Under the tutelage of Dr. Robert L. Buchanan, she has honed both her research and technical skills in her field.

Ms. Oni’s master’s research investigated the survivability of *Salmonella* embedded in manure dust aerosols and deposited on fresh produce leaves during cultivation. At the core of her current doctoral dissertation is research to evaluate certain in-process steps and their potential impact on assessment of *Salmonella* risk during chocolate production, as well as the development of targeted thermal resistance data as critical components for a quantitative microbial risk assessment. Ms. Oni has also collaborated on multiple side research projects, some of which have included work with a multi-national food industry to improve the safety of pet foods, and a multi-university project designed to facilitate integration of simulation modeling techniques into food science courses to help advance student training.

As she approaches the final stages of her graduate education, Ms. Oni feels highly honored to be a recipient of the Student Travel Scholarship and attend IAFP 2019, believing this award could not have come at a better moment! The opportunity to further expand her knowledge based on cutting-edge research that can take on tomorrow’s food safety challenges and to connect with some of the very best in the food safety world is simply invaluable.

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Elvina Parlindungan is a Ph.D. candidate in the Department of Food Science and Technology at RMIT University in Melbourne, Victoria, Australia, under the supervision of Associate Professor Oliver Jones and Dr. Bee May. Ms. Parlindungan holds a Bachelor’s of Biomedicine with First Class Honors from the University of Melbourne in Australia.

As an undergraduate, Ms. Parlindungan studied in many areas of biomedicine, majoring in cell and developmental biology. She conducted a research project in immunology, exploring on fate determination in cytotoxic T cell using flow cytometry and confocal microscopy. She has received several research scholarships, working on projects at high-profile labs in Australia throughout her undergraduate studies.

Ms. Parlindungan’s current research focuses on food microbiology and the effect of stress on a bacteriocin producing strain of *Lactobacillus plantarum* to enhance its survival and stability for improved safety and protection in food application. Her research utilizes a variety of techniques, such as scanning and transmission electron microscopy, spray drying, nuclear magnetic resonance spectroscopy, gas chromatography mass spectroscopy, matrix-assisted laser desorption/ionization, and other microbiological techniques.

Ms. Parlindungan is extremely honored to receive this year’s Student Travel Scholarship. During IAFP 2019, she will present her recent research results. Her goal is to learn from experts in the food science field while exchanging knowledge and ideas, and networking with others for potential work and collaboration in the future.
Surabhi Rani is a Ph.D. candidate in the Department of Nutrition and Food Science at the University of Maryland – College Park under the supervision of Dr. Abani K. Pradhan. Ms. Rani received her Bachelor’s of Technology in Bioengineering and Biosciences from the Indian Institute of Technology (IIT) in Guwahati, India. As an undergraduate, she studied host-pathogen interactions of avian viruses, Newcastle disease virus (NDV) and infectious bursal disease virus (IBDV) under different external factors as her bachelor’s thesis project.

Ms. Rani’s current research focuses on evaluating food safety risk factors associated with *Toxoplasma gondii* (*T. gondii*) infection in the farm-to-fork framework. She is currently working on estimating the prevalence of *T. gondii* in naturally infected food animals in the Animal Parasitic Disease Laboratory (APDL) at the Agriculture Research Services (ARS) with the United States Department of Agriculture (USDA).

Throughout her doctoral studies, Ms. Rani has shared her research at several international and national conferences on food safety and risk analysis. She has four publications as first author – two published and two under review – in high impact journals. She has also co-authored a publication based on a national survey of *T. gondii* in organic pork and lambs consumed in the U.S.

Ms. Rani is incredibly honored to receive this year’s Student Travel Scholarship. She is excited to attend and present at IAFP 2019 and receive feedback on her recent findings. Her goal is to share information, collaborate with research leaders, and develop research ideas.

H. Lester Schonberger is a Ph.D. candidate in the Department of Food Science and Technology at Virginia Tech in Blacksburg, advised by Dr. Renee Boyer, with Drs. Melissa Chase, Tiffany Drape, and Sarah Misyak serving on his graduate committee. Mr. Schonberger holds a B.S. from Virginia Tech in Food Science and Technology with minors in Political Science, as well as Leadership and Social Change, having always been interested in the intersections of food with policy and how those can impact social change movements. He has explored this intersection within the United States, as well as during global education opportunities in Ecuador, Cuba, Argentina, and Antarctica.

Mr. Schonberger serves as the graduate assistant for the Campus Kitchen at Virginia Tech, a university food recovery program that delivers safe, quality food for food access organizations in the local community. This work inspired his research to identify opportunities for increased food safety education and support for food recovery organizations through cooperative extension.

Mr. Schonberger believes that safe food should be accessible to all consumers, regardless of where, when, and how they receive it. Some of his work was published in the July/August 2018 issue of *Food Protection Trends*. He also serves on the Food Recovery and Publication Committees within the Conference for Food Protection.

An IAFP Member since 2016, Mr. Schonberger has presented his research and co-organized symposia at several Annual Meetings. This year, he will continue to co-organize symposia and several Student PDG programs, for which he is also a leadership team member.

Mr. Schonberger is pleased to have been selected as a recipient of the Student Travel Scholarship to attend IAFP 2019 and looks forward to continuing his development of professional relationships within the membership. His career interests include community-based education, service learning, non-profit leadership and development, and continuing scholarly research.

*Sponsored by [IAFP Foundation]*
Mary Kathryn Yavelak completed her M.S. in Food Science with a minor in Psychology in May 2019 from North Carolina State University in Raleigh. Ms. Yavelak also earned her B.S. in Food Science from North Carolina State University. Over the past five years, she has been advised by Dr. Benjamin Chapman and has dedicated research efforts to food preparation behaviors in community and retail settings.

Throughout her graduate career at North Carolina State University, Ms. Yavelak’s research focused on food safety education at temporary events, with an emphasis on the risk of Shiga toxin-producing *Escherichia coli* (STEC) foodborne illness from beef. During this time, she also developed a youth food safety program to educate young consumers on managing the risk of STEC in beef from farm to fork. Ms. Yavelak’s other research interests include modernizing current approaches to risk communication using various social media platforms and helping develop consumer and retail food safety programs through the North Carolina Cooperative Extension. She plans to use her research experience to impact consumer food safety educational efforts, both nationally and worldwide.

Ms. Yavelak is extremely proud to receive the 2019 Student Travel Scholarship from such an exceptional association. She attended her first Annual Meeting in 2016 in St. Louis, Missouri, and hasn’t missed a meeting since! As Chair of IAFP’s Student Professional Development Group, Ms. Yavelak has expanded her network of food safety professionals and is excited to utilize this opportunity to foster new professional relationships, gain additional knowledge about current food safety topics, and give back to an association that has meant so much during her career as a student.
Peanut Proud Student Scholarship Award

The Peanut Proud Student Scholarship Award provides a $2,000 academic scholarship and travel funding for a U.S. student in the field of food microbiology – specifically in the area of peanuts and peanut butter food safety – to attend the Annual Meeting. Peanut Proud is a nonprofit industry organization based in Georgia.

Kaitlyn Casulli is pursuing her Ph.D. in Biosystems Engineering at Michigan State University (MSU) in East Lansing. Ms. Casulli’s dissertation focuses on relating heat and mass transfer kinetics to microbial inactivation during dry roasting, using peanuts as a case study. This is a collaborative effort between MSU, Rutgers University, and an industry partner. She is currently developing a model to simulate Salmonella inactivation on shelled peanuts in a flat-bed roaster, with a goal of relating the predicted inactivation to salmonellosis risk in roasted products. She was recently awarded an outstanding graduate research fellowship in her department for this work.

In addition to her Ph.D. project, Ms. Casulli has made several contributions to the peanut industry through consulting. Her projects have included developing a peer-reviewed risk assessment for Salmonella in peanuts and performing thermal profiling of commercial-scale flat-bed peanut dry roasters. These projects sparked her interest in the peanut industry and helped lay the groundwork for her dissertation topic. Her long-term research goals include quantifying physical and microbiological inactivation variability in a broad range of commercial-scale processes to help inform risk assessments. The industry will ultimately be able to use this information to determine how process variables impact variability in the interest of reducing foodborne illness risk.

Ms. Casulli also participates in numerous service activities at Michigan State University. Most recently, she was elected treasurer for the Council of Graduate Students (COGS). Another role within COGS included revitalizing and chairing the Mental Health Committee, which organized MSU’s first celebration of World Suicide Prevention Day. In addition, Ms. Casulli has served on several university committees tasked with mental health reform and supporting students with disabilities. In her department, she has served as chair of the Graduate Student Advisory Group; her efforts have included providing a supportive physical and social environment for graduate students.

Ms. Casulli received the IAFP Student Travel Scholarship in 2016.

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3-A Sanitary Standards, Inc. 461
6888 Elm St., Suite 2D
McLean, VA 22101-3829, USA
Phone: +1 703.790.0295
www.3-a.org

3-A SSI is dedicated to "Promoting Food Safety Through Hygienic Design." 3-A SSI has a long and respected record of developing criteria for the design of equipment and systems used to produce, process and package milk and dairy products, other foods, and beverages. 3-A SSI also oversees the 3-A Symbol authorization program to help identify equipment built in conformance to 3-A design criteria and evaluated through a rigorous Third Party Verification inspection program. Today's 3-A SSI offers comprehensive free e-learning resources on hygienic design and is a trusted worldwide partner in helping to assure food safety through hygienic design.

3M Food Safety 417
3M Center, Bldg. 275-5SW-05
St. Paul, MN 55144-1000, USA
Phone: +1 800.328.6553
www.3M.com/foodsafety

3M brings food safety innovation and expertise to food and beverage processors around the world. Our trusted solutions, backed by global validations, include a full line of sample collection and preparation products, quality indicator tests, pathogen tests, hygiene monitoring solutions, and new allergen tests — all designed to work together to help mitigate risk, enhance productivity, and improve operations. It’s about protecting our customers’ brand, as well as their bottom line, to keep their business moving forward. Learn more: www.3M.com/foodsafety.

3M IATD 641
3M Center, Bldg. 220-5E-06
St. Paul, MN 55144, USA
Phone: +1 800.362.3550
www.3m.com/condensationmanagement

3M™ Condensation Management Film is designed to provide productivity and hygiene benefits as well as provide a labor saving solution for food processing facilities that experience intermittent condensation conditions. Using 3M™ Condensation Management Film reduces the need to mop or squeegee drops of condensation that form during the sanitation process. This helps food processing facilities meet FDA and USDA requirements by managing the risk of condensation hazards.

A2LA 253
5202 Presidents Court, Suite 2
Frederick, MD 21703, USA
Phone: +1 301.644.3206
www.a2la.org

A2LA is a non-profit, multi-discipline accreditation body with over 40 years of experience providing internationally recognized accreditation services and quality training. A2LA’s world-class accreditation services encompass testing and calibration laboratories, clinical testing laboratories, inspection bodies, proficiency testing providers, reference material producers and product certifiers. Organizations are accredited to international standards (ISO/IEC 17025, ISO/IEC 17020, ISO/IEC 17043, ISO/IEC Guide 34, ISO/IEC Guide 65 and ISO 15189) and field-specific requirements developed with government and industry collaboration. A2LA offers both public and private on-site training programs to complement the various accreditation programs.

ACO, Inc. Hygienic Drainage 246
825 W Beechcraft St.
Casa Grande, AZ 85122, USA
Phone: +1 480.433.5927
www.acousa.com

In 1978, ACO, Inc. pioneered the concept of modular trench drains in North America. For forty years, we have been manufacturing a variety of water management products in the United States and globally for over 70 years.

ACO, Inc. manufactures a range of drainage and landscape products from advanced polymer concrete, stainless steel, mild steel, cast iron, fiberglass and molded plastics. These diverse material types are used to produce components for commercial, residential and industrial construction application. We have two manufacturing facilities located in Mentor, OH and Casa Grande, AZ, with a distribution center in Ft. Mill, SC.

AEMTEK, Inc. 112
466 Kato Terrace
Fremont, CA 94539, USA
Phone: +1 510.979.1979
www.aemtek.com

AEMTEK, Inc. is an accredited laboratory that provides microbiological testing, research, training, and consulting services for the food, water, supplement, and pharmaceutical industries. We deliver science-based and practical solutions for clients in areas including food safety, product quality, shelf-life determination, process validation, and environmental monitoring. Please reach out to see how we can meet your analytical needs!

AFCO 418
5121 Coffey Ave.
Chambersburg, PA 17201, USA
Phone: +1 717.264.9147
www.afcocare.com

Zep Inc., a leading producer of specialty chemical products for the industrial, institutional and consumer markets, has purchased AFCO, a leading specialty chemical provider serving the food and beverage processing industry. We focus on food safety through our local SQF & HACCP-educated Reps who provide technical service and support through our Assure™ Sanitation Program. We offer high-quality cleaners and sanitizers, antimicrobial intervention, biofilm removers, equipment systems, and more.
Alchemy works with food producers, manufacturers, packagers, distributors, retailers, and restaurants of all sizes to build successful safety cultures.

American Proficiency Institute (API) Group, now part of the LGC Group, offers independent, third-party proficiency testing programs for food microbiology and chemistry laboratories. Laboratories can monitor their test performance and compare results to others performing the same test. The use of lyophilized organisms provides superior sample stability. Together with LGC, API offers the most comprehensive catalog of proficiency testing schemes available to the food and beverage industry.

The Arizona and California Leafy Greens Marketing Agreement are dedicated to preserving the integrity of the lettuce and leafy greens industry through rigorous food safety handling practices, innovative training and audits conducted by government-certified inspectors. These programs incorporate science-based food safety practices and mandatory government inspections by USDA auditors. Arizona and California LGMA members are committed to protecting public health through these un-precedented programs and are working to provide products that are healthy and safe. Both Arizona and California LGMA program standards were recognized by the FDA in 2017 for their alignment to the Produce Safety Rule.
Art’s Way Scientific, Inc. 408
P.O. Box 878, 203 Oak St.
Monona, IA 52119, USA
Phone: +1 563.539.2336
www.buildingsforscience.com

Art’s Way Scientific is a leading producer of technical turnkey research, vivarium, and diagnostic laboratories. Art’s Way designs, develops, manufactures, and installs a complete custom-engineered building for biocontainment, public health, laboratory animal research, food safety, and general laboratory space requirements. www.buildingsforscience.com.

Association of Food and Drug Officials 529
155 W Market St., 3rd Floor
York, PA 17401, USA
Phone: +1 717.757.2888
www.afdo.org

The Association of Food and Drug Officials (AFDO) promotes the uniform adoption and enforcement of food, drug, medical devices, cosmetics and product safety laws, rules, and regulations. Founded in 1896, AFDO is an international, non-profit professional organization consisting of state, federal and local regulatory officials as members. Industry representatives are welcomed as associate members. AFDO is a mechanism for advancing regulatory program standards that will help to advance an integrated food safety system. The organization also provides training and continuing education as well as networking opportunities that foster understanding and collaboration among all members and an appreciation for each role in the food and medical device safety system.

BCN Research Laboratories, Inc. 108
2491 Stock Creek Blvd.
Rockford, TN 37853-3056, USA
Phone: +1 865.573.7511
www.bcnlabs.com

BCN Research Labs is a full-service microbiology laboratory. It offers an extensive selection of microbiological and mycological tests, training and auditing programs. It specializes in food and beverage spoilage with a strong background in heat-resistant molds (ACB), preservative-resistant and xerophilic yeast and molds as well as in pathogen contamination, shelf life, and challenge studies. BCN Labs’ staff is proficient in bacteria, yeast, and mold identifications using molecular and traditional identification techniques. BCN Labs is certified by the U.S. EPA for microbiological testing of drinking water, is ISO 17025 accredited, and is a WBENC certified women-owned company.

Bayer Digital Pest Management 657
5000 CentreGreen Way, Suite 400
Cary, NC 27513, USA
Phone: +1 800.331.2867
www.beyonddosmarterbusiness.com

Bayer is an innovation company with a more than 150-year history and core competencies in healthcare and agriculture. Bayer’s Digital Rodent Monitoring System exemplifies our strength in turning scientific discoveries and exploration into smarter ways of doing business. This easy-to-use platform automates rodent monitoring, with 24x7 alerts to enhance food safety and biosecurity and can reduce business risk while protecting public health.

Bia Diagnostics 346
480 Hercules Drive
Colchester, VT 05446, USA
Phone: +1 802.540.0148
www.biadiagnostics.com

Bia Diagnostics is a global leading ISO 17025 accredited food and nutraceutical testing laboratory located in beautiful Colchester, Vermont. With over 40 years of diagnostics’ experience, we specialize in Food Allergen, GMO, Food Authenticity, and Cannabis/Hemp testing. Focusing on these four critical sectors, our expert scientists are dedicated to working with you to ensure the most accurate and timely results, providing same day analysis for most testing needs at no additional cost!

BioFront Technologies 442
3000 Commonwealth Blvd.
Tallahassee, FL 32303, USA
Phone: +1 850.772.8107
www.biofronttech.com

BioFront Technologies is an ISO 9001:2015 manufacturer of food allergen detection kits and the authorized U.S. agent for FAPAS proficiency tests and QC/reference materials. BioFront’s MonoTrace® kits provide a comprehensive line of monoclonal antibody-based ELISA and lateral flow assays that accurately detect trace amounts of food allergens on surfaces, rinse waters and complex matrices. The MonoTrace Gluten ELISA kit utilizes a novel non-toxic extraction for faster quantification of gluten within processed and unprocessed foods. BioFront offers over 20 unique ELISA and lateral flow assays targeting peanut, ten tree nuts, milk, egg, soy, lupine, mustard, buckwheat, sesame seed, shellfish, fish, and gluten.

Bioionix, Inc. 459
4603 Triangle St.
McFarland, WI 53558, USA
Phone: +1 608.838.0300
www.bioionix.com

Bioionix is recognized as a forward-thinking leader in advanced food safety. Bioionix destroys Listeria, Salmonella and other bacteria with a unique system for disinfection of food and food processing waters. The electrochemical catalysts provide 100% efficacy against pathogens and spoilage organisms. No chemicals, safe and environmentally – sustainable technology. Specialization in RTE meat and cheese processing water/brine disinfection. The systems come with performance guarantees to ensure customer satisfaction.
BIOLYPH LLC
4275 Norex Drive
Chaska, MN 55318, USA
Phone: +1 952.936.0990
www.biolyph.com

BIOLYPH’s Lyophilization Services maximize the quality and value of your Food Safety assays, calibrators, and controls by endowing them with years of room temperature stability and superior ease of use. With BIOLYPH’s LyoSphere™ technology, precise aliquots of lyophilized reagents can be packaged inside virtually any device, including tube strips, plates, and custom devices. LyoSpheres™ rehydrate instantly and reduce user time, steps, and errors, eliminate cold chain dependency, and increase product quality. Detection tests produced as LyoSpheres™ include Salmonella, Listeria, Campylobacter, E. coli, STEC, Vibrio, Shigella, and more. Visit our booth to learn how BIOLYPH can add value to your products.

BioMérieux, Inc.
595 Anglum Road
Hazelwood, MO 63042-2320, USA
Phone: +1 800.634.7656
www.biomerieux-usa.com

bioMérieux Industry offers a full range of Microbiology Solutions for Food and Pharmaceutical companies worldwide. Visit our booth to learn about the latest solutions for Pathogen Testing with VIDAS®, and GENE-UP®, Media Prep and Sample Processing including MASTERCLAVE®, APS ONE®, DILUMAT® and SMASHER®; Food Culture Media; Quality Indicator testing with TEMPO®, in-process control and release testing using BACTIFLOW®, DICOUNT® and BACT/ALERT®; Pathogen Identification/confirmation using VITEK® and API® Systems and CHROMID® Culture Media. Be sure to inquire about our Laboratory Services for Workflow Optimization and Temperature Monitoring with LABGUARD® 3D. bioMérieux brings confidence to the table by meeting all of your microbial analysis needs.

Biomist
573 North Wolf Road
Wheeling, IL 60090, USA
Phone: +1 847.850.5530
www.biostinctinc.com

Learn how to sanitize without water, rinsing or wiping! Biomist systems atomize alcohol into non-flammable aerosols that quickly clean and sanitize production facilities. The penetrating mist reaches into cracks and crevices to kill pathogens where they hide, then evaporates leaving surfaces dry and ready for use.

Perfect for dry areas, transition zones and water-sensitive equipment, customers quickly regain their investment through reduced application time, labor and chemical consumption. Compared to trigger sprayers, you get about twice the coverage per bottle.

Biomist is quickly becoming the method of choice among industry professionals, please visit our booth to learn more! www.biostinctinc.com.

Bio-Rad Laboratories
2000 Alfred Nobel Drive
Hercules, CA 94547, USA
Phone: +1 800.4BIO.RAD
www.bio-rad.com/foodscience

Bio-Rad Laboratories has played a leading role in the advancement of scientific discovery for over 60 years. We manufacture tests for food safety with a complete line of solutions for food pathogen testing. We offer a full menu of real-time PCR test kits for the detection of key pathogens, culture media for nutritive enrichment and RAPID chromogenic media with easy colony identification for detection of pathogens and enumeration of quality indicators. As an instrument manufacturer, Bio-Rad also provides instrument options for both low- and high-volume users, including our iQ-Check™ Prep automation system.

Bioscience International, Inc.
11333 Woodglen Drive
Rockville, MD 20852, USA
Phone: +1 301.231.7400
www.biosci-intl.com

The newest generation of SAS microbial air monitors for ensuring full compliance with ISO 14698, cGMP and other international monitoring guidelines will be displayed.

Bird•B•Gone
15375 Barranca Pkwy.
Irvine, CA 92618, USA
Phone: +1 949.387.4555
www.birdbgone.com

Blulog
100 South Commons, Suite 102
Pittsburgh, PA 15212, USA
Phone: +1 800.240.7193
www.blulog.us

Blulog makes LIVE and on-demand wireless temperature and temperature/humidity monitoring, recording and reporting a reality. Utilizing the innovative blulog NFC and RF temperature data loggers, monitoring and recording systems are available for reefer transport, cold storage, restaurant/commissary operations, food safety labs, and more. Full history time and temperature data storage and reports are accessible through the complimentary, cloud-based BluConsole dashboard software that is accessible to all parties within the cold chain. Learn more at www.blulog.us.

BootieButler
1616 Park 370 Court
Hazelwood, MO 63042, USA
Phone: +1 800.710.9863
www.bootiebutler.com

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Bruker Corporation
40 Manning Road
Billericia, MA 01821, USA
Phone: +1 978.663.3660
www.bruker.com

As a leading innovator in instrumentation, Bruker Corporation provides complete solutions for food safety, authenticity and quality control. The MALDI Biotyper®, validated and certified according to the Official Method of Analysis program (OMA) of the AOAC International and to the new ISO 16140-part 6 standard by MicroVal, offers a reliable “one system – one workflow” solution for microbiology of the food chain, in terms of safety and quality. The IR Biotyper® for strain typing, enables fast quality control of technological strains and tracking of microbial contaminants prior to WGS.

With the FoodScreener™, authenticity, adulteration and quality control are performed in one single measurement in less than 30 minutes. The fully automated solution offers modules for honey, juice and wine, and fulfills the increasing need for non-targeted methods to tackle dynamic food fraud.

Bureau Veritas – BV Labs Food & Agri
22201 W. Innovation Drive
Olathe, KS 66061, USA
Phone: +1 913.274.6567
www.maxxamlabs.com

BV Labs – Food and Agri is a market leader in analytical services and solutions to the agriculture, environmental, and food industries. A member of the Bureau Veritas Group of companies – a world leader in testing, inspection, and certification services. We provide unparalleled depth of technical and scientific expertise and serve customers through a national network of laboratories. BV Labs – Food and Agri skillfully combines efficiency and customer service with rigorous science and uncompromising quality management.

Cedarlane
416
1210 Turrentine St.
Burlington, NC 27215, USA
Phone: +1 800.721.1644
www.cedarlanelabs.com

Providing today’s food safety professionals with products of the highest quality. Cedarlane provides reagents from over 1,000 top global supplier brands. Products include water, dairy, wine, beer and food testing kits (toxins, chemicals, hormones, drug residues, allergens, nutritional profile, etc.), antisera and kits for bacterial serotyping, microbiological media and more! Featuring the Salmonella Velox and Infant3 PCR kits from DNA Diagnostic.

Certified Laboratories, Inc.
250
65 Marcus Drive
Melville, NY 11747, USA
Phone: +1 516.576.1400
www.certified-laboratories.com

For over 90 years, Certified Laboratories, Inc. has been providing full service quality laboratory testing services for the food industry. As a state-of-the-art ISO 17025 accredited laboratory, we’re proud to offer complete microbiological and chemical testing facilities in New York, Southern California, Northern California and the Midwest. Specialty areas include spice analysis, microbiology, chemistry, nutritional analysis, vitamin assays, antibiotics, extraneous matter and environmental testing, with special attention to FDA and regulatory agency requirements and microbiological reduction validation services. We use specialized analytical equipment including LC/MS-MS, GC/MS, GC/MS-MS, AA and ICP/MS. Certified Laboratories employs only recognized methods and procedures.

CERTUS
4809 N Ravenswood Ave., Suite 113
Chicago, IL 60640, USA
Phone: +1 872.810.4123
www.certusfoodsafety.com

CERTUS™ delivers new tools for food-safety testing. Empowering food producers of all sizes to proactively achieve FSMA and HACCP compliance with confidence, CERTUS changes the game with simple rapid pathogen tests. Introducing patented SERS technology that combines enrichment and high sensitivity detection in a homogenous no-wash format for real-time monitoring, CERTUS provides accurate results. The CERTUS technology, applied to environmental monitoring and food testing, will eliminate complex workflow enabling any food processor to conduct safe and easy on-site testing, receive instant alerts, and take immediate action to remediate. CERTUS allows companies to get ahead of potential problems, make informed decisions and take definitive action based on accurate and timely information – at the source.

Charm Sciences, Inc.
510
659 Andover St.
Lawrence, MA 01843-1032, USA
Phone: +1 978.687.9200
www.charm.com

Charm Sciences is a world leader in food safety diagnostics. Charm’s two-pronged Sanitation Monitoring Program ensures the highest level of food safety, quality control, and audit compliance using the novaLUM® II-X ATP Detection System and Charm Peel Plate® Microbial Tests with Colony Counter. Charm offers simplified diagnostics and data management solutions to track and trend results with integration to LIMS system. Rely on Charm Sciences for excellence in quality, innovation, and sensitivity to protect your brand! Booth #510.

Check-Points B.V.
254
Binnenhaven 5
Wageningen, 6709PD, The Netherlands
Phone: +31.317.453.908
www.checkandtrace.com

Check-Points’ innovative Check&Trace Salmonella method can discriminate over 300 Salmonella serotypes, including the most relevant ones like S. Typhiurium, due to the differences in their DNA sequences. This allows the Check&Trace Salmonella test to significantly decrease serotyping lead times and enable quick tracing. The Check&Trace Salmonella confirms Salmonella presence and the serotype with a single test in one day.

http://checkandtrace.com/ info@checkandtrace.com.
Chihon Biotechnology
2772 Golfview Road, Suite B
Naperville, IL 60564, USA
Phone: +1 630.670.5701
www.chihonbio.com

Founded in 2003, Chihon Biotechnology is a leading manufacturer of natural preservatives of Nisin and Natamycin, as well as other preservatives, such as Lauryl arginate ethyl ester. We offer technical support to the research and development. We also welcome the opportunities of contract manufacturing of other preservatives and food additives.

Clean Beam
612 Stetson Ave.
St. Charles, IL 60174, USA
Phone: +1 630.234.6961
www.clean-beam.com

Clean Beam provides an exponentially more effective solution to footwear sanitization. Our patented DryZap! Technology™ uses Pulsed Ultra Violet (PUV) light to produce up to a 6 log reduction in bacteria, spores and mold kill at a DNA level in 3 seconds. It is dry, chemical free and very easy to maintain. Of most interest to our clients is its traceability feature to meet your control and compliance requirements. Our complete solution includes design, installation and training. This is the first of many efforts to fulfill our fundamental purpose — improving health through the elimination of pathogens.

Clear Labs
3565 Haven Ave., #2
Menlo Park, CA 94025, USA
Phone: +1 650.257.3304
http://www.clearlabs.com

Clear Labs enables major brands to build stronger food safety and quality programs through advanced DNA sequencing, bioinformatics, and robotics. Clear Safety, the company’s flagship product, is the only automated and intelligent NGS platform that is built for routine pathogen testing.

ClorDiSys Solutions, Inc.
50 Tannery Road, Suite 1
Branchburg, NJ 08876, USA
Phone: +1 908.236.4100
www.clordisys.com

ClorDiSys Solutions, Inc. is a worldwide leader in contamination control and decontamination. ClorDiSys provides decontamination services for contamination mitigation as well as preventive control, utilizing chlorine dioxide gas to leave your facility cleaner and safer than ever before by eliminating the persistent pathogens from the hardest-to-reach areas. Portable CD gas generators are also available for the in-house decontamination of rooms, tanks, chambers, and processing areas of all sizes.

Cold Jet
455 Wards Corner Road
Loveland, OH 45140, USA
Phone: +1 513.831.3211
www.coldjet.com

Cold Jet has two distinct lines of business centered around the use of dry ice. We provide environmental cleaning, surface preparation and parts finishing systems to global manufacturing industries. These systems utilize particles of dry ice as a blasting medium. Secondly, we produce systems for the production, metering and packaging of dry ice. These systems enable the consistent production of a controlled range of dry ice products for food transportation, cold chain management and dry ice cleaning. Customers are using our technology-based solutions to replace outdated processes that are inefficient and harmful to health and safety.

CompWALK
7061 Deepage Drive, Suite 200
Columbia, MD 21045, USA
Phone: +1 410.718.7575
www.compwalk.com

Ensure compliance with FSMA, SQF and other food safety regulations using CompWALK. Our cloud-based web and mobile platform reduces the time to conduct food safety inspections and report findings. Manage corrective action tracking and food safety documentation with the ability to integrate with data loggers and other software systems with CompWALK. Work offline via iOS, Android and Windows 10 apps when internet is not available. Stop by our booth to learn more and start your free trial.

Corning Incorporated
One Riverfront Plaza
Corning, NY 14831, USA
Phone: +1 607.329.0836
www.corning.com

Corning, a leading brand in Life Sciences Solutions, long recognized by scientists as the supplier of high quality laboratory products, presents its line of sample preparation equipment and disposable labware for quality control and microbiology, optimized for food and beverage testing. Manufactured to the most rigorous standards, Corning’s beginning-to-end test solutions balance superior quality with unsurpassed value. From petri dishes to reusable PYREX® glassware, look to Corning for your microbiology testing needs.

Corvium, Inc.
800 Boylston St.,16th Floor
Boston, MA 02199, USA
Phone: +1 617.393.7600
http://www.corvium.com/

Corvium is obsessed with making the world a safer place to eat. We provide organizations in the food industry with actionable intelligence to assure food safety and quality across their operations.

Food suppliers use CONTROL-PRO software to reduce food contamination risk and the negative impacts of regulatory penalties, product recalls, brand damage, and litigation. The food supply chain adopts the data and analytic functionalities to aggregate, visualize and prevent potential breaches of food safety and quality processes.
By helping customers establish a “zero risk tolerance” imperative, Corvium delivers competitive advantage through improved top and bottom-line performance, and enhanced brand value.

Crystal Diagnostics  
510 Compton St.  
Broomfield, CO 80020, USA  
Phone: +1 720.351.4855  
www.crystaldiagnosics.com

Crystal Diagnostics is a biotech company specializing in rapid food pathogen detection. Our platforms utilize liquid crystal biosensors for our detection process, which amplify the targeted signal and reduce background noise. This patented technology provides industry leading speed to result paired with unmatched accuracy. Our newest platform, the CDx AutoXpress™, is a fully automated high-throughput system capable of completing 480 tests every 8 hours. The CDx AutoXpress™ has one of the lowest costs per test in the industry. Reduce labor expense and human errors by automating your food testing. Stop by booth #110 and see the revolution in automation for yourself.

CultureMediaConcepts®  
970 E. Orangethorpe Ave.  
Anaheim, CA 92801, USA  
Phone: +1 714.773.1726  
www.culturemediaconcepts.com

CultureMediaConcepts® is an independent manufacturer of culture media and reagents utilized in microbiological testing. Screening for indicator organisms, environmental monitoring, or testing for foodborne pathogens require specified culture media formulations recommended by the methodology used, the manufacturer of the testing platform, or a governing agency. We specialize in formatting culture media formulations for your specific needs. Our SampleReady® line of prepared dehydrated culture media, offers a RTU format that will eliminate steps of preparing your media and save you hours to results. Our DiluteReady® Sample Dilution Bags offer pre-measured prepared culture media in sterile sample bags for your specific testing application. And, our EnviroReady® sample collection device will give you leverage on environmental monitoring. Come by our booth and let’s talk about your specific testing needs.

Decon7 Systems LLC  
8541 E Anderson Drive, Suite 106  
Scottsdale, AZ 85255, USA  
Phone: +1 480.339.2858  
www.d7food.com

D7 is a proprietary blend of ordinary household substances that aggressively hunts and destroys bacteria and viruses in agricultural, live harvest, and food processing facilities. Validated by multiple third-party organizations, including USDA, D7 is a proven antimicrobial disinfectant that will enhance and maximize the effectiveness of your food safety program.

D7 is a patented, EPA-registered formula for use in a multitude of applications including, but not limited to, deep cleans, drain maintenance, and entryway sanitizing for controlling cross-contamination.

Once blended, the three-part D7 solution becomes an unrivaled antimicrobial disinfectant. Our focus markets include, but are not limited to, red meat, poultry, seafood, dairy, and fruits and vegetables. Visit us at www.decon7.com and follow the “Contact Us” link to learn more about our solutions and hear from some of the most notable industry references.

Detectamat Detectable Products Inc.  
5111 Glen Alden Drive  
Richmond, VA 23231, USA  
Phone: +1 804.303.1983  
www.detectamat.com

If you’re in food production, talk to us about reducing your risk of food recalls due to foreign body contamination. After inspection equipment on production lines, the next step is to use metal and X-Ray detectable products in processing areas, including pens, clipboards, mixing/handling equipment, knives, temperature probes, PPE and engineering materials. Since 2003 we’ve collected awards for our innovative products, helping businesses like yours avoid unnecessary foreign body contamination.

Our product range is made from a unique detectable polymer, manufactured from EU & FDA food contact approved materials, and plays an important contribution to successful FSMA & BRC compliance.

EAS Consulting Group, LLC  
1700 Diagonal Road  
Alexandria, VA 22314, USA  
Phone: +1 571.447.5500  
www.easconsultinggroup.com

EAS Consulting Group, LLC is a leading provider of regulatory services to FDA regulated industries. With more than 50 years of experience assisting clients in developing regulatory strategies, implementing quality assurance programs and filing regulatory submissions, EAS is poised to assist food firms with the many requirements of food safety. From regulatory training, to the development and submission of GRAS notices, to FSMA, our team of former FDA officials and industry experts, many of whom have more than 30 years of quality and safety experience are recognized leaders in their fields and provide a unique perspective on the agency’s requirements.

Ecoclear LLC  
P.O. Box 357  
Holly Springs, GA 30142, USA  
Phone: +1 404.919.9023  
www.ecoclearclean.com

Ecoclear Coil Cleaning and Sanitization is the industry leader in deep cleaning and sanitizing refrigeration coils and food processing equipment. Ecoclear’s fleet of commercial pressure cleaning trucks can access any facility, and our process uses a proprietary soap and an EPA, NSF D2 certified, stabilized Chlorine Dioxide product to remove biofilms and eliminate pathogens and spoilage organisms. The results are a longer shelf life and safe, quality food products. Additionally, the clean coils reduce refrigeration energy costs by up to 30%, allowing our clients to take advantage of energy rebates and see an ROI in usually 3–6 months.
A trusted partner at nearly three million customer locations, Ecolab (ECL) is the global leader in water, hygiene and energy technologies and services that protect people and vital resources. With annual sales of $14 billion and 48,000 associates, Ecolab delivers comprehensive solutions, data-driven insights and on-site service to promote safe food, maintain clean environments, optimize water and energy use, and improve operational efficiencies for customers in the food, healthcare, energy, hospitality and industrial markets in more than 170 countries around the world.

Emport LLC specializes in food safety and quality assurance kits that combine user-friendly design with rigorous scientific standards. Our core focus is rapid tests for detecting traces of gluten and other allergens. Kits include GlutenTox Pro, AOAC-PTM certified for detecting as little as 5 ppm gluten in foods and environments; and AlerTox Sticks, for checking foods and surfaces for trace amounts of peanut, almond, hazelnut, soy, fish, casein, egg, and more. Friendly, fast service and leading technology help us live up to our motto: More safe food, more happy people.

EMSL Analytical’s network of over 45 laboratories has been providing quality analytical services since 1981. Our food laboratory capabilities include: microbiology analysis, nutritional analysis, various food chemistry analysis, allergens, toxins, and adulteration analysis. EMSL’s Food Testing Division laboratories are located conveniently across North America. Our Food Chemistry and Nutritional Analysis testing is done at our National Headquarters in Cinnaminson, NJ. Visit www.emsl.com for a list of locations, services, and accreditations.

Enviro Tech Chemical Services, Inc. is one of the leading manufacturers of peracetic acid and bromine based biocides in the world. Enviro Tech offers a full line of EPA and FDA approved products for a variety of industries including fruit and vegetable processing, meat, poultry and seafood processing, agriculture, industrial water treatment, oil and gas, municipal wastewater treatment and other sanitizing applications. We have a wide range of solutions for many applications: Pera-Drain Foam, Doorway Entry Sanitizer Chemistry (Quat Free), RTU Peracetic Acid, Reflex (Nitric Acid/PAA), Powder Floor Treatments.

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Eurofins Scientific 233
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Phone: +1 515.265.1461
https://www.eurofinsus.com/food

Ecolab Inc.

Emport LLC

EMSL Analytical Inc.

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Environmental Safety Technologies

Eurofins Scientific

FDA/CFSAN

FlexXray, LLC

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Food Microbiological Laboratories, Inc.  570
10653 Progress Way
Cypress, CA 90630, USA
Phone: +1 714.657.7527
www.foodmicrolabs.com
Food testing and research services with expertise in food safety and quality. Food Microbiological Laboratories, Inc. is State of California (ELAP) and ISO 17025 accredited and home of automated data mapping, tracking and trending software, eBacMap®. Our leadership team includes Melissa Calicchia, MS, CFS, Chief Science Officer and Karilyn Gonzales, MS, CFS, Laboratory Director with over 50 years of combined experience in the industry. Our expert microbiologists specialize in helping our clientele with technical interpretation of data relative to routine quality screening, shelf life and allergen testing, making us known for exceptional client satisfaction.

Food Quality & Safety Magazine  566
111 River St.
Hoboken, NJ 07030-5774, USA
Phone: +1 480.419.1851
www.foodqualityandsafety.com
Food Quality & Safety Magazine, a Wiley publication, is the food/beverage industry’s go-to resource for expert-contributed, must-read content. Its award-winning editorial covers the latest news, technologies, trends, and issues happening from farm to fork to ensure a safe food supply. For over 25 years, its print and digital content has been delivering practical information to all levels of quality and safety decisionmakers in food processing, agriculture, distribution, food service/retail, and regulatory and research institutions.

Food Safety CTS, LLC  551
1320 Goodyear Drive, Suite 205
El Paso, TX 79936, USA
Phone: +1 614.112.1290
www.foodsafetycpts.com
Food Safety Consulting & Training Solutions, LLC (El Paso, TX & Chihuahua, Mexico) develops customized food safety and training solutions for the industry including e-learning programs (allucantrain.com). Our industry-wide recognized training programs are culturally compatible and science based. Stop by to see a demonstration our Doctum-All U Can Train e-learning food safety training service. We can customize it to your needs. It is easy to use and affordable. Food Safety CTS experts have helped companies to set up food safety programs and verify suppliers’ food safety plans abroad and domestically. Let us be your food safety qualified individuals and conduct an assessment on your behalf.

Food Safety Magazine  350
1945 W Mountain St.
Glendale, CA 91201, USA
Phone: +1 818.842.4777
www.foodsafetymagazine.com
Food Safety Magazine is a bimonthly publication serving food safety/quality professionals worldwide. Issues feature contributions from food and beverage industry leaders discussing: regulations, technologies, trends, and management strategies essential when applying science-based solutions to assure food safety and quality. Also, the popular podcast “Food Safety Matters” offering twice monthly episodes that feature news and trends, or another surprise segment, followed by a conversation with a food safety professional sharing their experiences and insights. Visit our booth or website www.foodsafetymagazine.com to begin your free subscription and learn more about Food Safety Matters.

Food Safety Net Services  127
199 W Rhapsody
San Antonio, TX 78216, USA
Phone: +1 888.525.9788
www.fsns.com
Food Safety Net Services (FSNS), headquartered in San Antonio, Texas, is a national network of ISO 17025 accredited testing laboratories open 24/7, 365 days a year. FSNS provides expert technical resources that assist companies with implementing food safety and quality programs that deliver critical information needed to continually improve process controls. Additional services include GFSI, SQF and PAACO, approved auditing and certification capabilities.

Food Safety News  264
14117 W. 61st St.
Shawnee, KS 66216, USA
Phone: +1 913.205.3791
www.foodsafetynews.com
Food Safety News is the only daily publication that reports exclusively on food safety issues. We are the first to talk with the most important people behind breaking news. We bring our readers the kind of old-fashioned, in-depth journalism that many people thought didn’t exist anymore.

As a result, our readers trust our reporting and actively respond to the marketing messages they see in our publication. Our advertisers tell us that we are their #1 source of solid sales’ leads, month after month. Talk with us now about how an ad schedule can help you increase your sales and your brand recognition.

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production chains. Actero™ Elite Enrichment Media is a ground-
effective. improves safety, reduces time in media preparation and is cost
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testing system, offering single-step enrichment, fastest “time-to-
monocytogenes and accurate detection of
commercializing proprietary food safety tests focused on the rapid
and accurate detection of E. coli O157, Listeria spp., Listeria
monocytogenes, and Salmonella spp. for the human and pet food
production chains. Actero™ Elite Enrichment Media is a ground-
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testing system, offering single-step enrichment, fastest “time-to-
results” and superior accuracy to competitors. Actero™ Universal
Enrichment Media represents established media formulations
used for standard testing protocols in today’s labs. FoodChek’s
newly launched product is the Actero™ EZ-Media Bag that
improves safety, reduces time in media preparation and is cost
effective.

FoodLogiQ®
2655 Meridian Pkwy.
Durham, NC 27713, USA
Phone: +1 866.492.4468
www.foodlogiq.com

FoodLogiQ® is a leading SaaS provider of food safety
compliance, traceability, recall management and supply chain
transparency solutions.

Our mission is to map the world’s food chain, make it as safe
as possible, and empower people to make informed decisions
about the food they eat. We track millions of data points every
day and connect thousands of food companies around the world.

Our technology enables supplier management, food safety
compliance, quality incident management, recall management
and whole chain traceability — all on a single platform built exclu-
sively for the food industry.

FREMONTA Corp.
466 Kato Terrace
Fremont, CA 94539, USA
Phone: +1 510.979.1979
www.fremonta.com

FREMONTA Corp. provides innovative sampling technol-
ogy and is the USDA’s exclusive licensing partner in bringing to
market “the new gold standard of sampling” for the detection of
pathogens in beef trimmings. FREMONTA’s patent pending Con-
tinuous and Manual Sampling Devices facilitate batch sampling
for microbial contaminants in foods, to improve sampling effi-
ciency. FREMONTA’s novel and intelligent sampling instruments
include the MicroTally™ Swab, mobile Continuous Sampling
Devise (mCSD™), and SmartSampler™. Stop by our booth #114
to see how these sampling methods can make your FSQA testing
faster, easier, more cost effective, and more representative.

GFSI – The Consumer Goods Forum
22/24 rue du Gouverneur Eboue
Issy-les Moulineaux, 92130, France
Phone: +33.1.82.00.95.88
www.mygfsi.com

The Global Food Safety Initiative (GFSI) brings together key
actors of the food ecosystem to collaboratively drive contin-
uous improvement in food safety management systems around
the world. With a vision of safe food for consumers everywhere,
food industry leaders created GFSI in 2000 to reduce food safety
risks and inefficiencies while building trust throughout the supply
chain. The GFSI community is composed of experts from the full
stakeholder spectrum, across industry and international organi-
zations to governments and academia. GFSI is powered by The
Consumer Goods Forum (CGF), a global industry network work-
ing to support Better Lives Through Better Business.

GIANTmicrobes, Inc.
78 Harvard Ave., Suite 300
Stamford, CT 06902, USA
Phone: +1 203.504.8060
www.giantmicrobes.com

GIANTmicrobes are public health and educational products
based on foodborne illnesses such as E. coli, Salmonella, Shigel-
na, Bacillus cereus, Listeria and more. We offer over 200 different
plush diseases, cells, organs and germs. Public health agencies,
companies, schools and other organizations use GIANTmicrobes
for events, education and health campaigns. GIANTmicrobes
are a unique and memorable way to inform and create aware-
ness about safe food handling and processing. Co-branding and
customization options are available.

Hamilton Company
4970 Energy Way
Reno, NV 89502, USA
Phone: +1 775.858.3000
www.hamiltoncompany.com

Hamilton Company specializes in the development, manu-
facturing and customization of precision measurement devices,
automated liquid handling workstations and sample management
systems. Our products provide fully automated workflows that offer reliability, performance, and the flexibility to automate your assays, all with industry leading quality and service. Hamilton offers fully automated solutions for sample prep in food safety, etc. Hamilton Company has been a leading global manufacturer for more than 60 years, with headquarters in Reno, Nevada; Franklin, Massachusetts; and Bonaduz, Switzerland; and subsidiary offices throughout the world.

Hardy Diagnostics
1430 W McCoy Lane
Santa Maria, CA 93455, USA
Phone: +1 800.266.2222
www.hardydiagnostics.com

Hardy Diagnostics has been in business since 1980 and is 100% employee owned. The company is ISO 13485 certified and manufactures over 2,700 products for microbiological testing. With over 9,000 laboratory customers across a broad spectrum of markets, Hardy Diagnostics understands the microbiological needs of the food testing industry and offers an extensive product portfolio for sample collection and preparation, microbial identification, HACCP compliance, and environmental monitoring. Hardy Diagnostics is uniquely qualified to assist the food processor in achieving its quality goals.

Hettich Instruments
100 Cummings Center, 136L
Beverly, MA 01915, USA
Phone: +1 978.232.3957
http://www.hettweb.com

Hettich is an industry-leading laboratory equipment manufacturer. We design, engineer, and manufacture precision equipment for the modern day laboratory. Known for our vast array of centrifugation products and laboratory incubators, Hettich delivers on quality, safety and reliability. Our engineering and manufacturing capabilities are showcased in both our standard and customized product solutions. We focus on our customers, their requirements and environmental responsibility. Hettich, proven for more than 100 years.

HiMedia Laboratories Pvt. Ltd.
A-516 Swastik Disha Business Park,
via Vadhani Industrial Estate
Mumbai, Maharashtra 400 086, India
Phone: +1 484.734.4401
www.himedialabs.com

Founded 40 years ago, HiMedia, a leader in Bacteriological Culture Media formulations, now spans over 130 countries. Comprehensive identification kits for various food spoilage organisms as well as conventional and animal-free culture media are part of the HiMedia repertoire. Conforming to WHO-GMP standards and ISO-updated protocols, HiMedia’s world class facilities bring you reliable products. Our tech-service team is available to assist you wherever you are, to match our products to your precise needs. Products available in North America from HiMedia Laboratories LLC, infous@himedialabs.com, www.himediatore.com.

Hygiena
941 Avenida Ave.
Camarillo, CA 93012, USA
Phone: +1 805.388.8007
www.hygiena.com

Hygiena provides rapid microbial detection, monitoring, and identification systems to improve food safety globally. Hygiena’s EnSURE™ Monitoring System collects, analyzes, and reports data from multiple quality indicators, including ATP, and indicator organisms. GlutenTox® and AlerTox® products identify allergens in food products and environmental surfaces. Hygiena’s BAX® System, uses PCR technology to identify pathogens in food ingredients, finished products and the environment. The Innovate System provides product quality control data for UHT processed and aseptically filled products, ensuring long shelf life. The RiboPrinter® System is an automated genetic-based system that identifies and characterizes bacteria. Hygiena is committed to the development and provision of solutions with high-quality, reliable, and innovative technologies backed by excellent customer service and support. For more information visit hygiena.com/foodsafety.

ICFMH (IVZW International Committee on Food Microbiology and Hygiene)
Ghent University, Faculty of Bioscience Engineering
Dept. of Food Technology, Food Safety and Health,
Coupure links 653
Ghent, 9000, Belgium
Phone: +34.660.150.807
www.icfmh.org

Since 1953 the ICFMH represents the IUMS in all issues related to food microbiology. Its major aim is to contribute to food safety internationally with activities such as the “FoodMicro” Conference, workshops, publications (International Journal of Food Microbiology), mobility grants and awards for young scientists, and by supporting and initiating education and training in food microbiology. The ICFMH particularly focuses on developing countries.

The 27th International ICFMH Conference, FoodMicro 2020, will take place in Athens (Greece), 7–10 September 2020, with the theme “Next Generation Challenges in Food Microbiology” (http://foodmicro2020.com/). We shall be pleased to welcome you there!

IEH Laboratories & Consulting Group
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Phone: +1 206.522.5432
www.iehinc.com

IEH delivers comprehensive support services, encompassing all aspects of microbiology and chemistry analysis, process validation, food safety plans, and recall/outbreak assistance. Our network of over 100 ISO/IEC-17025-accredited laboratories provide expedited services to addresses quality and safety concerns.

In addition, through our family of brands; Microbiologique, Roka Bio and Sample6, IEH provides options for pathogen testing, indicators, allergens, mycotoxins, meat speciation, spoilage organisms, sampling supplies, laboratory disposables, media and instruments.

We validate client’s products at no charge for regulatory compliance. Come learn about how we assist with risk management and service clients with internationally recognized experts in food safety.
IFC
13420 West 99th St.
Lenexa, KS 66215, USA
Phone: +1 913.782.7600
www.indfumco.com

IFC is a national provider of pest management and sanitation solutions exclusive to the food industry. The knowledge and expertise we have gained comes from working directly with the food and commodity industries since 1937. IFC has developed a market-leading reputation for providing consistent, reliable and high quality service to our clients. We maintain this reputation by focusing our efforts on sustaining the highest standards of quality, safety, honesty and integrity in all areas of our business.

InnovaPrep
132 East Main St., #68
Drexel, MO 64742-0068, USA
Phone: +1 816.619.3375
www.innovaprep.com

InnovaPrep provides air, surface and liquid biomonitoring tools to help dramatically improve limit of detection for contamination monitoring in food production facilities. Sample-to-answer can be achieved in a single shift when paired with rapid molecular analysis methods for a faster, easier and better monitoring program. InnovaPrep’s Concentrating Pipette Select™ provides rapid concentration of pathogens, spoilage organisms, and particulate contamination from liquid food samples and beverages. Please visit our booth for a demonstration.

International Association for Food Protection
6200 Aurora Ave., Suite 200W
Des Moines, IA 50322-2864, USA
Phone: +1 800.369.6337
www.foodprotection.org

IAFP is an international Member-based association focused on protecting the global food supply. Membership benefits include free access to the IAFP Report and Food Protection Trends Online. Network with 4,300+ Members around the world through our Online Membership Directory, plus receive special registration rates to attend leading global food safety meetings. IAFP also publishes the Journal of Food Protection, internationally recognized as the leading publication in food microbiology. Visit our booth for more information.

Indoor Biotechnologies, Inc.
700 Harris St.
Charlottesville, VA 22903, USA
Phone: +1 434.984.2304
www.inbio.com

Indoor Biotechnologies specializes in allergens and immunosassay products/services for the food industry, indoor air quality and biopharmaceutical industries, academic and government researchers, and Fortune 500 companies. Our mission is to improve patient care through research, education and developing cutting-edge technologies that serve our customers worldwide.

Indoor Biotechnologies’ Molecular Diagnostics for Food Allergen Detection is the first immunoassay technology that allows the detection of clinically important food allergens. Molecular food allergen detection provides food manufacturers with a more comprehensive tool for safety testing that for the first time truly measures specific allergens including peanut, hazelnut, cashew, egg, shrimp, soy and milk.

Interscience Laboratories Inc.
32 Cummings Park
Woburn, MA 01801, USA
Phone: +1 781.937.0007
www.interscience.com

Interscience designs and manufactures an innovative product line to perform quick and safe microbiological analyses, from sample preparation to bacterial enumeration. Interscience is proud to present its latest innovation at IAFP. ScanStation® is a real-time incubator and colony counting station: a revolution for analyses in microbiological labs!
Johns Hopkins University Center for Biotechnology
Education
9601 Medical Center Drive
Rockville, MD 20850, USA
Phone: +1 410.516.7769
https://advanced.jhu.edu/academics/graduate-degree-programs/food-safety-regulation/

The Johns Hopkins University Master of Science in Food Safety Regulation is offered entirely online and designed to provide students with an understanding of the legal and regulatory complexities of food production, labeling, and distribution. The program provides students with the knowledge required for companies and organizations that grow, process, distribute, or sell foods and beverages while complying with federal and state regulatory statutes for the production, distribution, and commercialization of food products. Students need to complete 10 graduate-level courses online within a five-year timeline.

LexaGene
500 Cummings Center, Suite 4550
Beverly, MA 01915, USA
Phone: +1 800.215.1824
www.lexagene.com

LexaGene is developing an easy-to-use PCR-based analyzer for the food industry. It is designed to shorten the time to a confirmed negative result for products held under the ‘Test and Hold Policy’. The technology is expected to be particularly beneficial for detecting slower growing organisms like Listeria. The shortened time is achieved by utilizing an automated instrument to process larger volumes of enriched broth – followed by highly sensitive PCR to screen for the most common food pathogens (E. coli, Salmonella, Listeria, and more). Such a quick turnaround time will provide food safety officers with the necessary information to determine whether their products can be safely shipped or if tainted, to take corrective action.

Log10®, LLC
2402 Sykes Blvd.
Ponca City, OK 74601, USA
Phone: +1 580.304.7953
www.log10.com

Log10®, LLC is a comprehensive food safety company, supporting the food industry with services ensuring safety and quality of food. We focus on common food pathogens and competing probiotics that prevent or eliminate these hazards. Log10® manufactures customized Pre-Liminate® probiotic formulations proven to eliminate pathogens from food and environmental surfaces.

Professional consulting services that are provided include: FMSA preparedness, GAP analyses, HACCP training, preventive controls for animal food (PCQI training), among others. Log10® offers ISO 17025 accredited laboratory services including microbiological testing and customized research studies. We partner with clients to ensure manufacturing of safe, high-quality food products.

MadgeTech
6 Warner Road
Warner, NH 03278, USA
Phone: +1 603.456.2011
www.madgetech.com

From cooking and cooling to shipping and storage, ensure food quality while protecting your bottom line. MadgeTech data loggers are essential to any HACCP plan — keeping auditors happy, customers healthy and business profitable. Real-time monitoring, alarms and notifications give users the power to manage critical control points before deviation occurs. Maintaining records is a breeze, MadgeTech 4 Software automatically generates reports for compliance and analysis.

Matrix Sciences
1061 Feehanville Drive
Mount Prospect, IL 60056, USA
Phone: +1 847.272.8700
www.matrixsciences.com

Matrix Sciences delivers accurate, timely and insightful information so that customers have what they need to bring safe, quality food to market.

Matrix partners with customers offering a market-leading combination of services and technology to provide the support, expertise and resources food manufacturers need to make informed decisions with confidence.

MediaBox by Microbiology International
5350 Partners Court
Frederick, MD 21703, USA
Phone: +1 301.662.6835
www.800ezmicro.com

Microbiology International will be demonstrating MediaBox™ Sterile Liquid Solutions, our revolutionary new product for ready-to-use liquid culture media. MediaBox™ Sterile Liquids are easy to use and store, conveniently packaged in a stackable box. Available in BPW, mTSB, modified UVM, sterile water, Butterfields, lactose broth, and more. Custom formulations upon request! MediaBox™ Sterile Liquids connect directly to the EZ-Flow gravimetric diluters or EZ-Dispense peristaltic pump for a completely closed system during sample preparation. Stop by our booth for a demonstration and make your lab’s sample prep EZ!

Meridian Bird Removal
17 N Franklin St.
Christiansburg, VA 24073, USA
Phone: +1 855.362.2200
www.meridianbirdremoval.com

Meridian Bird Removal solves nuisance bird problems for businesses by removing birds in a fast, effective and safe manner. Meridian’s Bird Removal Technicians deploy patented capture gear and a proven process unlike anything else on the market.

Based in Christiansburg, Virginia, Meridian began in 2010 as a general wildlife control company. The company soon saw the opportunity in the market for solving nuisance bird problems but also the frustration customers had with them. Meridian began to focus exclusively on birds and the business started to grow more rapidly. We now solve nuisance bird issues for businesses in more than thirty states.
**2019 EXHIBITORS**

**Mérieux NutriSciences** 219  
111 E Upper Wacker Drive, 23rd Floor  
Chicago, IL 60601, USA  
Phone: +1 312.938.5151  
https://www.merieuxnutrisciences.com/us/  
Mérieux NutriSciences is a leading global food safety and quality partner — offering chemistry and microbiology testing, labeling, auditing, consulting, sensory testing, customized training, research services, and digital solutions to the food and nutrition industry. Focused on customer excellence, we protect consumers' health through nutritional research, scientific excellence, and innovation. We customize our services to meet the needs of individual manufacturers, food processors, caterers, restaurants, and retailers. Headquartered in Chicago, Mérieux NutriSciences has grown from a single laboratory to have a global presence. Present in 24 countries, Mérieux NutriSciences employs 7,000 people worldwide working in just over 100 laboratories.

**Merq Automation** 209  
5-263 Barton St.  
Stoney Creek, ON L8E 2K4, Canada  
Phone: +1 647.998.4356  
www.merqa.com  
Merq is a laboratory automation and solutions provider. Lab equipment design and automation are our primary focus but we also support with custom tooling, fixtures, repairs, service, floor plans, building design and process improvement.

**METER Group, Inc. USA** 445  
2365 NE Hopkins Court  
Pullman, WA 99163, USA  
Phone: +1 509.332.2756  
www.metergroup.com  
Demo AQUALAB AQ2, the smart water activity meter. Use SKALA Freemium to see your water activity data in real time. Premium options let you connect other lab instruments and sources of data and collect all your information in one place—no writing, no typing, no data entry. Stop by the booth to see how many food manufacturers are saving by using SKALA’s moisture optimization and digital overpack solutions without any significant equipment upgrades.

**Michelson Laboratories** 158  
6280 Chalet Drive  
Commerce, CA 90040, USA  
Phone: +1 562.928.0553  
www.michelsonlab.com  
Since 1970, Michelson Laboratories has provided complete chemical and microbiological analyses to the food and environmental industries throughout the country. We are an ISO/IEC 17025 Accredited Laboratory offering rapid turnaround time, accurate, reliable results and excellent customer service. We specialize in a number of methodologies for indicator organism and pathogen analysis, including PCR, as well as shelf life and challenge studies. Our chemistry lab offers antibiotic residue and melamine testing by LC/MS in addition to nutritional labeling, pesticide analysis, heavy metals by ICP/MS, GMO, Hepatitis A testing and more.

**Michigan State University Online Food Safety Program** 140  
1129 Farm Lane, Rm B-51  
Food Safety & Toxicology Building  
East Lansing, MI 48824, USA  
Phone: +1 517.884.2078  
http://foodsafety.msu.edu  
Michigan State University’s Online Food Safety program strives to educate professionals on how to make global food systems safe and supports individuals as they advance in food safety-related careers. The program consists of an online Master of Science in Food Safety degree, non-credit continuing education courses and an on-campus executive education program. Be more effective, efficient, and confident in an ever-changing workplace. Who will keep food safe? Spartans Will.

**Micro Essential Laboratory** 335  
4224 Ave. H  
Brooklyn, NY 11210-0824, USA  
Phone: +1 718.338.3618  
www.microessentiallab.com  
Our company has been a market leader in pH and sanitizer testing technologies, serving the food service industry since 1934. Customer service and product quality are the company focus, and critical factors for success. Our goal is to develop lasting relationships.

**Microbac Laboratories, Inc.** 159  
One Allegheny Square, Suite 400  
Pittsburgh, PA 15212, USA  
Phone: +1 412.459.1060  
www.microbac.com  
Your success is our success, and that’s why customers from across industries come to us for testing solutions that deliver quality measurement, data and powerful insights that they can trust. As one of the largest family-owned laboratories in the nation, we pride ourselves on humble beginnings and impressive impact. For nearly 50 years our network of laboratories have offered complete ISO-accredited testing solutions in food, life sciences and environmental by seeking relationships over transactions and the long over the short. Now, we continue to uphold our clients success as our number one priority and improve the world around us one test at a time. What can we do, for you?

**Microbiologics** 627  
200 Cooper Ave. N  
St. Cloud, MN 56303, USA  
Phone: +1 320.253.7400  
www.microbiologics.com  
Microbiologics is the leading provider of ready-to-use QC microorganisms for quality control testing in food laboratories. With over 900 strains available, we offer the largest and most diverse line of QC microorganisms including qualitative, quantitative, CRM, inactivated pathogens, synthetic molecular standards, and more. Visit booth 627 to learn how our QC microorganism products can save your laboratory time and money.
2019 EXHIBITORS

Microbiology International
5350 Partners Court
Frederick, MD 21703, USA
Phone: +1 301.662.6835
www.800ezmicro.com

Microbiology International will be exhibiting everything your lab needs for air sampling, in-house media preparation, sample preparation, enumeration, confirmation and destruction. Stop by our booth for demonstrations of our air sampler, spiral plater, colony counter, media preparators/plate pourers, laboratory autoclaves, innovative sample preparation instruments and a comprehensive line of rapid bacterial screening and identification kits for common food pathogens. We can help make your lab processes EZ!

Midland Scientific, Inc.
10651 Chandler Road, Suite 102
La Vista, NE 68128, USA
Phone: +1 800.642.5263
www.midlandscl.com

Midland Scientific is a full-line distributor of laboratory supplies including chemicals, equipment, and consumables. Our customer service and distribution centers, along with our sales force, span the entire United States to ensure timely delivery of your products. We pride ourselves in offering superior service to the customer through a helpful and friendly staff, quality products, competitive pricing, and extensive product options.

MilliporeSigma
400 Summit Road
Burlington, MA 01803, USA
Phone: +1 800.645.5476
www.milliporesigma.com

MilliporeSigma is the U.S. life science business of Merck KGaA, Darmstadt, Germany. With 19,000 employees and 72 manufacturing sites worldwide, MilliporeSigma’s portfolio spans more than 300,000 products enabling scientific discovery. MilliporeSigma has customers in life science companies, university and government institutions, hospitals and industry. More than 1 million scientists and technologists use its products. The company is committed to solving the toughest problems in life science by collaborating with the global scientific community.

MP Biomedicals, LLC
29525 Fountain Pkwy.
Solon, OH 44139, USA
Phone: +1 440.337.1200
www.mpbio.com

MP Biomedicals sells and manufactures products in ISO-certified and FDA-approved facilities worldwide. MP Biomedicals is featuring SafTest Systems and Kits, the best instruments and kits for your food. The SafTest Oil Platform has the ability to be customized to run all or any combination of the SafTest Endpoints such as peroxide value, free fatty acids and malonaldehydes. We serve researchers worldwide with innovative tools meeting their needs with unparalleled service.

National Environmental Health Association
720 S Colorado Blvd., Suite 1000-N
Denver, CO 80246, USA
Phone: +1 303.756.9090
www.neha.org

The mission of the National Environmental Health Association (NEHA) is to “advance the environmental health professional for the purpose of providing a healthful environment for all.” NEHA represents 5,000 members from the U.S. and abroad who work at federal/state/local agencies, academia, industry, and the armed forces. NEHA offers credentialing, education, and resources related to the broad spectrum of environmental health topics including air quality, food safety, hazardous materials, preparedness, sustainability, vector control, and water quality.

National Registry of Food Safety Professionals
6751 Forum Drive, Suite 220
Orlando, FL 32821, USA
Phone: +1 800.446.0257
www.nrfsp.com

National Registry of Food Safety Professionals (NRFSP) offers comprehensive certification programs for managers, in both food safety and HACCP, including retail-focused food safety exams for grocery and c-store operators. ANSI and ISO accredited, NRFSP provides many options for the training and certification of managers and certificate programs for food handlers, as well as diagnostic reporting and tracking of data. Learn more at www.nrfsp.com or call 1.800.446.0257.

Nelson-Jameson, Inc.
2400 E 5th St.
Marshfield, WI 54449, USA
Phone: +1 800.826.8302
www.nelsonjameson.com

Since 1947, Nelson-Jameson has been a trusted source of food processing supplies. We represent over 850 vendors and distribute over 50,000 products in the broad categories of: Processing & Flow Control, Safety, Sanitation & Janitorial, Production & Material Handling, Building & Facility Maintenance, Laboratory & QA/QC, and Packaging & Ingredients. Our products are backed by expert staff who can provide you with the direction you need when choosing safe, quality products for your processing plant.

Nemis Technologies AG
Ueberlandstrasse 109
Duebendorf, Zurich 8600, Switzerland
Phone: +44.44.820.71.52
www.nemistech.com

Founded in 2018, Nemis Technologies AG is a Swiss diagnostics company in the field of rapid, precise, easy-to-use and low-cost screening and detection of pathogenic bacteria. Its AquaSpark™ technology has proven to deliver a significant reduction in time to results for various bacteria over current market standard, thus providing a very powerful technology to prevent proliferation and dissemination of dangerous microorganisms at a large scale.

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Neogen
620 Lesher Place
Lansing, MI 48912, USA
Phone: +1 800.234.5333
www.foodsafety.neogen.com

Neogen’s comprehensive line of rapid food safety products includes DNA-definitive tests for Salmonella, Listeria, Listeria monocytogenes and E. coli O157:H7; Listeria Right Now® detects the pathogen in less than 60 minutes — without enrichment; simple and accurate tests for food allergens, including milk, egg and peanut; dairy antibodies, including the BetaStar® receptor-based lateral flow assay for the rapid detection of beta-lactam residuals in milk; spoilage organisms (e.g., yeast and mold); mycotoxins; Neogen Culture Media; and sanitation, including the AccuPoint® Advanced ATP system.

Nestlé Quality Assurance Center (NQAC) Dublin
6625 Elterman Road
Dublin, OH 43017, USA
Phone: +1 614.526.5345
www.nqacdublin.com

Nestlé Quality Assurance Center (NQAC) Dublin, an ISO 17025 Accredited Laboratory since 1998, analyzes food and beverage products to verify compliance with regulatory, food safety and quality standards. Our state-of-the-art facility offers over 150 unique methods analyzing raw ingredients, finished food, environmental and beverage products to support your testing needs. Capabilities include: Nutritional Labeling, Chemistry Analysis, Microbiology Analysis, Challenge and Shelf-Life Studies, Microwave Cooking Instructions Validation, Environmental Monitoring Services, Foreign Body Investigations, Allergens and GMO, Packaging Analysis and more.

Neutec Group Inc.
1 Lenox Ave.
Farmingdale, NY 11735, USA
Phone: +1 516.870.0877
www.neutecgroup.com

Neutec Group is a market leader in implementation of innovative technologies for QC and R&D laboratories. At the IAFP Annual Meeting, we will highlight our equipment solutions for measuring Water Activity (a_w), Microbiology testing and analysis of features such as color, shape, size and coating through Multi Spectral Imaging techniques.

Novolyze
50 rue de Dijon
Dax, 21121, France
Phone: +33.9.83.69.42.13
www.novolyze.com

Novolyze is a food safety company. Our mission is to develop and commercialize innovative technologies to help the food industry manufacture safer food, while ensuring strong compliance with international food safety and quality standards. Our innovative approach to Food Safety relies on the utilization of cutting-edge microbiology solutions, combined with the latest developments in digital, IoT and machine learning.

Our solutions: SurroNov®, the first range of ready-to-use surrogate organisms. They are used directly at the factory to test the efficacy of processing systems.

FoodSafetyGuardian® is the first connected solution fully devoted to the control of microbial intervention steps. Visit www.novolyze.com.

NSF International
789 N Dixboro Road
Ann Arbor, MI 48105, USA
Phone: +1 734.769.8010
www.nsf.org

NSF International has 70+ years of experience helping companies navigate the complex food safety, quality and regulatory environment across the entire food supply chain. This includes NSF’s brand protection services for retail and foodservice operations offering auditing, consulting and technical services to help you ensure food safety and quality. In addition, we have the NSF Applied Research Center, this R&D arm of NSF offers customized testing solutions to companies and researchers. At the core we all work toward the NSF mission of furthering public health. For more information, visit www.nsf.org.

NSI Lab Solutions
7212 ACC Blvd.
Raleigh, NC 27617, USA
Phone: +1 800.234.7837
www.nsilabsolutions.com


Orkin
2170 Piedmont Road NE
Atlanta, GA 30324, USA
Phone: +1 404.287.8074
www.orkin.com/commercial/

Orkin Food Safety Precision Protection®: Pest control down to a science®. Orkin’s Food Safety Precision Protection® program is designed specifically for the highly regulated food processing industry. It comes complete with Orkin Gold Medal QA®, a system of comprehensive documentation and audit support anytime you need it. To learn more or to request a free consultation, call 1.800. ORKIN NOW or visit us at www.orkincommercial.com.

Oxford Nanopore Technologies, Ltd.
Gosling Building, Edmund Halley Road
Oxford Science Park
Oxford, Oxfordshire OX4 4DQ, United Kingdom
Phone: +44 0.845.034.7900
www.nanoporetech.com

Oxford Nanopore Technologies has developed the world’s first nanopore DNA and RNA sequencing devices, scalable to your requirements. The MinION is a portable, real-time, long-read, low-cost device designed to bring simple biological analyses to anyone, whether in scientific research, education or real-world applications.

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applications, from outbreak surveillance and environmental monitoring to population genomics and microgravity biology. The GridION and PromethION devices serve users with larger projects or more samples. Oxford Nanopore Technologies products are currently for Research Use Only. Not for use in diagnostic procedures.

Ozone Partner US  
5313 Serene Hills Drive, #1406  
Austin, TX 78738, USA  
Phone: +1 512.781.4035  
www.ozonepartner.com  
Latest breakthrough in food Disinfection and Sterilization! Our patented ExOzone brand technology can transform ambient-air into super-high concentration of ozone gas, at industrial scale, sterilizing all surfaces and air, then quickly break back down to ambient-air (O2) leaving NO toxic residuals. Chemical-Free, Sustainable, No-Consumables, No-Downtime, Economic, OSHA-Safe, Portable and the most effective oxidant on the market. EPA registered, FDA approved, GRAS.

Pall Corporation  
25 Harbor Park Drive  
Port Washington, NY 11050, USA  
Phone: +1 866.905.7255  
www.pall.com/foodandbev  
Pall Corporation is a global filtration, separation and purification leader providing solutions to meet the critical fluid management needs of customers across the broad spectrum of life sciences and industry. We work with our customers to advance health, safety and environmentally responsible technologies.

Pall Food and Beverage provides products and services to ensure product quality and maintain process reliability in beverage and food production. Our solutions also assist in consumer protection, the reduction of operating costs and waste minimization.

Partnership for Food Safety Education  
2345 Crystal Drive, Suite 800  
Arlington, VA 22202-4813, USA  
Phone: +1 202.220.0651  
www.fightbac.org  
The non-profit Partnership for Food Safety Education works to reduce foodborne illness risk through consumer food safety education and by supporting health and food safety educators nationwide with the tools and educational programs they need to be effective at changing food handling behaviors in the home. www.fightbac.org.

Passport Food Safety Solutions  
6935 Vista Drive  
West Des Moines, IA 50266, USA  
Phone: +1 515.334.8035  
www.passportfoodsafety.com  
Passport Food Safety Solutions, a division of Arm & Hammer Animal & Food Production, delivers the most comprehensive portfolio of pre- and post-harvest solutions. We deliver practical food safety solutions through a broad portfolio of technologies, predictive analytics and consultation, and a commitment to developing new innovations that meet the food safety needs of all sectors of the industry.

PolySkope Labs  
755 Research Pkwy., Suite 460  
Oklahoma City, OK 73104, USA  
Phone: +1 805.443.0725  
www.polyskopelabs.com  
PolySkope Labs was founded in 2011 by pioneers in molecular diagnostics to develop next-generation multiplex solutions for food safety testing. The Company achieved AOAC approval of the world’s first comprehensive multiplex detection method for the simultaneous detection of all major bacterial pathogens that cause illnesses in Food, Beverage, and Cannabis. This revolutionary advancement in pathogen detection provides flexibility, workflow simplification, and >60% reductions in the cost-of-analysis for food safety and cannabis labs.

PrimusLabs  
2810 Industrial Pkwy.  
Santa Maria, CA 93455, USA  
Phone: +1 805.922.0055  
www.primuslabs.com  
For over 30 years, Primus Group has remained the single point of contact in food safety for microbiological and pesticide residue testing, data management/analytics, consulting, and audit scheme ownership. PrimusLabs utilizes state-of-the-art technology, degreed technical staff, and QA oversight to raise your results to an actionable level. Azzule Systems offers data management solutions through the Azzule Supply Chain Program (SCP). By blending audit and laboratory data with analytics, the SCP’s tools enhance the buyer’s confidence in their suppliers and overall food safety program. Turn to PrimusLabs and Azzule for all your FSMA compliance and food safety needs.

Procter & Gamble Professional  
2 P&G Plaza  
Cincinnati, OH 45202, USA  
Phone: +1 803.447.5616  
www.pgpro.com  
P&G Professional is the away-from-home division of Procter & Gamble, serving the foodservice industry a safe, simple, and effective foodservice solution including a comprehensive portfolio of dish machine chemicals and dish machines – Offering a total food safety solution – Also serving building cleaning and maintenance, healthcare, hospitality, and grocery/retail industries. P&G Professional offers complete solutions utilizing its parent company's scale, with trusted brands such as Dawn® Professional, Mr. Clean® Professional, Tide® Professional, Swiffer® Professional, Comet®, Spic and Span®, Febreze®, and P&G Pro Line®. www.pgpro.com.
As a world leader in applying genomics and cellular biology expertise to develop high value products for the Life Sciences, Promega Corporation understands that today’s food quality, GMO and authenticity testing challenges require creative solutions. We have developed systems that simplify plant and food DNA extraction and seamlessly integrate into food testing workflows. Stop by our booth to learn more about successful approaches and tools for enabling GMO and food pathogen testing.

PURE Bioscience, Inc. is focused on developing and commercializing our proprietary antimicrobial products that provide solutions to the health and environmental challenges of pathogen and hygienic control. Our technology platform is based on patented, stabilized ionic silver, and our initial products contain Silver Dihydrogen Citrate (SDC). SDC is a broad-spectrum, non-toxic antimicrobial agent that is manufactured as a liquid and delivered in various concentrations. We currently manufacture and distribute SDC-based disinfecting and sanitizing products, which are registered by the United States Environmental Protection Agency (EPA). We intend to focus our current resources on providing food safety solutions to the food industry.

Need a clean break? Have you tried chlorine dioxide or been quoted a price for a treatment and thought it was too expensive? PureLine prides itself on offering a full-line of chlorine dioxide products and services at a cost-effective model that guarantees a 6-log kill! For over 20 years PureLine has been providing both gas and liquid chlorine dioxide sanitation solutions that are customized to their customers’ needs.

Puritan Medical Products Company, LLC is known worldwide as a trusted manufacturer of environmental sampling swabs and collection devices for your ideal application. Choose from handle, tip, and fill options that give you instant results, perfect for spot checks of virtually any surface. Whether you’re testing meat for pathogens or trying to determine the effectiveness of a cleaning program, you can count on us for the highest quality products to get the job done.

Q Laboratories has served the food and beverage industries since 1966, offering exceptional microbiology and chemistry laboratory, and research and development services. An ISO/IEC 17025 Accredited, GMP/GLP compliant laboratory, Q Laboratories can provide services to meet all your testing and quality assurance needs. Capabilities include: pathogen detection, microbial identification (MALDI-TOF), nutritional analysis, allergen screening, challenge studies, shelf-life studies, environmental monitoring programs, and method validation/verification studies to help test kit manufacturers demonstrate proficiency of proprietary methods. Q Laboratories is the first North America-based laboratory to be approved as an AOAC Independent Laboratory, an AFNOR Expert Lab, and a MicroVal Expert Laboratory.

Puritan Medical Products Company, LLC

31 School St., P.O. Box 149
Guilford, ME 04443, USA
Phone: +1 207.876.3311
www.puritanmedproducts.com

Puritan Medical Products Company, LLC is known worldwide as a trusted manufacturer of environmental sampling swabs and collection devices for your ideal application. Choose from handle, tip, and fill options that give you instant results, perfect for spot checks of virtually any surface. Whether you’re testing meat for pathogens or trying to determine the effectiveness of a cleaning program, you can count on us for the highest quality products to get the job done.

Q Laboratories

1930 Radcliff Drive
Cincinnati, OH 45204, USA
Phone: +1 513.471.1300
www.qlaboratories.com

Q Laboratories has served the food and beverage industries since 1966, offering exceptional microbiology and chemistry laboratory, and research and development services. An ISO/IEC 17025 Accredited, GMP/GLP compliant laboratory, Q Laboratories can provide services to meet all your testing and quality assurance needs. Capabilities include: pathogen detection, microbial identification (MALDI-TOF), nutritional analysis, allergen screening, challenge studies, shelf-life studies, environmental monitoring programs, and method validation/verification studies to help test kit manufacturers demonstrate proficiency of proprietary methods. Q Laboratories is the first North America-based laboratory to be approved as an AOAC Independent Laboratory, an AFNOR Expert Lab, and a MicroVal Expert Laboratory.
QualiTru Sampling Systems 251
471 Hayward Ave. North
Oakdale, MN 55128, USA
Phone: +1 651.501.2337
www.qualitrus.com

QualiTru Sampling Systems is a trusted brand when it comes to aseptic sampling of your most critical fluid products. We have an ongoing commitment to the industry by providing an accurate sampling system for all your fluid sampling needs. Our patented products and processes allow for multiple sterile sampling channels into sterile sampling containers, thus eliminating the risk of sampling contamination and ensuring the most accurate sampling techniques on the market today.

Quality Assurance & Food Safety Magazine 216
5811 Canal Road
Valley View, OH 44125, USA
Phone: +1 216.393.0300
www.qualityassurancemag.com

QA Magazine, a bi-monthly publication from GIE Media, provides digital and print publications for the food and beverage processing industry with a specific focus on food safety, quality, and defense across the global supply chain. Through practical insights and analysis of plant processes, practices, regulation, and current issues, the QA Media family—including our print publication, Website and e-newsletters—addresses the growing market need for targeted information in these key areas.

QuoData GmbH Quality & Statistics 547
Prellerstraße 14
Dresden, Saxony 01309, Germany
Phone: +49.351.402.886.70
http://www.quodata.de/en

QuoData is based in Germany and offers services, web-based software and training for analytical quality assurance. It is no coincidence that QuoData cooperates with well-known partners such as the German Federal Office of Consumer Protection and Food Safety, BVL. For more than 20 years QuoData contributes to improving food safety with forward-thinking approaches for quality assurance based on unique expertise in statistics and machine learning.

QuoData’s multi-disciplinary team provides services in the field of method validation and process qualification as well as a full-service solution proficiency testing provider to its international clientele.

R & F Products 420
2725 Curtiss St.
Downers Grove, IL 60515-4002, USA
Phone: +1 630.969.5300
www.rf-products.net

R & F Products is the developer/producer of chromogenic media in the forms of powdered and prepared plates and enrichment broths for food, environmental and clinical pathogens. R & F Products’ mission is to produce unique and innovative chromogenic plating media and enrichment broths that will enhance and improve laboratory efficiency, accuracy, sensitivity and specificity for pathogen isolation. R & F Products has 13 media patent/patent applications for chromogenic media isolating the following pathogens: Escherichia coli O157:H7, Listeria monocytogenes, Salmonella, Bacillus cereus/Bacillus thuringiensis, Enterobacter sakazakii (Cronobacter sp.), Bacillus anthracis, Listeria spp./Listeria monocytogenes, Listeria spp., Shigella spp., Campylobacter jejuni/C. coli, Yersinia pestis, and non-O157 STEC.

Randox Food Diagnostics 647
55 Diamond Road
Crumlin, BT29 4QY, United Kingdom
Phone: +28.944.224.13
www.randoxfood.com

Randox Food Diagnostics is an international supplier of food safety analyzers and reagents for the detection of mycotoxins, antimicrobials, growth promoting hormones and drugs of abuse in animals and produce.

The Randox product range includes the Biochip Array Technology (BAT) analyzer, the Evidence Investigator and a range of ELISAs. BAT allows simultaneous screening of multiple analytes from a single sample, offering major efficiencies in comparison to traditional ELISA. This technology is proven to be applicable in a wide range of settings including; drug residue screening, private/public research applications, clinical laboratories, and veterinary laboratories.

Reading Thermal 344
7 Corporate Blvd.
Sinking Spring, PA 19608, USA
Phone: +1 610.678.5890
www.readingthermal.com

The SCORPION® 2 Profiling System has become a standard in the baking industry providing a complete measurement system to capture the four key baking parameters: Temperature, Airflow, Heat Flux and Humidity. With the SCORPION® 2 System, you can measure and analyze baking, drying and cooling thermal processes. The SCORPION® 2 enables you to monitor real-time in-process conditions giving you the critical information you need to correct problems and maintain optimum process conditions. The SCORPION® 2 Software (SV8) Food Safety Module enables bakers to easily comply with the FSMA Kill Step Validation requirements.

Remco 239
4735 West 106th St.
Zionsville, IN 46077, USA
Phone: +1 317.876.9856
www.rempcproducts.com

The tools Remco has provided to food processors have played a critical role in food safety for over 30 years. As a part of the Vikan family, Remco support food manufacturers by providing hygienic, innovative, durable, and efficient tools in more colors than other suppliers. Remco’s color-coded products and unmatched customer support help manufacturers improve food safety.

As Vikan’s dedicated presence in North America, Remco will deliver even greater support to customers through our combined industry knowledge and top-of-the-line products. We strive to provide lasting value for our customers while we help them improve their own food safety efforts.

Green Text – IAFP Sustaining Member
The Rheonix Encompass Optimum™ workstation is a fully automated system that provides rapid, highly multiplexed sample-to-answer molecular testing for food and beverage. With one pipette step per sample, the system offers true walkaway simplicity. Rheonix’s Listeria PatternAlert™ assay enables food producers to quickly identify recurring Listeria patterns in their facilities direct from enrichments, with no need to isolate strains in pure culture. Rheonix’s portfolio of multiplexed testing solutions also includes the Beer SpoilerAlert™ assay, the most comprehensive beer spoilage panel available. With Rheonix, getting more information from your sample has never been easier.

Romer Labs®
1301 Stylemaster Drive
Union, MO 63084, USA
Phone: +1 302.781.6400
www.romerlabs.com

Romer Labs® is a leading provider of diagnostic test solutions for the food industry. We specialize in analytical services and rapid test kits for the detection of food pathogens, food allergens, mycotoxins, drug residues, and GMOs. Our broad range of innovative tests and services play a pivotal role in integrated food safety management programs. Our fundamental objective at Romer Labs® is to provide cost-effective, validated products and services for “Making the World’s Food Safer.”

RQA, Inc.
10608 W 163rd Place
Orland Park, IL 60467, USA
Phone: +1 630.512.0011
www.rqa-inc.com

RQA is a global leader in providing quality assurance and food safety solutions to the food industry, including retail quality audits, counterfeit investigation, consumer complaint retrieval, product retrieval and recall services. With our crisis planning and management and RQA’s Food Forensics™ contaminant investigation services, we offer the most comprehensive quality and risk management support available. Whether you need to assess your product quality and market conditions at retail, retrieve consumer complaint or competitive samples, perform vulnerability assessments as part of your Food Defense Plan development, optimize your Crisis Management capabilities, or even execute a product recall, RQA can help.

Safe Food Alliance
710 Striker Ave.
Sacramento, CA 95834, USA
Phone: +1 916.561.5900
www.safefoodalliance.com

Safe Food Alliance is a technical service organization focused on addressing the needs of the food industry with a special emphasis on California’s specialty crops. With rapidly growing expectations from regulators, consumers, and retail outlets, we help companies become more proactive in their approach to food safety practices. Safe Food Alliance offers technical services to growers, packers, processors and food manufacturers to aid in their efforts to maintain the highest standards in food safety.

SafeTraces, Inc.
6111 Johnson Court, Suite 200
Pleasanton, CA 94588, USA
Phone: +1 925.326.1200
www.safetraces.com

SafeTraces is propelling food tech into the future, using nature’s own DNA to make food production safer, more transparent, and less wasteful. Our patented, food-safe solutions use natural DNA to trace food, not the packaging, and to verify the success of cleaning and sanitation – all of this in minutes to provide clarity about the safety, purity, and provenance of our food in real time.

Safefood 360°
100 Park Ave., 16th Floor
New York, NY 10017, USA
Phone: +1 855.FOOD.360
https://www.safefood360.com

The complete Food Safety, Quality and Compliance Management Software for the Forward-Thinking Enterprise Food Company. Built by food industry experts to allow you to implement, maintain and adapt to continuously changing legal and commercial compliance requirements.

SAI Global
20 Carlson Court, Suite 200
Toronto, ON M9W 7K6, Canada
Phone: +1 416.401.8700
www.saiglobal.com/foodsafety

Sartorius Corp.
5 Orville Drive
Bohemia, NY 11716, USA
Phone: +1 734.436.8208
www.sartorius.com

Although well known as a leading international pharmaceutical and laboratory equipment supplier, Sartorius is actually working with and for a wide range of customers across practically every industry. With innovative and intuitive products and solutions, we help increase efficiency and productivity whether in routine or complex lab processes or industry specific workflows. Count on our support in diverse applications across a broad range of technology-intensive industries, such as the food and beverage, automotive, chemical, environmental testing, medical devices, paint coating industries.
2019 EXHIBITORS

Sentry Equipment
966 Blue Ribbon Circle North
Oconomowoc, WI 53066, USA
Phone: +1 262.567.7256
https://sentry-equip.com

Sentry Equipment leverages proven abilities in engineering and manufacturing to help customers sample, monitor and measure their processes in a variety of markets and applications worldwide. The Sentry brand of representative sampling products and services enables customers to achieve safe, accurate and repeatable results to protect the people, products and environments that matter the most. Since 1924, Sentry Equipment has been a reliable partner for operational and analytical professionals in the U.S. and global markets. As a 100% employee-owned company, it serves customers in over 50 countries across six continents. For more information, please visit www.sentry-equip.com.

Green Text – IAFP Sustaining Member

Solus Scientific
9 Mansfield Networkcentre, Concorde Way
Mansfield, Nottinghamshire NG19 7JZ, United Kingdom
Phone: +44 1623 429701
www.solusscientific.com

In a fast-paced food testing environment, it is critical to process samples quickly and efficiently, enabling the production facility to release product, reduce inventory, or take prompt corrective actions when necessary. Solus Scientific produces pathogen testing systems that have been specifically developed with these constraints in mind. Introducing Solus One Listeria and Solus One Salmonella for next-day results following a single enrichment step. AOAC and AFNOR certified, our kits are employed worldwide. Committed to food safety excellence, our assays bring significant productivity benefits to our customers. Talk to us to learn how we can save you time and money.

Seward Laboratory Systems Inc.
155 Keyland Court
Bohemia, NY 11716, USA
Phone: +1 631.337.1808
www.sewardusa.com

Seward manufactures the leading range of Stomacher® paddle blenders used in sample preparation for microbiological analysis. For accurate, repeatable results, choose the Stomacher® – the original and still the best.

Sentry Equipment
966 Blue Ribbon Circle North
Oconomowoc, WI 53066, USA
Phone: +1 262.567.7256
https://sentry-equip.com

SGS
201 Route 17 North
Rutherford, NJ 07070, USA
Phone: +1 201.508.3000
www.foodsafety.sgs.com

SGS is a world-leading inspection, verification, testing, and certification company. Recognized as the global benchmark for quality and integrity, we provide competitive advantage, drive sustainability, and deliver trust. With more than 97,000 employees, we operate a network of more than 2,600 offices and laboratories around the world. SGS offers a wide range of solutions covering the entire food supply chain from primary production and manufacturing, to retail and foodservice. With a comprehensive range of independent inspection, testing, training, certification, and technical services specific for the food sector, we help companies worldwide to monitor and validate safety, quality, and sustainability.

SnapDNA
897 Independence Ave., #2C
Mountain View, CA 94043, USA
Phone: +1 650.265.6904
www.snapdna.com

SnapDNA has developed the fastest pathogen test in the industry. Sample-to-answer in 20 minutes, our technology eliminates the need to culture bacteria, enabling on-site analysis of environmental and food samples. Our RNA/DNA-based platform is the first True Rapid™ test to meet or exceed every critical metric. The SnapDNA system is compatible with industry established and accepted sample sizes, can detect and analyze live cells only, and delivers quantitative results with near-zero false positive accuracy. SnapDNA is poised to deliver the next generation of analytical tools for food safety, with tipping point technology.

Sterilex
111 Lake Front Drive
Hunt Valley, MD 21030, USA
Phone: +1 443.541.8800
www.sterilex.com

Sterilex develops proprietary, sanitation technologies designed to remove biofilm, provide high level disinfection, and enhance sanitation. Sterilex award-winning products are considered a best practice for the control of harmful organisms such as Listeria, E. coli and Salmonella on a wide variety of food contact and environmental surfaces. Sterilex products are used in a variety of applications, from food and beverage production to healthcare and hospitality. With a focus on innovation and results, Sterilex is a trusted partner in ensuring clean environments and products.
2019 EXHIBITORS

of sanitation applications including foaming and soaking programs, drain treatment, spiral freezer sanitization, and microbial threat detection. Sterilex technologies have proven to eliminate environmental sanitation challenges and increase shelf life, resulting in an enhanced sanitation program. Visit us to learn more about innovative solutions for microbial control.

STOP Foodborne Illness 568
4809 N Ravenswood St., Suite 214
Chicago, IL 60640, USA
Phone: +1 773.269.6555
www.stopfoodborneillness.org

STOP Foodborne Illness is a national nonprofit, public health organization dedicated to preventing illness and death from foodborne pathogens by promoting sound food safety policy and best practices, building public awareness, and assisting those impacted by foodborne illness.

Suttner America Co. 470
14864 West Ridge Lane
Dubuque, IA 52003, USA
Phone: +1 563.556.3212
www.suttner.com

For over 50 years Suttner America has been the leading manufacturer of spray components for applying sanitizers, degreasers, disinfectants and rinsing in food processing facilities. Our products are German designed and engineered to handle the toughest cleaning applications. Product range includes HACCP color coded ready spray guns, spray nozzles, spray wands, hoses, injectors and accessories. Our management team is experienced and driven by a true commitment to customers’ needs. The Suttner team has extensive experience and provides the technical support needed. We specialize in personal service, spending time with customers over the phone or in person to diligently understand customers’ needs and markets.

TAAG Genetics 367
1050 Lakes Drive, Suite 225
West Covina, CA 91790, USA
Phone: +1 213 915 8099
www.taag-genetics.com

We are specialized in creating solutions for microbiological analysis to help food companies produce safer and better products. We developed TAAG Food Safety Intelligence (TFSi), a dynamic microbiological program based on genetic testing and artificial intelligence for maximizing food safety. With the TFSi program you will have all covered, from electronic on-site sampling and dynamic environmental monitoring plan to genetic testing kits and automated real time data analysis. Our kits, TAAG’s nPLEX, can detect up to four pathogens in one single qPCR reaction in 22-26 hrs (enrichment included). Implement nPLEX, generate important savings, simplify the workflow and increase productivity.

TandD US, LLC 266
534 N Guadalupe St., #32886
Santa Fe, NM 87501, USA
Phone: +1 518.669.9227
www.tandd.com

TandD Corporation manufactures a comprehensive line of wireless and stand-alone data loggers with innovative web-based data collection, remote monitoring and notification features, included in the product lineup are models that incorporate Wi-Fi connectivity for automatic uploading of data to the company’s free WebStorage Service, where customers can view, share and archive their recorded data without paying monthly fees. TandD Corporation, a leading supplier of wireless data loggers, and has been engaged in the design, development and manufacture of high reliability, high quality electronic measurement systems since 1986.

Tasmanian Institute of Agriculture 650
College Road, Tasmania
Hobart, 7001, Australia
Phone: +1 813.510.0277
http://www.utas.edu.au/tia

The Tasmanian Institute of Agriculture (TIA), located in Tasmania, Australia, is dedicated to research and development of sustainable agricultural industries. Founded in 1996, it is a collaborative effort of the University of Tasmania (UTAS) and the Tasmanian Government.

ComBase (www.combase.cc), a partnership between TIA and the U.S. Department of Agriculture, is a free public database that describe microbial responses to food environments, and is accessed by more than 56,000 registered users. CB Premium (www.cbpremium.org), founded by TIA, uniquely focuses on food-based peer-reviewed predictive models that help the food industry innovate, develop Food Safety Plans, and comply with regulatory policy.

TEGAM Inc. 150
10 TEGAM Way
Geneva, OH 44041, USA
Phone: +1 440.466.6100
www.tegam.com

TEGAM designs and manufactures test and measurement equipment with a line of thermometry products created for Food Safety Applications. TEGAM will be demonstrating data logging wireless thermometers, the Free TEGAM Cloud App that can collect your data and the software package you need to integrate that data into your QMS or ERP system. TEGAM will also present their new 940/945, a handheld thermocouple calibrators.

Testo North America 337
2 West Market St., Suite 500
West Chester, PA 19382, USA
Phone: +1 800.227.0729
www.testofoodsafety.com

Testo North America is a leader in the design, development, and manufacture of portable measurement instrumentation. The fully integrated Testo Saveris system (Hardware/Software/Services),
fulfills the compliance gap and leads the food safety market into a new era. Executives can now automate checks, create visibility and improve accountability. Saveris changes the dynamic from paper-based reporting to automated exception management through software notifications.

**Thermo Fisher Scientific**
12076 Santa Fe Trail Drive
Lenexa, KS 66215, USA
Phone: +1 800.255.6730
www.thermofisher.com

Thermo Fisher Scientific is the world leader in serving science. Our mission is to enable our customers to make the world healthier, cleaner and safer. We believe we are uniquely positioned to help the food industry effectively protect consumers, brand and reputation by delivering simpler, faster and smarter solutions. Positioned to meet your changing needs, we can help you to remain adaptive, responsive, and competitive. To find out more stop by Booth #327, visit thermofisher.com/foodandbeverage or join our blog at www.thermofisher.com/examiningfood, a forum for information, discussion and analysis of some of the issues faced in the food industry today.

**ToxStrategies**
23501 Cinco Ranch Blvd., B226
Katy, TX 77494, USA
Phone: +1 866.764.5840
www.toxstrategies.com

ToxStrategies is a scientific consulting firm that provides innovative solutions to the technical and regulatory challenges confronting our clients. We have a reputation for applying sound science and tailoring our approach to meet the specific needs of our clients.

Our health scientists, regulatory specialists, and engineers are leaders in their respective disciplines and, collectively, have extensive experience assessing health risks associated with consumer products, food ingredients and additives, pharmaceuticals, medical devices, pesticides, industrial chemicals, and environmental contaminants.

The small size of our firm enhances our flexibility and efficiency, which translates to reduced costs and greater satisfaction for our clients.

**TriStrata Group**
12685 Miller Road NE
Bainbridge Island, WA 98110, USA
Phone: +1 206.780.5552
www.tristratagroup.com

We are a team of scientists, engineers and technicians with the food safety experience to deliver comprehensive solutions for better outcomes. TriStrata ozone systems add strategic interventions as part of your multi-hurdle food protection approach. We provide an added layer of food safety protection without the health risks and environmental drawbacks associated with conventional chemicals.

**USDA National Agricultural Library Food Safety Research Information Office**
10301 Baltimore Ave.
Beltville, MD 20705, USA
Phone: +1 701.320.7837
https://www.nal.usda.gov/fsrio

The Food Safety Research Information Office (FSRIO) supports the research community by collecting, organizing and disseminating food safety information in accordance with the Agricultural Research, Extension, and Education Reform Act of 1998. Our mission is to provide the food safety research community and general public with information on publicly and privately funded food safety research. FSRIO works to assist the federal government and private research entities in the assessment of food safety research needs and priorities, and to prevent unintended duplication of food safety research.

**Weber Scientific**
2732 Kuser Road
Hamilton, NJ 08691, USA
Phone: +1 800.328.8378
www.weberscientific.com

On display are many innovative new products distributed by Weber Scientific, including Kikkoman’s LuciPac™ A3™ Sanitation System that produces a test result an order of magnitude or higher than competitive products, the new Weber Scientific MegaSampler Sampling Device making environmental surface sampling faster and easier, and new varieties of the Charm Peel Plate Microbial Tests for *S. aureus* and *Coliform*, *Coliform/E. coli*, *Enterobacteriaceae* for cultured dairy products. Weber Scientific distributes laboratory supplies and equipment throughout North America and is focused on the specialized testing needs of the food and beverage industry. We promote quality control by making the acquisition of testing supplies as easy and affordable as possible.

**Whirl-Pak®**
901 Janesville Ave.
Fort Atkinson, WI 53538, USA
Phone: +1 920.568.5616
www.whirl-pak.com

For 60 years, Whirl-Pak® has held itself to a higher standard. As an ISO 9001 certified facility, we have been a trusted partner to the lab sampling and testing industry by providing solutions for the critical requirements of our customers. From post-manufacturing sterilization to puncture-proof tabs, Whirl-Pak® has a long history of providing value through our commitment in developing leading-edge products that set a new standard in reliability. Whirl-Pak®, results you can trust.
### 2019 EXHIBITORS

<table>
<thead>
<tr>
<th>Company</th>
<th>Booth No.</th>
<th>Address</th>
<th>Phone</th>
<th>Website</th>
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<tbody>
<tr>
<td>World Bioproducts</td>
<td>130</td>
<td>P.O. Box 947, Bothell, WA 98041, USA</td>
<td>+1 425.242.4153</td>
<td><a href="http://www.worldbioproducts.com">www.worldbioproducts.com</a></td>
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<td></td>
<td></td>
<td>World Bioproducts provides innovative environmental sample collection devices and convenient pre-filled dilution blanks and media. The EZ Reach™ Sponge Sampler, Sample- Right™ Sponge Sampler, and PUR-Blue™ Swab Sampler are designed to address the specific challenges of recovering microorganisms from the food processing environment. All are available with our proprietary HiCap™ Neutralizing Broth, proven to more effectively neutralize residual sanitizers than other collection solutions, allowing for better recovery and detection of microorganisms from surfaces.</td>
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<tr>
<td>XENON</td>
<td>157</td>
<td>37 Upton Drive, Wilmington, MA 01887, USA</td>
<td>+1 978.661.9033</td>
<td><a href="http://www.xenoncorp.com">www.xenoncorp.com</a></td>
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<td>XENON has over 50 years of Pulsed Light experience and applies its industry-leading expertise to the design and manufacture of high quality Pulsed Light systems for use in a wide range of production processes. XENON is an active partner in the research and development of new and emerging applications of Pulsed Light.</td>
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<tr>
<td>Zee Company</td>
<td>354</td>
<td>412 Georgia Ave., Suite 300, Chattanooga, TN 37403, USA</td>
<td>+1 800.782.0233</td>
<td><a href="http://www.vincitgroup.com">www.vincitgroup.com</a></td>
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<td></td>
<td>Zee Company leads the industry in intervention chemical programs – the most important procedure for ensuring food protection. Furthermore, our entire catalog of over 1,200 unique chemical products is tailored to provide the strongest chemical food safety resource in the country. Our products are administered by a highly trained sales team that specializes in active involvement in our partners’ businesses, offering safety and process improvements on a regular basis, comprising the most effective chemical option on the market.</td>
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<tr>
<td>Zymo Research Corp.</td>
<td>372</td>
<td>17062 Murphy Ave, Irvine, CA 92614, USA</td>
<td>+1 949.679.1190</td>
<td><a href="http://www.zymoresearch.com">www.zymoresearch.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zymo Research Corp. since 1994, Zymo Research has been offering innovative, quality and easy-to-use tools for nucleic acid purification and Epigenetics research. Our innovative products and services simplify complex processes while at the same time improving results. All of our products are supported by unparalleled customer support. Zymo Research – Innovation. Quality. Simplicity.</td>
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</table>
OTHERS SEE A PEST,
YOU SEE A REIGN OF TERROR.

Call 800-477-4432 or visit indfumco.com for your free facility assessment.
Policy on Commercialism
for Annual Meeting Presentations

1. INTRODUCTION

No printed media, technical sessions, symposia, posters, seminars, short courses, and/or other related types of forums and discussions offered under the auspices of the International Association for Food Protection (hereafter referred to as Association forums) are to be used as platforms for commercial sales or presentations by authors and/or presenters (hereafter referred to as authors) without the express permission of the staff or Executive Board. The Association enforces this policy in order to restrict commercialism in technical manuscripts, graphics, oral presentations, poster presentations, panel discussions, symposia papers, and all other type submissions and presentations (hereafter referred to as submissions and presentations), so that scientific merit is not diluted by proprietary secrecy.

Excessive use of brand names, product names or logos, failure to substantiate performance claims, and failure to objectively discuss alternative methods, processes, and equipment are indicators of sales pitches. Restricting commercialism benefits both the authors and recipients of submissions and presentations.

This policy has been written to serve as the basis for identifying commercialism in submissions and presentations prepared for the Association forums.

2. TECHNICAL CONTENT OF SUBMISSIONS AND PRESENTATIONS

2.1 Original Work

The presentation of new technical information is to be encouraged. In addition to the commercialism evaluation, all submissions and presentations will be individually evaluated by the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff on the basis of originality before inclusion in the program.

2.2 Substantiating Data

Submissions and presentations should present technical conclusions derived from technical data. If products or services are described, all reported capabilities, features or benefits, and performance parameters must be substantiated by data or by an acceptable explanation as to why the data are unavailable (e.g., incomplete, not collected, etc.) and, if it will become available, when. The explanation for unavailable data will be considered by the Program Committee chairperson and/or technical reviewers selected by the Program Committee chairperson to ascertain if the presentation is acceptable without the data. Serious consideration should be given to withholding submissions and presentations until the data are available, as only those conclusions that might be reasonably drawn from the data may be presented. Claims of benefit and/or technical conclusions not supported by the presented data are prohibited.

2.3 Trade Names

Excessive use of brand names, product names, trade names, and/or trademarks is forbidden. A general guideline is to use proprietary names once and thereafter to use generic descriptors or neutral designations. Where this would make the submission or presentation significantly more difficult to understand, the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff, will judge whether the use of trade names, etc., is necessary and acceptable.

2.4 “Industry Practice” Statements

It may be useful to report the extent of application of technologies, products, or services; however, such statements should review the extent of application of all generically similar technologies, products, or services in the field. Specific commercial installations may be cited to the extent that their data are discussed in the submission or presentation.

2.5 Ranking

Although general comparisons of products and services are prohibited, specific generic comparisons that are substantiated by the reported data are allowed.

2.6 Proprietary Information (See also 2.2.)

Some information about products or services may not be publishable because it is proprietary to the author’s agency or company or to the user. However, the scientific principles and validation of performance parameters must be described for such products or services. Conclusions and/or comparisons may be made only on the basis of reported data.

2.7 Capabilities

Discussion of corporate capabilities or experiences are prohibited unless they pertain to the specific presented data.
3. **GRAPHICS**

3.1 **Purpose**

Slides, photographs, videos, illustrations, art work, and any other type visual aids appearing with the printed text in submissions or used in presentations (hereafter referred to as graphics) should be included only to clarify technical points. Graphics which primarily promote a product or service will not be allowed. (See also 4.6.)

3.2 **Source**

Graphics should relate specifically to the technical presentation. General graphics regularly shown in, or intended for, sales presentations cannot be used.

3.3 **Company Identification**

Names or logos of agencies or companies supplying goods or services must not be the focal point of the slide. Names or logos may be shown on each slide so long as they are not distracting from the overall presentation.

3.4 **Copies**

Graphics that are not included in the preprint may be shown during the presentation only if they have been reviewed in advance by the Program Committee chairperson, session convenor, and/or staff, and have been determined to comply with this policy. Copies of these additional graphics must be available from the author on request by individual attendees. It is the responsibility of the session convenor to verify that all graphics to be shown have been cleared by Program Committee chairperson, session convenor, staff, or other reviewers designated by the Program Committee chairperson.

4. **INTERPRETATION AND ENFORCEMENT**

4.1 **Distribution**

This policy will be sent to all authors of submissions and presentations in the Association forums.

4.2 **Assessment Process**

Reviewers of submissions and presentations will accept only those that comply with this policy. Drafts of submissions and presentations will be reviewed for commercialism concurrently by both staff and technical reviewers selected by the Program Committee chairperson. All reviewer comments shall be sent to and coordinated by either the Program Committee chairperson or the designated staff. If any submissions are found to violate this policy, authors will be informed and invited to resubmit their materials in revised form before the designated deadline.

4.3 **Author Awareness**

In addition to receiving a printed copy of this policy, all authors presenting in a forum will be reminded of this policy by the Program Committee chairperson, their session convenor, or the staff, whichever is appropriate.

4.4 **Monitoring**

Session convenors are responsible for ensuring that presentations comply with this policy. If it is determined by the session convenor that a violation or violations have occurred or are occurring, he or she will publicly request that the author immediately discontinue any and all presentations (oral, visual, audio, etc.) and will notify the Program Committee chairperson and staff of the action taken.

4.5 **Enforcement**

While technical reviewers, session convenors, and/or staff may all check submissions and presentations for commercialism, ultimately it is the responsibility of the Program Committee chairperson to enforce this policy through the session convenors and staff.

4.6 **Penalties**

If the author of a submission or presentation violates this policy, the Program Committee chairperson will notify the author and the author’s agency or company of the violation in writing. If an additional violation or violations occur after a written warning has been issued to an author and his agency or company, the Association reserves the right to ban the author and the author’s agency or company from making presentations in the Association forums for a period of up to two (2) years following the violation or violations.
2019 WORKSHOPS

Friday, July 19 – 8:00 a.m. – 5:00 p.m. (1 day)

Using Data and Statistical Analysis to Guide Food Safety Decision Making

Instructors:
- Courtney Bokenkroger, Arm & Hammer Animal and Food Production, Fort Collins, CO, USA
- John Ihrie, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA
- Frank Rossi, PepsiCo Research and Development, Plano, TX, USA
- David Smith, Mississippi State University, Mississippi State, MS, USA
- Kimberly Woodruff, Mississippi State University, Mississippi State, MS, USA

Organizers:
- Mark Kreul, In-N-Out Burger, Baldwin Park, CA, USA

The use of statistical methods by food safety professionals is often met with “fear and loathing.” This workshop is intended for food safety personnel at all levels who require the use of statistical methods to analyze their data, but have little or no training in such methods. Among the topics to be covered are as follows:

- Data and descriptive summary statistics (averages, medians, standard deviation, normal distribution, etc.)
- Experimental conditions that yield independent versus dependent observations
- Estimation calculations of error rates and statistical power
- The null hypothesis and statistical hypothesis testing
  - Parametric methods (e.g., Chi-square, t-tests, analysis of variance [ANOVA])
  - Non-parametric methods (e.g., Wilcoxon ranking tests, Kruskal-Wallis ANOVA)
- Correlation and regression analysis (linear and non-linear)
- The use of computer software (e.g., Excel, SAS, JMP, R) to manage data and perform statistical analyses
- Importing and visualizing data into statistical software (R, Tableau, etc.)
- Statistical methods specifically applicable to food safety, e.g., process control

This workshop will be taught by statisticians from a combination of the U.S. Department of Agriculture’s Food Safety and Inspection Service, the U.S. Food and Drug Administration’s Center for Food Safety and Applied Nutrition, academia and industry. Participants will be encouraged to “stump the experts” by bringing their real-world statistical analysis issues to the workshop. At the end of the workshop, participants will be able to confidently analyze their data and will have a new-found appreciation for various statistical methods.

Friday, July 19 – 8:00 a.m. – 5:00 p.m. and Saturday, July 20 – 8:00 a.m. – 5:00 p.m. (2 days)

Developing Environmental Monitoring Programs for Small and Midsize Processors

Instructors:
- Jeremy Adler, Ecolab Inc., Ault, CO, USA
- James Dickson, Iowa State University, Ames, IA, USA
- Douglas Marshall, Eurofins Scientific Inc., Fort Collins, CO, USA
- Gregory Siragusa, Eurofins Microbiology, New Berlin, WI, USA
- Purnendu Vasavada, University of Wisconsin-River Falls, River Falls, WI, USA

Organizer:
- Douglas Marshall, Eurofins Scientific Inc., Fort Collins, CO, USA

This previously well-subscribed workshop using established academic and industrial experts will give small and midsize produce, spice, condiment, bakery, and ingredient suppliers the tools necessary to address four food safety issues in the processing environment: (1) finding spoilage microorganisms in the environment before they affect product, (2) finding allergens in the environment before they affect product, (3) finding pathogens in the environment before they contaminate product, and (4) assessing effectiveness of cleaning, sanitation, and employee hygiene practices. The first speaker will discuss regulatory perspectives, customer expectations, and characteristics of microbial and chemical contaminants. The second will present an analytical methods overview. The third will discuss data interpretation and source tracking. The last presenter will address remedial sanitation practices. A practical session at a local food microbiology laboratory will include information on how to collect samples, tools for collection, sample handling, and testing. The workshop will conclude with another breakout session where attendees will work through a case study. Attendees will receive a workbook and two easy-to-use Environmental Monitoring Program guides, one on pathogens and one on allergens.
Validating Pasteurization Processes for Low-moisture Products

Instructors:

• Nathan Anderson, U.S. Food and Drug Administration, Bedford Park, IL, USA
• Hongda Chen, USDA National Program Leader, Washington, D.C., USA
• Elizabeth M. Grasso-Kelley, Illinois Institute of Technology, Bedford Park, IL, USA
• Ian Hildebrandt, Michigan State University, East Lansing, MI, USA
• Susanne Keller, U.S. Food and Drug Administration, Bedford Park, IL, USA
• Lisa Lucore, Shearer’s Foods, Massillon, OH, USA
• Bradley Marks, Michigan State University, East Lansing, MI, USA
• Harshavardhan Thippareddi, University of Georgia, Athens, GA, USA

Organizers:

• Nathan Anderson, U.S. Food and Drug Administration, Bedford Park, IL, USA
• Elizabeth Grasso-Kelley, Illinois Institute of Technology, Bedford Park, IL, USA
• Bradley Marks, Michigan State University, East Lansing, MI, USA
• Harshavardhan Thippareddi, University of Georgia, Athens, GA, USA

FSMA Preventive Controls Rules require processors to validate *Salmonella* reduction processes for low-moisture foods. Few programs educate, train, or prepare individuals to deal with the unique challenges associated with low-moisture pasteurization. Individuals assigned these responsibilities in industry often lack experience in the unique validation challenges posed by these products. General process validation training typically has significant gaps, relative to unique attributes of low-moisture foods, in terms of both engineering and microbiological principles.

This workshop is designed to fill that gap, at a critical time for the industry. Experts from industry, academia, and government will lead participants through a systematic approach to preparing for, designing, and carrying out a low-moisture process validation. The workshop will include interactive/hands-on case studies. Upon completion of this workshop, participants should be able to:

- describe regulatory expectations,
- explain critical factors affecting *Salmonella* resistance to lethal treatments,
- outline a general process for conducting a low-moisture pasteurization validation,
- identify key variables to measure/control/report,
- evaluate process efficacy based on the use of non-pathogenic surrogate data and/or inactivation models.

The previous workshop (IAFP 2017) received excellent feedback from participants (>4.5 out of a 5.0 scale for all quality indicators). In a one-year-post-workshop survey, attendees (86.7%) rated this workshop as “more impactful” or “much more impactful” than similar workshops they have attended. The only major comment was that one day was too short for this subject matter, which is why we are proposing to increase this to a 1.5-day workshop.

The ongoing phasing-in of the Preventive Controls Rules, important new research in the area, and continuing technology developments should make another offering of this workshop timely and in high demand.
**2019 WORKSHOPS**

**Friday, July 19 – 1:00 p.m. – 5:00 p.m. and Saturday, July 20 – 8:00 a.m. – 5:00 p.m. (1.5 days)**

**Whole Genome Sequencing: A Tutorial and Hands-on Workshop to Understand and Implement This Breakthrough Technology**

**Instructors:**
- Jennifer Beal, U.S. Food and Drug Administration, College Park, MD, USA
- Peter Cook, CDC, Atlanta, GA, USA
- Zachary Geurin, NSF International, Ann Arbor, MI, USA
- Leslie Hintz, U.S. Food and Drug Administration, College Park, MD, USA
- Maria Hoffmann, Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration, College Park, MD, USA
- Bill Klimke, NCBI, Washington, D.C., USA
- Maria Sanchez Leon, U.S. Food and Drug Administration, College Park, MD, USA

**Organizers:**
- Maria Hoffmann, Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration College Park, MD, USA
- Jesse Miller, NSF International, Ann Arbor, MI, USA

Whole Genome Sequencing (WGS) has taken the Front Stage as a tool to understand the environment around us. It is being used globally to track outbreak strains of bacteria, monitor microbial communities and understand changes in populations of organisms based on temporal and forced stimuli. WGS is more complex than past methodologies (such as PFGE) and has more components that need to be understood. What is WGS? What is the science behind the technology? How do I perform an experiment? How do I analyze my data? What do the data mean? This workshop seeks to shed light on WGS so that the student will have a more holistic view of the applications of WGS. We will provide sessions on technology, data analysis and data interpretation that the FDA, CORE and Compliance employ for outbreak investigations and regulatory decision-making. Each attendee will be analyzing WGS datasets in command-line format to trim, assemble and build a phylogenetic tree. Finally, we will also learn about some available open source tools for data analysis that may be implemented for data analysis upon return from the workshop.

**Saturday, July 20 – 8:00 a.m. – 5:00 p.m. (1 day)**

**Introduction to FDA-IRISK® 4.0: A Comparative Risk Assessment Tool with New Features and Case Studies**

**Instructors:**
- Yuhuan Chen, U.S. Food and Drug Administration–CFSAN, College Park, MD, USA
- Vijay Juneja, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA
- Gregory Paoli, Risk Sciences International Ottawa, ON, Canada

**Organizer:**
- Yuhuan Chen, U.S. Food and Drug Administration–CFSAN, College Park, MD, USA

Risk assessments predict risk and changes in risk, to inform food-safety decisions. FDA-IRISK 4.0 – the latest, enhanced version – is a Web-based, comparative risk-assessment tool available to the public, without cost, since 2017. This peer-reviewed tool has many built-in functions and automated features that enable users to conduct fully probabilistic risk assessments efficiently. It enables users to build, view, and share scenarios that reflect their real-world or theoretical food-safety issues. New and enhanced features in FDA-IRISK 4.0 include, for example, substantial capacities with which users can explicitly include probabilistic uncertainty and variability (by second-order Monte Carlo simulation), incorporate predictive models (for microbial growth and inactivation), and access new options for modeling the process pathway (such as effect of sampling on risk reduction).

This workshop will provide a guided, hands-on opportunity to explore FDA-IRISK 4.0, build and run quantitative risk assessment models, and access examples in a shared repository. Participants will learn how to use FDA-IRISK 4.0 to (1) rank food-safety risks from microbial and chemical hazards, and (2) predict effectiveness of interventions applied at any points from farm to table (predict changes in contamination and illness resulting from changes in production practices). The workshop will introduce attendees to advanced features, as well as illustrate the capacity of FDA-IRISK 4.0 to store evidence for risk scenarios in a consistent, structured, and systematic fashion. Instructors will present case studies (including how predictive modeling of growth and inactivation can fit in), to demonstrate the application of FDA-IRISK 4.0 as both a Web-based database and a quantitative risk-assessment tool in real-world scenarios that are explored by stakeholders, including government agencies and industry.

Workshop participants are asked to bring a laptop or a tablet for the hands-on exercise. Internet connection required to access FDA-IRISK 4.0 will be provided (no other software is needed).
2019 WORKSHOPS

Saturday, July 20 – 8:00 a.m. – 5:00 p.m. (1 day)

Principles for Establishing and Extending Shelf Life

Instructors:
- Cari Lingle, 3M Food Safety, St. Paul, MN, USA
- Abigail Snyder, The Ohio State University, Columbus, OH, USA
- Martin Wiedmann, Cornell University, Ithaca, NY, USA
- Randy Worobo, Cornell University, Ithaca, NY, USA

Organizers:
- John David, 3M Food Safety, St. Paul, MN, USA
- Adriana Robayo, 3M Food Safety, St. Paul, MN, USA

Microbial food quality starts with defined ingredient specifications, monitored processing conditions, and rigorous standards for finished product handling. Every day food processors, retailers, and consumers discard food due to microbial spoilage. This contributes to food waste, costly market withdrawals, and can also damage a brand’s reputation. Enhanced control over microbial spoilage is dependent on two key aspects of quality management: accurately predicting how long food remains within acceptability specifications and the subsequent establishment of product shelf life.

This workshop will provide the tools for common questions regarding premature product spoilage and shelf-life determinations through practical group breakout sessions focused on identifying the root-cause of spoilage and a standard methodology for establishing and monitoring the shelf life of a product. This includes critical factor identification, application and interpretation of data trending, leveraging statistical process control methods, selection of fit-to-purpose culture-dependent and independent microbiological techniques, and strengthening internal facility audits.

Participants will be guided through “how to” approach and properly identify the types of spoilage associated with specific products and processes when special-cause quality failures occur. Attendees will walk away with an enhanced ability to triage quality issues and more rapidly plan and implement corrective actions. The workshop will explore mitigating risks associated with shelf-life abbreviation and best practices and methods to determine shelf life. Breakout groups will conduct a root cause analysis of a mock quality deviation incident. Finally, attendees have the opportunity to work directly with instructors on how they will apply the concepts in their own operation.
October 1, 2019 – Symposium, Roundtable and Workshop Submissions

January 14, 2020 – Technical and Poster Abstract Submissions

Questions regarding submissions can be directed to Tamara Ford

Phone: +1 515.276.3344 or +1 800.369.6337
Email: tford@foodprotection.org

IAFP’S EUROPEAN SYMPOSIUM ON FOOD SAFETY

DEADLINES:

1 October 2019 – Symposia and Roundtable Submissions

14 January 2020 – Technical and Poster Abstract Submissions

Questions regarding submissions can be directed to Tamara Ford

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2015 — Donald L. Zink
2016 — Alejandro Mazzotta
2017 — Linda J. Harris
2018 — Mickey E. Parish
### Past Annual Meetings and Locations

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### Future Annual Meetings

**August 2–5, 2020**  
Huntington Convention Center  
Cleveland, Ohio

**July 18–21, 2021**  
Phoenix Convention Center  
Phoenix, Arizona

**July 31–August 3, 2022**  
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Validate your kill step

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2. Calculate Lethality
3. Prove Kill Step

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These awards were established to recognize top researchers and high quality research publications and reviews that contribute to the impact of JFP and the field of food safety. The awards are based upon the number of citations of a work by others for papers published five years prior.

Most-cited Research Publication Award

1st Place
Growth of *Escherichia coli* 0157:H7 and *Listeria monocytogenes* in Packaged Fresh-Cut Romaine Mix at Fluctuating Temperatures during Commercial Transport, Retail Storage, and Display
Wenting Zeng, Keith Vorst, Wyatt Brown, Bradley P. Marks, Sanghyup Jeong, Fernando Pérez-Rodriguez, and Elliot T. Ryser
Published February 2014

2nd Place
Quantification, Serovars, and Antibiotic Resistance of *Salmonella* Isolated from Retail Raw Chicken Meat in Vietnam
Yen T. Ta, Trung Thanh Nguyen, Phuong Bich To, Da Xuan Pham, Hao Thi Hong Le, Giang Nguyen Thi, Walid Q. Alali, Isabel Walls, and Michael P. Doyle
Published January 2014

3rd Place
Antibiotic Resistance and Diversity of *Salmonella enterica* Serovars Associated with Broiler Chickens
Moussa Sory Diarra, Pascal Delaquis, Heidi Rempel, Susan Bach, Colleen Harlton, Mueen Aslam, Jane Pritchard, and Edward Topp
Published January 2014

Most-cited Review Publication Award

1st Place
*Listeria monocytogenes* Persistence in Food-Associated Environments: Epidemiology, Strain Characteristics, and Implications for Public Health
Vania Ferreira, Martin Wiedmann, Paula Teixeira, and Matthew J. Stasiewicz
Published January 2014

2019 Journal of Food Protection Most-downloaded Publication Award

This award recognizes the *JFP* publication that was the most downloaded in 2018 based upon data from the *Journal of Food Protection* website.

1st Place
Kombucha, the Fermented Tea: Microbiology, Composition, and Claimed Health Effects
Cheryl J. Greenwalt, Keith H. Steinkraus, and Richard A. Ledford
Published July 2000

The awards will be presented by the *JFP* Scientific Co-Editors at the IAFP 2019 Editorial Board Reception.
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