



PROGRAM

All presentations to be held at Frontier Airlines Convention Center

MONDAY MORNING AUGUST 1

(Posters will be on display 10:00 a.m. – 6:00 p.m.
See details beginning on page 51.)

- S1** **The Diverse and Discrepant Non-O157 STEC: Data, Differences and Discernment**
Frontier Airlines Convention Center, 203
Sponsored by ILSI North America Technical Committee on Food Microbiology
Organizer: Darinka Djordjevic
Convenor: Peter Gerner-Smidt
- 8:30 The Increasing Importance of Non-O157 STEC in the United States – RAJAL MODY, Centers for Disease Control and Prevention, Atlanta, GA, USA
 - 9:00 STEC Pathobiology and Virulence – LOTHAR BEUTIN, Federal Institute for Risk Assessment, Berlin, Germany
 - 9:30 STEC Detection/Characterization Current Status – Future Prospects – NANCY STROCKBINE, Centers for Disease Control and Prevention, Atlanta, GA, USA
 - 10:00 Break
 - 10:30 Industry Perspectives on Non-O157 – TIMOTHY A. FREIER, Cargill, Inc., Wayzata, MN, USA
 - 11:00 Regulatory Perspectives on Non-O157 – DANIEL L. ENGELJOHN, U.S. Department of Agriculture-FSIS, Washington, D.C., USA
 - 11:30 Panel Discussion

- S2** **Global Food Safety: What Should We Focus on Today for Results Tomorrow?**
Frontier Airlines Convention Center, 202CDE
Sponsored by 3M, Cargill, ThermoFisher and the IAFP Foundation
Organizers: George Wilson, Keith Lampel and Pamela Wilger
Convenors: Pamela Wilger and Keith Lampel
- 8:30 Defining the Global Situation – MICHAEL C. ROBACH, Cargill, Wayzata, MN, USA

- 9:15 Food Safety Activities in Thailand – PENSRI RODMA, Ministry of Public Health, Nonthaburi, Thailand
- 10:00 Break
- 10:30 TBD – QINCY LISSAUR, BSI Standard Solutions, London, United Kingdom
- 11:00 Moving Forward – Changing Cultures on Different Levels – PATRICK WALL, University College Dublin, Dublin, Ireland
- 11:30 Panel Discussion

- S3** **To Tell or Not to Tell, That is the Question! Environmental Testing and Mandatory Reporting – An Industry, Regulatory and Public Relations Nightmare**
Frontier Airlines Convention Center, 201AB
Sponsored by the IAFP Foundation
Organizers: Rudy Westervelt and Nancy Eggink
Convenors: Rudy Westervelt and Nancy Eggink
- 8:30 Liability and Responsibility – The Legal Ramifications of Reporting or Not Reporting – SHAWN K. STEVENS, Gass Weber Mullins, Milwaukee, WI, USA
 - 9:00 Environmental Testing Programs: How to Get It Right – TIMOTHY JACKSON, Nestle, Glendale, CA, USA
 - 9:30 The Linkage between Positive Environmental Samples and Product Contamination – SCOTT J. GOLTRY, American Meat Institute, Washington, D.C., USA
 - 10:00 Break
 - 10:30 The Value of Environmental and Product Testing Based on Recent Consumer Product Findings, Field Assignments and the Reportable Food Registry – KATHY GOMBAS, U.S. Food and Drug Administration, Washington, D.C., USA
 - 11:00 Environmental Testing Results: How to Interpret Them and Their Impact on Making Process and Operational Changes – JOSEPH MEYER, Covance Laboratories, Inc., Battle Creek, MI, USA
 - 11:30 How Industry and Regulatory Can Leverage Resources to Control Environmental Pathogens – GALE PRINCE, SAGE Food Safety, Cincinnati, OH, USA



Symposia



Roundtable



Technicals



Posters

DSC – Developing Scientist Competitor

S4 The Science of Thresholds: Their Potential Use in Risk Assessment and Labeling Decisions

Frontier Airlines Convention Center, 102AB

Organizer: Anthony Flood
Convenors: Anthony Flood and Steven Gendel

- 8:30 The History of Food Allergies from an Allergist's Perspective – ALLEN STILLERMAN, Allergy and Asthma Specialists, Minneapolis, MN, USA
- 9:00 From the First Reaction to FALCPA: A Look at Past and Current Regulatory Activity for Food Allergen Labeling – STEVEN GENDEL, U.S. Food and Drug Administration, College Park, MD, USA
- 9:30 The Face of Food Allergies – AUDREY DUNN-GALVIN, University College Cork, Cork, Ireland
- 10:00 Break
- 10:30 The Emerging Science of Thresholds: Next Steps in Allergen Control – STEVE L. TAYLOR, University of Nebraska-Lincoln, Lincoln, NE, USA
- 11:00 A Food Industry Perspective on Thresholds: A Practical Approach to Allergen Control – CRAIG LLEWELLYN, Kraft Foods, Northfield, IL, USA
- 11:30 The Risk/Benefit Communication Challenge of Allergen Thresholds – MARIANNE SMITH EDGE, International Food Information Council, Washington, D.C., USA

S5 The Molecular Mechanism and Scientific Advancements for Norovirus Gastroenteritis

Frontier Airlines Convention Center, 102DE

Sponsored by Ceeram and the IAFP Foundation
Organizers: Vanessa Cranford, Kirsten Mattison and Jennifer Cannon
Convenors: Vanessa Cranford and Jennifer Cannon

- 8:30 Molecular Biology of Norovirus and Understanding One of the Leading Causes of Gastroenteritis – ROBERT ATMAR, Baylor College of Medicine, Houston, TX, USA
- 9:00 Viral Shape-shifting: Norovirus Evasion of the Human Immune System – ERIC DONALDSON, University of North Carolina, Chapel Hill, NC, USA
- 9:30 Measuring the Environmental Stability and Persistence of Human Noroviruses – LEE-ANN JAYKUS, North Carolina State University, Raleigh, NC, USA
- 10:00 Break
- 10:30 Market Surveillance of Norovirus in Fresh Fruits and Vegetables – LEEN BAERT, Ghent University, Ghent, Belgium
- 11:00 Oyster Market Survey and FERN-FDA Round-robin Testing for Viruses in Food – WILLIAM BURKHARDT, U.S. Food and Drug Administration, Dauphin Island, AL, USA

11:30 The Codex Committee on Food Hygiene Draft Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food – ERWIN DUIZER, National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands

S6 100 Years of Dairymen Speak – A Look Back and a Look Forward

Frontier Airlines Convention Center, 102C

Sponsored by the IAFP Foundation
Organizer: Lorilyn Ledenbach
Convenor: Lorilyn Ledenbach

- 8:30 40 Years of Cheese Making Experience – VIRGIL METZGER, Kraft Foods, Glenview, IL, USA
- 9:00 30 Years and More in the Dairy Microbiology Business – MARK E. JOHNSON, Center for Dairy Research, Madison, WI, USA
- 9:30 40 Years of Working in Dairy Sanitation – ALLAN VER VOORT, Ecolab, Madison, WI, USA

S7 Bacteriophage: Friends, Foes or a Little of Both?

Frontier Airlines Convention Center, 102C

Organizers: Matthew Taylor, David Blomquist and Larry Steenson
Convenors: Matthew Taylor, David Blomquist and Larry Steenson

- 10:30 The Impact of Phage on the Evolution of the Dairy Fermentation Industry – DANIEL O'SULLIVAN, University of Minnesota, St. Paul, MN, USA
- 11:00 The Future of Phage: Exploiting the CRISPR/Cas System to Build Phage Resistance in Fermentative Starter Cultures – RODOLPHE BARRANGOU, Danisco USA, Inc., Madison, WI, USA
- 11:30 Utilization of Bacteriophage-based Strategies for Detection and Inhibition of Foodborne Bacterial Pathogens in Food Production and Processing Environments – LAWRENCE D. GOODRIDGE, Colorado State University, Fort Collins, CO, USA

T1 Technical Session 1 – Produce

Frontier Airlines Convention Center, 103AB

Convenors: Trevor Suslow and Michelle Danyluk

- T1-01 8:30 Cross-contamination of Fresh Produce and Kitchen Utensils by Norovirus and Hepatitis A Virus during Preparation – QING WANG, Susan Downer, Marilyn C. Erickson, Ynes R. Ortega and Jennifer L. Cannon, Center for Food Safety, University of Georgia, Griffin, GA, USA
- T1-02 8:45 Enhanced Removal of Noroviruses from Fresh Fruits and Vegetables by Combination of Surfactants and Organic Acids – ASHLEY PREDMORE and Jianrong Li, The Ohio State University, Columbus, OH, USA
- T1-03 9:00 Synergy and Factors Affecting the Microbial Efficacy of a New Sanitizer Composed of Lactic Acid and Peracetic Acid for Fresh Produce – KAI LAI GRACE HO, Diego Luzuriaga, Kenneth Rodde and Shannon Tang, Chiquita Brands International, Salinas, CA, USA

T1-04 9:15 Relationships among Redox Potential (ORP), Chlorine Dioxide Dose, and Inactivation of *Salmonella enterica* in Fresh Tomato Processing Water – GABRIELA LOPEZ-VELASCO, Alejandro Tomas Callejas, Angela M. Valadez, Michelle D. Danyluk and Trevor V. Suslow, University of California-Davis, Davis, CA, USA

T1-05 9:30 DSC *Salmonella enterica* Mitigation and Disinfection Efficacy on Fresh Tomatoes: Influence of Temperature, Water Quality and Disinfectant Type – ALEJANDRO TOMAS CALLEJAS, Gabriela Lopez-Velasco, Francisco Artes, Francisco Artes-Hernandez and Trevor V. Suslow, University of California-Davis, Davis, CA, USA

T1-06 9:45 Inactivation of *Salmonella* on Tomato Stem Scars by Acidic Sanitizing Solutions – JOSHUA B. GURTLER and Amanda M. Smelser, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA

10:00 Break

T1-07 10:30 DSC Incidence and Characterization of Naturally Internalized Organisms in Lettuce Leaves – ZHE HOU, Ryan C. Fink, Mike J. Sadowsky and Francisco Diez-Gonzalez, University of Minnesota, St. Paul, MN, USA

T1-08 10:45 Influence of Mycorrhizal Fungi (*Glomus intraradices*) on Survival of *Salmonella* and *E.coli* O157:H7 in Soil and Translocation into *Allium porrum* Roots and Shoot – JOSHUA B. GURTLER, David Douds, Brian P. Dirks, Jennifer J. Quinlan and Brendan A. Niemira, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA

T1-09 11:00 The Effect of Soil Pasteurization on the Persistence of *E. coli* O157:H7 and *Salmonella* spp. in Fallow and Spinach-grown Soil – DAVID T. INGRAM and Manan Sharma, U.S. Department of Agriculture-ARS, Beltsville, MD, USA

T1-10 11:15 DSC Pathogens in Produce Production Environments: A. Longitudinal Study of Fruit and Vegetable Farms in New York State – LAURA K. STRAWN, Esther D. Fortes, Elizabeth A. Bihn, Kendra K. Nightingale, Randy W. Worobo and Martin Wiedmann, Cornell University, Geneva, NY, USA

T1-11 11:30 Behavior of *Escherichia coli* O157:H7 on Field Lettuce in Two Geographically Distinct Experimental Sites – PASCAL DELAQUIS, Greg Bezanson, Ed Topp, Alexander Gill, Burton Blais and Matthew Gilmour, Agriculture and Agri-Food Canada, Summerland, BC, Canada

T1-12 11:45 DSC Assessing the Quality of Surface Water Utilized for Fresh Produce Production in New York – ELIZABETH A. BIHN, John J. Churey, Kurt J. Mangione, Cathy A. Ford, William F. Lyons and Randy W. Worobo, Cornell University, Geneva, NY, USA

T2 Technical Session 2 – Risk Assessment
Frontier Airlines Convention Center, 202B

Convenors: Manpreet Singh and Ruth Petran

T2-01 8:30 FP7 EU Veg-i-Trade: Selection of Case Studies Based on the Vulnerability of Fresh Produce to Food Safety Hazards and Climate Change in a Globalized World – MIEKE UYTENDAELE, Sigrid Van Boxstael and Liesbeth Jacxsens, Ghent University, Ghent, Belgium

T2-02 8:45 A Novel Approach to Evaluate Risk Mitigation Strategies for Fresh Produce Along the Farm-to-Fork Continuum – AMIR MOKHTARI, Stephen Beaulieu, Lee-Ann Jaykus, Sherri Dennis and David Oryang, RTI International, Washington, D.C., USA

T2-03 9:00 Temperature Profiling of Fresh-cut Produce during Transport – KEITH VORST, Wyatt Brown, Ritchard Cisneros, Anne Jahnke and Elliot Ryser, Cal Poly State University, San Luis Obispo, CA, USA

T2-04 9:15 Growth of *Escherichia coli* O157:H7 on Packed Fresh-cut Lettuce Treated with Chlorinated Water – Guiomar D. Posada, Francisco Lopez-Galvez, Ana Allende, FERNANDO PEREZ-RODRIGUEZ, Ewen C. Todd, Maria I. Gil and Gonzalo Zurera, University of Cordoba, Cordoba, Spain

T2-05 9:30 DSC Validation of a Mathematical Model for Describing the Growth of *Salmonella* spp. on Fresh-cut Cantaloupes at Different Storage Temperatures – DI LI, Michelle D. Danyluk, Linda J. Harris and Donald W. Schaffner, Rutgers University, New Brunswick, NJ, USA

T2-06 9:45 Comparative Risk Assessment for Intact and Non-Intact Beef – NATHAN E. BAUER, Wayne Schlosser, Heejeong Latimer and Denise R. Eblen, U.S. Department of Agriculture, College Station, TX, USA

T3 Technical Session 3 – Epidemiology
Frontier Airlines Convention Center, 202B

Convenors: Manpreet Singh and Ruth Petran

T3-01 10:30 Prevalence of *Salmonella* on Raw Poultry in Emerging Market Countries – WALID ALALI, Baowei Yang, Jianghong Meng, Pilar Donado, Isabel Walls, Danilo L. Wong and Michael P. Doyle, University of Georgia, Griffin, GA, USA

T3-02 10:45 Mapping and Characterization of the Consumption of Clandestine Animal-origin Foods Using Georeferencing as a Tool for Data Visualization and Interpretation: A Model Study – LUIS A. NERO, Marcello S. Ferreira, Vinicius A. Juliat, Carolina M. Mehri, Paula D. Bevilacqua, Marcelo A. Nero and Paulo Sérgio A. Pinto, Universidade Federal de Viçosa, Viçosa, Brazil

T3-03 11:00 Attributing Human Foodborne Illness to Food Sources in Japan Using Data from Outbreak Investigations – SARA M. PIRES, Hajime Toyofuku, Fumiko Kasuga and Tine Hald, National Food Institute, Technical University of Denmark, Soborg, Denmark

T3-04 11:15 Burden and Attribution of Foodborne Norovirus Outbreaks in the United States, 2001–2008 – ARON J. HALL, Centers for Disease Control and Prevention, Atlanta, GA, USA

T3-05 11:30 A Review of Enteric Nosocomial Outbreaks Not Associated with Norovirus or *Clostridium difficile*: Effective Infection Control Recommendations – JUDY D. GREIG and Marilyn Lee, Public Health Agency of Canada, Guelph, ON, Canada

T3-06 11:45 Development of a Model Linking Public Health Inspection Reports to Heightened Risk of Specific Foodborne Illness Outbreaks – RUTH PETRAN, Bruce White and Craig Hedberg, Ecolab, Eagan, MN, USA

MONDAY AFTERNOON AUGUST 1

(Posters will be on display 10:00 a.m. – 6:00 p.m.
See details beginning on page 51.)

S8 **Are We Forgetting about the Gram Positives – From Pathogens to Spoilage**

Frontier Airlines Convention Center, 203

*Sponsored by ILSI North America Technical
Committee on Food Microbiology*

Organizer: Darinka Djordjevic

**Convenors: Martin Wiedmann,
Jean Anderson and Wafa Birbari**

- 1:30 *Clostridium botulinum* –What is New? – GUY E. SKINNER, U.S. Food and Drug Administration, Institute for Food Safety and Health, Summit-Argo, IL, USA
- 2:00 *Clostridium perfringens* –New Insights into an Old Pathogen – RONALD LABBE, University of Massachusetts-Amherst, Amherst, MA, USA
- 2:30 *Bacillus* spp. That Can Act as Spoilage Organisms and Pathogens: *Bacillus cereus*, *Bacillus licheniformis* and Others – JENNY SCOTT, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- 3:00 Break
- 3:30 Psychrotolerant Sporeformers of the Family Bacillaceae as Emerging Food Spoilage Organisms: *Paenibacillus* and Others – MATTHEW L. RANIERI, Cornell University, Ithaca, NY, USA
- 4:00 Processed Meat Spoilage and Product Quality: From Lactics to Weird *Clostridium* Species – STEVEN GOODFELLOW, Deibel Laboratories, Gainesville, FL, USA
- 4:30 Panel Discussion

S9 **Prevalence, Characterization and Control of Pathogenic Non-O157 Shiga Toxin-producing *Escherichia coli* (STEC) in Beef**

Frontier Airlines Convention Center, 202CDE

Sponsored by the IAFP Foundation

**Organizers: Nora Pihkala, L. Victor Cook,
Peter Evans, Denise Eblen and Nathan Bauer**
**Convenors: Nora Pihkala, Emilio Esteban
and Nathan Bauer**

- 1:30 Pre- and Post-harvest Prevalence of Non-O157 STEC in Cattle and Beef, and Post-harvest Control Measures – JOSEPH M. BOSILEVAC, U.S. Department of Agriculture-ARS, Clay Center, NE, USA
- 2:00 FSIS Laboratory Methodology for Non-O157 STEC – WILLIAM C. CRAY, U.S. Department of Agriculture-FSIS-OPHS-Eastern Laboratory, Athens, GA, USA
- 2:30 Survival Characteristics of *Escherichia coli* O157:H7 Compared to Non-O157 STEC: Implications for Development of Non-O157 STEC Control Measures – JOHN B. LUCHANSKY, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

S10 ***Campylobacter* – Getting Re-acquainted with an Old Foe**

Frontier Airlines Convention Center, 202CDE

Sponsored by the IAFP Foundation

**Organizers: Patrice Arbault, Patricia Rule
and Omar Oyarzabal**

Convenors: Patricia Rule and Omar Oyarzabal

- 3:30 The Complexity of *Campylobacter*–What Have We Learned to Address Today’s Challenges in the Microbiology Laboratory – OMAR A. OYARZABAL, Alabama State University, Montgomery, AL, USA
- 3:50 *Campylobacter*, an Industry Perspective on Testing and Control – TIMOTHY A. FREIER, Cargill, Minneapolis, MN, USA
- 4:10 A USDA Perspective and the New *Campylobacter* Performance Standards – DANIEL L. ENGELJOHN, U.S. Department of Agriculture-FSIS, Washington D.C, USA
- 4:30 Panel Discussion

S11 **From Farm to Fork to Physician: Detection of Human Pathogens in the Environment, in Foods and in Clinical Specimens**

Frontier Airlines Convention Center, 201AB

Sponsored by the IAFP Foundation

**Organizers: Byron Brehm-Stecher,
Lee-Ann Jaykus and Mary Tortorello**
**Convenors: Byron Brehm-Stecher
and Mary Tortorello**

- 1:30 Soil, Sandwiches and Syringes: Environmental, Food and Clinical Microbiology Linkages – BYRON F. BREHM-STECHER, Iowa State University, Ames, IA, USA
- 2:00 From Sewage to Salad: Environmental Sources of Food Pathogens – CHARLES P. GERBA, The University of Arizona, Tuscon, AZ, USA
- 2:30 Food Animals as Potential Reservoirs for Clinically Relevant Pathogens – TARA C. SMITH, The University of Iowa, Iowa City, IA, USA
- 3:00 Break
- 3:30 Rapid Detection of Pathogens: The Food Perspective – MARY L. TORTORELLO, U.S. Food and Drug Administration-NCFST, Summit-Argo, IL, USA
- 4:00 Rapid Detection of Pathogens: The Clinical Perspective – GARY W. PROCOP, Cleveland Clinic Foundation, Cleveland, OH, USA
- 4:30 Forging New Cross-disciplinary Connections from Farm to Fork to Physician – LEE-ANN JAYKUS, North Carolina State University, Raleigh, NC, USA

S12 **Forward: Innovations in Food Defense**
Frontier Airlines Convention Center, 102AB

Sponsored by the IAFP Foundation

Organizer: Linda Leake
Convenors: Linda Leake
and Roxanne VonTayson

- 1:30 Forward Thinking and Successes Realized: Overview of the FDA Innovative Food Defense Grants Program – JASON BASHURA, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- 2:00 BETSMap – a Spatially-enabled Surveillance and Emergency Response Enhancement – CRIS HARRELSON, North Carolina Department of Environmental and Natural Resources, Bladenboro, NC, USA
- 2:30 WARN: Wisconsin Agro Security Resource Network – MATT MATHISON, Wisconsin Agro Security Resource Network, Madison, WI, USA

S13 **Harnessing the Latest Food Defense Tools from Federal, State and International Sources**
Frontier Airlines Convention Center, 102AB

Organizer: Ronald Jech
Convenor: Craig Henry

- 3:30 How Good is Your Facility Security Inside and Out? Engaging DHS Protective Security Advisors – JEFF MURRAY, U.S. Department of Homeland Security, Washington, D.C., USA
- 3:50 What Does Your State Homeland Security Fusion Center Know That You Should? Getting Involved with the State and/or Regional Fusion Centers – BRAD CARNDUFF, Statewide Terrorism Intelligence Center, Chicago, IL, USA
- 4:10 Department of Homeland Security Outreach and Communication Strategies for the Private Sector – JOHN MARTIN, U.S. Department of Homeland Security, Washington, D.C., USA
- 4:30 Panel Discussion

RT1 **Technological Challenges in Detecting Viruses in Produce: Where are We and How Do We Move Forward?**
Frontier Airlines Convention Center, 102DE

Sponsored by the IAFP Foundation

Organizers: Kirsten Mattison, Jack Guzewich
and Vanessa Cranford
Convenor: Lee-Ann Jaykus

- 1:30 Panel Discussion
DORIS D'SOUZA, University of Tennessee, Knoxville, TN, USA

EFI PAPAFRAGKOU, U.S. Food and Drug Administration-CFSAN, Laurel, MD, USA

STEPHEN F. GROVE, National Center for Food Safety and Technology, Summit-Argo, IL, USA

JENNIFER L. CANNON, University of Georgia, Griffin, GA, USA

RT2 **Testing Tales Tall But True: From the Real World**
Frontier Airlines Convention Center, 102DE

Organizers: Patrice Arbault, Jeff Kornacki
and Julian Cox

- 3:00 Panel Discussion
JULIAN M. COX, University of New South Wales, Sydney, NSW, Australia
JEFFREY L. KORNACKI, Kornacki Microbiology Solutions, Inc., McFarland, WI, USA

S14 **100 Years of Food Law: Examining Legal Supports and Barriers to Science-based Food Safety Systems**
Frontier Airlines Convention Center, 102C

Sponsored by Marler Clark P.C. and the IAFP Foundation

Organizers: DeAnn Benesh, Caroline Smith DeWaal and Anna Lammerding
Convenors: DeAnn Benesh
and Caroline Smith DeWaal

- 1:30 A Century of Food Legislation – PETER BARTON HUTT, Covington and Burling, Washington, D.C., USA
- 2:00 The European Approach to Food Safety Law: Past, Present and Future – ALBERTO ALEMANNINO, HEC Paris, Paris, France
- 2:30 Canadian Food Law: Past, Present and Future – RONALD DOERING, Gowlings, Ottawa, ON, Canada
- 3:00 Break
- 3:30 South African Perspective on Food Law and Future Directions – LUCIA ANELICH, Anelich Consulting, Pretoria, Gauteng, South Africa
- 4:00 Future Directions for U.S. Food Law – CAROLINE SMITH DEWAAL, Center for Science in the Public Interest, Washington, D.C., USA
- 4:30 Panel Discussion

S15

Biotracing – Food Safety through a Marriage of Microbiology and Modelling

Frontier Airlines Convention Center, 103AB

Sponsored by the IAFF Foundation

Organizers: Panagiotis Skandamis, John Sofos, Solveig Bouquin-lind, Kieran Jordan, Martin Wagner, Jeffrey Hoorfar and Gary Barker
Convenors: Panagiotis Skandamis, Martin Wagner and Gary Barker

- 1:30 Biotracing is an Additional Element of Food Safety – MARTIN WAGNER, University of Veterinary Medicine Vienna, Vienna, Austria
- 2:00 Biotracing Supports Decision-making and Risk Management – GARY BARKER, Institute for Food Research, Norwich, United Kingdom
- 2:30 Biotracing Makes Good Use of Predictive Microbiology – PANAGIOTIS N. SKANDAMIS, Agricultural University of Athens, Athens, Greece
- 3:00 Break
- 3:30 Tools and Data That Drive Biotracing – JEFFREY HOORFAR, Technical University of Denmark, Soborg, Denmark
- 4:00 Applying Biotracing in a Model Food Chain – ANNEMARIE PIELAAT, National Institute of Public Health and Environment, Bilthoven, The Netherlands
- 4:30 Tracing Food Pathogens – Reflection – JOHN N. SOFOS, Colorado State University, Fort Collins, CO, USA

T4

Technical Session 4 – Produce and Dairy

Frontier Airlines Convention Center, 202B

Convenor: Marcos Sanchez

- T4-01
1:30 Impact of Irrigation Date and Water Source on Indicator and Pathogenic Microorganisms Prevalence on Romaine Lettuce – CAROLINE CÔTÉ, Mylène Généreux and John M. Fairbrother, IRDA, St-Hyacinthe, QC, Canada
- T4-02
1:45 Horticultural Assessment Scheme: Insight into Prevalence and Distribution of Microbial Contamination to Evaluate Water Management in Fresh Produce Processing Industry – Kevin Holvoet, Liesbeth Jacxsens, Imca Sampers and MIEKE UYTENDAELE, Ghent University, Ghent, Belgium
- T4-03
2:00 Growth of *Escherichia coli* O157:H7 and *Listeria monocytogenes* in Packaged Fresh-cut Romaine Lettuce at Fluctuating Temperatures during Commercial Transport and Distribution – WENTING ZENG, Keith Vorst, Bradley P. Marks, Sanghyup Jeong and Elliot Ryser, Michigan State University, East Lansing, MI, USA

- T4-04
2:15 Establishment of Critical Operating Standards for Chlorine Dioxide in Disinfection of Dump Tank and Flume Water for Fresh Tomatoes – ANGELA M. VALADEZ, Gabriela Lopez-Velasco, Alejandro Tomas-Callejas, Michelle D. Danyluk and Trevor V. Suslow, University of Florida, Lake Alfred, FL, USA
- T4-05
2:30 Persistence of *Escherichia coli* O157:H7 during Pilot-scale Processing of Iceberg Lettuce Using Flume Water Containing Sanitizers and an Organic Load – GORDON DAVIDSON, Yanyang Xu and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- T4-06
2:45 *Salmonella* Transfer from Clean and Dirty Reusable Gloves upon Single and Subsequent Touches of Mature Green, Round Tomatoes under Laboratory Conditions – PARDEEPINDER KAUR BRAR and Michelle D. Danyluk, University of Florida, Lake Alfred, FL, USA

3:00 Break

- T4-07
3:30 Development of Farm Food Safety-risk Assessment Tool for Fresh Produce Farms – JAN-MEI SOON, Paul Davies, Stephen Chadd and Richard Baines, Royal Agricultural College, Cirencester, United Kingdom

- T4-08
3:45 Agriculture and Agrifood Sectors in Senegal in Western Africa: Productive Potentialities, Challenge and Novel Development Perspectives in the North of the Country – MICHEL B. DIOP and Mame Ourèye SY, Université Gaston Berger, Saint Louis, Senegal

- T4-09
4:00 A Study of the Determinants of Microbial Quality of Produce, Water and Workers' Hands on Farms and Packing Sheds in the Southern United States – FAITH E. BARTZ, Anna Fabiszewski de Aceituno, Melissa Dowd, Lee-Ann Jaykus, Christine L. Moe and Juan Leon, Emory University, Atlanta, GA, USA

- T4-10
4:15 Sporadic Reportable Enteric Pathogen Cases Reporting Domestic Raw Milk Consumption, Minnesota, 2001–2009 – TRISHA J. ROBINSON, Joni M. Scheftel and Kirk E. Smith, Minnesota Department of Health, St. Paul, MN, USA

- T4-11
4:30 Microbial Surveillance of Retail Raw Milk in Three New England States – DANIEL P. LYNCH and Catherine W. Donnelly, University of Vermont, Burlington, VT, USA

- T4-12
4:45 Curiosity about Raw Milk Expressed by Pasteurized Milk Consumers – JANET BUFFER, Jeffrey T. LeJeune and Lydia C. Medeiros, The Ohio State University, Columbus, OH, USA

TUESDAY MORNING AUGUST 2

(Posters will be on display 10:00 a.m. – 6:00 p.m.
See details beginning on page 60.)

S16 **Foodborne Disease Outbreak Update: *Escherichia coli* O145 in Romaine Lettuce, *Salmonella* Chester in Cheesy Chicken Meals, Challenges in Multi-state Outbreak Investigations**

Frontier Airlines Convention Center, 203

Sponsored by the IAFP Foundation

Organizer: Jack Guzewich

Convenor: Jack Guzewich

- 8:30 *Escherichia coli* O145 Outbreak Associated with Romaine Lettuce: Epidemiology Investigation – ETHEL TAYLOR, Centers for Disease Control and Prevention, Atlanta, GA, USA
- 9:00 *Escherichia coli* O145 Outbreak Associated with Romaine Lettuce: Environmental Assessment – WILLETTE M. CRAWFORD, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- 9:30 *Salmonella* Chester Outbreak Associated with Cheesy Chicken Meals: Epidemiology Investigation – TO BE DETERMINED
- 10:00 Break
- 10:30 *Salmonella* Chester Outbreak Associated with Cheesy Chicken Meals: Environmental Investigation – JOAN MENKE-SCHAENZER, ConAgra Foods, Omaha, NE, USA
- 11:00 Recent Challenges and New Approaches to Multi-state Foodborne Disease Outbreak Investigations: Epidemiology Perspective – IAN WILLIAMS, Centers for Disease Control and Prevention, Atlanta, GA, USA
- 11:30 Recent Challenges and New Approaches to Multi-state Foodborne Disease Outbreak Investigations: Environmental/Regulatory Perspective – SHERRI A. MCGARRY, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA

RT3 **Validating Produce On-farm Preventive Controls**

Frontier Airlines Convention Center, 102DE

Organizers: David Gombas and James Gorny

Convenors: David Gombas and James Gorny

- 8:30 Panel Discussion
- DAVID E. GOMBAS, United Fresh Produce Association, Washington, D.C., USA
- WILL DANIELS, Earthbound Farms, San Juan Bautista, CA, USA

SURESH DECOSTA, McDonalds,
Oak Brook, IL, USA

SCOTT W. BROOKS, Yum! Brands,
Spring Branch, TX, USA

S17 **Utilization of, and Concerns Related to, Produce Sampling in the Completion of Produce-borne Disease Outbreak Investigation Procedures**

Frontier Airlines Convention Center, 102DE

Sponsored by the IAFP Foundation

**Organizers: Matthew Taylor and Alejandro
Castillo**

**Convenors: Matthew Taylor and Alejandro
Castillo**

- 10:30 Statistics of Sampling: Issues to Consider in Produce Safety and Outbreak Investigations – DONALD W. SCHAFFNER, Rutgers University, New Brunswick, NJ, USA
- 11:00 The Impacts of Use of Improper Sampling Procedures on the Identification of Foodborne Pathogens during Investigation of Produce-borne Disease Outbreaks – VICTOR M. GARCIA-MORENO, COSECI Agro SC, Celaya, Guanajuato, Mexico
- 11:30 Produce Safety, Outbreak Investigations, and the Possible Impacts on Development of Federal Regulations and Practices in Light of Emerging Food Law – MICHELLE A. SMITH, U.S. Food and Drug Administration-CFSAN, Washington, D.C., USA

S18 **From Soil to Suds: Food Safety Issues That Affect Beer throughout the Production Chain**

Frontier Airlines Convention Center, 201AB

Sponsored by the IAFP Foundation

Organizer: Linda Leake

Convenors: W. Evan Chaney and Linda Leake

- 8:30 Suds Start in the Soil: Food Safety Issues Associated with the Raw Materials of Brewing, Including Mycotoxin Contamination of Barley and Hops Crops and Other Grains – PAUL SCHWARZ, North Dakota State University, Fargo, ND, USA
- 9:00 Suds and the Law: Emerging Regulatory Issues and Analytical Techniques Used by the Alcohol and Tobacco Tax and Trade Bureau to Ensure the Safety of Malt Beverages – JEFFREY AMMANN, U.S. Department of the Treasury, Beltsville, MD, USA
- 9:30 The Road to Third Party Accreditation: Implementing a Hazard Analysis and Critical Control Points Program in a Brewery – TERRANCE DOWHANICK, Labatt Brewing Company, Ltd., London, ON, Canada
- 10:00 Break

10:30 The Bitter, Twisted Truth of the Hop: Microbiological Risks in the Brewing Process, How Hops Mitigate Those Risks and Other Influences of Hops in Making Great Beer – DAVID RYDER, MillerCoors, Milwaukee, WI, USA

11:00 Hygiene Highlights: Cleaning, Disinfection, Water Treatment and Wastewater Management Issues Associated with Beermaking – JOHN ENGEL, MillerCoors, Milwaukee, WI, USA

11:30 Roll Out the Barrels, Cans and Bottles: Packaging Quality and Safety Issues Associated with Beer – SIMON JACKSON, Institute of Brewing and Distilling, London, United Kingdom

S19

Food Safety Education for Youth

Frontier Airlines Convention Center, 102AB

Organizers: Adrienne Shearer, Sue Snider and Kalmia Kniel

Convenors: Adrienne Shearer, Renee Boyer and Sue Snider

8:30 Early Childhood Food Safety Education – JUDY A. HARRISON, University of Georgia, Athens, GA, USA

9:00 Food Safety for Middle School Education – MIMI COOPER, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA

9:30 Food Safety Education Across the High School Curriculum – KALMIA E. KNIEL, University of Delaware, Newark, DE, USA

S20

How Do I Answer That?! How to Respond to Questions from Media and Consumers

Frontier Airlines Convention Center, 102AB

Organizers: Laura Strawn and Jessica Butler

Convenors: Laura Strawn, Jessica Butler and Rachel McEgan

10:30 Dealing with the Media from an Industry Point of View – FRANK YIANNAS, Walmart, Bentonville, AR, USA

10:50 Dealing with the Media from a Consumer Interest Point of View – CAROLINE SMITH DEWAAL, Center for Science in the Public Interest, Washington, D.C., USA

11:10 Dealing with the Media from an Academia Point of View – PATRICIA A. CURTIS, Auburn University, Auburn, AL, USA

11:30 Panel Discussion

S21

Bacterial Strain Persistence and Control in the Industrial Food Processing Environment

Frontier Airlines Convention Center, 102C

Organizers: Joshua Gurtler and Jeff Kornacki

Convenors: Joshua Gurtler and Jeff Kornacki

8:30 FDA's Perspective: The Significance of Persistent Bacterial Strains in the Food Processing Environment – JENNY SCOTT, U.S. Food and Drug Administration-CFSAN, Washington, D.C., USA

9:00 Adaptation of *Salmonella* spp. and *Cronobacter* spp. (*Enterobacter sakazakii*) to Dry Conditions – PIETER BREEUWER, Nestlé, Lausanne, Switzerland

9:30 Practical Approaches to Finding and Controlling Persistent Strains in the Industrial Food Processing Environment – JEFFREY L. KORNACKI, Kornacki Microbiology Solutions, Inc., McFarland, WI, USA

S22

Risks and Benefits of BPA in Food Packaging: An Overview of the Controversy

Frontier Airlines Convention Center, 102C

Sponsored by the IAFP Foundation

Organizers: Charles Czuprynski and Albert Elboudwarej

Convenors: Charles Czuprynski and Albert Elboudwarej

10:30 BPA: Uses, Sources and Analysis – ALBERT ELBOUDWAREJ, Food Packaging Development Group, Walnut Creek, CA, USA

10:50 Safety and Performance of Can-coating Technologies – BPA Epoxy Resin and Alternatives – JOHN M. ROST, Crown, Cork and Seal, Philadelphia, PA, USA

11:10 Bisphenol A Toxicity: Science vs. Hype – JERRY HEINDEL, National Institute of Health, Research Triangle Park, NC, USA

11:30 Regulation of BPA in the United States – MICHELLE TWAROSKI, U.S. Food and Drug Administration-CFSAN-OFAS, Washington, D.C., USA

11:50 Panel Discussion

T5

Technical Session 5 – Meat and Poultry, Seafood, General Microbiology*Frontier Airlines Convention Center, 103AB***Convenors: Margaret Hardin and Barbara Blakistone**

- T5-01
8:30
DSC
Microbial Profile of Chicken Carcasses from Slow Growing and Fast Growing Free Range Chicken Strains – RAJANI THANISSERY, Sophia Kathariou, Robin M. Siletzky and Doug P. Smith, North Carolina State University, Raleigh, NC, USA
- T5-02
8:45
Determining the Effectiveness of Interventions Post-farm to Completion of Primary Processing for the Reduction of *Escherichia coli* on Beef Carcasses Using Systematic Review Methodology and Meta-analysis – JUDY D. GREIG, Lisa Waddell, Barbara Wilhelm, Wendy L. Wilkins, Oliver Bucher, Ashley Farrar, Janet Harris, Sarah E. Parker and Andrijana Rajic, Public Health Agency of Canada, Guelph, ON, Canada
- T5-03
9:00
Inhibition of *Listeria monocytogenes* by Propionate-based Ingredients in Cured Deli-style Turkey – KATHLEEN A. GLASS, Roxanne R. VonTayson, Lindsey M. McDonnell, Brandon Wanless and Jeffrey J. Sindelar, University of Wisconsin-Madison, Madison, WI, USA
- T5-04
9:15
Validation of Lethality during an Industrial Microwave Bacon Cooking Process – PETER J. TAORMINA, Mark Anthony, Gene Bartholomew and Warren J. Dorsa, John Morrell Food Group, Cincinnati, OH, USA
- T5-05
9:30
Potential of *Escherichia coli* as a Surrogate Hygiene Indicator for Post-chill Broiler Carcasses with High *Campylobacter* Counts – Ihab Habib, Lieven De Zutter, Annemie H. Geeraerd and MIEKE UYTENDAELE, Ghent University, Ghent, Belgium
- T5-06
9:45
From “Poke and Sniff” to Microbiological Testing: 100 Years (and Counting!) of Food Safety at U.S. Department of Agriculture-FSIS – KRISTINA E. BARLOW, Stephen W. Mamber, Gurinder Saini, Priscilla Levine and Timothy B. Mohr, U.S. Department of Agriculture-FSIS, Washington, D.C., USA
- 10:00
Break
- T5-07
10:30
Destructive and Non-destructive Sampling Techniques of Chicken Carcasses for *Escherichia coli* and *Salmonella* spp. Detection – MARCUS VINÍCIUS C. COSSI, Michelle Vieira Almeida, Mariane S. Dias, Paulo Sérgio A. Pinto and Luis A. Nero, Universidade Federal de Viçosa, Viçosa, Brazil
- T5-08
10:45
Development of a Novel Screening Assay for *E. coli* O26 and *E. coli* O111 Based on PATHATRIX Automated Re-circulating IMS – John Murray, Nicole Prentice, Paul Benton, Katarzyna Brzegowa, Houston Brooke, Shawn Gartside and ADRIAN PARTON, MATRIX MicroScience Ltd., Cambridgeshire, United Kingdom

- T5-09
11:00
Development of a Rapid 48-hour Immunochromatographic Test Strip-based Method for the Detection of *Salmonella* Enteritidis in Shell Egg Pools – Verapaz Gonzalez, Meredith Sutzko and MARK MULDOON, SDIX, Newark, DE, USA
- T5-10
11:15
Detection of *Salmonella* Serovars from 375 g 10-Pooled Dry Pet Food Samples within 24 Hours Using PATHATRIX Automated Re-circulating IMS Linked to Real Time PCR – Nicole Prentice, John Murray, Paul Benton, Katarzyna Brzegowa, Michael F. Scott, Shawn Gartside, Houston Brooke and ADRIAN PARTON, MATRIX MicroScience Ltd., Cambridgeshire, United Kingdom
- T5-11
1:30
Effects of Freezing on Human Pathogenic *Vibrio parahaemolyticus* in Gulf Coast Oysters (*Crassostrea virginica*) – GEORGE J. FLICK, Linda A. Granata and Dianne M. Bourne, Virginia Tech, Blacksburg, VA, USA
- T5-12
11:45
Effect of Heat and Radio Frequency Electric Field Treatments on Membrane Damage and Intracellular Leakage of UV-substances of *Escherichia coli* K-12 in Apple Juice – DIKE UKUKU, David Geveke and Peter Cooke, U.S. Department of Agriculture-FSIS-ERRC-ARS, Wyndmoor, PA, USA

T6

Technical Session 6 – Pathogens*Frontier Airlines Convention Center, 202B***Convenors: Kalmia Kniel and Manan Sharma**

- T6-01
8:30
DSC
Effect of High Pressure Processing and Pressure Cycling on a Cocktail of Pathogenic *Salmonella enterica* Serovars Inoculated into Peanut Butter – TANYA D’SOUZA, Mukund Karwe and Donald W. Schaffner, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA
- T6-02
8:45
DSC
Transcriptomic Analysis of *Salmonella* under Desiccation Stress in Peanut Oil – XIANGYU DENG, Zengxin Li and Wei Zhang, Illinois Institute of Technology, Chicago, IL, USA
- T6-03
9:00
DSC
Salmonella Survival and Thermal Resistance in Peanut Butters – YINGSHU HE, Dongjing Guo and Wei Zhang, Illinois Institute of Technology, Chicago, IL, USA
- T6-04
9:15
DSC
Dispersal of *Salmonella* on Tomato Plants by Rain Splash – JUAN M. CEVALLOS-CEVALLOS, Ganyu Gu, Michelle D. Danyluk, Gary Vallad and Ariena H. van Bruggen, University of Florida, Gainesville, FL, USA

T6-05 Internalization and Movement of *Salmonella* in
9:30 Tomatoes – GANYU GU, Jiahui Hu, Susanna M.
DSC Sellers, Juan M. Cevallos-Cevallos and Ariena H. van
Bruggen, University of Florida, Gainesville, FL, USA

T6-06 Heat Resistance of *Salmonella* Enteritidis Inoculated
9:45 at Different Locations within Shell Eggs – JENNIFER
PERRY and Ahmed E. Yousef, The Ohio State
University, Columbus, OH, USA

10:00 Break

T6-07 Prevalence and Antimicrobial Resistance of
10:30 *Salmonella* Isolated from Retail Meat: National
Antimicrobial Resistance Monitoring System
(NARMS): 2002-2009 – SHAOHUA ZHAO, Sherry
Ayers, Jason W. Abbott, Sharon L. Friedman, Emily
Tong and Patrick McDermott, U.S. Food and Drug
Administration, Laurel, MD, USA

T6-08 Survival and Death Kinetics of *Salmonella* Strains
10:45 Attached to Surfaces – EDYTA MARGAS, Amias
DSC Alstrom-Moore, Christine Dodd and John Holah,
Campden BRI, Chipping Campden, United Kingdom

T6-09 Multiple Occurrences of Indistinguishable *Listeria*
11:00 *monocytogenes* Isolates from Food, Animal,
Environmental and Clinical Sources – KIERAN
JORDAN, Edward Fox, Martin Cormican, Niall
Delappe and Nola Leonard, Teagasc, Fermoy, Ireland

T6-10 A Cell Envelope Stress Response System
11:15 Contributes to *Listeria monocytogenes* Adaptation
to Salt Stress at Low Temperature – TERESA
BERGHOLZ, Kathryn J. Boor and Martin Wiedmann,
Cornell University, Ithaca, NY, USA

T6-11 Peri-partum Infection of Mice with *Listeria*
11:30 *monocytogenes* Results in Shedding of the
DSC Pathogen in Milk – KEITH P. POULSEN, Nan G. Faith
and Charles J. Czuprynski, University of Wisconsin-
Madison, Madison, WI, USA

T6-12 Virulence Attenuating Premature Stop Codon
11:45 Mutations in *internalin A* are Common among *Listeria*
monocytogenes from Food Retail Establishment
Environments – ANGELA J. ROBERTS, Clyde S.
Manuel, Anna Van Stelten and Kendra K. Nightingale,
Texas Wesleyan University, Fort Worth, TX, USA

TUESDAY AFTERNOON AUGUST 2

IAFP Business Meeting • 12:15 p.m. – 1:00 p.m. *Frontier Airlines Convention Center, 201AB*

- Welcome and Introduction
Isabel Walls, President-Elect
- Moment of Silence
Lee-Ann Jaykus, President
- Call to Order
Lee-Ann Jaykus, President
- Minutes of the 2010 Business Meeting
Lee-Ann Jaykus, President
- President's Report
Lee-Ann Jaykus, President
- Report of Committees
Tellers, *Manan Sharma*
JFP Management, Margaret Hardin
FPT Management, Michelle Danyluk
Foundation
- Report of the Affiliate Council
David Lloyd, Affiliate Council Chairperson
- Report of the Executive Director
David Tharp, Executive Director
- Unfinished Business
- New Business
- Adjournment
Lee-Ann Jaykus, President

(Posters will be on display 10:00 a.m. – 6:00 p.m.
See details beginning on page 60.)

S23 Validation of Enteric Pathogen Interventions: Scientific, Regulatory and Applied Approaches for Beef Slaughter and Further Processors *Frontier Airlines Convention Center, 203*

**Organizers: Yale Lary, Wendy White
and Carl Custer**
Convenor: Yale Lary

- 1:30 Design, Implementation and Management of Intervention Systems – DEAN DANILSON, Tyson – IBP, Dakota Dunes, SD, USA
- 1:55 Purchase Specifications to Include Validation – Customer Perspective – FRANK YIANNAS, Walmart, Bentonville, AR, USA
- 2:20 The Science and Purpose of Laboratory Challenge Studies – JOHN N. SOFOS, Colorado State University, Fort Collins, CO, USA
- 2:45 Panel Discussion
- 3:00 Break
- 3:30 Laboratory and In-plant Validation – Emerging Concerns and Technical Solutions – MOHAMMAD KOOHMARAIE, IEH, Lake Forest Park, WA, USA
- 4:00 In-plant Engineering Technology for Application of Chemical Interventions – ARUN RAMABADRAN, Spray Systems, Wheaton, IL, USA

4:15 Enteric Pathogen Interventions: Ensuring Scientific Research is Appropriately Applied in a Plant Environment – DAN ENGELJOHN, U.S. Department of Agriculture-FSIS, Washington, D.C., USA

4:45 Panel Discussion

S24 Novel Approaches for Characterization of Foodborne Pathogens – Beyond Serology, Genomic Applications *Frontier Airlines Convention Center, 202CDE*

Sponsored by the IAFP Foundation

**Organizers: Purnendu Vasavada
and Patrice Arbault**
**Convenors: Purnendu Vasavada
and Patrice Arbault**

- 1:30 Molecular Determination of *Salmonella* Serotypes: How to Get the Identification on the Nose! – PATTY FIELDS, Centers for Disease Control and Prevention, Atlanta, GA, USA
- 2:00 New Molecular Typing of *Clostridium* Strains – PATRICK FACH, Anses, Maisons-Alfort, France
- 2:30 Molecular Characterization and Differentiation of *Campylobacter* Isolates Based on Pulse Field Gel Electrophoresis – OMAR A. OYARZABAL, Alabama State University, Montgomery, AL, USA
- 3:00 Break
- 3:30 Molecular Typing for Yeast and Mold: The Lighthouse in a Foggy World – ARNAUD CARLOTTI, ID-myk, Limonest, France
- 4:00 Subtyping and Genome Analysis for a Better Understanding of the Microevolution of *Listeria monocytogenes* in Industrial Environment – MARTIN WIEDMANN, Cornell University, Ithaca, NY, USA
- 4:30 Molecular Serotyping of *Salmonella*: SNP, CRSPR and Whole Genome Sequencing-based Strain Characterization – CHRISTINE KEYS, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA

S25 Food Safety Risk Ranking for Prioritization – What is It and Why Does It Matter? *Frontier Airlines Convention Center, 201AB*

**Organizers: Yuhuan Chen, Sherri Dennis
and Regis Pouillot**
Convenors: Sherri Dennis and Mickey Parish

- 1:30 FDA Approach – Risk Prioritization for Inspections, Microbiological Sampling and Egg Rule Implementation – DON L. ZINK, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- 2:00 Industry Perspective – Dozens of Hazards, Hundreds of Ingredients and Practical Risk Ranking to Focus Control in the Supply Chain – KATHERINE M. SWANSON, Ecolab, St. Paul, MN, USA
- 2:30 An Industry Perspective on Government Risk Prioritization – JOHN L. BASSETT, Unilever – Safety and Environmental Assurance Centre, Sharnbrook, United Kingdom

- 3:00 Break
- 3:30 FDA Risk Ranking Web-based Tool for Commodity – Hazard Pairs – What Does *iRISK* Tell Us Beyond Hazard Analysis? – YUHUAN CHEN, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- 4:00 Worst Things First? Ranking Pathogen – Food Pairs and Prioritizing Future Action – MICHAEL BATZ, University of Florida, Gainesville, FL, USA
- 4:30 User Experiences with “Risk Ranger” – A Published Semi-quantitative Risk Assessment Tool – TOM ROSS, University of Tasmania, Hobart, TAS, Australia

S26

Follow the Light: Energy-based Antimicrobial Intervention Technologies

Frontier Airlines Convention Center, 102AB

Sponsored by the IAFP Foundation

Organizers: Joshua Gurtler and Brendan Niemira
Convenors: Joshua Gurtler and Brendan Niemira

- 1:30 Ultraviolet Light (An FDA-approved Technology) – CHRISTOPHER H. SOMMERS, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA
- 2:00 Pulsed Ultraviolet Light (Is There Life Beyond 254 nm UV?) – NEIL J. ROWAN, Athlone Institute of Technology, Athlone, Westmeath, Ireland
- 2:30 High-intensity Visible Light Inactivation of Bacterial Pathogens (Seeing is Believing) – MICHELLE MACLEAN, University of Strathclyde, Glasgow, Scotland
- 3:00 Break
- 3:30 Advances in Cold Plasma Technology (Don’t Look Now, But Your Food May be Arcing) – BRENDAN A. NIEMIRA, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA
- 4:00 Regulatory Approval of Innovative Antimicrobial Intervention Technologies – ROBERT L. BUCHANAN, University of Maryland, College Park, MD, USA
- 4:30 Energy-based Antimicrobial Intervention Technologies – Panel Discussion

RT5

Responding to the 2009 Codex Guidelines for *Listeria monocytogenes* in Ready-to-Eat Foods

Frontier Airlines Convention Center, 102DE

Sponsored by the IAFP Foundation

Organizer: Ewen Todd
Convenors: Ewen Todd and Cindy Stewart

- 1:30 Panel Discussion
- BETH ANN CROZIER-DODSON, Kansas State University, Manhattan, KS, USA
- EWEN TODD, Michigan State University, East Lansing, MI, USA
- CHRISTOPHE DUFOUR, Silliker, Paris, France

SCOTT K. CRERAR, Food Standards Australia New Zealand, Canberra, ACT, Australia

JEFFREY M. FARBER, Health Canada, Ottawa, ON, Canada

ANNIE BEAUFORT, French Food Safety Agency, Maisons-Alfort, France

ANDREW P. BENSON, International Food Information Council, Washington, D.C., USA

RANDY D. HUFFMAN, Maple Leaf Foods, Toronto, ON, Canada

RT6

Long-term Health Outcomes (LTHO) of Foodborne Disease: Assessing Information Needs and Methods to Capture Patient Data

Frontier Airlines Convention Center, 102DE

Sponsored by the IAFP Foundation

Organizers: Tanya Roberts and Barbara Kowalczyk
Convenor: Craig Hedberg

- 3:30 Panel Discussion
- TANYA ROBERTS, Center for Foodborne Illness Research and Prevention, Vashon, WA, USA
- RICHARD SIEGLER, University of Utah, Salt Lake City, UT, USA
- SUSAN PINNEY, University of Cincinnati, Cincinnati, OH, USA
- JORGEN SCHLUNDT, University of Copenhagen, Copenhagen, Denmark
- BARBARA KOWALCYK, Center for Foodborne Illness Research & Prevention, Maineville, OH, USA

S27

Out of Africa: Initiatives to Advance Food Safety

Frontier Airlines Convention Center, 102C

Sponsored by Marler Clark P.C. and the IAFP Foundation

Organizers: Linda Leake and Isabel Walls
Convenors: Linda Leake and Isabel Walls

- 1:30 Welcome to the Continent: An Overview of the Current State of Food Production, Food Infrastructure and Food Safety in Africa – LUCIA ANELICH, Anelich Consulting, Johannesburg, South Africa
- 2:00 Safe Food for All: Ongoing Challenges and Advances for Food Safety in Africa – ROBERT MYHARA, Canadian International Development Agency - CIDA, Ottawa, ON, Canada
- 2:30 “I Had a Farm in Africa:” Land O’Lakes Work in the Dairy Value Chain and Efforts in Transforming Milk Quality – ZAHEER BABER, Land O’Lakes, Shoreview, MN, USA

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S28

China Food Safety: Challenges and Opportunities

Frontier Airlines Convention Center, 102C

Sponsored by the IAFF Foundation

Organizers: Peter Ben Embarek, Tong-Jen Fu, Zhinong Yan and Leon Gorris

Convenors: Peter Ben Embarek and Tong-Jen Fu

- 3:30 Current, Recurring and Potential Emerging Food Safety Issues in China – PETER K. BEN EMBAREK, WHO, China Office, Beijing, China
- 3:55 Current Status of the Food Safety Standards Review and Development and Update on the Food Safety Law Implementation – XIUMEI LIU, Chinese Center for Disease Control and Prevention, Beijing, China
- 4:20 Operational Challenges and Opportunities: Implementing Modern Food Safety Management – SOO CHUAH, Kraft Asia Pacific, Port Melbourne, Australia
- 4:45 Panel Discussion

S29

Crypto in Milwaukee – What Have We Learned Since 1993?

Frontier Airlines Convention Center, 103AB

Sponsored by the IAFF Foundation

Organizers: Kalmia Kniel, Melvin Kramer and Larry Cohen

Convenors: Kalmia Kniel and Larry Cohen

- 1:30 Case Study: 1993 Waterborne *Cryptosporidium* Outbreak and Lessons Learned – JEFFREY P. DAVIS, Wisconsin Division of Public Health, Madison, WI, USA
- 2:00 Epidemiology of *Cryptosporidium* and *Giardia* in the United States – MICHAEL BEACH, Centers for Disease Control and Prevention, Atlanta, GA, USA
- 2:30 Exotic and Tropical Parasitic Diseases Coming Soon to Your Dinner Table at Home – MELVIN N. KRAMER, EHA Consulting Group, Inc., Baltimore, MD, USA

S30

Planes, Trains, Boats and Trucks! Sanitary Transportation Act

Frontier Airlines Convention Center, 103AB

Organizers: Yale Lary and Gina Nicholson
Convenor: Gina Nicholson

- 3:30 Sanitary Food Transportation Act Overview – FDA Perspective – MIKE KASHTOCK, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA

- 3:50 Liability during Food Transportation – Case Studies – PATRICK BRECHT, PEB Commodities, Petaluma, CA, USA
- 4:10 Best Practices to Meet Legal Responsibilities – JOLYDA O. SWAIM, Olson Frank and Weeda, Washington, D.C., USA
- 4:30 Panel Discussion

T7

Technical Session 7 – Risk Assessment

Frontier Airlines Convention Center, 202B

Convenors: Don Schaffner and Mark Powell

- T7-01 1:30 Considering the Food Safety Impact of the Codex Sampling Plans for *Listeria monocytogenes* in Ready-to-Eat Foods: An Empirical Case Study – MARK POWELL, U.S. Department of Agriculture, Washington, D.C., USA
- T7-02 1:45 A Longitudinal Study of *Listeria monocytogenes* Control in Retail Delis Evaluating ATP Bioluminescence as a Monitoring Tool – Matthew J. Stasiewicz, Emily Wright, Steven Warchocki, Sherry E. Roof, Martin Wiedmann and HALEY F. OLIVER, Purdue University, West Lafayette, IN, USA
- T7-03 2:00 Case Study of Contamination by *Listeria monocytogenes* in Raw Goat Milk Cheese: Development of a Quantitative Risk Assessment Model of the Production Chain – NICOLAS KORSAK, Georges Daube and Laurent Delhalle, Liège University, Liège, Belgium
- T7-04 2:15 Integration of the Sporulation Temperature and pH into the Process Optimization to Prevent *Bacillus cereus* and *Bacillus licheniformis* Hazards – Eugenie Baril, Louis Coroller, Olivier Couvert, Mohammed El Jabri, Ivan Leguerinel, FLORENCE POSTOLLEC, Christophe Boulais, Frederic Carlin and Pierre Mafart, ADRIA Développement, Quimper, France
- T7-05 2:30 *Enterococcus faecium* Surrogates in Dry Roasting Validations: Not Just for *Salmonella* Any More? – BRIAN FARINA, Charles T. Deibel, Robson Ehioba and Kristen A. Hunt, Deibel Laboratories, Inc., Gainesville, FL, USA
- T7-06 2:45 Lethality Validation of “Thoroughly Cooked” Products: A Dry Foods Toolbox – LISA A. LUCORE, Mark A. Moorman and Ben L. Jackson, Kellogg Company, Battle Creek, MI, USA
- 3:00 Break
- T7-07 3:30 Critical Control Points and Validation of a Humid Heat Pasteurization Process for Low-moisture Foods – RAINER PERREN and Samer Mohamed, RPN FOODTECHNOLOGY ag, Sursee, Switzerland

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T7-08 Assessing the Risk Posed by Hot Holding
3:45 Temperature Violations Using Quantitative
DSC Microbial Risk Assessment – Tushar Joshi, GABRIEL
MOOTIAN and Donald W. Schaffner, Rutgers
University, New Brunswick, NJ, USA

T7-09 Viral Binding Properties: From Treasure Trove to
4:00 Quagmire on the Way to Discriminate Infectious
and Non-infectious Noroviruses – DAN LI, Mieke
Uyttendaele, Els Van Coillie and Leen Baert, Gent
University, Ghent, Belgium

T7-10 A Comparison of Outbreaks Linked to Foodborne
4:15 Illnesses in Different Settings (1990-2007)
– CAROLINE SMITH DEWAAL and Cindy
Roberts, Center for Science in the Public Interest,
Washington, D.C., USA

T7-11 Risk Assessment of the Exposure to Dioxins Based
4:30 on the German Dioxin Scare of 2010-2011 Using
the Irish Population – Lieke M. Kuiper, EIMEAR
A. KELLEHER, Debra Garretson and Cronan
McNamara, Creme Ltd., Dublin, Ireland

T7-12 Habitat Transitions and Survival of *Salmonella* in
4:45 Feces, Soil, Water and Plants – ARIENA H. VAN
BRUGGEN, Ganyu Gu, Juan M. Cevallos-Cevallos,
Susanna M. Sellers, Alexander M. Semenov
and Vladimir V. Zelenev, University of Florida,
Gainesville, FL, USA

WEDNESDAY MORNING AUGUST 3

(Posters will be on display 9:00 a.m. – 3:00 p.m.
See details beginning on page 69.)

S31 **A Systems Approach to Minimize *Escherichia coli* O157:H7 Food Safety Hazards Associated with Fresh and Fresh Cut Leafy Greens**

Frontier Airlines Convention Center, 203

Organizers: Michael Doyle and Catherine Nnoka

Convenors: Isabel Walls and D. Rao

- 8:00 Hazard Identification in the Production Environment of Leafy Greens – MARILYN C. ERICKSON, University of Georgia, Griffin, GA, USA
- 8:30 Potential Impact of Pathogen Cross-contamination and Growth on Food Safety Risks Associated with Leafy Greens – ELLIOT RYSER, University of Michigan, Ann Arbor, MI, USA
- 9:00 Physical and Chemical Interventions to Mitigate Risk Associated with Leafy Greens – BRENDAN A. NIEMIRA, U.S. Department of Agriculture, Wyndmoor, PA, USA
- 9:30 Break
- 10:00 Mathematical Risk Assessment Models for Leafy Greens – FERNANDO PEREZ RODRIGUEZ, University of Cordoba, Cordoba, Spain
- 10:15 Risk Management Strategies for Leafy Greens – EWEN TODD, Michigan State University, East Lansing, MI, USA
- 10:30 Application of the Food Safety Objective Approach to Leafy Greens Risk Reduction – TOM ROSS, University of Tasmania, Hobart, TAS, Australia
- 11:00 The Merits to Utilizing a System Approach to Improve the Safety of Fresh-cut Leafy Greens – ROBERT L. BUCHANAN, University of Maryland, College Park, MD, USA

RT4 **Food Safety Modernization Act: Issues and Challenges**

Frontier Airlines Convention Center, 102DE

Organizer: Purnendu C. Vasavada

Convenor: Purnendu C. Vasavada

- 8:00 Panel Discussion
 - DAVID ACHESON, Leavitt Partners, Glenelg, MD, USA
 - SHAWN K. STEVENS, Gass Weber Mullins LLC, Milwaukee, WI, USA
 - KELLY JOHNSTON, Campbell Soup Company, Camden, NJ, USA
 - JOHN SHEEHAN, U.S. Food and Drug Administration, College Park, MD, USA

S33 **One Health: A Rubik's Cube for the Future**

Frontier Airlines Convention Center, 202CDE

Sponsored by the IAFP Foundation

Organizers: Siddhartha Thakur, Anna Lammerding, Paula Fedorka-Cray and Kalmia Kniel

Convenors: Siddhartha Thakur and Kalmia Kniel

- 10:00 The Regulatory Conundrum: Balancing Both Sides of the Puzzle – SHAOHUA ZHAO, U.S. Food and Drug Administration-CVM, Laurel, MD, USA
- 10:30 Solving the Puzzle: Role of the Veterinarian – PETER DAVIES, University of Minnesota, Minneapolis, MN, USA
- 11:00 An Eye on the Cube – Are They Really All the Same? – NINA MARANO, Centers for Disease Control and Prevention, Atlanta, GA, USA

S34 **New Notes for the Old Choir: The Sour Note Perils of Raw Milk Consumption**

Frontier Airlines Convention Center, 201AB

Sponsored by the IAFP Foundation

Organizers: Linda Leake and Purnendu Vasavada

Convenors: Linda Leake and Purnendu Vasavada

- 8:00 Impact of Raw Milk on the Public Health – JEFFREY P. DAVIS, Wisconsin Department of Health Services, Madison, WI, USA
- 8:30 Role Models to Direct the Choir: Successful Programs for Educating the Educators and Others with Influence on Consumers about the Perils and Pitfalls of Raw Milk – SHAWN K. STEVENS, Gass Weber Muller, LLC, Milwaukee, WI, USA
- 9:00 Alternate Processes to Pasteurization: A Review of the History of Heat Treatment of Milk – CHARLES H. WHITE, Randolph Associates, Inc., Birmingham, AL, USA

S35 **Raw Milk Cheese – The Ancient Battle of Good vs. Evil?**

Frontier Airlines Convention Center, 201AB

Sponsored by the IAFP Foundation

Organizer: Dawn Terrell

Convenors: Allen Saylor and Purnendu Vasavada

- 10:00 Safe Raw Milk Cheese Making: Outcome-driven Control – CLAUS HEGGUM, Danish Agriculture & Food Council, Copenhagen, Denmark

- 10:20 Raw Milk Cheese in the U.S. – 60-day Rule and Risk Reduction – DENNIS J. D'AMICO, Vermont Institute for Artisan Cheese, Burlington, VT, USA
- 10:40 The Cultural Politics of Raw Milk Cheese – HEATHER PAXSON, Massachusetts Institute of Technology, Cambridge, MA, USA
- 11:00 Panel Discussion

S36

Human Pathogens on/in Plants: Multidisciplinary Synergies for Enhancing Food Safety

Frontier Airlines Convention Center, 102AB

Sponsored by the IAFP Foundation

Organizers: Kellye Eversole, Lee-Ann Jaykus and Jacqueline Fletcher

Convenors: Kellye Eversole, Lee-Ann Jaykus and Jacqueline Fletcher

- 8:00 Habitat Transitions and Survival of *Salmonella* in Manure, Soil, Water and Plants – ARIENA VAN BRUGGAN, University of Florida, Gainesville, FL, USA
- 8:30 Research Needs to Support or Fill Gaps in Produce Regulations – MICHAEL MAHOVIC, U.S. Food and Drug Administration, College Park, MD, USA
- 9:00 *Escherichia coli* O157:H7 Colonization of Filth Flies and Subsequent Dissemination to Leafy Greens – ASTRI WAYADANDE, Oklahoma State University, Stillwater, OK, USA

S37

Microbiological Safety of Dry Spices: A Hot Topic. . . Literally

Frontier Airlines Convention Center, 102AB

Organizers: Hudaa Neetoo, Joshua Gurtler and Jeff Kornacki

Convenors: Hudaa Neetoo and Joshua Gurtler

- 10:00 Microbiological Safety of Spices: A Paradigm Shift – MICHAEL P. DOYLE, Center for Food Safety, University of Georgia, Griffin, GA, USA
- 10:30 The American Spice Industry Takes Steps to Address Food Safety Concerns – CHERYL DEEM, American Spice Trade Association, Washington, D.C., USA
- 11:00 Spice Production in Developing Countries: Safety and Regulatory Considerations – ALEX COLES, Culinary Farms, Woodland, CA, USA

S38

Egg Safety and *Salmonella* – Hard Boiled Reality on Regulation, Prevention and Detection

Frontier Airlines Convention Center, 102DE

Sponsored by the IAFP Foundation

Organizers: Amy Smith, Siddhartha Thakur and Timothy Freier

Convenors: Amy Smith and Timothy Freier

- 8:00 FDA's Egg Safety Rule – GERARDO RAMIREZ, U.S. Food and Drug Administration, College Park, MD, USA
- 8:30 Egg Industry Perspective on *Salmonella* Prevention, Innovation and Detection – KRISTA EBERLE, United Egg Producers, Alpharetta, GA, USA
- 9:00 Importance of State Inspection in Egg Safety – NAN HANSHAW, Pennsylvania Department of Agriculture, Harrisburg, PA, USA
- 9:30 Break
- 10:00 *Salmonella* on the Farm – Effective Sampling and Prevention – CHUCK HOFACRE, University of Georgia, Athens, GA, USA
- 10:30 Improved Method for the Isolation of *Salmonella* from Poultry Environmental Samples – DOUG WALTMAN, Georgia Poultry Laboratory, Oakwood, GA, USA
- 11:00 FDA *Salmonella* Surveillance in Animal Feed – XIN LI, U.S. Food and Drug Administration, Rockville, MD, USA

S39

Safety of Fountain-dispensed Beverages: Myths and Realities

Frontier Airlines Convention Center, 102C

Organizers: Kathleen Lawlor and Sean Leighton

Convenor: Michael Redman

- 8:00 Fountain Microbiology: What Does the Scientific Literature Say? – DONALD W. SCHAFFNER, Rutgers University, New Brunswick, NJ, USA
- 8:25 Fountain Beverage Dispensers: Design Features and Procedures for Maintaining Cleanliness and Safety (Part 2) – MIKE KOHLER, NSF International, Ann Arbor, MI, USA
- 9:10 Beverage Formulation with an Eye to Fountain Dispensing Safety – SEAN J. LEIGHTON, The Coca-Cola Company, Atlanta, GA, USA

S40

Water Contamination Awareness – Applying the Correct Preventive Controls Keeps Our Food Safe

Frontier Airlines Convention Center, 102C

Organizer: Peter Kennedy
Convenors: Dean Davidson and Peter Kennedy

- 10:00 Aquaculture in Asia and South Asia –Don’t Fail to Apply GAQPs, Plan on It. GAQPs are Critical to Safe and Free Global Trade – KANIZ F. SHIREEN, World Health Organization, Geneva, MD, USA
- 10:20 Are Our Food Production and Water Supplies Safe When Natural Disasters Strike? What’s in Your Plan? – WILLIAM BURKHARDT, U.S. Food and Drug Administration-CFSAN-OFS, Dauphin Island, AL, USA
- 10:40 Food Processing Mayhem – What Lurks in Environmental Water Can Put You Out of Control and Maybe Out of Business! – PAUL A. HALL, AIV Microbiology and Food Safety Consultants, LLC, Overland Park, KS, USA
- 11:00 Panel Discussion

T8

Technical Session 8 – Novel Laboratory Methods and Beverages and Water

Frontier Airlines Convention Center, 103AB

Convenors: Alejandro Mazzotta and Deborah Kane

- T8-01 8:00 Novel, Rapid Multiplex Real-time PCR Panels for the Detection of Non-O157 Shiga Toxin *E. coli* in Beef and Produce – Greer Kaufman, George Blackstone, Bill Marion and MICHAEL VICKERY, BioGX, Inc., Birmingham, AL, USA
- T8-02 8:15 A New Approach for the Detection and Isolation of STEC Strains in Meat and Dairy – Sarah Jemmal, Sylvie Hallier and PATRICE CHABLAIN, Pall GeneDisc Technologies, Bruz, France
- T8-03 8:30 Comparison of DNA-based Propidium Monoazide-Polymerase Chain Reaction (PMA-PCR) and Loop-Mediated Isothermal Amplification (PMA-LAMP), mRNA-Based Reverse-Transcriptase PCR, and Cultural Assays for Viable *Salmonella enterica* Detection – CHAYAPA TECHATHUVANAN and Doris D’Souza, University of Tennessee, Knoxville, TN, USA
- T8-04 8:45 Improved Enrichment Times for *Listeria* spp. and *Salmonella* Using Off-the-Shelf Media and Detection of rRna Using Transcription Mediated Amplification (TMA) – MICHELE WISNIEWSKI, Anna Freed, Ernie Hsu, William Kwong, Steven Vaughn, Hua Yang and Mick Becker, Roka BioScience, Inc., San Diego, CA, USA
- T8-05 9:00 Survival of Human Norovirus Surrogates in Blueberry Juice at Refrigeration – KATIE M. HORM, P. Michael Davidson and Doris D’Souza, University of Tennessee-Knoxville, Knoxville, TN, USA

T8-06 9:15

PCR Method for Simultaneous Detection of *Salmonella* spp. and *E. coli* O157:H7 in Raw Meat Products – Wilfried Ablain and PATRICIA KUCINSKI, AES Chemunex, Bruz, France

T9

Technical Session 9 – Pathogens, Microbial Food Spoilage and Sanitation

Frontier Airlines Convention Center, 202B

Convenors: Jitu Patel and David Ingram

- T9-01 8:00 Enterotoxin Production by Coagulase-Positive *Staphylococcus aureus* Isolates from Milk Used for Raw Milk Cheese Production – KIERAN JORDAN, Karen Hunt, Jenny Schelin, Peter Radstrom and Francis Butler, Teagasc, Fermoy, Ireland
- T9-02 8:15 Study of the Role of Cellulose Genes *bcsA*, *bcsB*, and *bcsC* of *Cronobacter* spp. in Biofilm Formation and Adherence to Human Epithelial Cells – LAN HU, U.S. Food and Drug Administration-CFSAN, Laurel, MD, USA
- T9-03 8:30 Diverse Genetic Markers Reveal a Non-random Distribution of *E. coli* O157 Genotypes among Bovine, Food and Clinical Isolates: A Comparison between Dutch and USA Data – EELCO FRANZ, Fimme van der Wal, Angela van Hoek and Annet Heuvelink, RIVM – Centre for Infectious Disease Control, Bilthoven, The Netherlands
- T9-04 8:45 Involvement of Quorum Sensing and Heat Stable Enterotoxin A in Cell Damage Caused by a Porcine Enterotoxigenic *Escherichia coli* Strain – Jing Zhu, Xianhua Yin, Hai Yu, Liping Zhao, Parviz Sabour and JOSHUA GONG, Agriculture and Agri-Food Canada, Guelph, ON, Canada
- T9-05 9:00 Challenges for the Prevention of Foodborne Viruses – Fabienne Loisy, Denis Bidot, Sandrine Hattat, Franck Chatigny and BENOIT LEBEAU, Ceeram, La Chapelle sur Erdre, France
- T9-06 9:15 Efficacy of Commonly Used Disinfectants for Inactivation of Noroviruses and Their Surrogates – GRACE TUNG, Helen Rawsthorne, Carrie Zapka, David R. Macinga, James W. Arbogast and Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA
- 9:30 Break
- T9-07 10:00 Inactivation of Human Norovirus Surrogate, Human Norovirus Virus-like Particle, and Vesicular Stomatitis Virus by Gamma Irradiation: Sensitivity and Mechanism – KURTIS FENG, Erin Divers, Yuanmei Ma and Jianrong Li, The Ohio State University, Columbus, OH, USA
- T9-08 10:15 Inactivation of Enveloped and Non-enveloped Viruses by High Pressure Processing: Sensitivity and Mechanism – FANGFEI LOU, Hudaa Neetoo, Haiqiang Chen and Jianrong Li, The Ohio State University, Columbus, OH, USA

T9-09 10:30 Inhibition of *Alicyclobacillus* Growth by Cranberry and Blueberry Juice – CHRISTOPHER J. MCNAMARA and Margarita Gomez, Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA, USA

T9-10 10:45 Microbial and Enzymatic Spoilage of Pulsed Electric Field Treated Fruit Juices: Impact of Process Parameters Inhomogeneities – NICOLAS MENESES and Dietrich Knorr, Berlin University of Technology, Berlin, Germany

T9-11 11:00 Examining the Microbial Contamination Potential of Fabric-reinforced Flat Conveyor Belts – ZHINONG YAN, Intralox LLC, Harahan, LA, USA

T9-12 11:15 The Efficacy of “Open Air Factor” on Surface - attached Environmental *Listeria monocytogenes* Serotype 1/2a and *Pseudomonas aeruginosa* Isolates – LOUISE FIELDING, Rebecca Nicholas and Arthur Tatham, University of Wales Inst.-Cardiff, Cardiff, United Kingdom

T10 **Technical Session 10 – Applied Methods**
Frontier Airlines Convention Center, 103AB

Convenors: Alejandro Mazzotta and Deborah Kane

T10-01 10:00 Molecular Typing *Listeria monocytogenes* Isolates from Australian Cooked Poultry Products, Environment and Human Cases Using Repetitive

Extragenic Sequence-based-PCR (Rep-PCR) – ANTHONY PAVIC and Jeremy W. Chenu, Birling Avian Laboratories, Bringelly, NSW, Australia

T10-02 10:15 Development of a Novel Multiplex PCR Assay for Identification of *Salmonella enterica* Typhimurium and Enteritidis – Bin Liu, Xiujuan Zhou, Lida Zhang, Weibing Liu, Xianlong Dan, CHUNLEI SHI and Xianming Shi, Shanghai Jiao Tong University, Shanghai, China

T10-03 10:30 Colony Immunoblotting for Isolation of Shigatoxin-producing *Escherichia coli* – ROGER JOHNSON, Kim Ziebell, Bob Holtslander, Shelley Frost, Amanda Mazzocco, Shaun Kernaghan, Jennifer Wheeler and Leslie MacDonald, Public Health Agency of Canada, Guelph, ON, Canada

T10-04 10:45 Concentration of *Bacillus* Endospores from Different Food Matrices Using Tangential Flow Filtration – Haq Imtiazul, Azadeh Koushan and KEITH WARRINER, University of Guelph, Guelph, ON, Canada

T10-05 11:00 Propodium Monoazide for Differentiation of Inactivated Viral Particles – ROCIO MORALES and Julie Jean, Institute of Nutraceuticals and Functional Foods, Quebec, QC, Canada



Wednesday, August 3

Tom Vilsack, U.S. Secretary of Agriculture

11:45 a.m. – 12:30 p.m.

Ballroom ABC, Frontier Airlines Convention Center

**WEDNESDAY AFTERNOON
AUGUST 3**

(Posters will be on display 9:00 a.m. – 3:00 p.m.
See details beginning on page 69.)

RT7 Private Food Safety Standards: Facilitating or Complicating Food Safety

Frontier Airlines Convention Center, 203

Sponsored by Marler Clark P.C. and the IAFP Foundation

Organizers: Sarah Cahill, Jeffrey Farber and Caroline Smith DeWaal
Convenor: Jeffrey Farber

1:30 Panel Discussion

RENATA CLARKE, Food and Agriculture Organization of the United Nations, Rome, Italy

LUCIA ANELICH, Anelich Consulting, Brooklyn, South Africa

JAIRO E. ROMERO, Colombian Association of Food Science and Technology, Bogota, Colombia

FRANK YIANNAS, Walmart, Bentonville, AR, USA

S41 Dry Processing Operations: When to Clean, What to Clean and Where to Look

Frontier Airlines Convention Center, 202CDE

Organizers: Rocelle Clavero and Joe Shebuski
Convenors: Rocelle Clavero and Joe Shebuski

1:30 Challenges in Cleaning Dry Processing Equipment: An Overview – JOE SHEBUSKI, Cargill, Inc., Plymouth, MN, USA

2:00 Drying Equipment (Tunnel and Spray Dryers) – When and How to Clean – JEFFREY L. KORNACKI, Kornacki Microbiology Solutions, Inc., McFarland, WI, USA

2:30 Implementation of Sanitation Programs in the Manufacture of Extruded Products – DOUGLAS MCQUEEN, Kellogg Company, Battle Creek, MI, USA

3:00 Considerations in Designing a Cleaning Program for Dry Blending and Packaging – RANDY K. PORTER, Conagra Foods, Omaha, NE, USA

S42

Going the Way of the 'Jetsons': The Next 100 Years

Frontier Airlines Convention Center, 201AB

Organizer: Paula Fedorka-Cray
Convenors: Paula Fedorka-Cray and Siddhartha Thakur

1:30 Where Will Our Garden Grow? – TO BE DETERMINED

1:55 Fish Farming Our Way into the Future – CHARLES M. GIESEKER, U.S. Food and Drug Administration, Laurel, MD, USA

2:20 Blowing in the Wind – SCOTT GOODRICK, U.S. Department of Agriculture-Forest Service, Athens, GA, USA

2:45 Bats in the Belfry – or Spaceship? Bats and the Future of Agriculture and Human Health – TO BE DETERMINED

3:10 Been There, Done That, Now What? – PAULA J. FEDORKA-CRAY, U.S. Department of Agriculture ARS-BEAR, Athens, GA, USA

S43

Encouraging Food Safety Behavior in Food Operations

Frontier Airlines Convention Center, 102AB

Organizer: Dale Grinstead
Convenors: Dale Grinstead, Robert Gravani and Sharon Wood

1:30 How Do You Know What is Really Going on in Your Facilities: Observational-based Research to Understand Behavior – BENJAMIN CHAPMAN, North Carolina State University, Raleigh, NC, USA

2:00 Encouraging Food Safety Behaviors: Training Programs and Methods Suited to High Employee Turnover Environments – ALAN M. TART, U.S. Food and Drug Administration, Atlanta, GA, USA

2:30 Implementing Culture Change: Processing – RANDY D. HUFFMAN, Maple Leaf, Toronto, ON, Canada

3:00 Implementing Culture Change: Food Service – ANN MARIE MCNAMARA, Jack In The Box, San Diego, CA, USA

RT8**What We Have Here is a Failure to Communicate: Is Method Equivalency an Achievable Global Objective?***Frontier Airlines Convention Center, 102DE**Sponsored by the IAFP Foundation***Organizers: Mark Carter, Patrice Arbault, Patricia Rule, Wendy McMahon and Michael Brodsky****Convenors: Mark Carter and Michael Brodsky**

1:30

Panel Discussion

J. STAN BAILEY, bioMérieux, Hazelwood, MO, USA

ADRIANNE KLIJN, Nestlé Research Center, Vers-chez-les-Blanc, Switzerland

JULIAN M. COX, University of New South Wales, Sydney, NSW, Australia

DANIEL L. ENGELJOHN, U.S. Department of Agriculture-FSIS, Washington, D.C., USA

JEFFREY M. FARBER, Health Canada, Ottawa, ON, Canada

RUSSELL S. FLOWERS, Siliker, Inc., Chicago, IL, USA

THOMAS S. HAMMACK, U.S. Food and Drug Administration, College Park, MD, USA

PAUL IN 'T VELD, Food and Consumer Product Safety Authority, Eindhoven, The Netherlands

DANE BERNARD, Keystone Foods, West Conshohocken, PA, USA

S44**The Safety of Natural, Organic and Uncured Processed Meat Products***Frontier Airlines Convention Center, 102C**Sponsored by Danisco, Kerry Ingredients and the IAFP Foundation***Organizer: Armitra Jackson-Davis****Convenors: James Bacus and Armitra Jackson-Davis**

1:30

The History of Natural and Organic Products and the Current Status of the Labeling – ARMITRA L. JACKSON-DAVIS, Iowa State University, Ames, IA, USA

2:00

Ingredients for Natural, Organic and Uncured Meat Products – JAMES N. BACUS, Technical Ingredient Solutions, LLC, Gainesville, FL, USA

2:30

Use of Natural Ingredients to Inhibit Growth of Gram-positive Pathogens – KATHLEEN A. GLASS, University of Wisconsin-Madison, Madison, WI, USA

3:00

Organic and Natural Foodstuffs as Seen by Europeans (Facts and Trends) – RALF NEIDHARDT, Chr. Hansen Company-Germany, Pohlheim, Hessen, Germany

T11**Technical Session 11 – Antimicrobials***Frontier Airlines Convention Center, 103AB***Convenor: Manan Sharma**

T11-01

1:30

DSC

Cold Atmospheric Gas Plasmas: Towards Elucidating Bacterial Inactivation Mechanisms – DANNY BAYLISS, Gilbert Shama, John Holah, Felipe Iza and Michael G. Kong, Loughborough University, Loughborough, United Kingdom

T11-02

1:45

Foodborne Virus Reduction on Produce Using Grape Seed Extract as a Natural Alternative Wash – Xiaowei Su and DORIS D'SOUZA, University of Tennessee-Knoxville, Knoxville, TN, USA

T11-03

2:00

Efficacy of Processing-aide Antimicrobials against *Listeria monocytogenes* Strains – PETER J. TAORMINA, John Morrell Food Group, Cincinnati, OH, USA

T11-04

2:15

Isolation and Identification of a New *Bacillus atrophaeus* Strain Producing Multiple Antimicrobial Agents That are Potentially Useful as Antimicrobial Additives – YAOQI GUO, En Huang, Liwen Zhang, Rijun Zhang and Ahmed E. Yousef, China Agricultural University, Beijing, China

T11-05

2:30

DSC

Characterization of Self-lethality Phenotype of Munditcin L Producer, *Enterococcus mundtii* CUGF08 – GISELLE KRISTI P. GURON, John J. Churey and Randy W. Worobo, Cornell University, Geneva, NY, USA

T11-06

2:45

Persistent Hygienic Surface in Food Processing Using Copper Materials – Ruth Danzeisen, KEVIN KRIZMAN, Jutta Ehlert Elguindi, Gregor Grass and Chris Rensing, International Copper Association, New York, NY, USA

T11-07

3:00

Foodborne Illness Outbreaks Associated with Antibiotic-resistant Bacteria – CAROLINE SMITH DEWAAL and Cindy Roberts, Center for Science in the Public Interest, Washington, D.C., USA

T12**Technical Session 12 – Education***Frontier Airlines Convention Center, 202B***Convenors: Purnendu C. Vasavada and Mark Carter**

T12-01

1:30

Mexican Medical Residents Knowledge and Perceptions of Food Safety – EMA MALDONADO-SIMAN, Barbara Mora-Garcia, Agustín Ruiz-Flores, José A. Cadena-Meneses and Pedro Arturo Martínez-Hernandez, Universidad Autonoma Chapingo, Texcoco, Edo. de Mexico, Mexico

T12-02 Expanding Food Safety Education as a Tool to
1:45 Improve Personal Health – MARJORIE DAVIDSON,
Francoise Fontannaz and Margaret Miller, U.S. Food
and Drug Administration, College Park, MD, USA

T12-03 Safe Eats: An Evaluation of the Use of Social Media
2:00 for Food Safety Education for College Students
DSC – ASHLEY BRAMLETT and Judy A. Harrison,
University of Georgia, Athens, GA, USA

T12-04 Using Role-play to Enhance Foodborne Illness Crisis
2:15 Management Capacity with Producers – AUDREY
KRESKE, Christopher Gunter, Diane Ducharme,
Trevor G. Phister and Benjamin Chapman, North
Carolina State University, Raleigh, NC, USA

T12-05 Socio-demographic Characteristics and Consumer
2:30 Knowledge Relate to Microbiological Risks of
Practices in Restaurants – Paula L. Uggioni and
ELISABETE SALAY, University of Campinas,
Campinas, Brazil

T12-06 Cost Analysis of HACCP Implementation in
2:45 Foodservice Organizations – AMIT SHARMA and
Kevin R. Roberts, Penn State University, University
Park, PA, USA

T12-07 Addressing Food and Drink Skills and Training
3:00 Needs in Wales – LEANNE ELLIS, University of
Wales Institute, Cardiff, United Kingdom

T12-08 Main Difficulties in Achieving GFSI (Global Food
3:15 Safety Initiative) Certification – PATRICK BELE,
Bureau Veritas Certification, Houston, TX, USA

CLOSING SESSION

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

Frontier Airlines Convention Center, 203

Reducing the Foodborne Disease
Burden, Focusing on Risk Assessment,
Food Safety Objectives and Analytical
Needs – JORGEN SCHLUNDT,
Deputy Director, National Food
Institute, Technical University of
Denmark, Soborg, Denmark



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JOHN H. SILLIKER LECTURE

Reducing the Foodborne Disease Burden, Focusing on Risk Assessment, Food Safety Objectives, and Analytical Needs

DR. JORGEN SCHLUNDT

Deputy Director, National Food Institute
Technical University of Denmark
Soborg, Denmark

Wednesday, August 3
4:00 p.m. – 4:45 p.m.



Most recently, Dr. Jorgen Schlundt has worked in WHO 1999 – 2010 as Director of the Department of Food Safety and Zoonoses, but has left this Organization

August 2010 to take up a position as Deputy Director at the National Food Institute, Technical University of Denmark. He has a veterinary degree as well as a Ph.D. from the Veterinary University in Copenhagen, Denmark. After 5 years as a research scientist, he worked at national level on environmental and food safety issues from 1983 to 1999. During this period, Dr. Schlundt also worked three years at the Veterinary Research Laboratory in Harare,

Zimbabwe. He has participated in international scientific evaluations and management activities in a number of international bodies, including OECD expert groups, WHO and FAO Expert Consultations, EU Scientific Committees, and the Codex Alimentarius Commission. In recent years, Dr. Schlundt's work has primarily been focused on international activities aimed at improving present food safety systems within an integrated farm-to-table framework. This has included the development of risk analysis principles, as well as the use of scientific risk assessment as the basis for food safety management decisions. Dr. Schlundt has overseen major new international initiatives, including the creation of the International Food Safety Authorities Network (INFOSAN), the build-up of the Global Foodborne Infections Network (GFN), the initiation of the first-ever estimation of the global burden of foodborne diseases, the initiation of a WHO global strategy for zoonoses and the development of a major consumer education programme on the Five Keys to Safer Food.

JOHN H. SILLIKER LECTURE ABSTRACT

Reducing the Foodborne Disease Burden, Focusing on Risk Assessment, Food Safety Objectives, and Analytical Needs

Dr. Jorgen Schlundt

Deputy Director

National Food Institute

Technical University of Denmark

Soborg, Denmark

Food safety has implications both on the health of individuals and the economic development of societies. Although most countries have had functioning food safety systems for many years, foodborne disease continues to be a major public health issue.

The lack of a common metric to quantify the importance of public health issues has resulted in the development of the now generally accepted concept of DALY's (Disability Adjusted Life Years).¹ While WHO (World Health Organization) now has DALY disease burden estimations for most major diseases, the work to estimate the burden of foodborne disease has only recently been initiated,² and the first data from this project are expected in 2012. Therefore, the best estimations we have are still from a major study in the United States of America (USA), estimating 76 million cases of microbiological foodborne diseases each year, resulting in 325,000 hospitalizations and 5,000 deaths (Mead et al., 1999). Extrapolating the US data to the rest of the world would mean that up to one third of the population in developed countries are affected by microbiological foodborne disease each year, while the problem is likely to be even more widespread in developing countries. These figures of course do not include disease outcomes related to chemical hazards in food, a disease burden that is most likely as high as the microbiological burden.

Recognizing that food safety systems have not succeeded in efficient disease prevention, the last decades have seen significant new developments in food production and control philosophies aimed at an improvement of the efficiency of food safety systems in many countries. However, the future decades will most likely see even more dramatic changes in this area. Relying on the detection of (absence of) pathogens in the end product usually is inefficient, because it is impossible to test sufficient samples to avoid unacceptable health risks (Havelaar et al., 2010). Therefore, a pro-active approach is required, starting with the producer, including in many cases the primary production sector. This approach will be anchored in the risk analysis framework, using risk assessments based on relevant scientific data. Such data are likely to be significantly different from traditional control data and will thus present us with different analytical needs, including most likely needs for very specific identification systems working in real-time settings.

Coherent, science-based strategies will enable action plans to lower the prevalence of relevant hazards (e.g., pathogens) in animals and/or food. Many of these problems cannot be solved by setting rigid standards, such as the traditional microbiological

criteria (e.g., absence of *Salmonella* in 25 g of meat). Lowering the concentration or the prevalence of these pathogens should be governed by food safety objectives, enabling a continuous reduction of problems over time.³ Chemical hazards are increasingly comparable with such microbiological contaminants. Natural chemical contaminants, such as fungal toxins or acrylamide need to be dealt with in a sequential manner, reducing the levels over time to improve health.

The novelty of the risk analysis concept is that risks are assessed throughout the food chain on the basis of sound science, combining qualitative and quantitative data in the areas of epidemiology and pathogenicity of microorganisms with data from disease surveillance and food monitoring. It is likely that future surveillance of microbiological foodborne disease will increasingly be based on molecular and gene sequence based subtyping, enabling the identification of widespread outbreaks, that was not recognized previously.

New analytical methodology, as well as new and more efficient ways of sharing large bodies of lab data in real-time has the potential to dramatically improve future food safety – we need to prepare through structural and conceptual revisions of national – and international – food safety systems.

REFERENCES

1. Havelaar, A. H. et al. 2010 Future challenges to microbial food safety. *Intl. J. of Food Microbiol.* 139 (2010) S79–S94.
2. Mead, P. S. et al. (1999) Food-related illness and death in the United States. *Emerg. Infect. Dis.* 1999, 5 (5): 607–625.

¹One DALY can be thought of as one lost year of “healthy” life. The sum of these DALYs across the population represents the burden of disease for the issue at hand. WHO defines DALYs for a disease as the sum of the Years of Life Lost (YLL) due to premature mortality and the Years Lost due to Disability (YLD) for incident cases. http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/.

² http://www.who.int/foodborne_disease/burden/en/.

³Food Safety Objectives are defined by the WHO/FAO Codex Alimentarius Commission as: The maximum frequency and/or concentration of a hazard in a food at the time of consumption that provides the appropriate level of protection.

MONDAY POSTERS 10:00 a.m. – 6:00 p.m.

P1 **Microbial Food Spoilage, Antimicrobials, Toxicology, Meat and Poultry, Sanitation, General Microbiology, Epidemiology, Risk Assessment, Applied Laboratory Methods**
Frontier Airlines Convention Center, Exhibit Hall

P1-01 through P1-90 – Authors present
10:00 a.m. – 11:30 a.m. and 5:00 p.m. – 6:00 p.m.

P1-91 through P1-164 – Authors present
2:00 p.m. – 3:30 p.m. and 5:00 p.m. – 6:00 p.m.

Microbial Food Spoilage

- P1-01 Prevalence of Spore-forming Bacteria in Food Using a Multiparametric PCR-based Tool – FLORENCE POSTOLLEC, Muriel Bernard, Marie Laure Divanac'h and Danièle Sohier, ADRIA Developpement, Quimper, France
- P1-02 Prevalence and Heat Resistance of Thermophilic Spore-forming Bacteria Contaminating Milk Powder – FLORENCE POSTOLLEC, Muriel Bernard, Anne Lochardet and Danièle Sohier, ADRIA Developpement, Quimper, France
- P1-03 Modeling the Impact of Temperature and Water Activity on the Growth of *Aspergillus flavus*, *Cladosporium cladosporioides*, *Eurotium herbariorum*, *Penicillium chrysogenum* and *Wallemia seby* – Thibaud De Broucker, Mohammed El Jabri, FLORENCE POSTOLLEC, Danièle Sohier and Dominique Thuault, ADRIA Developpement, Quimper, France
- P1-04 Tolerance of *Bacillus cereus* against Low-dose γ -Irradiation and Cold Temperature Storage – ADELARD B. MTENGA, Neema Kassim, Wongyeong Lee, Jeon-Eon Song and Duck-Hwa Chung, Gyeongsang National University, Jinju, Gyeongsangnam-do, Republic of Korea
- P1-05 Influence of Water Activity and Ascospore Age on the Growth of *Byssoschlamys nivea* in Papaya Juice – MORGANA ZIMMERMANN, Pilar R. Massaguer and Gláucia F. Aragão, Federal University of Santa Catarina, Florianópolis, Brazil
- P1-06 Heat Inactivation of *Leuconostoc* spp. on Cooked, Vacuum-packaged Sausage – Sofia M. Arvizu-Medrano, DESIREE ZACARIAS MUÑOZ and Montserrat Hernandez Iturriaga, Facultad de Química Universidad Autónoma de Querétaro., Querétaro, Mexico
- P1-07 Assessment of the Level of Microbiological Contamination of Unpackaged Spices Commercially Available in a Market in Ankara, Turkey – Turker Turker, BILAL BAKIR, Recai Ogur, Omer F. Tekbas and Metin Hasde, Gulhane Military Medical Academy, Ankara, Turkey

- P1-08 Effect of Temperature Abuse on the Organoleptic Quality and Shelf Life of Produce during Simulated Transport Conditions – Mark E. Rudolph, ANN MARIE MCNAMARA, Reginald G. Benitez, Pancita Manalili and Darren Blass, Jack in the Box, San Diego, CA, USA

- P1-09 Diffusion-based Time-temperature Indicator for Monitoring the Microbiological Quality of Frozen and Chilled Foods – SEUNGIL SHIN, Jungeun Ahn, Hyungee Lee, Hae-Ryung Park, Kwanyong Jung, Jihoon Park and Jiyong Park, Yonsei University, Seoul, Republic of Korea

Antimicrobials

- P1-10 Control of *Salmonella enterica* and *Staphylococcus aureus* in a Laboratory Medium and a Commercial-type Soup Using Phosvitin, Carvacrol or Combinations – SHECOYA WHITE, Aubrey F. Mendonca, Aura Daraba and Dong U. Ahn, Iowa State University, Ames, IA, USA
- P1-11 The Effectiveness of Plant Compounds/Extracts at Consumer-acceptable Concentrations against *Salmonella* Typhimurium in Ground Pork – CYNTHIA CHEN, Sadhana Ravishankar and John Marcholle, University of Arizona, Tucson, AZ, USA
- P1-12 Antimicrobial Activity of Plant Extract/Concentrate Rinses against *Salmonella enterica* on Contaminated Organic Leafy Greens – KATHERINE L. MOORE, Libin Zhu, Mendel Friedman, Divya Jaroni and Sadhana Ravishankar, University of Arizona, Tucson, AZ, USA
- P1-13 Evaluation of Cetylpyridinium Chloride to Reduce *Salmonella* and Microbial Counts on Shell Eggs – Elisa Cabrera-Diaz, RODRIGO NUÑO-AYALA, Julia Pérez Montañó, Delia González-Aguilar and Jeannette Barba-León, Universidad de Guadalajara-CUCEI, Guadalajara, Mexico
- P1-14 Antimicrobial Treatments for Reduction of *Salmonella* Contamination in not Ready-to-Eat, Surface-browned, Frozen, Breaded Chicken Entrees – GALATIOS D. MOSCHONAS, Ifigenia Geornaras, Jarret Stopforth and John N. Sofos, Colorado State University, Fort Collins, CO, USA
- P1-15 Reductions of *Salmonella enterica* on Grape Tomatoes during Washing by Thymol and Its Combinations – YINGJIAN LU and Changqing Wu, University of Delaware, Newark, DE, USA
- P1-16 Susceptibility of *Salmonella* spp. Isolated from Soybean Feed Ingredient to Antibiotics – ANA L. PENTEADO, Flavia R. Neves, Simone D. Costa, Ana Paula O. Ribeiro, Ivan Alcântara and Celina M. Soares, Embrapa-CTAA, Rio de Janeiro, Brazil

- P1-17 Minimum Inhibitory and Bactericidal Concentrations of Phosphoric Acid, Acidified Calcium Sulfate and Stabilized Hydrogen Peroxide-based Oxidizer against *Salmonella* Montevideo and *Staphylococcus aureus* – MINTO MICHAEL, Randall Phebus and Brandon C. Speight, Kansas State University, Manhattan, KS, USA
- P1-18 Antimicrobial Resistance of *Salmonella* Isolates Obtained from Beef Carcasses, Beef Chunks and Ground Beef in Mexico – Catherine Ulloa-Franco, Liliana Martínez-Chávez, ELISA CABRERA-DIAZ, Julia A. Perez-Montano, Alejandro Castillo, Nanci Martínez-González and D. Gonzalez Aguilar, Universidad de Guadalajara, Guadalajara, Mexico
- P1-19 Control of *Listeria monocytogenes* in Sliced Pork Bologna by Bacteriocins Produced by a New *Lactobacillus sakei* Strain – Rita J. Camargo, MATHEUS S. BARBOSA, Verena Capuano, Maria Teresa Destro, Mariza Landgraf, Svetoslav D. Todorov and Bernadette D. Franco, Universidade de São Paulo, São Paulo, Brazil
- P1-20 Inhibition of *Listeria monocytogenes* on a Processed Meat Product Manufactured with Combinations of Bacteriocin Biopreservative and Chemical Preservatives – DENISE R. CARLSON, Michael E. Stiles, Wan Yien, David Smith and Lynn M. McMullen, CanBiotic Inc., Edmonton, AB, Canada
- P1-21 Antilisterial Activity of Lactic Acid Bacteria Isolated from Naturally Fermented Sausages – LUCIANO D. BERSOT, Cristina M. Zanette and Osmar O. Dalla Santa, Federal University of Paraná, Palotina, Brazil
- P1-22 Effects of Lactate, Diacetate and Nisin on the Cold Growth of *Listeria monocytogenes* in a Broth System – SILIN TANG, Matthew J. Stasiewicz, Teresa Bergholz and Martin Wiedmann, Cornell University, Ithaca, NY, USA
- P1-23 Effect of Liquid Smoke as an Ingredient on *Listeria monocytogenes* and Quality Attributes of Frankfurters – AMIT MOREY, Shelly R. McKee and Manpreet Singh, Auburn University, Auburn, AL, USA
- P1-24 Inactivation of *Listeria monocytogenes* on Ham and Bologna Using Apple-, Carrot-, and Hibiscus-based Edible Films Containing Carvacrol and Cinnamaldehyde – SADHANA RAVISHANKAR, Libin Zhu, Carl Olsen, Divya Jaroni, Tara McHugh and Mendel Friedman, University of Arizona, Tucson, AZ, USA
- P1-25 Effect of Oleanolic Acid on Inhibition of *Listeria monocytogenes* Growth under Food-related Conditions – JINHEE LEE, Hyun-Ju Yoon, Sunah Lee, Ahreum Park, Kyoung-Hee Choi and Yohan Yoon, Sookmyung Women's University, Seoul, Republic of Korea
- P1-26 Anti-listerial Effects of Sodium Metasilicate in Pure *Listeria monocytogenes* Culture Suspensions and on Ready-to-Eat Turkey Ham – CHANDER SHEKHAR SHARMA, Sally K. Williams and Gary E. Rodrick, University of Florida, Gainesville, FL, USA
- P1-27 The Biosynthesis of Paenibacillin and Its Use against *Listeria monocytogenes* in Meat Products – EN HUANG, Jing He and Ahmed E. Yousef, The Ohio State University, Columbus, OH, USA
- P1-28 Genotypic and Phenotypic Properties of *Listeria monocytogenes* Strains Isolated from Ready-to-Eat Foods and Food-processing Environments in British Columbia, Canada – JOVANA KOVACEVIC, Lili R. Mesak and Kevin J. Allen, University of British Columbia, Vancouver, BC, Canada
- P1-29 Fate of *Listeria monocytogenes* on Ham and Turkey Breast Formulated with Lactate-Diacetate and Inoculated with the Pathogen at Different Stages of their Shelf Life – IFIGENIA GEORNARAS, Darren Toczko and John N. Sofos, Colorado State University, Fort Collins, CO, USA
- P1-30 Antibacterial Activity of Dried Lily Flowers against *E. coli* O157:H7 – TOM S. TSE and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC, USA
- P1-31 Simultaneous Inactivation of *Escherichia coli* O157:H7 and Reduction of Potentially Carcinogenic Heterocyclic Amines in Grilled Hamburger Patties by Plant Compounds – LILIANA ROUNDS, Yelena Feinstein, Mendel Friedman and Sadhana Ravishankar, University of Arizona, Tucson, AZ, USA
- P1-32 Evaluation of Antimicrobials for Simultaneous Inhibition of *Escherichia coli* and *Pseudomonas* spp. in Injection Brine – PATRICK J. WARD, Frances M. Nattress, Brian Dilts and Lynn M. McMullen, University of Alberta, Edmonton, AB, Canada
- P1-33 New Surfactant and Organic Acid Combination Treatments for Inactivation of *E. coli* O157:H7 Strain 87-23 – HEE KYUNG PARK, Jeong Woong Park, Hyoungil Lee and Hao Feng, University of Illinois-Champaign/Urbana, Urbana, IL, USA
- P1-34 Inactivation of *E. coli* O157:H7 Strain 87-23 on Fresh Produce, Beef and Chicken with a New Sanitizer – HEE KYUNG PARK, Jeong Woong Park, Bin Zhou and Hao Feng, University of Illinois-Champaign/Urbana, Urbana, IL, USA
- P1-35 The Effects of a CPC Antimicrobial Applied as an Electrostatic Spray on the Shelf Life and Levels of *Escherichia coli* on Raw Beef Briskets – KAREN L. BEERS, Peggy Cook, Robert A. Baker and Tim F. Yeaman, Safe Foods Corporation, Rogers, AR, USA

- P1-36 Validation of Lactic Acid Interventions on the Reduction of *Escherichia coli* Biotype I, Coliforms and Total Aerobic Bacteria on Chilled Beef Products Processed at a Commercial US Slaughter Facility – ANSEN R. POND, Mark F. Miller, Tanya Jackson, Alejandro Echeverry, Emile Randazzo and Mindy Brashears, Texas Tech University, Lubbock, TX, USA
- P1-37 Development of Analytical Method for Lead and Cadmium in Functional Foods and Oriental Medicines Using Standard Addition Method – WOOSEOK KIM, Donghun Lee, Heeun Lee, Hee Soo Pyo, Kyung Su Park and Kwang-Geun Lee, Dongguk University, Seoul, Republic of Korea
- P1-38 Microbiological Risk Assessment for the Application of GAP System on Perilla Leaf and Lettuce – WONGYEONG LEE, Jeon-Eon Song, Rok-Won Heo, Jeong-Sook Kim, Kyeongyeol Kim and Duck-Hwa Chung, Gyeongsang National University, Jinju, Republic of Korea

Toxicology

- P1-39 Assessment of Fungal Contamination during Production and Distribution of Rice in Korea – WONGYEONG LEE, Jeon-Eon Song, Jeong-Sook Kim, Kyeongyeol Kim, Rok-Won Heo and Duck-Hwa Chung, Gyeongsang National University, Jinju, Republic of Korea
- P1-40 Levels of Heavy Metal in Meat of Lambs Fed with Crude Glycerin – Josiane F. Lage, Pedro Veiga Rodrigues Paulino, Luiz Gustavo R. Pereira, MARCIO S. DUARTE, Jucilene Cavali, Sebastião C. Valadares Filho, André S. Oliveira and Nilton O. Costa e Silva, Universidade federal de Viçosa, Viçosa, Brazil
- P1-41 Species Identification of *Alexandrium minutum* and *A. catenella* by Sequence of 28S rDNA and Cytochrome Oxidase Subunit I Gene – YA-HUI LU, Tai-Yuan Chen and Deng-Fwu Hwang, Chia Nan University of Pharmacy and Science, Tainan, Taiwan
- P1-42 Effect of Lactose on the Biological Activity of Ricin – TED P. LABUZA, Francisco Diez, Stephen E. Lumor, Browyn Deen, Ian Ronnigan, Neal Fredrickson and Kenneth Smith, University of Minnesota, St. Paul, MN, USA
- P1-43 Use of a Dry Steam Belt Washer for Removal of Allergenic Food Residue – FADWA AL-TAHER, Christopher Pardo and Lauren Jackson, Illinois Institute of Technology, Summit-Argo, IL, USA
- P1-44 Evaluation of Commercial ELISA Test Kits for DSC Detection of Milk Proteins in Cooking Oil – YINGSHUANG LU and Tong-Jen Fu, Illinois Institute of Technology NCFST, Summit-Argo, IL, USA

Meat and Poultry

- P1-45 Variation in Microbial Communities Among Abattoirs and between Primal Cuts on Refrigerated Vacuum-packed Beef – MARK TAMPLIN, Bianca Porteus, Sheila Peddell and Ian Jenson, University of Tasmania, Sandy Bay, TAS, Australia
- P1-46 Determination of Risk Factors Associated with *Salmonella* and *E. coli* O157 Prevalence on Carcasses in a Mexican Slaughter Plant – CLAUDIA NARVAEZ BRAVO, Mark F. Miller, Tanya Jackson, Sam Jackson, Argenis Rodas Gonzalez, Kevin Pond, Alejandro Echeverry and Mindy Brashears, Texas Tech University, Lubbock, TX, USA
- P1-47 Comparison of *Salmonella* and *E. coli* O157 DSC Prevalence on Beef Carcasses Harvested in Mexico under Two Different Production Procedures under TIF Regulations – CLAUDIA NARVAEZ BRAVO, Mark F. Miller, Sam Jackson, Tanya Jackson, Argenis Rodas Gonzalez, Alejandro Echeverry, Kevin Pond and Mindy Brashears, Texas Tech University, Lubbock, TX, USA
- P1-48 *Salmonella*, *Campylobacter*, and Putative Non-DSC O157 Shiga Toxin-producing *Escherichia coli* (STEC) in Ground Beef and Whole Muscle Beef Cuts in the United States – JESSIE L. VIPHAM, Mark F. Miller, Guy Loneragan, Alejandro Echeverry, Chance J. Brooks, W. Evan Chaney and Mindy Brashears, Texas Tech University, Lubbock, TX, USA
- P1-49 Prevalence Study of Top Six non-O157 STEC in Raw Beef in the United States – Phil Feldsine, DAVID E. KERR, Markus T. Jucker and Andrew H. Lienau, BioControl Systems Inc., Bellevue, WA, USA
- P1-50 Validation of Hot Water and 5% Lactic Acid as an Intervention to Reduce *E. coli* O157:H7 on Chilled Beef Trim – Bailey N. Brashears, Blake Connors, Angela M. Laury, Claudia Narvaez-Bravo and MINDY BRASHEARS, Texas Tech University, Lubbock, TX, USA
- P1-51 Low-Energy X-Ray Irradiation against *Escherichia coli* O157:H7 in Ground Beef of Different Fat Contents and Product Temperatures – SANGHYUP JEONG, Bradley P. Marks and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P1-52 Reduction of *E. coli* O157:H7 and *Salmonella* Typhimurium on Beef Trim – TONG ZHAO, Ping Zhao and Michael P. Doyle, University of Georgia, Griffin, GA, USA
- P1-53 The Effects of Salt, Sodium Pyrophosphate, and Sodium Lactate on the Growth Behavior of *Escherichia coli* O157:H7 in Ground Beef – CHENG-AN HWANG and Vijay K. Juneja, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

- P1-54 Effect of Household Storage, Thawing and Cooking Practices on the Survival of *Salmonella* and *Escherichia coli* in Beef Patties – STAVROS G. MANIOS and Panagiotis N. Skandamis, Agricultural University of Athens, Athens, Greece
- P1-55 Inactivation of Non-O157:H7 Shiga Toxin-producing *Escherichia coli* (STEC) in Frozen Ground Beef Patties – JOHN B. LUCHANSKY, Anna C.S. Porto-Fett, Bradley A. Shoyer, Jeff Call, Vivian Chen, Janell Kause, Denise R. Eblen, L. Victor Cook, Timothy B. Mohr, Emilio Esteban and Nathan E. Bauer, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA
- P1-56 Thermal Inactivation of *Escherichia coli* O157:H7 (ECHO) in Frozen Ground Beef Patties Following Cooking on Commercial Open-flame Gas and Electric Clam-shell Grills – JOHN B. LUCHANSKY, Anna C.S. Porto-Fett, Bradley A. Shoyer, Jeff Call, Vivian Chen, Janell Kause, Denise R. Eblen, L. Victor Cook, Timothy B. Mohr, Emilio Esteban and Nathan E. Bauer, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA
- P1-57 Fate of *Escherichia coli* O157:H7 (ECHO) in Blade Tenderized Beef Prime Rib Following Searing, Cooking and Holding under Commercial Conditions – ANNA C.S. PORTO-FETT, Bradley A. Shoyer, Harshavardhan Thippareddi and John B. Luchansky, Food Safety Connect, Blacksburg, WV, USA
- P1-58 Thermal Inactivation of *Escherichia coli* O157:H7 on the Surface or within Non-intact Steaks as Affected by Thickness, Thawing, Starting Cook Temperature and Cooking Method – JEREMY M. ADLER, Ifigenia Geornaras, Keith E. Belk, Gary C. Smith and John N. Sofos, Colorado State University, Fort Collins, CO, USA
- P1-59 Reduction of *E. coli* O157:H7 in Needle-tenderized Beef Strip Steaks Using Lactic Acid and Cooking – JENNIFER MARTIN, Mindy Brashears, Cassandra Chancey, Alejandro Echeverry, Sam Jackson, Leslie D. Thompson and Chance J. Brooks, Texas Tech University, Lubbock, TX, USA
- P1-60 Survival of *Salmonella* spp. during Preparation of Blade-tenderized, Rare, Beef Prime Rib – MARIA A. CALLE, Anna C.S. Porto-Fett, Jeff Call, Bradley A. Shoyer, John B. Luchansky and Harshavardhan Thippareddi, University of Nebraska-Lincoln, Lincoln, NE, USA
- P1-61 Thermal Inactivation of F-RNA Coliphages in Beef Slurries Determined by Culture and Quantitative Real-time RT-PCR – TINEKE H. JONES, Victoria Whittaker and Glynnis Croken, Agriculture and Agri-Food Canada, Lacombe, AB, Canada
- P1-62 *Salmonella* in Lymph Nodes of Cattle Presented for Harvest – SARA GRAGG, Guy Loneragan, Dayna M. Brichta-Harhay, Terrance M. Arthur, Joseph M. Bosilevac, Norasak Kalchayanand, Rong Wang, John W. Schmidt, Chance J. Brooks, Steven D. Shackelford, Tommy L. Wheeler, Tyson R. Brown and Mindy Brashears, Texas Tech University, Lubbock, TX, USA
- P1-63 Prevalence of Shiga Toxin-producing *Escherichia coli* in Internal Organs of Cattle Distributed for Food in Japan – YOSHIKA MOMOSE, Hiroshi Asakura, Etsuko Saito, Mikiko Sawada, Akio Yamamoto, Atsushi Hasegawa, Jun'ichiro Iwahori, Toshiyuki Tsutsui, Ken Osaka, Tomoki Matsushita, Michiru Kakinuma, Keiko Motoyama, Yoko Hayama, Hiroaki Kitamoto and Fumiko Kasuga, National Institute of Health Sciences, Tokyo, Japan
- P1-64 Soil Solarization Reduces *Escherichia coli* O157:H7 on Cattle Feedlot Pen Surfaces – ELAINE D. BERRY and James E. Wells, U.S. Department of Agriculture-ARS, Clay Center, NE, USA
- P1-65 Inhibition of *C. perfringens* Spore Germination and Outgrowth in Reduced NaCl Roast Beef by Buffered Lemon Juice and Vinegar Product – LIN LI, Carol Valenzuela, Mauricio Redondo, Vijay K. Juneja, Dennis E. Burson and Harshavardhan Thippareddi, University of Nebraska-Lincoln, Lincoln, NE, USA
- P1-66 Control of *Clostridium perfringens* Germination and Outgrowth in Reduced-sodium Roast Beef during Abusive Cooling by Sodium Diacetate – CAROL VALENZUELA, Mauricio Redondo, Vijay K. Juneja, Dennis E. Burson and Harshavardhan Thippareddi, University of Nebraska-Lincoln, Lincoln, NE, USA
- P1-67 Dynamic Model to Predict *Salmonella* Growth in Fresh Pork during Distribution and Storage – YOHAN YOON, Young Min Yoon, Jae-Hun Kim and Ju-Woon Lee, Sookmyung Women's University, Seoul, Republic of Korea
- P1-68 Survival and Growth of *Campylobacter jejuni* and *Salmonella enterica* Typhimurium in Moisture-enhanced Pork during Vacuum Storage – XUESONG WEN and James S. Dickson, Iowa State University, Ames, IA, USA

Sanitation

- P1-69 The Influence of Temperature, Relative Humidity, and Concentration of Sausage Solids on the Colonization of *Leuconostoc mesenteroides* on Polypropylene – Sofía M. Arvizu-Medrano, OMAR H. HERNÁNDEZ and Montserrat Hernandez Iturriaga, Universidad Autonoma de Queretaro, Querétaro, Mexico

- P1-70 The Effects of Initial Contamination Levels, Biofilm and Fat on the Desiccation Survival of *Listeria monocytogenes* on Stainless Steel Surfaces – PATRICIA A. HINGSTON, Susanne Knochel and Lisbeth Truelstrup Hansen, Dalhousie University, Halifax, NS, Canada
- P1-71 Survival of *Salmonella* Species on Stainless Steel Exposed to Dry Heat – PAMELA J. MCKELVEY and Peter W. Bodnaruk, Ecolab, Eagan, MN, USA
- P1-72 Chlorine Resistance of *Listeria monocytogenes* Cells Recovered from Biofilms Exposed to Chlorine – FERNANDO MEJIA-RUIZ, Juan Pacheco-Aguilar, Sofia M. Arvizu-Medrano and Montserrat Hernandez Iturriaga, Universidad Autonoma de Queretaro, Queretaro, Mexico
- P1-73 Action of Peracetic Acid on *Staphylococcus aureus* on Suspension, Settled on Stainless steel or on NYLON Surfaces: Influence of the Settling Time – LEO KUNIGK, Cynthia Jurkiewicz and Maria C. Almeida, Maua Institute of Technology, São Caetano do Sul, Brazil
- P1-74 Effect of an Ultrasound-sanitizer Combined Treatment in the Detachment of Bacteria on Food Contact Surfaces – SEOK-WON KIM, Ji Hyoung Ha and Sang-Do Ha, Chung-Ang University, Ansung-Si, Republic of Korea
- P1-75 Synergistic Effects of Combined Disinfecting Treatments Using Sanitizers and UV to Reduce Levels of *Bacillus cereus* in Oyster Mushrooms – JI HYOUNG HA, Seok-Won Kim, Myung Sub Chung and Sang-Do Ha, Chung-Ang University, Ansung-Si, Republic of Korea
- P1-76 Synergistic Effects of Ethanol and UV Radiation to Reduce Levels of Selected Foodborne Pathogenic Bacteria – JI HYOUNG HA, Seok-Won Kim, Myung Sub Chung and Sang-Do Ha, Chung-Ang University, Ansung-Si, Republic of Korea
- P1-77 Comparisons between Low-pressure Foam Cleaning and Conventional Cleaning to Remove Selected Bacterial Pathogens from Surfaces Associated with Convenience Food – IZANNE S. HUMAN, Jan F. Lues and Andre A. Lambrechts, Cape Peninsula University of Technology, Cape Town, South Africa
- P1-78 Inactivation Kinetics of *Escherichia coli* O157:H7 on Hard Surfaces by Use of a Bacteriophage Mixture – STELIOS VIAZIS, Theodore P. Labuza and Francisco Diez-Gonzalez, University of Minnesota, St. Paul, MN, USA
- P1-79 Efficacy of Chemical Sanitizers on Foodborne Pathogens Contaminated on the Surface of Stainless Steel as Different Attached Form – YOUNG-MIN BAE, Seung-Youb Baek and Sun-Young Lee, Chung-Ang University, Anseong-si, Republic of Korea
- P1-80 Comparison of Cleaning Methods for Reduction of Attached Microorganisms from Various Kitchen Cutting Boards – Su-Yeon Kim, Tong Lee, Yu-Jin Hong, YOUNG-MIN BAE, Sun-Young Lee and Bo-Kyoung Moon, Chung-Ang University, Anseong-si, Republic of Korea
- P1-81 Survival of Pathogenic Bacteria on the Surface of Stainless Steel at Various Levels of Relative Humidity Depending on Different Attached Form – YOUNG-MIN BAE, Seung-Youb Baek and Sun-Young Lee, Chung-Ang University, Anseong-si, Republic of Korea
- P1-82 Effect of Alternative Household Sanitizing Formulations to Inactivate Foodborne Pathogens on Food Contact Surfaces – Ashley Eisenbeiser, ROBERT WILLIAMS, Joseph Eifert, Renee R. Boyer and Susan S. Sumner, Virginia Tech, Blacksburg, VA, USA
- P1-83 A Comparison of Cleaning Fabrics for Bacterial Removal from Food Contact Surfaces – OK-KYUNG KOO, Elizabeth M. Martin, Robert S. Story, Daniel Lindsay, Phillip G. Crandall and Steven C. Ricke, University of Arkansas, Fayetteville, AR, USA
- P1-84 Efficacy of Sodium Hypochlorite and Ethanol against Norovirus-like Particles – JUN SATO, Hiromi Kubota, Jun Hitomi, Tomoichiro Oka and Kazuhiko Katayama, Kao Corporation, Ichikai, Haga, Japan
- P1-85 Inactivation through Chlorine Treatment and Development of Predictive Models against Feline Calicivirus and Murine Norovirus on Food Contact Surfaces – SEOK-WON KIM, Ji Hyoung Ha and Sang-Do Ha, Chung-Ang University, Ansung-Si, Republic of Korea
- P1-86 Novel Method of Evaluation of Disinfectants against Norovirus Virus-like Particles as a Surrogate for Human Norovirus – HIROMI KUBOTA, Jun Sato, Takashi Tsugukuni, Jun Hitomi, Tomoichiro Oka and Kazuhiko Katayama, Kao Corporation, Ichikai, Haga, Japan
- P1-87 Survival of *Salmonella*, *E. coli* O157:H7, *Microsporidia* and *Cryptosporidium parvum* at Various Temperatures and Chemical Treatments – Marcus Weldon, Jared Smith, Jessica Tatum, Patricia Torres and YNES R. ORTEGA, University of Georgia, Griffin, GA, USA
- P1-88 Microbiological Analysis of Surfaces and Workers' Hands in Child Care Facilities in North and South Carolina – YOU LI, Abdallah Al-Dakheelallah, Byron Chaves, Xi Chen, Benjamin Chapman, Kelly Wohlgenant, Sheryl Cates, Lee-Ann Jaykus and Angela M. Fraser, North Carolina State University, Raleigh, NC, USA

- P1-89 Assessment of the Level of Bacterial Contamination of Eating Utensils in Military Dining Halls in Turkey – OMER F. TEKBAS and Mahir Gulec, Gulhane Military Medical Academy, Ankara, Turkey

General Microbiology

- P1-90 New Natural Food Preservative for RTE (Ready-to-Eat) Vegetables – HYUN SUK KIM, Jae-Young Her, Kwang-Geun Lee and Jung-Suk Sung, Dongguk University, Seoul, Republic of Korea

- P1-91 Inactivation of Superdormant Spores of *Bacillus weihenstephanensis* with Ozone – SARAH M. MARKLAND, Kalmia E. Kniel, Peter Setlow and Dallas G. Hoover, University of Delaware, Newark, DE, USA

- P1-92 Sanitization of Pistachios Using Heat and Gaseous Ozone Combination – MARILIA PEÑA, Jennifer Perry and Ahmed E. Yousef, The Ohio State University, Columbus, OH, USA

- P1-93 Influence of Lactate and Acetate Salt Adaptation of *Salmonella* Typhimurium on Acid Resistance to Simulated Gastric Fluid at pH 2.0 – Wenqian Yuan, Reka Agoston and HYUN-GYUN YUK, National University of Singapore, Singapore

- P1-94 Intracellular Free Iron and Its Potential Role in Ultra-high Pressure Induced Inactivation of *Escherichia coli* – YUAN YAN, Joy Waite, Anna Bratasz, Periannan Kuppasamy and Ahmed E. Yousef, The Ohio State University, Columbus, OH, USA

- P1-95 High Hydrostatic Pressure Effect on *E. coli* Heat-Stable and Heat-sensitive lux Proteins – EILEEN E. DUARTE GOMEZ, David Graham, Michael Budzik, Benjamin Paxson, Mark T. Morgan, Laszlo Csonka, Bruce Applegate and Maria F. San Martin Gonzalez, Purdue University, West Lafayette, IN, USA

- P1-96 The Survival of Acid-adapted Pathogens in Maple Syrup with and without Preservatives during Storage at 10 and 20°C – Manish Shekhawat, MARGARET D. HARDIN, Samuel P. Myoda and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA

- P1-97 Osmotic Stress and Heat Resistance in *Escherichia coli* – AARON PLEITNER, Lynn M. McMullen and Michael G. Gänzle, University of Alberta, Edmonton, AB, Canada

- P1-98 Effects of Combination of Hydrostatic Pressure, Amino Acids and Temperature on Germination of *Clostridium sporogenes* – TAKATERU ISHIMORI, Katsutoshi Takahashi, Masato Goto, Yoshiaki Kasai, Hiroshi Batori, Yukifumi Konagaya and Hiroshi Urakami, Niigata University of Pharmacy & Applied Life Sciences, Niigata, Japan

- P1-99 Removal of Viruses from Stainless Steel and Formica Food-contact Surfaces Using Various Cleaning Cloths – KRISTEN E. GIBSON, Phillip G. Crandall and Steven C. Ricke, University of Arkansas, Fayetteville, AR, USA

- P1-100 *Escherichia coli* O157:H12 Demonstrates Increased Ability to Attach to Abiotic Surfaces Compared with *E. coli* O157:H7 and O1:H7 Isolates – REBECCA M. GOULTER-THORSEN, Elena Taran, Ian R. Gentle, Kari S. Gobius and Gary Dykes, The University of Queensland, Coopers Plains, QLD, Australia

- P1-101 Efficiency of Quorum-sensing Molecule Solutions in Biofilm Dispersal – MEGAN E. BROWN, Helen Rawsthorne, Lee-Ann Jaykus and Trevor G. Phister, North Carolina State University, Raleigh, NC, USA

- P1-102 Characterization of Lactic Acid Bacteria on Biofilm Formation – JEAN BAPTISTE NDAHETUYE, Ok-Kyung Koo, Corliss A. O'Bryan, Phillip G. Crandall and Steven C. Ricke, University of Arkansas, Fayetteville, AR, USA

- P1-103 Biofilm Reduction and Growth Inhibition Using Virulent *B. cereus* Phages Isolated from Soil and Fecal Samples – EUNHO PARK, Young Duck Lee and Jong-Hyun Park, Kyungwon University, Seoul, Republic of Korea

- P1-104 Isolation of Virulent Bacteriophages for Bio-control of *Listeria monocytogenes* – MASTURA AKHTAR, Stelios Viazis, Kyle Christensen, Phillip Kraemer and Francisco Diez-Gonzalez, University of Minnesota, Saint Paul, MN, USA

- P1-105 Variability in Growth and Ochratoxin A Production by Single Spores of *Aspergillus westerdijkiae*, *A. carbonarius* and *Penicillium verrucosum* in Response to pH, a_w and Temperature – ANASTASIA E. KAPETANAKOU, Eleftherios H. Drosinos and Panagiotis N. Skandamis, Agricultural University of Athens, Athens, Greece

- P1-106 Comparison of Three Plating Media for Enumeration of *Clostridium perfringens* in Various Foods – DONGHYEON KIM, Yun-Gyeong Kim, Jung-Whan Chon, Ji-Yeon Hyeon, In-Gyun Hwang, Hyo-Sun Kwak, Sang-Hyeon Yoon and Kun-Ho Seo, Konkuk University, Seoul, Republic of Korea

- P1-107 Determining Evidence of Enteric Bacteria on Environmental Surfaces in Living Areas of a Military Post in Turkey – MAHIR GULEC, Gulhane Military Medical Academy, Ankara, Turkey

Microbial Food Spoilage

- P1-108 The Analysis Results of Food Products Conducted by Food Control Detachments of Turkish Armed Forces – MAHIR GULEC, Gulhane Military Medical Academy, Ankara, Turkey

P1-109 Proficiency of Microbiological Laboratories Testing Infant Formula and Nonfat Dry Milk – CHRISTOPHER CONWAY, Lacey M. Guillen, Nathan M. Anderson, Michael A. Urbanczyk, Chrissy M. Leopold Wager, Shannon Dugan and Ravinder M. Reddy, National Center for Food Safety and Technology, Summit-Argo, IL, USA

Epidemiology

P1-110 Environmental Health Specialist Network's Impact on Foodborne Outbreak Investigations in New York State 2001–2008 – DAVID C. NICHOLAS, Jessica S. Egan, Michael J. Cambridge and Shelley M. Zansky, New York State Department of Health, Troy, NY, USA

P1-111 Food Safety Knowledge among Restaurant Food Handlers in Northern Italy – PALAK PANCHAL, Agostino Carli and Mark S. Dworkin, University of Illinois-Chicago, Chicago, IL, USA

P1-112 The Role of Foodworkers in Foodborne Disease Outbreaks Associated with Restaurant Settings, United States, 1998–2008 – AMIE NISLER and Dana Cole, Centers for Disease Control, Atlanta, GA, USA

P1-113 Estimating the Burden of Foodborne Illness in Japan Using Web-based Survey Data for Extrapolating Estimates in Miyagi Prefecture to the Whole of Japan – KUNIHICO KUBOTA, Hiroshi Amanuma, Fumiko Kasuga, Emiko Iwasaki, Shunichi Inagaki, Yoshiharu Sakurai, Mayumi Komatsu, Fujio Kanno, Miyako Oguro, Hiroshi Oota, Sakura Yasaki, Hajime Toyofuku, Frederick J. Angulo, Elaine Scallan and Kaoru Morikawa, National Institute of Health Sciences, Tokyo, Japan

P1-114 Effects of Corn-based Distillers' Grain (DG) Inclusion into Feeding Rations on the Burden of *Escherichia coli* O157:H7 in Commercial Feedlot Settings – W. EVAN CHANEY, Guy Loneragan, Rebecca McCarthy, Mark F. Miller, Bradley J. Johnson, Chance J. Brooks and Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P1-115 A Semi-quantitative Methodology for *Escherichia coli* O157:H7 in Bovine Feces – W. EVAN CHANEY, Guy Loneragan and Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P1-116 Culture-independent, Metagenomic-based Characterization of *Campylobacter jejuni* on DNA Isolated Directly from Complex Samples – Romilda Wangari, Mathilde Josefsen, Laurids S. Christensen and JEFFREY HOORFAR, Technical University of Denmark, Soborg, Denmark

P1-117 Persistence of Verocytotoxigenic *E. coli* in a Pasture-based Beef Cow-calf Cohort – Bryan Aviles, MONICA PONDER, Peter Ziegler and William Swecker, Virginia Tech, Blacksburg, VA, USA

P1-118 Outbreaks of *Salmonella* Associated with Beef, United States, 1998–2008 – HANNAH GOULD, Patricia L. White, Barbara Mahon, Daniel L. Engeljohn and Patricia Griffin, Centers for Disease Control and Prevention, Atlanta, GA, USA

P1-119 *Cryptosporidium* spp. in Wild Rodent Populations Adjacent to Produce Production Fields – XUNDE LI, Edward Atwill, Tamara Vodovoz, Eduardo Vivas, Chengling Xiao, Christopher Kilonzo, Michele Jay-Russell and Trân Nguyen, University of California-Davis, Davis, CA, USA

Risk Assessment

P1-120 A Novel Approach to Predicting Lag Time of *Bacillus cereus* as a Function of Temperature, pH and Water Activity Using Logistic Regression – JUNKO NONAKA, Kazutaka Yamamoto and Shigenobu Koseki, Nisshin Seifun Group, Inc., Fujimino, Japan

P1-121 Development of a Predictive Modelling Tool to Simulate a_w of Food Products – Thibaud De Broucker, Mohammed El Jabri, Olivier Couvert, FLORENCE POSTOLLEC, Danièle Sohier and Dominique Thuault, ADRIA Développement, Quimper, France

P1-122 The Risk Estimation of *Listeria monocytogenes* for Ready-to-Eat Food in Korea – In-Gyun Hwang, Soon Ho Lee, JOON IL CHO, Hyo-Sun Kwak, Ji Su Lim and Yoon Jeoung Koh, Korea Food and Drug Administration, Chungcheongbuk do, Republic of Korea

P1-123 Development and Validation of a Predictive DSC Model for *Escherichia coli* O157:H7 in Spinach and Lettuce – NA YOON PARK, Juhui Kim, Yoonha Kim, Hyunjung Chung, SoonHo Lee, Junil Jo, Ingyun Hwang and Ki S. Yoon, Kyung Hee University, Seoul, Republic of Korea

P1-124 Modeling the Effect of Temperature and pH on the Growth Rate of *Salmonella* on Cut Tomatoes – WENCHAO LI and Donald W. Schaffner, Rutgers University, New Brunswick, NJ, USA

P1-125 A Quantitative Microbial Risk Assessment Model for Reducing the Incidence of Human Campylobacteriosis Due to Chicken Consumption – DAVID KANG and Joseph Eifert, Virginia Tech, Blacksburg, VA, USA

P1-126 Quantitative Risk Assessment for Campylobacteriosis in New Zealand by the Bayesian Belief Network Approach – ALI M. AL-SAKKAF and Geoff Jones, Massey University, Palmerston North, New Zealand

P1-127 Survival of *Salmonella* spp. on Inoculated In-shell Pistachios Stored at -20, 4 and 23 °C – ROBERT MIKSCH, Rico Suhaim and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA

- P1-128 Monte Carlo Estimation of the Efficacy of Spent Sprout Irrigation Water Testing – ROBERT MIKSCH and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P1-129 Assessment of Risk of Salmonellosis from Consumption of Pistachios – ROBERT MIKSCH and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P1-130 Microbial Profiling of Pistachio Processing Using Indicator Organisms – ROBERT MIKSCH, Rico Suhaim and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P1-131 Microbiological Quality of Buffet and Take-out Rice Dishes in Florida – Wei Yea Hsu and AMARAT SIMONNE, University of Florida, Gainesville, FL, USA
- P1-132 Growth of *Vibrio parahaemolyticus*, *Salmonella* sp. and *Staphylococcus aureus* during Short-term Temperature Abuse of Raw Shrimp – FLORENCE E. FEEHERRY, Cheryl A. Baxa and Greg M. Burnham, U.S. Army RDECOM-Natick Soldier Systems Center, Natick, MA, USA
- P1-133 Growth Comparison of *V. vulnificus* and *V. parahaemolyticus* in Broth and Seafood – YOOWON KIM, SoonHo Lee, Junil Jo, In Gyun Hwang and Ki S. Yoon, Kyung Hee University, Seoul, Republic of Korea
- P1-134 Isolation of *Salmonella* spp. from Surface Waters in Florida over a Five-month Period – RACHEL MCEGAN, Lawrence D. Goodridge and Michelle D. Danyluk, University of Florida, Lake Alfred, FL, USA
- P1-135 A Framework for Validation of the Microbial Safety of Cooked Chilled Foods – JEFF DAELMAN, Liesbeth Jacxsens, Frank Devlieghere and Mieke Uyttendaele, Ghent University, Ghent, Belgium
- P1-136 Evaluating Food Safety Management Performance in a Food Service Establishment According to a Microbiological Assessment Scheme – Evy Lahou, Liesbeth Jacxsens, JEFF DAELMAN and Mieke Uyttendaele, Ghent University, Ghent, Belgium
- P1-137 Restaurant Food-cooling Practices – LAURA BROWN, Danny Ripley and Working Group EHS-Net, Centers for Disease Control and Prevention, Atlanta, GA, USA
- P1-138 Applying Process-based Analytics to Audit Results for Process Management and Improvement – JEFFERY L. CAWLEY and John G. Surak, Northwest Analytical, Portland, OR, USA
- P1-139 Estimation of Food Commodity Intakes from the Korea National Health and Nutrition Examination Survey – SEUNGWON KIM, Junho Jung, YoungSig Park and Sanghoon Ko, Sejong University, Seoul, Republic of Korea
- P1-140 Changes of Antimicrobial Resistant and Pathogenic Bacteria along the Pork Processing Chain – BO YOUN MOON, Ka Hee Kwon, Ki Yeon Kim, Young Kyung Park, HyunJung Kim, Sook Shin, Sun Young Hwang and Yong Ho Park, Seoul National University, Daehak-dong, Republic of China
- ### Applied Laboratory Methods
- P1-141 Performance of a New Molecular Platform for the Detection of *Listeria monocytogenes* and *Listeria* Species – Neil Percy and CYNTHIA ZOOK, 3M Company, St. Paul, MN, USA
- P1-142 Performance of a New Molecular Platform for the Detection of *Salmonella* and *Escherichia coli* O157 – CYNTHIA ZOOK and Neil Percy, 3M Company, St. Paul, MN, USA
- P1-143 Comparison of Methods for Enumeration of Yeast and Mold in Butter – ADRIANA R. TASSINARI, Alexandre M. Pinto, Marcia A. Galvao and Rafael H. Siqueira, 3M do Brasil Ltda., Sumare, Brazil
- P1-144 Development of a Rapid Protocol for Enumerating Coliforms in Yogurt – ADRIANA R. TASSINARI, Marcelo A. Ferraz and Heloisa C. Ruppert, 3M do Brasil Ltda., Sumare, Brazil
- P1-145 Rapid High-throughput Microtitre Plate-based Analysis of Bacterial Load (TVCs) – Conn Cary, James Hynes, MARK THENO, Brenda Murphy and Richard Fernandes, MOCON, Inc., Minneapolis, MN, USA
- P1-146 Rapid Strain-to-strain Identification of *Lactobacillus* and *Bacillus* Wild Isolates Using MALDI TOFMS – KEIKO TOGAMI, Toru Yamagaki, Norihide Amano and Hisato Ikemoto, Suntory Safety Science Institute, Shimamoto-cho, Japan
- P1-147 Comparison of Agar Media Types and Plating Techniques in the Recovery of Yeasts and Molds from Apple Juice – SALLY C. FOONG-CUNNINGHAM, Gerard Hinrichs, Sarah Richards and Peter W. Bodnaruk, Ecolab, Eagan, MN, USA
- P1-148 Selective Detection of Viable Spoilage *Pseudomonas* spp. Using Propidium Monoazide-coupled TaqMan Real-time PCR – LINLIN XIAO and Hua H. Wang, The Ohio State University, Columbus, OH, USA
- P1-149 Variations in the Detection of Staphylococcal Enterotoxin B is Compromised in Thermally-processed Foods – JOYCE M. NJOROGÉ, Robert L. Jones and Mary Ann Principato, U.S. Food and Drug Administration, Laurel, MD, USA
- P1-150 Evaluation of TA10 Broth for Recovery of Heat- and Freeze-injured *Salmonella* from Beef – SUSUMU KAWASAKI, Pina Fratamico, Naoko Kamisaki, Yukio Okada, Kazuko Takeshita, Takashi Sameshima and Shinichi Kawamoto, National Food Research Institute, Tsukuba, Japan

- P1-151 ISO 16140/MicroVal Evaluation of a Defined Medium For Enumeration of Thermotolerant *Campylobacter* spp. – JONATHAN CLOKE, Wilma Jacobs-Reitsma, Wendy van Overbeek, El Bouw and Jo Klaessens, Thermo Fisher Scientific, Basingstoke, United Kingdom
- P1-152 Comparison of Methods for the Recovery of *E. coli* O157:H7 from Leafy Greens – JULIE KASE, Deanne M. Deer, Anna Maounounen-Laasri, Stacey Borenstein, Samantha Prezioso and Thomas S. Hammack, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- P1-153 Evaluation of Sample Preparation and Pre-enrichment Media on the Recovery of *Salmonella* spp. from Fresh Strawberries – GUSTAVO GONZÁLEZ-GONZÁLEZ, Arturo Larios-Ruíz, Ofelia M. Rodriguez-Garcia and Mayra Márquez-González, Universidad de Guadalajara, Guadalajara, Mexico
- P1-154 Descriptive Survey of Enriched and Non-enriched Soil and Phyllosphere Samples to Improve *Salmonella* Detection Methods – ANDREA OTTESEN, James R. White, Rebecca Bell, Jie Zheng, Charles Wang, Erik Burrows, Guojie Cao, Sarah Allard, Marc W. Allard and Eric W. Brown, U.S. Food and Drug Administration, College Park, MD, USA
- P1-155 Evaluation of Chromogenic Media for the Detection and Enumeration of *Listeria monocytogenes* and *Listeria* Species – DENISE HUGHES, Jennifer Chen and Selina Begum, DH Micro Consulting, Peelwood, NSW, Australia
- P1-156 Differential Recovery and Survival of *E. coli* O157:H7 from Inoculated Soil and Spinach Plants under Field Conditions According to Agronomic Practices – EDUARDO GUTIÉRREZ-RODRÍGUEZ, Amy Gunderson, Adrian O. Sbodio and Trevor Suslow, University of California-Davis, Davis, CA, USA
- P1-157 Using Lateral Flow Devices for Semi-quantitative Analysis of GMOs – DONNA HOUCHINS and Michael Prinster, Romer Labs, Inc., Union, MO, USA
- P1-158 Validation of On-site Rapid Methods for Food Allergen Management – Elisabeth Halbmayr-Jech, Jacqueline Coutts, Adrian Rogers, Richard Fielder, DONNA HOUCHINS and Michael Prinster, Romer Labs, Inc., Union, MO, USA
- P1-159 Fully Stable ¹³C-labeled Internal Standards for Mycotoxin Analysis – Alois Schiessl, Gunther Jaunecker, Georg Haubl, DONNA HOUCHINS, Christina Brewre and Michael Prinster, Romer Labs, Inc., Union, MO, USA
- P1-160 Screening Method for Flunixin and Ceftiofur in Bovine Kidney – ROBERT S. SALTER, David Douglas, Ernestine Conklin, Rima Juskeli, Fadwa Al-Taher, Katie Banaszewski, Yang Chen and Jack C. Cappozzo, Charm Sciences, Inc., Lawrence, MA, USA
- P1-161 Development of an Optimized Method for the Recovery of Viable F-RNA Coliphage MS2 from Meat – TINEKE H. JONES and Victoria Whittaker, Agriculture and Agri-Food Canada, Lacombe, AB, Canada
- P1-162 Evaluation of Pre-enrichment Procedures to Recover Select *Salmonella* Serovars from Artificially Contaminated Test Portions of Curly Parsley, Cilantro and Basil with the U.S. Food and Drug Administration, BAM *Salmonella* Culture Method – ANDREW JACOBSON, Vikas Gill, Kari A. Belin, Hua Wang and Thomas S. Hammack, U.S. Food and Drug Administration, College Park, MD, USA
- P1-163 Development of a New Device for Rapid Detection of Total Aerobic Mesophilic Bacteria – RONALD SARVER, Christine Cooper, Jeff Demey, Leah Garton, Alex Kariagin, Jake Knickerbocker, Matthew Mansour, Susan McDougal, Phillip McKinney, Mark Mozola and Jennifer Rice, Neogen, Lansing, MI, USA
- P1-164 Development of Single-walled Carbon Nanotube (SWNT) Sensors in Application to Thermal Oxidation of Frying Oils – EUNJI LEE, Yangdoo Lee, Sujin Lee, Chaeyoon Lee, Dongeun Sung, Byeongkwon Ju and Sangsuk Oh, Ewha Womans University, Seoul, Republic of Korea

TUESDAY POSTERS 10:00 a.m. – 6:00 p.m.

P2 Poster Session – Applied Laboratory Methods, Antimicrobials, Produce, Novel Laboratory Methods, Pathogens, Dairy and Other Food Commodities

Frontier Airlines Convention Center, Exhibit Hall

P2-01 through P2-85 – Authors present
10:00 a.m. – 1:30 a.m. and 5:00 p.m. – 6:00 p.m.

P2-86 through P2-163 – Authors present
2:00 p.m. – 3:30 p.m. and 5:00 p.m. – 6:00 p.m.

Applied Laboratory Methods

- P2-01 Application of an Optimized, Automated Nucleic Acid Extraction Procedure for qPCR Detection of *E. coli* O157:H7 in Artificially Contaminated Napa Cabbage, Green Onions and Zucchini – KEN J. YOSHITOMI, Karen Pukalo, Karen C. Jinneman, Joy Waite and Willis M. Fedio, U.S. Food and Drug Administration, Bothell, WA, USA
- P2-02 Validation of a Hot-start Modification to a Commercial PCR Assay for Detecting *Salmonella* in Foods – MORGAN WALLACE, Frank R. Burns, Deana DiCosimo, Bridget Andaloro, Dawn Fallon, Andrew D. Farnum, Lihong Wu and Eugene Davis, DuPont Qualicon, Wilmington, DE, USA
- P2-03 The Importance of Mechanical Lysis and Inhibitor Removal in DNA Extraction and Detection of a Foodborne Pathogen (*Listeria monocytogenes*) – HEATHER CALLAHAN, Suzanne Kennedy and Mark Brolaski, MO BIO Laboratories, Carlsbad, CA, USA
- P2-04 Simultaneous Identification of 60 *Listeria* spp. Isolated from Meat Products Using Multiplex PCR and VITEK 2 Compact System – HYUNGJAE LEE, Yeon Seok Yeom, Young-Rok Kim and Hae-Yeong Kim, Kyung Hee University, Yongin, Republic of Korea
- P2-05 Application of the AdvanCE FS96 Parallel Capillary Electrophoresis Instrument and DNA PROsize™ Program for DNA-based Typing of *Salmonella* – Hyun Joong Kim, Ho-ming Pang, Pierre Varineau, Steve Siembieda, Steven Lasky and BYRON F. BREHM-STECHER, Iowa State University, Ames, IA, USA
- P2-06 Development of a Foodborne Bacterial Pathogen PCR Electrospray Ionization Mass Spectrometry Biosensor Detection Assay for Rapid, High-throughput Food Testing – ERIK BURROWS, Sarah Allard, Rebecca Bell and Marc W. Allard, U.S. Food and Drug Administration, College Park, MD, USA
- P2-07 Development and Evaluation of Novel One-step TaqMan Realtime RT-PCR Assays for the Detection and Direct Genotyping of Genogroup I and II Noroviruses – Anna C. Schultz, Everado Vega, Anders Dalsgaard, Laurids S. Christensen, Birgit Nørrung, JEFFREY HOORFAR and Jan Vinjié, Technical University of Denmark, Soborg, Denmark
- P2-08 *Salmonella* Detection in Meat: Comparative and Collaborative Validation of a Non-complex and Cost Effective Pre-PCR Protocol – Charlotta Löfström, Flemming Hansen, Susanne Mansdal and JEFFREY HOORFAR, Technical University of Denmark, Soborg, Denmark
- P2-09 Propidium monoazide-qPCR Quantitation of *E. coli* O157:H7 Receiving 10D Thermal Processes at 60, 70, 80, 90 and 100 °C – RONALD D. SMILEY, Rachel C. Dailey and Christina N. Stam, U.S. Food and Drug Administration, Jefferson, AR, USA
- P2-10 SMM-system: A Mining Tool to Identify Specific Markers in *Salmonella enterica* – Shuijing Yu, Weibing Liu, CHUNLEI SHI, Dapeng Wang, Xianlong Dan and Xianming Shi, Shanghai Jiao Tong University, Shanghai, China
- P2-11 Rapid Quantitative Analysis of *Listeria monocytogenes* by Real-time PCR of Meat Processed Products in Korea – EUN JEONG HEO, Hyo-Jin Shin, Young Jo Kim, Hyun-jung Park, Ji Ho Kim, Jin San Moon and Sung Hwan Wee, National Veterinary Research and Quarantine Service, Anyang City, Republic of Korea
- P2-12 Detection of *Escherichia coli* O145 in Sheep Feces by Use of Two Real-time PCRs and an Immunomagnetic Separation-ELISA Method – GRO S. JOHANNESSEN, Elin Reitehaug, Mumtaz Begum, Tone M. Fagereng, Marianne Økland, Anne Margrete Urdahl and Kofitsyo S. Cudjoe, Norwegian Veterinary Institute, Oslo, Norway
- P2-13 Biofilm Formation Potential of *E. coli* Isolated from Water and Lettuce – Elin Reitehaug and GRO S. JOHANNESSEN, Norwegian Veterinary Institute, Oslo, Norway
- P2-14 Comparison of Culture Methods and Real-time DSC PCR for Detection of *Salmonella* on Egg Shells and in Egg Content – SOO-KYOUNG LEE, Konkuk University, Seoul, Republic of Korea
- P2-15 Evaluation of a New, Single-step *Listeria* Enrichment Broth by Quantitative Polymerase Chain Reaction with Complex Food Samples – PATRICK MACH, Tonya Bonilla, Neil Percy and Cynthia Zook, 3M Company, St. Paul, MN, USA
- P2-16 Development of Real-time PCR Assays for the Molecular Detection of the Genes Encoding Flagellar Antigens H2, H8, H11 and H28 – Irène Launay, PRECIAUS D. HEARD and Sarita Raengpradub Wheeler, Silliker Food Science Center, South Holland, IL, USA

- P2-17 Optimization of a Real-time RT-PCR Assay Reveals an Increase of Genogroup I Norovirus in the Clinical Setting – ANNA VAN STELTEN, Trisha M. Kreman, Nancy Hall and Lucy E. DesJardin, Colorado State University, Ft. Collins, CO, USA
- P2-18 Development of RNA Aptamers That Specifically Bind to *E. coli* O157:H7 – JI-YEON HYEON, Jung-Whan Chon, Yun-Gyeong Kim, Jun-Ho Park, Du-Ho Kim, Sung-Gi Heu, Kwang-Young Song and Kun-Ho Seo, Konkuk University, Seoul, Republic of Korea
- P2-19 Development and Evaluation of a Four-color Multiplex Real-time PCR Assay for *Salmonella* Detection in Tomatoes – LILY WONG, Patrick M. Zoder, Kevin Hacker, Pius Brzoska, Max Brevnov, Robert Tebbs, Olga V. Petrauskene, Manohar Furtado, Rebecca Bell, Marc W. Allard, Socrates Trujillo, John McQuiston and Eric W. Brown, Life Technologies, Foster City, CA, USA
- P2-20 Multi-laboratory Optimization and Evaluation of DNA Extraction Procedures for Repetitive Sequence-based PCR Characterization of Outbreak *Salmonella* Isolates – RUIQING Y. PAMBOUKIAN, Laura Ewing-Peebles, Junia Jean-Gilles Beaubrun, Tara Doran, Kevin Garner, Kim Dudley, Cadre FDA/FERN mCAP and Darcy E. Hanes, U.S. Food and Drug Administration-FERN, Rockville, MD, USA
- P2-21 Molecular Assays for the Screening and Identification of Enteroinvasive *Escherichia coli* and *Shigella* Species – RACHEL BINET and Samantha J. Uhlfelder, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- P2-22 Sensitivity of Molecular-based Detection of *Shigella* in Produce – RACHEL BINET and Samantha J. Uhlfelder, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- P2-23 Evaluation of VIDAS® Easy *Salmonella* Assay (EasySLM) with ChromID™ *Salmonella* (SM2) Agar for the Detection of *Salmonella* in a Variety of Foods: Collaborative Study – ERIN S. CROWLEY, Patrick Bird, Kiel Fisher, Katherine Goetz, M. Joseph Benzinger, James R. Agin, Dave G. Goins, Ron Johnson and Jean-Louis Pittet, Q Laboratories, Inc., Cincinnati, OH, USA
- P2-24 Differentiation of Epidemic Clones III and IV of DSC *Listeria monocytogenes* Using Fourier Transform Infrared (FTIR) Spectroscopy and Multivariate Analysis – ESMOND B. NYARKO, Catherine W. Donnelly, Keneth A. Puzey and Mckale E. Santin, University of Vermont, Burlington, VT, USA
- P2-25 Developing a *Staphylococcus aureus* Enterotoxin-specific Antibody for Establishing an Immunoquantitative Detection System – SUN YOUNG HWANG, Joonbae Hong, Jang Won Yoon, Ka Hee Kwon, Bo Youn Moon and Sangpil Kim, Seoul National University, Seoul, Republic of Korea
- P2-26 A Comparison Study of the VIDAS® *Listeria monocytogenes* Xpress (LMX) to the USDA-FSIS and Health Canada MFHPB-30 Methods for the Specific Detection of *Listeria monocytogenes* in Ready-to-Eat Meats – JOHN C. MILLS, Judith Colón-Reveles, Gregory Devulder, Hari Prakash Dwivedi, Patricia Rule and Ron Johnson, bioMérieux, Inc., Hazelwood, MO, USA
- P2-27 Validation Study of the Reveal® *Listeria* 2.0 Method for Detection of *Listeria* spp. in Foods and Environmental Samples – Susan Alles, Stephanie Curry, Balamurugan Jagadeesan, Dave Almy, MARK MOZOLA and Jennifer Rice, Neogen Corp., Lansing, MI, USA
- P2-28 Evaluation of Commercial Antibodies against *Escherichia coli* O157:H7 for Development of Improved and Sensitive ELISA-based Detection Systems – BARBARA GILLESPIE, Doris D'Souza, Charlie Barnett, Andrew G. Gehring, Shannon Eaker, Kevin Jones, Jun Lin, Ashan Perera and Stephen P. Oliver, University of Tennessee-Knoxville, Knoxville, TN, USA
- P2-29 The Evaluation of a VIDAS Next-day Method for Detection of *Salmonella* in Food – DENISE HUGHES, Jennifer Chen and Selina Begum, DH Micro Consulting, Peelwood, NSW, Australia
- P2-30 Preliminary Evaluation of VIDAS® UP *Salmonella* (SPT) Assay for the Next-day Detection of *Salmonella* in 375 g Samples of Select Food Types – Brian Kupski, HARI PRAKASH DWIVEDI and Gregory Devulder, bioMérieux, Inc., Hazelwood, MO, USA
- P2-31 Evaluation of Chromogenic Media for Isolation and Detection of *Salmonella* spp. from foods – GUODONG ZHANG and Eric W. Brown, U.S. Food and Drug Administration, CFSAN, College Park, MD, USA
- P2-32 Quantitative Evaluation of Three Selective Media for *B. cereus* in Various Foods – JEONG HWAN CHEON, Ji-Yeon Hyeon, Yun-Gyeong Kim, Jun-Ho Park, Hyo-Sun Kwak, Sang-Hyeon Yoon, Jong-Hyun Kim, In-Gyun Hwang and Kun-Ho Seo, Konkuk University, Seoul, Republic of Korea
- P2-33 Validation of the Soleris® *E. coli* Method for Detection and Semi-quantitative Determination of *E. coli* in Foods – DEBRA L. FOTI, Leah Romano, Mark A. Mozola and Susan Alles, Neogen Corporation, Lansing, MI, USA

P2-34 Development of Non-O157 Shiga Toxin-producing *E. coli* STEC O-type Specific Antibodies and Their Application for the Analysis of Raw Beef – ANN-CHRISTINE OLSSON ALLEN, Yichun Xu, Dale Onisk and Mark Muldoon, SDIX, Newark, DE, USA

Antimicrobials

P2-35 Determination of Antimicrobial Activity of Sorrel (*Hibiscus sabdariffa*) on *Escherichia coli* O157:H7 Isolated from Various Samples – Leonard Williams, JANAK KHATIWADA and Shurrita Davis, North Carolina A&T State University, Kannapolis, NC, USA

P2-36 Inhibition of *Escherichia coli* O157:H7 Beef Product Isolates by Cold-pressed, Terpeneless Valencia Orange Oil at Various Temperatures – SEAN J. PENDLETON, Phillip G. Crandall, Steven C. Ricke, Lawrence D. Goodridge and Corliss A. O'Bryan, University of Arkansas, Fayetteville, AR, USA

P2-37 Antimicrobial Activity of *Xoconostle* (*Opuntia matudae*) against *E. coli* O157:H7 – SAID A. HAYEK and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC, USA

P2-38 Survival of *Escherichia coli* O157:H7 in Topographical Features on Stainless Steel Surfaces from Gas and Liquid Phase Chemical Treatments – BONNIE WANG, David Nivens and Bassam A. Annous, Purdue University, West Lafayette, IN, USA

P2-39 Inactivation of *Alicyclobacillus acidoterrestris* with High Pressure Homogenization and Dimethyl Dicarboxylate – WEI CHEN, Federico M. Harte, P. Michael Davidson and David A. Golden, University of Tennessee, Knoxville, TN, USA

P2-40 Antibotulinal Activity of Sodium Salt Replacers in Laboratory Media – LINDSEY M. MCDONNELL, Russell McMinn and Kathleen A. Glass, University of Wisconsin-Madison, Madison, WI, USA

P2-41 Inhibition of *Colletotrichum gloeosporioides* by Mexican Oregano Essential Oils Added to Edible Films – RAUL AVILA SOSA, Addì R. Navarro-Cruz, Maribel Conde-Huerta, Rosa M. Martínez Torres and Gabriela G. Gastelum-Reynoso, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico

P2-42 Sensitivity of *Mycobacterium bovis* to Common Beef Processing Interventions – JOSEPH M. BOSILEVAC and Peter C. Iwen, U.S. Department of Agriculture-ARS, Clay Center, NE, USA

P2-43 Bacteriocinogenic *Lactococcus lactis* subsp. *lactis* Isolated from Goat Milk – Evidence for Expression of Nisin Z and Evaluation of the Probiotic Potential – Svetoslav D. Todorov, Danielle N. Furtado, Mariza Landgraf, MARIA TERESA DESTRO and Bernadette D. Franco, University of São Paulo, São Paulo, Brazil

P2-44 Molecular Characterization of Antibiotic Resistance and Virulence Genotype of *Enterococcus faecalis* Isolates from Different Retail Meats – MOUSSA S. DIARRA, Luke Masson and Mueen Aslam, Pacific Agri-Food Research Center, Agassiz, BC, Canada

P2-45 Antiviral and Protective Mechanisms of Korean Red Ginseng for Norovirus Surrogates – MIN HWA LEE, Sheungwoo Seo and Changsun Choi, Chung-Ang University, Ansung, Republic of Korea

P2-46 Reduction of Norovirus Surrogates during the Fermentation of Dongchimi – MIN HWA LEE, Seung-hee Yoo and Changsun Choi, Chung-Ang University, Ansung, Republic of Korea

P2-47 Production and Characterization of Quail Egg Yolk Immunoglobulin Y (IgY) against *Vibrio parahaemolyticus* and *Vibrio vulnificus* – NEEMA KASSIM, Wongyeong Lee, Jeong-Sook Kim, Adelard B. Mtenga, Won-Bo Shim and Duck-Hwa Chung, Gyeongsang National University, Jinju, Gyeongsangnam-do, Republic of Korea

P2-48 Influence of Encapsulation on Bacteriocin Production by *Lactobacillus curvatus* MBSa2 in Broth Presenting Different Values of Water Activity (a_w), pH and Temperature – MATHEUS S. BARBOSA, Cynthia Jurkiewicz, Svetoslav D. Todorov and Bernadette D. Franco, University of São Paulo, São Paulo, Brazil

P2-49 Decontamination of Green Onions and Spinach Using Gaseous Ethyl Pyruvate – M. ZEKI DURAK, John J. Churey and Randy W. Worobo, Cornell University, Geneva, NY, USA

P2-50 Effect of Combined Process TiO₂-UV Photocatalytic Reaction and High Hydrostatic Pressure on Quality of Angelica Juice – SANGYOUL NA, Younjung Lee, Keunyoung Yang, Bohyun Seo and Jiyong Park, Yonsei University, Seoul, Republic of Korea

P2-51 Disinfection Effects of the Continuous TiO₂-UV Reactor on Microorganisms in Liquid Foods – Sangyoul Na, FENG MEI, Jongkun Lee and Jiyong Park, Yonsei University, Seoul, Republic of Korea

P2-52 Organic Pecan Shells as a Source for Antimicrobials – Ellen J. Van Loo, Daniel Lindsay, PHILLIP G. CRANDALL, Steven C. Ricke and Jessica Shabatura, University of Arkansas, Fayetteville, AR, USA

P2-53 Antimicrobial Activity of Pomegranate (*Punica granatum*) Extract against Foodborne Bacterial Pathogens – RONALD LABBE and Koorosh Haghayeghi, University of Massachusetts, Amherst, MA, USA

P2-54 Antibacterial Activity of Ethanol and Water Extract of Different Parts from *Sasa borealis* – Miran Jang, Da-uhm Lee, Sun-Duk Cho, Hyang Sook Chun and GUN-HEE KIM, Duksung Women's University, Seoul, Republic of Korea

P2-55 Evaluation of Biological Effects of Synthetic Thioflavanones as Novel Antimicrobial Agents – Miran Jang, Da-uhm Lee, Sun-Duk Cho, Hyang Sook Chun and GUN-HEE KIM, Duksung Women's University, Seoul, Republic of Korea

P2-56 Inhibition of Foodborne Pathogens and Spoilage Organism in Dairy Dessert Using ϵ -polylysine – SAURABH KUMAR, Maureen Wispelaere, Willem Hommes, Diana Visser, Janet L. Payne and Edwin Bontenbal, PURAC, Gorinchem, The Netherlands

P2-57 The Isolation of Bacterial Growth Suppressing and Growth Promoting Compounds from Jalapeno Pepper Extract Using Liquid Chromatography – KARLEIGH HUFF, Renee R. Boyer, Robert Williams, Sean O'Keefe and Cynthia Denbow, Virginia Tech, Blacksburg, VA, USA

P2-58 Development of an Antimicrobial Alginate Based Film: *in vitro* and *in situ* Tests – MARIA CRYSTINA IGARASHI, Maria Teresa Destro and Mariza Landgraf, University of São Paulo, São Paulo, Brazil

P2-59 Disinfection of Fresh Produce with Atmospheric Plasma – KIMBERLY KELLY-WINTENBERG, Alan L. Wintenberg, Paul L. Dawson and Inyee Han, Advanced Plasma Products, Inc., Knoxville, TN, USA

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P2-60 Survey of Food Safety Practices on Small to Medium-sized Farms and in Small Farmers' Markets – JUDY A. HARRISON, Julia Gaskin, Mark A. Harrison, Renee R. Boyer, Geoffrey Zehnder and Jennifer L. Cannon, University of Georgia, Athens, GA, USA

P2-61 Evaluation of a Portable, Recycled Vertical Flow Constructed Wetland as a Low Cost Treatment System for Greywater Reuse in Food Production – BRONTE ROBERTS, Bledar Bisha, Kristofer Bruun, Katie Fialko and Lawrence D. Goodridge, Colorado State University, Fort Collins, CO, USA

P2-62 The Use of Zero-valent Iron and Biosand Filtration to Inactivate *Escherichia coli* O157:H7 in Irrigation Water – Cheryl Mudd, Mary Theresa Callahan, Sean Ferguson, David T. Ingram, Dan Shelton, Jitu Patel, Dallas G. Hoover, Jie Wei, Kalmia E. Kniel and MANAN SHARMA, U.S. Department of Agriculture-ARS, Beltsville, MD, USA

P2-63 *Escherichia coli* Populations in Irrigation Water and Broccoli, Cauliflower and Celery Crops: Farm-scale Experiment – MYLÈNE GÉNÈREUX, Caroline Côté, Abdenour Boukhalfa, Luc Brodeur and Marc Duchemin, IRDA, St-Hyacinthe, QC, Canada

P2-64 Absence of Direct Association between Coliforms and *E. coli* in Irrigation Water and on Produce – GAYEON WON, Sanja Ilic and Jeffrey T. LeJeune, The Ohio State University, Wooster, OH, USA

P2-65 Bacterial Pathogens in Irrigation Water and on Produce are Affected by Certain Predictor Variables – OLUWATOSIN A. IJABADENIYI, Elna M. Buys, Legesse Debusho and Mike VanderLinde, Durban University of Technology, KZN, South Africa

P2-66 Antimicrobial Effects of Vanillin, Ethyl Vanillin and Vanillic Acid Against *Cronobacter* spp. – Gökçe Polat Yemis, Susan J. Bach, Franco J. Pagotto and PASCAL DELAQUIS, Agriculture and Agri-Food Canada, Summerland, BC, Canada

P2-67 *Escherichia coli* Population Dynamics on Romaine Lettuce Contaminated with Poultry Manure – PASCAL DELAQUIS, Susan Bach, Greg Bezanson, Magda Kostrzynska and Sandra Jones, Agriculture and Agri-Food Canada, Summerland, BC, Canada

P2-68 Impact of Spinach Plant Maturity on Survival of *Escherichia coli* O157:H7 in Soil and Internal Transmission to the Plant – EMILIA P. CUESTA ALONSO and Christina Dewitt, Oklahoma State University, Stillwater, OK, USA

P2-69 Pre-harvest Field Exposure of Seeds or Cut-back Baby Leafy Greens to *Escherichia coli* O157:H7: Potential for Internalization of Pathogen – CATHY WEBB, Marilyn C. Erickson, Juan Carlos Diaz-Perez, Sharad Phatak, Lindsey Davey, Alison Payton and Michael P. Doyle, University of Georgia, Griffin, GA, USA

P2-70 *Salmonella* spp. and *Escherichia coli* O157 Presence and Indicator Organism Levels in an Open-surface Water Stream Used for Irrigation in Western Washington – ACHYUT ADHIKARI, Karen M. Killinger, Craig G. Cogger and Andy I. Bary, Washington State University, Pullman, WA, USA

P2-71 Comparison of Pathogen Contamination Routes of Spinach Leaves in a Hydroponic Cultivation System – SHIGENOBU KOSEKI, Yasuko Mizuno and Kazutaka Yamamoto, National Food Research Institute, Tsukuba, Japan

P2-72 Characterization of Root Uptake and Systemic Transport of *Salmonella enterica* sv Typhimurium into Cantaloupe and Honeydew Vines and Fruit – GABRIELA LOPEZ-VELASCO, Adrian O. Sbodio, Polly Wei, Sharyn Maeda, Kin H. Tan and Trevor V. Suslow, University of California-Davis, Davis, CA, USA

P2-73 Persistence of Somatic and F-Specific Coliphages, Potential Indicators of Fecal Contamination, on Spinach Foliar Tissue – ALLISON G. LILLY, Amy R. Sapkota, Cheryl Mudd, Sean Ferguson, Dan Shelton, David T. Ingram and Manan Sharma, University of Maryland, College Park, MD, USA

- P2-74 Long-term Stability of Norovirus on Farm and Agriculturally-relevant Environments – SARA FALLAHI, Greg Bezanson, Julie Brassard, Pascal Delaquis, Alain Houde and Kirsten Mattison, Health Canada, Ottawa, ON, Canada
- P2-75 Human Foodborne and Zoonotic Viruses Detected on Fresh Strawberries – JULIE BRASSARD, Caroline Côté, Marie-Josée Gagné and Mylène Généreux, Agriculture and Agri-Food Canada, Saint-Hyacinthe, QC, Canada
- P2-76 Persistence of Poultry Associated *Salmonella* spp. on Spinach Plants – JITU PATEL, Manpreet Singh and Katherine Hopkins, U.S. Department of Agriculture, Beltsville, MD, USA
- P2-77 Survival of *E. coli* O157:H7, *Salmonella* and *Listeria* in *Manduca* Hornworm Frass-fed Tomato Leaves – PATRICIA D. MILLNER, Phyllis Martin, Sara Reynolds and Russell Reynnells, U.S. Department of Agriculture-ARS-BARC, Beltsville, MD, USA
- P2-78 Epiphytic Survival of Shiga-toxicogenic *Escherichia coli* O145 on Baby Spinach Plants – DAVID T. INGRAM, Cheryl Mudd, Sean Ferguson, Sudesna Lakshman and Manan Sharma, U.S. Department of Agriculture-ARS, Beltsville, MD, USA
- P2-79 Growth and Survival of *Listeria monocytogenes* in Mango (*Mangifera indica* Linn) Pulp – Ana L. Penteadó, MARIA FERNANDA P. CASTRO, Flavia R. Neves, Simone D. Costa, Ivan Alcântara and Ana Paula O. Ribeiro, Instituto Tecnologia de Alimentos, Campinas, Brazil
- P2-80 Role of Curli Expression by *Escherichia coli* O157:H7 on the Cell's Ability to Attach to Spinach – DUMITRU MACARISIN, Gary Bauchan, Jorge A. Giron and Jitu Patel, U.S. Department of Agriculture-ARS, Beltsville, MD, USA
- P2-81 Influence of Cell Surface Properties on Attachment of *Escherichia coli* O157:H7 to Spinach and Lettuce Leaves – CHI-CHING LEE and Joseph Frank, University of Georgia, Athens, GA, USA
- P2-82 Genetic Mechanisms of *Salmonella* Typhimurium Surface Attachment on Tomatoes – MARIANNE K. FATICA, Max Teplitski and Keith R. Schneider, University of Florida, Gainesville, FL, USA
- P2-83 Packaging and Seasonal Effects on Coliform Contamination of Romaine Lettuce, *Lactuca sativa* var. *longifolia* – BRANDI L. BAROS, Penn State Shenango, Sharon, PA, USA
- P2-84 Survival and Epidemiology of *Escherichia coli* on Diverse Fresh-cut Baby Leafy Greens under Model Pre-harvest to Post-harvest Conditions – ALEJANDRO TOMAS CALLEJAS, Alex B. Camacho, Gabriela Lopez-Velasco, Francisco Artes, Francisco Artes-Hernandez and Trevor V. Suslow, University of California-Davis, Davis, CA, USA
- P2-85 Modeling the Variability of Growth Rate and Lag Time among Different Strains of *Salmonella* and *Listeria monocytogenes* in Minimally Processed Lettuces – ANDERSON S. SANT'ANA, Bernadette D. Franco and Donald W. Schaffner, University of São Paulo, São Paulo, Brazil
- P2-86 Selection and Characterization of DNA Aptamers with Binding Specificity for *Listeria* spp. – SOOHWAN SUH, Hari Prakash Dwivedi and Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA

Novel Laboratory Methods

- P2-87 DNA Extraction Procedures for Real-time PCR Detection of *Listeria monocytogenes* and *Listeria* spp. from Artificially Contaminated Food Samples – Karen C. Jinneman, Ken J. Yoshitomi, Palmer A. Orlandi, Stephen D. Weagant, Ruben Zapata, Paul Browning and WILLIS M. FEDIO, New Mexico State University, Las Cruces, NM, USA
- P2-88 Development and Initial Evaluations of Three Scorpion™ Probe-based Multiplex Real-time PCR Assays for the Detection of Six Shiga Toxin-producing *Escherichia coli* (STEC) Serogroups, *E. coli* O157:H7, and the *eae*, *stx*₁, and *stx*₂ Genes – DANIEL DEMARCO, Stephen Varkey, Mark Jensen, Pina Fratamico and Brad Garman, DuPont Qualicon, Wilmington, DE, USA
- P2-89 Primers with 5'AT-rich Flap Increases the Sensitivity of PCR for the Detection of *E. coli* O157:H7 – SHEFALI DOBHAL, Chris Timmons, Jacqueline Fletcher and Li Ma, Oklahoma State University, Stillwater, OK, USA
- P2-90 Equivalence of PCR and Phage Ligand Assay for the Detection of *Escherichia coli* O157:H7 in Ground Beef – MELINDA HAYMAN, Sergio J. Montez, Stan Bailey, Ron Johnson and John C. Mills, Food Safety Net Services, San Antonio, TX, USA
- P2-91 A Rapid Molecular Method for the Detection of *Escherichia coli* O157 and *Salmonella* in Foods Using Loop-mediated Amplification (LAMP) – BRENDA G. RUSHING and Akif Kasra, SA Scientific, San Antonio, TX, USA
- P2-92 Comparison of Five Pre-enrichment Media for the Recovery of *Salmonella* from Leafy Green Vegetables with Real-time PCR Methods – HUA WANG, Andrew Jacobson, Chong-Ming Cheng, Narjol Gonzalez-Escalona, Kari A. Belin, Vikas Gill and Thomas S. Hammack, U.S. Food and Drug Administration-CFSAN, College Park, MD, USA
- P2-93 Detecting *Salmonella* in 375-g Pet Food Samples with Alternative Media – LIHONG L. WU, Angeline Stoltzfus and Andrew D. Farnum, DuPont Qualicon, Wilmington, DE, USA

- P2-94 Development of Oligo-conjugated Nanoparticle-based Methods for Rapid, Sensitive and Cost-effective Detection of Foodborne Pathogens – Honghe Cao, Isabelle Noiseux, Jean-Pierre Bouchard, Pascal Gallant, Ozzy Mermut, Marcie Vernon, Joseph Odumeru, Roger Johnson and SHU CHEN, University of Guelph, Guelph, ON, Canada
- P2-95 Development of a Multiplex PCR Method for Detection of Bacterial Spoilage Organisms in Leafy Greens – JONGKIT MASIRI, Angelita Talens and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P2-96 Rapid Multiplex Identification of Foodborne Bacterial Pathogens via PCR/MS on the Plex-ID System – SARAH E. PIERCE, Donna M. Williams-Hill and William B. Martin, U.S. Food and Drug Administration, Irvine, CA, USA
- P2-97 Verification of the First Automated Sample Preparation and PCR Setup Robotic Workstation for the Food Industry – Hans-Henno Dörries, Sina Kirsanov, CHRISTINA HARZMAN, Cordt Grönwald and Kornelia Berghof-Jäger, BIOTECON Diagnostics, GmbH, Potsdam, Germany
- P2-98 Towards Improved Detection of *Cryptosporidium* on Fresh Produce – DUMITRU MACARISIN, Ronald Fayer, Monica Santin, Gary Bauchan and Joan Shields, U.S. Department of Agriculture-ARS, Beltsville, MD, USA
- P2-99 A Real-time RT-PCR Method to Discriminate Infectious from Non-infectious Norovirus Strains – HELEN RAWSTHORNE, Blanca I. Escudero-Abarca and Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA
- P2-100 Development of a Rapid Method for the Isolation and Detection of Hepatitis A Virus from Various Produce Items – KAORU HIDA, Efi Papafragkou, Michael Kulka and Biswendu Goswami, U.S. Food and Drug Administration, Laurel, MD, USA
- P2-101 Effect of Amino Acids and Surfactants on RT-PCR Recovery of Viruses from Green Onions – DIANA STEWART, Christina Megalis, Carol Shieh and Mary L. Tortorello, U.S. Food and Drug Administration, Summit-Argo, IL, USA
- P2-102 Development of a Method to Concentrate Viruses from Fresh Produce Wash Water – LINDSAY A. HALIK, Alvin C. Lee and Stephen F. Grove, U.S. Food and Drug Administration, Summit Argo, IL, USA
- P2-103 The Impact of Four Buffer Systems Derived from a Matrix-Solubilization-based Sample Preparation Protocol for Bacteria on the Integrity of Virus Particles – Susanne Fister, SABINE FUCHS, Patrick Mester, Martin Wagner and Peter Rossmannith, Christian Doppler Laboratory for Molecular Biological Food Analytics, Vienna, Austria
- P2-104 Chromogenic Indicators for Pathogens Contaminating Food Samples – Katrin Glaser, SABINE FUCHS, Martin Wagner and Peter Rossmannith, Christian Doppler Laboratory for Molecular Biological Food Analytics, Vienna, Austria
- P2-105 Ionic Liquids for DNA Quantification Out of Gram Negative and Gram Positive Bacteria – SABINE FUCHS, Patrick Mester, Martin Wagner and Peter Rossmannith, Christian Doppler Laboratory for Molecular Biological Food Analytics, Vienna, Austria
- P2-106 Evaluation of IBISA[®], a New Selective and Chromogenic Method for the Detection of *Salmonella* Species in Foods – JÉRÔME THEPAUT, Corinne Delanoe and Véronique Boeffard, AES Chemunex, Bruz, France
- P2-107 A Comparative Evaluation of the ChromID[™] Ottaviani Agosti Agar (OAA) for the Detection and Enumeration of *Listeria monocytogenes* and *Listeria* Species – ERIN S. CROWLEY, Patrick Bird, Kiel Fisher, Katherine Goetz, M. Joseph Benzinger, James R. Agin and Dave G. Goins, Q Laboratories, Inc., Cincinnati, OH, USA
- P2-108 Performances Assessment of the chromID *L. mono* Agar Method According to the ISO 16140 Standard for *Listeria monocytogenes* Enumeration in Food and Environmental Samples – Muriel Bernard, Maryse Rannou and DANIELLE SOHIER, ADRIA, Quimper, France
- P2-109 A New Immuno-concentration Assay for Shiga-like Toxin *E. coli*, Used as Sample Preparation Before Real-time PCR for Virulence Genes Detection – JEAN-LOUIS PITTET, Fanny Savoye, Marion Bouvier and Delphine Thevenot-Sergentet, bioMérieux, Marcy L'Etoile, France
- P2-110 ISO 16140 Validation of a New Agar Plate Method for the Detection of *Campylobacter* – JEAN-LOUIS PITTET, Franck Montigon, Melinda Maux and Virginie Ewe, bioMérieux, Marcy L'Etoile, France

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- P2-111 Strains of the Major Non-O157 Shiga Toxin-producing *Escherichia coli* Serogroups Exhibit Growth Patterns Similar to O157:H7 at 10 °C in Lean Ground Beef – KYRIAKI CHATZIKYRIAKIDOU, Steve Ingham and Barbara Ingham, University of Wisconsin-Madison, Madison, WI, USA
- P2-112 Strains of the Major Shiga Toxin-producing DSC *Escherichia coli* Serogroups Exhibit Similar Thermal Tolerance in Lean Ground Beef – AKHILA VASAN, Wan Mei Leong, Steve Ingham and Barbara Ingham, University of Wisconsin-Madison, Madison, WI, USA

- P2-113 *Salmonella* and *E. coli* O157:H7 Prevalence on Beef Carcasses in a Non-TIF Harvest Plant in the Mexican Yucatan – ANSEN R. POND, Alejandro Echeverry, Tanya Jackson, Mindy Brashears, Mark F. Miller, Guy Loneragan, Todd M. Brashears, Rosa R. Porras and Gilberto O. Cervera, Texas Tech University, Lubbock, TX, USA
- P2-114 Prevalence of Toxin-containing Non-O157 *Escherichia coli* Found in Commercial Ground Beef – KAY GREESON, Viktoriya Beskhlebnaya, Kristina Tenney and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P2-115 *E. coli* O157:H7 Strains Differ in Their Phenotypic Responses as Measured Using Phenotype Microarrays – P. Scott Chandry and NARELLE FEGAN, CSIRO, Werribee, VIC, Australia
- P2-116 Effect of Sanitizer Stress on the Growth Kinetics of Various Pathogenic *Escherichia coli* in Broth – SOO JIN KWAK, Na Yoon Park and Ki S. Yoon, Kyung Hee University, Seoul, Republic of Korea
- P2-117 Characterization of Cell Surface Properties, Chlorine Resistance and Attachment of *Escherichia coli* O157:H7 Strains – KESHAVA DEPA, Mary L. Tortorello and Kaiping Deng, IIT-NCFST, Summit Argo, IL, USA
- P2-118 Genetic and Phenotypic Characterization of Shiga Toxin-producing *Escherichia coli* Isolates Originating from British Columbia, Canada – Lili R. Mesak, Hai Xu, Linda Hoang and KEVIN J. ALLEN, University of British Columbia, Vancouver, BC, Canada
- P2-119 Screening Non-O157 Shiga Toxin-producing *E. coli* Serotypes on Agar Media by Hyperspectral Imaging – WILLIAM WINDHAM, Seung-chul Yoon, Bosson Park, Kurt Lawrence, Scott Ladley, Neelam Narang and William C. Cray, U.S. Department of Agriculture-ARS, Athens, GA, USA
- P2-120 Reducing Pathogenic *Vibrio* spp. in Oysters Using a Thermal Post-harvest Process (PHP) – ABDALLAH AL-DAKHEELALLAH, Lee-Ann Jaykus, Gregory Bolton and David Green, North Carolina State University, Raleigh, NC, USA
- P2-121 Ethanol Treatment to Inactivate Feline Calicivirus and Murine Norovirus as Norovirus Surrogates on Stainless Steel Surfaces – SEOK-WON KIM, Ji Hyoung Ha, Sang-Do Ha, Min Hwa Lee and Changsun Choi, Chung-Ang University, Ansong-Si, Republic of Korea
- P2-122 Molecular Typing of *Vibrio parahaemolyticus* Isolates from the Middle East Coast of China – Wanyi Chen, Yanping Xie, Jingye Xu, Qingzhong Wang, Ming Gu, Jieli Yang, Min Zhou, Dapeng Wang, CHUNLEI SHI and Xianming Shi, Shanghai Jiao Tong University, Shanghai, China
- P2-123 Characteristics of *Vibrio* spp. Strains Isolated from Seafood at Retail in Switzerland – Kerstin Schärer, Roger Stephan and CLAUDIO ZWEIFEL, University of Zurich, Zurich, Switzerland
- P2-124 Correlating Attachment and Infection of Norovirus Using an ELISA-based System – KIRSTEN HIRNEISEN, Jie Wei and Kalmia E. Kniel, University of Delaware, Newark, DE, USA
- P2-125 ST4, A Genetic Fingerprint for Meningitic Strains of *Cronobacter sakazakii* as Shown by Multilocus Sequence Typing – Susan Joseph, Nasrhdin Rhouma, Aldukali Alkeskas and STEPHEN J. FORSYTHE, Nottingham Trent University, Nottingham, United Kingdom
- P2-126 Characterization of the Adhesive Organelles of the Neonatal Meningitis Agent, *Cronobacter* spp. – CHRISTOPHER J. GRIM, Karen G. Jarvis, Augusto A. Franco, Lan Hu, Gopal R. Gopinath, Venugopal Sathyamoorthy, Michael L. Kotewicz, Mahendra H. Kothary, Chloe Lee, Jennifer Sadowski and Ben D. Tall, U.S. Food and Drug Administration-CFSAN, Laurel, MD, USA
- P2-127 Heat Adaptation and Survival of *Cronobacter* spp. (formerly *Enterobacter sakazakii*) – KIERAN JORDAN, Benedict Arku and Seamus Fanning, Teagasc, Fermoy, Ireland
- P2-128 Evaluation of *flaA* Short Variable Region Sequencing, Multilocus Sequence Typing and Fourier Transform Infrared Spectroscopy in Discrimination of *Campylobacter jejuni* Strains – Mathilde Josefsen, Lise Bonnichsen, Jonas Larsson, Eva M. Nielsen, Martina Fricker, Monica Ehling-Schulz, JEFFREY HOORFAR and Laurids S. Christensen, Technical University of Denmark, Soborg, Denmark
- P2-129 Rapid Quantification of Viable *Campylobacter* from Chicken Carcasses, Using Real-time PCR and Propidium Monoazide Treatment, as a Tool for Quantitative Risk Assessment – Mathilde Josefsen, Charlotta Löfström, Tina B. Hansen, Laurids S. Christensen, John E. Olsen and JEFFREY HOORFAR, Technical University of Denmark, Soborg, Denmark
- P2-130 Perspectives of Real-time Monitoring of *Campylobacter* and *Salmonella* Infections in Free-range Geese for Source Tracing of Human Cases and Risk Mitigating Interventions – Laurids S. Christensen, Mathilde Josefsen, Karl Pedersen, Julia Christensen, Lise Bonnichsen, Gitte Soerensen and JEFFREY HOORFAR, Technical University of Denmark, Soborg, Denmark
- P2-131 *In vitro* Assessment of Temperature- and pH-dependent Growth Patterns of *Campylobacter jejuni* and *coli* – MARTINA GIACOMELLI, Manpreet Singh, Kenneth Macklin, Alessandra Piccirillo and Sacit F. Bilgili, Università degli Studi di Padova, Padova, Italy

- P2-132 Analysis of *Campylobacter jejuni* Whole Genome DNA Microarrays: Significance of Prophage and Hypervariable Regions for Discriminating Isolates – Lauren Pittenger, Jonathan Frye, Rebecca Lindsey, Victoria McNERNEY, Jaxk Reeves, Paula J. Fedorka-Cray, Mark A. Harrison and MARK ENGLE, U.S. Department of Agriculture-ARS, Athens, GA, USA
- P2-133 Enhancement of PCR Amplification Capacity by a Simple Sample Preparation Procedure for the Detection of *Campylobacter jejuni* in a Blood-containing Enrichment Broth – Yuan Jiang, Changqing Zhu, Rui Zhang, Li Feng, Julie Kraynak, Angeline Stoltzfus, George Tice and XUAN PENG, DuPont Qualicon, Wilmington, DE, USA
- P2-134 Influence of Temperature and Cell-free Supernatant of *Staphylococcus aureus* on Biofilm Formation by *Listeria monocytogenes* on Stainless Steel Surfaces – Eliane P. da Silva and ELAINE C. DE MARTINIS, University of São Paulo, Ribeirao Preto, Brazil
- P2-135 Modeling *Staphylococcus aureus* Growth and Enterotoxin Productions in the Chicken Slaughtering Process – JOONBAE HONG, Sun Young Hwang, Hyeree Kim and Yong Ho Park, Seoul National University, Seoul, Republic of Korea
- P2-136 Systematic Ecological Investigation of *Bacillus* Species – MI-HWA OH, Dong-Hun Kim and Julian M. Cox, National Institute of Animal Science, Suwon, Republic of Korea
- P2-137 PCR Signals from Bacterial Pathogen-associated Genes in Beef Products as Process Control Indicators – WALTER E. HILL and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P2-138 The Effect of the Presence of the Plant Pathogen DSC *Erwinia tracheiphila* on Internalization of *Salmonella* Poona in Cantaloupe Fruits – DHIRAJ GAUTAM, Jacqueline Fletcher and Li Ma, Oklahoma State University, Stillwater, OK, USA
- P2-139 Efficacy of Alfalfa Seed Sanitation Using a Commercial Compressed Air Bubbler Seed Washer as a Function of Sanitizer Concentration – ROBERT MIKSCH, Samuel P. Myoda and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P2-140 The Effect of Temperature History on the Ability of Proteolytic Strains of *Clostridium botulinum* to Produce Toxin in Extended Shelf-life Foods – TRAVIS R. MORRISSEY, Guy E. Skinner, Rukma Reddy, John W. Larkin and Viviana Loeza, U.S. Food and Drug Administration, Summit Argo, IL, USA
- P2-141 The Use of a Global Web-based Foodborne Pathogen Annotated Tracking Resource Network (PATRN) System for the Integration, Analysis and Visualization of Four *Cronobacter sakazakii* Isolates from Two Recent Neonatal Meningitis Cases – GOPAL R. GOPINATH, Ravi Jain, Kumar Hari, Kathy Noe, Venugopal Sathyamoorthy, Michael L. Kotewicz, Atin R. Datta, Augusto A. Franco, Lan Hu, Christopher J. Grim, Karen G. Jarvis, Mahendra H. Kothary, Mark Mammel, Chloe Lee, Jennifer Sadowski, Joseph E. Leclerc, Barbara A. McCardell, Marianna Solomotis, Marleen M. Wekell and Ben D. Tall, U.S. Food and Drug Administration-CFSAN, Laurel, MD, USA
- P2-142 Inhibitory Effect of Foodborne Pathogens during the Fermentation of Dongchimi – SEUNG-HEE YOO, Min Hwa Lee and Changsun Choi, Chung-Ang University, Ansong, Republic of Korea
- P2-143 Development of a 16S rRNA Library for the Identification of Foodborne Pathogens – ROSALEE S. HELLBERG, Kai-Shun Chen, Chong-Ming Cheng, Sarah E. Pierce, Kyson Chou, Donna M. Williams-Hill and William B. Martin, U.S. Food and Drug Administration, Irvine, CA, USA
- P2-144 Antibiotic-resistant Enteric Bacteria Isolated from Animal Manure and Soils from Local Farms in Middle Tennessee – AGNES K. KILONZO-NTHENGE and Cindy Thompson, Tennessee State University, Nashville, TN, USA
- P2-145 Fates of *Burkholderia thailandensis* in Acidic Conditions by Various Organic Acids Used in Ready-to-Eat Meat Formulations – SUNAH LEE, Ahreum Park, Hyun-Ju Yoon, Jinhee Lee, Kyoung-Hee Choi and Yohan Yoon, Sookmyung Women's University, Seoul, Republic of Korea

Dairy and Other Food Commodities

- P2-146 Identification of Farm Practices Associated with the Presence of Psychrotolerant *Bacillus* Species and Related Sporeformers in Bulk Tank Milk – STEPHANIE MASIELLO, Nicole Martin, Rick Watters, David Galton, Ynte Schukken and Kathryn J. Boor, Cornell University, Ithaca, NY, USA
- P2-147 Investigating Regulatory Compliance of the South African Informal Milk Producing Sector – JAN FR LUES and Mike Agenbag, Central University of Technology Bloemfontein, South Africa
- P2-148 Fate of *Listeria monocytogenes* in Indian Fermented Milk Products – Dahi and Buttermilk – Nageswara R. Korasapati, Valli Kannan, Saurabh Kumar, Aikansh Singh and HARSHAVARDHAN THIPPAREDDI, University of Nebraska-Lincoln,

- P2-149 Survival of *Listeria monocytogenes* in Lassi, an Indian Fermented Sweetened Milk Beverage – Palani D. Ramalingam, Nageswara R. Korasapati, Valli Kannan and HARSHAVARDHAN THIPPAREDDI, University of Nebraska-Lincoln, Lincoln, NE, USA
- P2-150 Controlling *Listeria monocytogenes* and *Pseudomonas* spp. in Cottage Cheese Using a Combination of Calcium Lactate and Cultured Whey – WILLEM HOMMES, Diana Visser, Gijs Lommerse, Maureen Wispelaere and Janet L. Payne, Purac, Gorinchem, The Netherlands
- P2-151 Thermal Inactivation of *Salmonella* in Cheesecake – ADAM BORGER and Vinh Do, Rich Products Corporation, Buffalo, NY, USA
- P2-152 Occurrence of *Escherichia coli* and *Staphylococcus aureus* on Dairy Farms in Hungary – Ferenc Peles, Béla Béri, Zoltán Györi and LÁSZLÓ VARGA, University of West Hungary, Mosonmagyaróvár, Hungary
- P2-153 Growth of *Staphylococcus aureus* in Probiotic Minas Fresh Cheese – CYNTHIA JURKIEWICZ, Bernadette D. Franco, Eliana P. Ribeiro and Leo Kunigk, Maua Institute of Technology, São Caetano do Sul, Brazil
- P2-154 Prevalence and Antibiotic Resistance of Mastitis Pathogens Isolated from Dairy Herds Transitioning to Organic Management – YOUNG KYUNG PARK, Dale D. Hancock, Wade McMahan, Yong Ho Park and Lawrence K. Fox, Seoul National University, Seoul, Republic of Korea
- P2-155 *Lactobacillus helveticus* mRNA Expression Levels Related to Stress Response and Specific Metabolic Activity: Growth in Broth and Throughout Swiss-type Cheese Manufacture and Ripening – FLORENCE POSTOLLEC, Hélène Falentin, Sandrine Parayre, Nadine Henaff, Anne Thierry, Jérôme Combrisson and Danièle Sohier, ADRIA UMT08.3PHYSI'Opt, Quimper, France
- P2-156 Development of a Testing Procedure to Select Strains of *Listeria monocytogenes* for Use in Cheese Challenge Studies – SARAH ENGSTROM, Steve Ingham and Barbara Ingham, University of Wisconsin-Madison, Madison, WI, USA
- P2-157 Efficacy of 3M™ Petrifilm™ Aerobic Count Plates to Enumerate *B. sporothermodurans* and *Geobacillus stearothermophilus* in Milk – Rosa M. Casillas-Buenrostro, Norma Heredia, DeAnn L. Benesh and SANTOS GARCIA, Universidad Autonoma de Nuevo Leon, Monterrey, Mexico
- P2-158 An Integrated Cell Culture-PCR Assay for the Detection of *Coxiella burnetii* Nine Mile Phase II RSA 439 in Fluid Dairy Products – ANKUSH KUKREJA, Diana Stewart, Joseph E. Schlessler, Carol Shieh, Mary L. Tortorello and Arlette G. Shazer, Illinois Institute of Technology, Chicago, IL, USA
- P2-159 Reduction of *Salmonella* on Jalapeño Peppers, Peanuts and Dry Dog Food Utilizing Targeted Directional Microwave Technology – ANGELA M. LAURY, Kathleen Fermin, Don Stull, Andreas Neuber, Chance J. Brooks, Christine Alvarado, Todd M. Brashears and Mindy Brashears, Texas Tech University, Lubbock, TX, USA

Antimicrobials

- P2-160 Inactivation of *Escherichia coli* O157:H7 by Copper Alone or in Combination with Lactic Acid as Demonstrated by Scanning Electron Microscopy – RABIN GYAWALI and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC, USA
- P2-161 Antimicrobial Effect of Three Lactic Acid Bacteria against *Listeria monocytogenes* – SARA R. MILILLO, Ok-Kyung Koo, Robert S. Story and Steven C. Ricke, University of Arkansas, Fayetteville, AR, USA

Pathogens

- P2-162 Host Spectrum of *Escherichia coli* Specific Phages Isolated from Hog Fecal Samples – JAE-WON KIM, Hyun-Wol Kang, Min-Jeong Kim, Byoung-Wook Kim, Jong-Mi Choi, Min-Tae Kim, Haet-Nim Yoon, Hyo-Sun Kwak and Gun-Jo Woo, Korea University, Seoul, Republic of Korea
- P2-163 High Level Antimicrobial Resistance in *Escherichia coli* from Foods, Poultry and Humans in the Northern Region of Ghana – COURAGE S. SABA, Jose Escudero, Alvaro San-Millán, Laura Hidalgo, Belen Gutierrez, Laura Carrilero, Stephanie Matrat, Cristina M. Ovejero, Natalia Montero and Bruno González-Zorn, Universidad Complutense de Madrid, Madrid, Spain

WEDNESDAY POSTERS 9:00 a.m. – 3:00 p.m.

P3 Poster Session – Novel Laboratory Methods, Pathogens, Beverages and Water, Non-microbial Food Safety, Seafood, Education, Produce, Meat and Poultry

Frontier Airlines Convention Center, Exhibit Hall

P3–01 through P3–82 – Authors present
9:00 a.m. – 1:00 a.m.

P3–83 through P3–163 – Authors present
1:00 p.m. – 3:00 p.m.

Novel Laboratory Methods

- P3-01 Performances Assessment of the CampyFood Agar Method According to the ISO 16140 Standard in Poultry and Meat Products, in Environmental Samples – Muriel Bernard, Maryse Rannou and DANIÈLE SOHIER, ADRIA Développement, Quimper, France
- P3-02 Performances Assessment of the TEMPO STA® Method According to the ISO 16140 Standard for Coagulase-positive Staphylococci Enumeration – Muriel Bernard, Maryse Rannou and DANIÈLE SOHIER, ADRIA Développement, Quimper, France
- P3-03 Accelerated Procedures for Detection and Isolation of *Listeria* spp. from Food Samples – Karen C. Jinneman, Ken J. Yoshitomi, Palmer A. Orlandi, Stephen D. Weagant, Ruben Zapata, Cecelia M. Garcia and WILLIS M. FEDIO, New Mexico State University, Las Cruces, NM, USA
- P3-04 A Comparative Evaluation of Petrifilm™ Aqua Plate Methods vs. Various Reference Methods in Testing of Bottled Water – ERIN S. CROWLEY, Patrick Bird, Kiel Fisher, Katherine Goetz, Marc Juenger, Shana Gibbs, James R. Agin, Dave G. Goins, Micki Rosauer, Christine Binsfield and Kathryn Lindberg, Q Laboratories, Inc., Cincinnati, OH, USA
- P3-05 Evaluation of a New Phage Ligand Assay for the Detection of *Listeria* Species in Foods and Environmental Samples – JEAN-LOUIS PITTET, Jean-Michel Pradel, Christine Aguilhon, Cecile Sauvan, Vincent Remy and Jean-Marc Roche, bioMérieux, Marcy L’Etoile, France
- P3-06 ISO 16140 Validation Study of the ALOA® One Day Method for *Listeria* Species Detection in Foodstuffs and Environmental Samples – JÉRÔME THEPAUT, Véronique Boeffard, Nicolas Gaillard, Yannick Dureuil and Frederic Simon, AES CHEMUNEX, Bruz, France
- P3-07 Dipstick Assay for *Vibrio vulnificus* – RAVIRAJSINH DSC P. JADEJA, Marlene E. Janes and Janet Simonson, Louisiana State University, Baton Rouge, LA, USA
- P3-08 Reveal *Salmonella* Enteritidis Test for Rapid Detection of *Salmonella* Enteritidis in Shell Eggs and Environmental Samples – BALAMURUGAN JAGADEESAN, Stephanie Curry, Debra L. Foti, Lauren Peterson, Rebecca Wilson, Mark A. Mozola and Jennifer Rice, Neogen Corporation, Lansing, MI, USA
- P3-09 Development of Colloidal Gold-based Lateral-flow Immunoassay for the Rapid Simultaneous Detection of *Listeria monocytogenes* and *Escherichia coli* O157:H7 – Chang-Lei Sun, YUAN TIAN, Yan-Feng Guo, Xiang-Tao Zheng and Zheng-You Yang, College of Life Science, Taian, China
- P3-10 Development of IC-ELISA for Detection of Mycotoxin Patulin in Food Samples – YUAN TIAN, Xiang-Tao Zheng, Chang-Lei Sun, Yan-Feng Guo and Zheng-You Yang, College of Life Science, Taian, China
- P3-11 Development of a Non-O157:H7 Enterohemorrhagic *Escherichia coli* Lateral Flow Device – CESAR NADALA and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P3-12 A New Automated Immunoassay Method for *Salmonella* Testing in Less Than Twenty Hours: Food Comparison Study – PEGGY NOMADE, Céline Domingos, Laure Puthod, Damien Cote, Peggy Noël and Jean-Louis Pittet, bioMérieux, Marcy L’Etoile, France
- P3-13 24-hour Test System for the Detection of *Salmonella* spp. on Environmental Surfaces – MEREDITH SUTZKO, Ann-Christine Olsson Allen, Verapaz Gonzalez and Mark Muldoon, SDIX, Newark, DE, USA
- P3-14 Biosensor for Functional and Rapid Screening of Selected Pathogens and Toxins from Food – NICOLE M. KENNEDY, Adrienne Johnson, Roya Najafi, Arun K. Bhunia and Pratik Banerjee, Alabama A&M University, Normal, AL, USA
- P3-15 Rapid and Specific Detection of STEC Strains O157:H7, O26 and O111 Using a Label-free Biosensor System – BRIAN BULLARD, Farol L. Tomson and Seth B. Harkins, Kirkegaard & Perry Laboratories, Inc., Gaithersburg, MD, USA
- P3-16 Rapid Detection of *Escherichia coli* O157:H7 on Turnip Greens Using a Modified Gold Biosensor Combined with Light Microscopic Imaging System – MI-KYUNG PARK, Tung-Shi Huang, Ralphenia D. Pace, Jun-Hyun Oh and Bryan A. Chin, Auburn University, Auburn, AL, USA
- P3-17 Microbiological Quality Evaluation in UHT Milk, Made by Rapid Method, Reference and ATP Bioluminescence Methods – Adriano F. Cunha, Arianna D. Lage, Maria M. Araújo, CRISTINA F. ABREU, Adriana R. Tassinari, Marcelo A. Ferraz, Ken Davenport and Monica Cerqueira, 3M Brasil, Sumaré, Brazil

P3-18 Novel Applications of ATP Bioluminescence for Specific Rapid Microbial Detection – SHREYA DATTA, Paul Meighan and Martin Easter, Medical Packaging Corporation, Camarillo, CA, USA

P3-19 A Miniaturized Most Probable Number (MPN) Method for the Enumeration of *Campylobacter* spp. from Poultry – JEREMY W. CHENU, Anthony Pavic and Julian M. Cox, Birling Avian Laboratories, Bringelly, NSW, Australia

P3-20 Integration of Intestinal Organ Bath Model into Simulator of the Human Intestinal Microbial Ecosystem – TUMNOON CHARASLERTRANGSI, Veronique Delcenserie, Shai Barbut and Mansel W. Griffiths, University of Guelph, Guelph, ON, Canada

P3-21 Proof-of-concept Chitosan Carbon Dioxide Indicator for Food Packaging – JUNHO JUNG, Kyeong-ok Choi, Pradeep Puligundla, Seokwon Lim and Sanghoon Ko, Sejong University, Seoul, Republic of Korea

P3-22 Development of the Roka Automated Molecular Platform™ *Salmonella* spp. Detection System in Food and Environmental Samples Utilizing a Novel Molecular Technology Method – KRISTIN LIVEZEY, Greg Merrick, Polina Zaslavsky, Brett Weaver, Shannon Kaplan, Joe Garcia, Chad Fleischer, Vanessa Bres, Michael Reshatoff, Steven Vaughn, Anna Freed and Michele Wisniewski, Roka BioScience, San Diego, CA, USA

P3-23 Novel Application of Molecular Technologies for Rapid Detection of Food and Environmental Samples by the Roka Automated Molecular Platform™ System – MICK BECKER, Vanessa Bres, Shannon Kaplan and Kristin Livezey, Roka BioScience, San Diego, CA, USA

P3-24 Development of a Detection Method for *Listeria* spp. in Food and Environmental Samples on Roka Automated Molecular Platform™, a Fully Automated Walk-away System – SHANNON KAPLAN, Vanessa Bres, Polina Zaslavsky, Brett Weaver, Michele Wisniewski, Hua Yang, William Kwong, Michael Reshatoff, Paul Campbell, Chad Fleischer, Nathan Noll, Monee Dulay and Mick Becker, Roka BioScience, Inc., San Diego, CA, USA

Pathogens

P3-25 Optimization for the Removal of *Salmonella*, *E. coli* O157:H7 and *E. coli* O157:H12 from Water Using Zero-valent Iron – CASEY JOHNSON, Jie Wei, Dan Shelton, Jitu Patel, Dallas G. Hoover, Manan Sharma and Kalmia E. Kniel, University of Delaware, Newark, DE, USA

P3-26 Thermal Resistance of *Salmonella* in Desiccation and Rehydration – RAMEET AHUJA, Christina Megalis, Mary L. Tortorello and Haiping Li, Illinois Institute of Technology, Summit-Argo, IL, USA

P3-27 Single cell Variability and Population Dynamics of *Listeria monocytogenes* and *Salmonella* Typhimurium in Fresh-cut Salads and Their Sterile Liquid or Solidified Extracts – STAVROS G. MANIOS, Nikolaos Konstantinidis and Panagiotis N. Skandamis, Agricultural University of Athens, Athens, Greece

P3-28 Inactivation of *Salmonella* in Bakery Products under Non-isothermal Conditions – BRAD LEITCH, Roxanne R. VonTayson and Kathleen A. Glass, University of Wisconsin-Madison, Madison, WI, USA

P3-29 Antimicrobial Susceptibility, Virulence Genes and PFGE Patterns in *Salmonella* spp. Isolated in a Brazilian Slaughterhouse That Produces Meat for Export – Janaina T. Lopes, Beatriz E. Guth, Eb Chiarini, Mariza Landgraf, Maria Teresa Destro and BERNADETTE D. FRANCO, University of São Paulo, São Paulo, Brazil

P3-30 Influence of Carvacrol and Cinnamaldehyde on the Thermal Inactivation of Multiple *Salmonella* Serotypes in Ground Chicken – VIJAY K. JUNEJA, Ajit Yadav, Cheng-An Hwang and Shiohshuh Sheen, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

P3-31 Rdar Morphotype and Its Relationship to Desiccation Tolerance in *Salmonella* spp. – LUXIN WANG and Linda J. Harris, University of California-Davis, Davis, CA, USA

P3-32 Comparison of the Dry Heat Sensitivity of *Salmonella enterica* on Alfalfa Seeds Stored at Different Temperatures – HUDAA S. NEETOO and Haiqiang Chen, University of Delaware, Newark, DE, USA

P3-33 Source of *Salmonella* in Ground Beef from Non-fed Beef – MOHAMMAD KOOHMARAIE, Kay Greeson, John Scanga, Michael De La Zerda, Bijan Koohmaraie, Lourdes Tapay, Viktoriya Beskhebnaya, Tam Mai and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA

P3-34 Survival of *Salmonella* Strains in Acetic Acid and Rice Vinegar in Relation to the Biofilm-formation Capability – AKIO HASEGAWA, Yukiko Hara-Kudo and Susumu Kumagai, University of Tokyo, Tokyo, Japan

P3-35 Differences in the Thermal Resistance of *Salmonella* Tennessee and Oranienburg in Peanut Butter Related to Growth as Sessile or Planctonic Cells – SUSANNE E. KELLER, Lindsay Halik, Elizabeth Grasso and Stuart Chirtel, U.S. Food and Drug Administration, Summit-Argo, IL, USA

P3-36 Comparative Expression Array Analysis of *Salmonella* Desiccation Resistance Mechanism – HAIPING LI, Christina Megalis and Mary L. Tortorello, U.S. Food and Drug Administration-NCFST, Summit-Argo, IL, USA

P3-37 Characterization and Antibiotic Resistance Profiles of *Salmonella* spp. Isolated in Pork and Poultry Plants – J. E. STRATTON and Yulie Meneses, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-38 Transfer and Recovery of *Salmonella* Species from Contaminated Nut Butters to Food Contact Surfaces – PRASHANTHI KAMINENI and Susanne Keller, Illinois Institute of Technology, Chicago, IL, USA

P3-39 Strain, Type of Food-conditioning Film and Their Interaction Significantly Affect Cell Density and Biofilm Formation by *Listeria monocytogenes* – JIA WEN, Valentina Alessandria and Stephen J. Knabel, Penn State University, University Park, PA, USA

P3-40 Occurrence and Characterization of *Listeria* spp. in Ready-to-Eat Retail Foods from Vancouver, British Columbia – JOVANA KOVACEVIC, Lili R. Mesak and Kevin J. Allen, University of British Columbia, Vancouver, BC, Canada

P3-41 Occurrence and Distribution of *Listeria* spp. in Facilities Producing Ready-to-Eat Foods under Provincial Inspection Authority in British Columbia, Canada – JOVANA KOVACEVIC, Sarah Henderson, Lorraine F. McIntyre, Lynn Wilcott and Tom Kosatsky, University of British Columbia, Vancouver, BC, Canada

P3-42 Ecology of *Listeria monocytogenes* in the Retail Deli Environment – COURTENAY SIMMONS, Emily Wright, Thomas Malley, Matthew Stasiewicz, Sherry E. Roof, Steven Warchocki, Janell Kause, Dare Akingbade, Martin Wiedmann and Haley F. Oliver, Cornell University, Ithaca, NY, USA

P3-43 Survival of *Listeria monocytogenes* and *Clostridium perfringens* in Acidified Pork Lips – MIGUEL A. GUTIERREZ, Marlene E. Janes and Sarah M. Kerr, Louisiana State University, Baton Rouge, LA, USA

P3-44 Measurement of *Listeria monocytogenes* Biofilm Cohesive Energy Using Atomic Force Microscopy – Fujia Zhang and LYNNE MCLANDBOROUGH, University of Massachusetts, Amherst, MA, USA

P3-45 Prevalence and Molecular Ecology of *Listeria*, *Salmonella* and Shiga Toxin-producing *Escherichia coli* from Agricultural Environments in Northern Colorado – CLYDE S. MANUEL, Christina Ahlstrom, Martin Wiedmann and Kendra K. Nightingale, Colorado State University, Fort Collins, CO, USA

P3-46 Thermal Inactivation of *Salmonella* and *Listeria monocytogenes* in Model Process Cheese Products – ROXANNE R. VONTAYSON, Erin M. Headley, Lindsey M. McDonnell, Russell McMinn and Kathleen A. Glass, University of Wisconsin-Madison, Madison, WI, USA

P3-47 Alternative Sigma Factors Affect Biofilm Formation in *Listeria monocytogenes* – LIZZIANE K. WINKELSTRÖTER, Elaine C. De Martinis, Kathryn J. Boor and Atin Datta, Universidade de São Paulo, Ribeirão Preto, Brazil

P3-48 Formation and Survival of Stress-induced Filaments by *Listeria monocytogenes* – ROBERT R. STACKHOUSE, KaHoua Yang, Charles W. Kaspar, Charles J. Czuprynski and Amy C. Wong, University of Wisconsin-Madison, Madison, WI, USA

P3-49 *Listeria monocytogenes* Sigma B, But Not PrfA, Shows Strain Specific Contributions to Growth under Salt Stress, Including Elongated Lag Phase of a *sigB* Null Mutant Across Strains – VINICIUS B. RIBEIRO, Sana Mujahid, Renato H. Orsi, Teresa Bergholz, Martin Wiedmann, Kathryn J. Boor and Maria Teresa Destro, University of São Paulo, São Paulo, Brazil

P3-50 The Cold Adaptation Phenotypic and Genetic Analysis of *Listeria monocytogenes* Strains Recovered along the Swiss and Canadian Food Supply Chains – Carolina Arguedas-Villa, Jovana Kovacevic, Kevin J. Allen, Roger Stephan and TAURAI TASARA, University of Zurich, Zurich, Switzerland

P3-51 Ribotypes of *Listeria monocytogenes* Isolated from Minimally Processed Vegetables in São Paulo, Brazil – ANDERSON S. SANT'ANA, Mariza Landgraf, Maria Teresa Destro and Bernadette D. Franco, University of São Paulo, São Paulo, Brazil

P3-52 The Role of the Alternative Sigma Factor, SigB, in the Survival of *Listeria monocytogenes* 568 during Desiccation on Stainless Steel – YANNAN HUANG, Tim C. Ells and Lisbeth Truelstrup Hansen, Dalhousie University, Halifax, NS, Canada

P3-53 Filamentation Characteristics of Cold-adapted Log Phase *Listeria monocytogenes* under Conditions of Salt and Temperature Stress – KATHLEEN M. VAIL, Lynn M. McMullen and Tineke H. Jones, University of Alberta, Edmonton, AB, Canada

P3-54 Effects of X-ray Irradiation on *Listeria monocytogenes* and Spoilage Bacteria in Smoked Catfish – BARAKAT S. MAHMOUD, Randal Y. Coker and Patricia R. Knight, Mississippi State University, Pascagoula, MS, USA

P3-55 Occurrence and Characterization of Shiga Toxin-producing *Escherichia coli* during Cattle Slaughter for Exporting and Refrigerated Beef Cuts Marketed at the Metropolitan Area of São Paulo – Priscila P. Alvares, Eb Chiarini, Beatriz E. Guth, Maria Teresa Destro, Bernadette D. Franco and MARIZA LANDGRAF, University of São Paulo, São Paulo, Brazil

P3-56 Survival of *Escherichia coli* O157:H7 in Meat Residues Deposited on the Surface of Meat Packaging Materials – MATTHEW C. NUNNELLY, Ifigenia Geornaras and John N. Sofos, Colorado State University, Fort Collins, CO, USA

- P3-57 Modification of *Escherichia coli* O26:H11 Quorum Sensing mRNA Expression Levels during Growth in Milk in the Presence of *Hafnia alvei* and a Model Cheese Microbial Consortium – FLORENCE POSTOLLEC, Nadine Henaff, Céline Delbes, Françoise Irlinger, Marie Christine Montel and Danièle Sohier, ADRIA Developpement, Quimper, France
- P3-58 Detection of Shiga Toxin-producing *Escherichia coli* in Ground Beef Sold in São Paulo, Brazil – ADRIANA LUCATELLI, Maria Teresa Destro and Mariza Landgraf, University of São Paulo, São Paulo, Brazil
- P3-59 Thermal Tolerance of O157 and Non-O157 Shiga Toxin-producing *Escherichia coli* Strains in a Broth System – WAN MEI LEONG, Akhila Vasan, Steve Ingham and Barbara Ingham, University of Wisconsin-Madison, Madison, WI, USA

Beverages and Water

- P3-60 Evaluation of a New Rapid Screening of *Pseudomonas aeruginosa* in Drinking Water Using Flow Cytometry Detection – Caroline Simmonet, Guillaume Mouly and STEPHANE HUET, AES CHEMUNEX, Bruz, France
- P3-61 Inactivation of Shiga Toxin-producing *Escherichia coli* in Single Strength Lemon and Lime Juices – Ai Kataoka, ELENA ENACHE, Maria Sohail, Philip H. Elliott and Glenn Black, Grocery Manufacturers Association, Washington, D.C., USA
- P3-62 Illustration of the Diversity in Microbial Resistance to Pulsed Electric Fields in Beer Using Surface Response Modeling – OSCAR RODRIGUEZ GONZALEZ, Markus Walkling-Ribeiro, Shesha H. Jayaram and Mansel W. Griffiths, University of Guelph, Guelph, ON, Canada

- P3-63 A Monitoring of Norovirus in Ground Water of DSC Kangwon-do, Korea, from Years 2009-2010 – LEE J. WON, Choi S. Hee, Chung S. Young, Oh S. Woo, Yang J. Yeon, Jeong-A Han, Kim H. Yeon and Park S. Nie, Korea Food and Drug Administration, Seoul, Republic of Korea

- P3-64 Detection and Characterization of Norovirus in Drinking and Reclaimed Water Implicated in a Gastroenteritis Outbreak after the Chilean Earthquake – VIVIANA CACHICAS, Roberto Marrero-Ortiz, Gary Hartman, Monica Jara, Leonor Castilla, Alicia Araya, Manuel Cortes, Nicolás Ferreira, Diego Belmar, Leonardo Farías, Palme Herrera, Jorge Mena, David Fuentes, Héctor Galeno, Lissette Muñoz, J. Tognarellie, J. Fernandez and William Burkhardt, Instituto de Salud Pública de Chile, Santiago, Chile

Non-microbial Food Safety

- P3-65 Do Beliefs and Knowledge of Children's Caregivers Predict Safe Food Handling Practices? – JULIE A. ALBRECHT, Adeline Lum, Christina Perry and Ruth Litchfield, University of Nebraska-Lincoln, Lincoln, NE, USA
- P3-66 The Prevalence of Microwave Cooking in 60 Minnesota Food Service Establishments – an EHS-Net Survey – NICOLE KOKTAVY, Karen Everstine, David Reimann, Kristin Delea and Kirk E. Smith, Minnesota Department of Health, St. Paul, MN, USA
- P3-67 Effect of Covering on the Cooling of Prepared Foods – ANDRÉ REHKOPF, Gregory J. Fleischman and Kathiravan Krishnamurthy, Illinois Institute of Technology, Summit Argo, IL, USA
- P3-68 Effect of a Non-destructive High Voltage Leak Detection (HVLD) Technique on Physical Properties of Plastic- and Foil-laminated Packages for Foods – MOHIT GERA, John Koontz and Yoonseok Song, Illinois Institute of Technology, Chicago, IL, USA
- P3-69 Sensitivity of Lactic Acid Bacteria as a Biomarker to Detect Rodenticides in Milk – MADHAVI HATHURUSINGHE and Salam A. Ibrahim, North Carolina A & T, Greensboro, NC, USA

Seafood

- P3-70 Determination of Histamine in Mahi-Mahi Fillets (*Coryphaena Hippurus*) Implicated in a Foodborne Poisoning – YUNG-HSIANG TSAI, Hsien-Feng Kung, Yu-Ru Huang, Chung-Saint Lin and Chia-Ming Lin, National Kaohsiung Marine University, Kaohsiung, Taiwan
- P3-71 Bacteriological Quality and Histamine-forming Bacteria Associated with Fish Meats and Environments in Fish Processing Factories – YUNG-HSIANG TSAI, Hsien-Feng Kung, Chung-Saint Lin and Chia-Ming Lin, National Kaohsiung Marine University, Kaohsiung, Taiwan
- P3-72 Prevalence of Histamine in Scombroid Fish and of Histamine Poisoning in Brazil from 2007-2009 – Warley P. Evangelista and M. BEATRIZ A. GLORIA, UFMG, Belo Horizonte, Brazil
- P3-73 Histamine Accumulation and Histamine-forming Bacteria in Dried Smooth-tailed Trevally (*Selariodes leptolepis*) Products – YU-RU HUANG, Yung-Hsiang Tsai, Chia-Ming Lin and Chung-Saint Lin, National Penghu University of Science and Technology, Makung, Taiwan
- P3-74 Effects of Storage Temperature on Accumulation of Histamine in Tuna Products – SUSAN MCCARTHY, Kristin Bjornsdottir-Butler and Ronald A. Benner, U.S. Food and Drug Administration, Dauphin Island, AL, USA

P3-75 Isolation of *Salmonella* spp. and *Vibrio* spp. from Seafood Sold in Singapore – Yunle Huang, Reka Agoston, Leslie Phua and HYUN-GYUN YUK, National University of Singapore, Singapore

P3-76 Effect of Cryogenic Freezing on *Salmonella* and *Listeria* Recovery from Inoculated Shrimp – KATHLEEN RAJKOWSKI and Eric Bender, U.S. Department of Agriculture, Wyndmoor, PA, USA

P3-77 Distribution and Inactivation of a Human DSC Norovirus Surrogate and Hepatitis A Virus in Oysters – ELBASHIR ARAUD and Jianrong Li, The Ohio State University, Columbus, OH, USA

P3-78 Cooking Times and Temperatures for Safe DSC Consumption of Louisiana Blue Crabs – NICOLE W. HAZARD, J. Danielle Johnson and Marlene E. Janes, Louisiana State University, Baton Rouge, LA, USA

P3-79 Use of High Hydrostatic Pressure Processing on Three Human Pathogenic Strains of *Vibrio parahaemolyticus* in Live Gulf Coast Oysters (*Cassostrea virginica*) – GEORGE J. FLICK, Dianne M. Bourne and Linda A. Granata, Virginia Tech, Blacksburg, VA, USA

P3-80 Effect of Antimicrobial Peptides on In Vitro and In Vivo Growth and Survival of *Vibrio* spp. – MELISSA K. JONES, Esther Mezhibovsky, Mitchell D. Knutson and Anita C. Wright, University of Florida, Gainesville, FL, USA

P3-81 Characterization of a Thermal Stable Antigenic DSC Marker Protein for Fish Detection – YI-TIEN CHEN and Yun-Hwa P. Hsieh, Florida State University, Tallahassee, FL, USA

P3-82 Development of a Real-time PCR Assay for Detecting Histamine-producing *Clostridium perfringens* in Fish – KRISTIN BJORNSDOTTIR-BUTLER, Susan A. McCarthy, William Burkhardt and Ronald A. Benner, U.S. Food and Drug Administration-DSST, Dauphin Island, AL, USA

Education

P3-83 An Exploratory Comparison of Knowledge Levels of Diverse Populations Within a Food Safety Workshop – JENNIFER SPRABERRY, Todd M. Brashears, Alejandro Echeverry, Mark Russell and Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P3-84 Effectiveness of Educational Interventions to Improve Older Adults' Food Safety Practices – KATHERINE M. KOSA, Sheryl Cates, Sandria Godwin, Melanie Ball and Robert E. Harrison, RTI International, Research Triangle Park, NC, USA

P3-85 Assessing Food Safety Practices Contributing to Food Safety Culture – Jack A. Neal, Daniel H. Henroid and MARGARET BINKLEY, The Ohio State University, Columbus, OH, USA

P3-86 Factors Affecting Worker Food Safety Behavior: DSC A Path Analysis Approach – BRITA BALL, Anne Wilcock and Scott Colwell, University of Guelph, Guelph, ON, Canada

P3-87 Evaluation of Current Food Safety Practices Used in Operating and Maintaining Hot/Cold Self Serve Bars in Retail Establishments – ANDREA E. ROWELL, Leslie D. Thompson, Christine Alvarado, Margaret Binkley and Scott Burriss, Texas Tech University, Lubbock, TX, USA

P3-88 Assessment of Food Safety Educational Needs and Current Practices of Front-line Grocery Food Handlers through Survey and Observational Data Collection – Lynn Ann Robertson, Benjamin Chapman, Catherine N. Cutter, Joseph Eifert, Nancy Franz, Abigail Villalba and RENEE R. BOYER, Virginia Tech, Blacksburg, VA, USA

P3-89 Raw Meat and Poultry-specific Knowledge Gaps DSC among Chicago Restaurant Meat and Poultry Food Handlers – PATPONG UDOMPAT, Li C. Liu and Mark S. Dworkin, University of Illinois-Chicago, Chicago, IL, USA

P3-90 Lessons Learned Recruiting Restaurant Food DSC Handlers to Participate in a Food Safety Survey: Implications for Future Research – MINDI MANES, Anne Burke, Li C. Liu and Mark S. Dworkin, University of Illinois-Chicago, Chicago, IL, USA

P3-91 Evaluation of Hygienic Practices and Efficacy of DSC an Educational Hand-washing Intervention among Restaurants in Lubbock and San Francisco – YEN TE LIAO, Ann Ulmer, Alejandro Echeverry, Rachel Lacey, Margaret Binkley, Dan Henroid and Mindy Brashears, Texas Tech University, Lubbock, TX, USA

P3-92 Development of a Food Safety Social Marketing Campaign – JULIE A. ALBRECHT, Ruth Litchfield, Christopher Weishaar, Katie James, Carol J. Larvick, Carol Schwarz, Cindy Brison and Jan Temple, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-93 Watching the People Who Watch Your Kids: Observation of Childcare Workers' Hand Washing Frequency and Quality – EWEN C. TODD, Maria K. Lapinski, Jenn Anderson and Alicia B. Shugart, Michigan State University, East Lansing, MI, USA

P3-94 Implementation and Assessment of Interactive Food Safety Educational Materials in Secondary Science – ADRIENNE E. SHEARER, Sue Snider and Kalmia E. Kniel, University of Delaware, Newark, DE, USA

P3-95 Integration of Molecular Pathogen Detection Technology into an Undergraduate Food Science Curriculum—a Pilot Study – HALEY F. OLIVER, Levon T. Esters, Emily McKenzie, Martin Wiedmann and Kendra K. Nightingale, Purdue University, West Lafayette, IN, USA

- P3-96 Real Raw Milk Facts: An Innovative Evidence-based Food Safety Website – MICHELE JAY-RUSSELL, William Marler, Katherine Feldman, Michael Payne, Patti Waller and Ronald H. Schmidt, University of California-Davis, Davis, CA, USA
- P3-97 Development of Comprehensive Risk Reduction Protocols to Enhance the Microbiological Quality and Safety of Artisan Cheeses – DENNIS D'AMICO, Marc J. Druart, Errol Groves and Catherine W. Donnelly, University of Vermont, Burlington, VT, USA
- P3-98 Consumer Response to New Methods of Washing Produce – CAITLIN R. HICKEY, University of California-Davis, Davis, CA, USA
- P3-99 Effectiveness of Food Safety Training Video for Volunteers in Faith-based Organizations – JUNEHEE KWON, Dojin Ryu, Lisa Zottarelli, Yee Ming Lee and Pei Liu, Kansas State University, Manhattan, KS, USA
- P3-100 Consumer Use and Understanding of Preparation Instructions for Prepared, but Not Ready-to-Eat Meat and Poultry Products – SHERYL CATES, Katherine M. Kosa, Rosalyn Murphy-Jenkins, Jeff Canavan, Sally Jones and Murray Penner, RTI International, Research Triangle Park, NC, USA
- P3-101 Effects of Storage Practices on Microbiological Quality of Irrigation Water from Two Community Gardens – Alex Frederick, FUR-CHI CHEN, Sandra Godwin, Rick Stone and Deborah Long, Tennessee State University, Nashville, TN, USA
- P3-102 Consumer Attitudes toward Food Safety in Asian and Mexican Restaurants – LOUISE E. LEE, Christine M. Bruhn and Amarat H. Simonne, University of California-Davis, Davis, CA, USA
- P3-103 Attitudes of Consumers Regarding Safety Certification in Restaurants in the Municipality of Campinas, Brazil – Paula L. Uggioni and ELISABETE SALAY, University of Campinas, Campinas, Brazil
- P3-104 In-home Observation of Consumer Use of Food Thermometers to Measure Endpoint Temperature of Ground Beef Patties – SANDY M. MCCURDY, Tiffani Zemmer-Nalivka and Courtney Staszak, University of Idaho, Moscow, ID, USA
- P3-105 Addressing Food Technologists Shortages in South Wales Using Bursary Placement Scheme – LEANNE ELLIS, University of Wales Institute-Cardiff, Cardiff, United Kingdom
- P3-106 Characterization of a Thermally Stable Amylase for Use as a Time-temperature Indicator (TTI) – BHARGAVI KANNEGANTI, Illinois Institute of Technology, Chicago, IL, USA
- P3-107 Develop a Practical HACCP Implementation Model for SMEs through Knowledge Transfer (Extension) in Line with BRC Global Standard for Food Safety – HELEN R. TAYLOR, University of Wales Institute-Cardiff, Cardiff, United Kingdom
- P3-108 Food Regulations: What a Beginning 105 Years Ago? An Educational Primer Import and Export Mandates – HELEN M. BARELA and Todd M. Brashears, Texas Tech University, Lubbock, TX, USA
- Produce**
- P3-109 Fate of *Salmonella* spp. and *Listeria monocytogenes* in Nine Different Types of Minimally Processed Vegetables – ANDERSON S. SANT'ANA, Mariza Landgraf, Maria Teresa Destro and Bernadette D. Franco, University of São Paulo, São Paulo, Brazil
- P3-110 Fate of *Salmonella* and *Listeria monocytogenes* on Fresh-cut Celery – JOSHUA P. VANDAMM, Lisseth G. Proano, Linda J. Harris, Donald W. Schaffner and Michelle D. Danyluk, University of Florida, Lake Alfred, FL, USA
- P3-111 Fate of *Escherichia coli* O157:H7 and *Salmonella* spp. on Fresh-cut Watermelon Stored at 4 and 23 °C – LORETTA M. FRIEDRICH, Di Li, Linda J. Harris, Donald W. Schaffner and Michelle D. Danyluk, University of Florida, Lake Alfred, FL, USA
- P3-112 Behavior of *E. coli* O157:H7 in Packaged Spinach after Exposure to Sodium Hypochlorite – Yin Lu, ARLETTE G. SHAZER, Karl Reineke, Yoonseok Song and Mary L. Tortorello, U.S. Food and Drug Administration-NCFST, Summit Argo, IL, USA
- P3-113 Survival of *Salmonella* spp., *Listeria monocytogenes* and *Escherichia coli* O157:H7 on Inoculated Peanut and Pecan Kernels Stored at -20 °C, 4 °C and 23 °C – LISSETH G. PROAÑO PERALTA, Loretta M. Friedrich, Linda J. Harris and Michelle D. Danyluk, University of Florida, Lake Alfred, FL, USA
- P3-114 Long-term Survival of *Salmonella* spp., *E. coli* O157:H7, and *Listeria monocytogenes* on Inoculated Almonds and In-shell Pistachios at Three Storage Temperatures – HARBIR KAUR, Martha Kimber, Michelle D. Danyluk and Linda J. Harris, University of California-Davis, Davis, CA, USA
- P3-115 Behavior of Inoculated *Salmonella* spp. in Postharvest Pistachio Handling – VANESSA M. MORALES, Harbir Kaur, Irene Y. Zhao and Linda J. Harris, University of California-Davis, Davis, CA, USA
- P3-116 Inactivation of *Salmonella* on Pecan Nutmeats by Hot Air and Oil Roast Treatments – DAVID A. MANN and Larry R. Beuchat, University of Georgia, Griffin, GA, USA

- P3-117 Evaluation of Critical Process Parameters for *Salmonella* Inactivation on Almonds Subjected to Thermal Pasteurization – Michael James, BRADLEY P. MARKS, Elliot T. Ryser and Sanghyup Jeong, Michigan State University, East Lansing, MI, USA
- P3-118 Evaluation of the Efficacy of Various Antimicrobial Treatments for Pistachios – MANISH SHEKHAWAT, Tam Mai, Margaret D. Hardin, Robert Miksch and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA
- P3-119 Antimicrobial Activities of a New Fresh Produce Sanitizer on *E. coli* O157:H7, *Salmonella* and *Listeria monocytogenes* and Log Reduction on Indigenous Microorganisms under Commercial Conditions – KAI LAI GRACE HO, Diego Luzuriaga and Shannon Tang, Chiquita Brands International, Salinas, CA, USA
- P3-120 Impact of Organic Load on Sanitizer Efficacy against *Escherichia coli* O157:H7 in Simulated Leafy Green Processing Water – GORDON DAVIDSON, Haiqiang Wang and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P3-121 Use of Edible Plant Extracts as an Alternative for Decontamination of *Shigella* and *E. coli* O157:H7 on Leafy Green Vegetables – Nydia Azenedh Orue, Santos Garcia-Alvarado, Peter Feng and NORMA HEREDIA, Universidad Autonoma de Nuevo Leon, Monterrey, Mexico
- P3-122 Antibacterial Activity of Vinegar and Canola Oil on Experimentally Inoculated *Salmonella enterica* and Gram Negative Microflora of Bagged Spinach Leaves – Charles Czuprynski, NAN G. FAITH and Toria Waldron, University of Wisconsin-Madison, Madison, WI, USA
- P3-123 Effect of Surface Topography of Alfalfa, Broccoli and Radish Seeds on Reduction of Inoculated *Escherichia coli* O157:H7 with a New Sanitizer-surfactant Combination – Lilia Fransisca, HEE KYUNG PARK and Hao Feng, University of Illinois at Urbana-Champaign, Urbana, IL, USA
- P3-124 The Use of Chlorine Dioxide Gas to Control *Alternaria alternata* and *Stemphylium vesicarium* on Roma Tomatoes – VALENTINA TRINETTA, Mark T. Morgan and Richard H. Linton, Purdue University, West Lafayette, IN, USA
- P3-125 Effect of Combined Treatments with Peroxyacetic Acid and High Power Ultrasound on *E. coli* O157:H7 Cross-contamination – WEN YUAN, Alvin C. Lee, Nicole D. Maks, Darren Bates and Stephen F. Grove, National Center for Food Safety and Technology, Summit-Argo, IL, USA
- P3-126 Postharvest Intervention Methods and Combined Treatments to Decontaminate Spinach – M. ZEKI DURAK, John J. Churey and Randy W. Worobo, Cornell University, Geneva, NY, USA
- P3-127 Effect of Minimal Processing Steps on Microbial Population Profiles on Lettuce in a Processing Plant – SANJA ILIC, Jeffrey T. LeJeune, Michael D. Kauffman and Brian B. McSpadden-Gardener, The Ohio State University, Columbus, OH, USA
- P3-128 Use of High Hydrostatic Pressure to Eliminate *Salmonella* on Jalapeño and Serrano Peppers – HUDAA S. NEETOO and Haiqiang Chen, University of Delaware, Newark, DE, USA
- P3-129 Enhanced Resistance of Sanitizer-injured DSC *Escherichia coli* O157:H7 on Baby Spinach during X-ray Irradiation – SCOTT R. MOOSEKIAN and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P3-130 *Salmonella* Transfer and Survival on Tomatoes and Contact Surfaces under Various Transportation and Storage Conditions – CHRISTABELLE PIANSAY, Mark A. Harrison and Michelle D. Danyluk, University of Georgia, Athens, GA, USA
- P3-131 Survival of *Salmonella* on Fresh Tomatoes under Selected Simulated Transportation Conditions – Arena N. Richardson, MARK A. HARRISON and Ruth Ann Morrow, University of Georgia, Athens, GA, USA
- P3-132 Impact of Post-inoculation Hold Time on DSC *Escherichia coli* O157:H7 Transfer during Commercial Production of Fresh-cut Leafy Greens – ANNEMARIE L. BUCHHOLZ, Gordon Davidson and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P3-133 Quantitative Transfer of *Escherichia coli* O157:H7 from Inoculated to Uninoculated Leafy Greens during Shaker Table Dewatering – ANNEMARIE L. BUCHHOLZ, Kar Mun Neoh and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P3-134 Quantitative Transfer of *Salmonella* to Water and DSC Equipment during Simulated Commercial Washing of Tomatoes – HAIQIANG WANG and Elliot T. Ryser, Michigan State University, East Lansing, MI, USA
- P3-135 *Listeria monocytogenes* Transfer during DSC Mechanical Dicing of Celery and Growth during Subsequent Storage – CHELSEA KAMINSKI, Gordon Davidson and Elliot Ryser, Michigan State University, East Lansing, MI, USA
- P3-136 *Salmonella* Enteritidis Cross-contamination onto Mango by Means of Contaminated Knives – ANA L. PENTEADO, Maria Fernanda P. Castro, Ivan Alcântara, Flavia R. Neves, Simone D. Costa and Ana Paula O. Ribeiro, Embrapa Agroindústria de Alimentos, Rio de Janeiro, Brazil
- P3-137 Evaluation of Factors That Impact Transfer of DSC *Escherichia coli* from Gloves to Surfaces – IRENE Y. ZHAO and Linda J. Harris, University of California-Davis, Davis, CA, USA

P3-138 Effect of Kitchen Procedures for Knife Cleaning on the Transfer of Pathogens during In-home Processing of Fresh Produce – KEILA PEREZ, Luis Cisneros-Zevallos, Alejandro Castillo and Matthew Taylor, Texas A&M University, College Station, TX, USA

Meat and Poultry

P3-139 Effects of Moisture Enhancement, Storage and Subsequent Cooking on Inactivation of *Campylobacter jejuni* and *Salmonella enterica* Typhimurium in Moisture-enhanced Pork – XUESONG WEN, Jing Li and James S. Dickson, Iowa State University, Ames, IA, USA

P3-140 Combination of Slightly Acidic Low Concentration Electrolyzed Water with Calcium Lactate to Ensure Microbial Safety, Shelf Life and Sensory Quality of Fresh Pork – SYED M. RAHMAN, Tian Ding, Jun Wang, Joong-Hyun Park, Na-Jung Choi, Ha-Na Kim, Jae-Ho Choi, Woo-Young Jung and Deog-Hwan Oh, Kangwon National University, Chuncheon, Republic of Korea

P3-141 Efficacy of a Food-grade Blend of Lactate-diacetate-propionate as Ingredients to Control *Listeria monocytogenes* on Commercially-produced Frankfurters – Anna C.S. Porto-Fett, Steve G. Campano, Alan Oser, Bradley A. Shoyer, Jeff Call and JOHN B. LUCHANSKY, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

P3-142 Use of Enhanced Octanoic Acid Surfactant System as a Post-lethality Treatment to Reduce *Listeria monocytogenes* on Hot Dogs – ELAINE BLACK, Teresa C. Podtburg, James White, Timothy A. Gutzmann and Peter W. Bodnaruk, Ecolab, Inc., St. Paul, MN, USA

P3-143 Evaluation of Process Parameters Used during the Fermentation and Drying of Italian-style Salami – MARGARET D. HARDIN, Michael De La Zerda, Robert Miksch and Mansour Samadpour, Institute for Environmental Health, Lake Forest Park, WA, USA

P3-144 Antimicrobial Activity of Lactic Acid Bacteria against *Listeria monocytogenes* on Ready-to-Eat Meat – OK-KYUNG KOO, Corliss A. O'Bryan, Jean Baptistse Ndahetuye, Phillip G. Crandall and Steven C. Ricke, University of Arkansas, Fayetteville, AR, USA

P3-145 Viability of *Listeria monocytogenes* on Commercially Prepared, Uncured Turkey Breast, Formulated with and without Potassium Levulinate, Potassium Diacetate and Potassium Propionate During Extended Refrigerated Storage – STEVE G. CAMPANO, Anna C.S. Porto-Fett, Bradley A. Shoyer, David Israeli, Jeff Call, Alan Oser and John B. Luchansky, Hawkins, Minneapolis, MN, USA

P3-146 The Use of a Bread Proofer in Deli Environments to Aid in the Thermal Inactivation of *Listeria monocytogenes* on Deli Slicers – Daniel S. Lindsay, Elizabeth M. Martin, Corliss A. O'Bryan, PHILLIP G. CRANDALL, Steven C. Ricke and John A. Marcy, University of Arkansas, Fayetteville, AR, USA

P3-147 Poultry Contamination with *Salmonella* and *Campylobacter* from Farm to Slaughter – Audecir Giombelli and M. BEATRIZ A. GLORIA, UFMG, Belo Horizonte, Brazil

P3-148 Isolation and Characterization of Avian Pathogenic *E. coli* from Delmarva Poultry – KYLE LESTRANGE, Cynthia Boettger, Jie Wei, Dallas G. Hoover and Kalmia E. Kniel, University of Delaware, Newark, DE, USA

P3-149 Spray Washing, Absorbent Corn Starch Powder and Dry Time to Reduce Bacterial Numbers on Soiled Broiler Transport Cage Flooring – MARK E. BERRANG, Richard J. Meinersmann and Chuck Hofacre, U.S. Department of Agriculture-ARS-RRC, Athens, GA, USA

P3-150 Poultry Litter from Free-range (Organic) Chickens Harbor Multi-drug Resistant and Pathogenic Strains of *Salmonella* – Joanna Deck, June deGraft-Hanson, Steven Foley, P. Brett Kenney and RAJESH NAYAK, U.S. Food and Drug Administration, Jefferson, AR, USA

P3-151 Growth Kinetics of *Salmonella* Enteritidis in Raw Ground Chicken with Different Levels of Native Microflora – HIROSHI FUJIKAWA and Sakha Zaher, Tokyo University of Agriculture and Technology, Fuchu, Japan

P3-152 Prevalence of the Foodborne Pathogen *Campylobacter* spp. in Retail Meats in Tulsa, Oklahoma – ANEESA NOORMOHAMED and Mohamed Fakhri, The University of Tulsa, Tulsa, OK, USA

P3-153 Contamination of Individual Whole Broiler Chickens with Multiple Molecular Subtypes of *Salmonella* and *Campylobacter* – KRISTIN M. KOTEWICZ, Meghan Hemsworth, Tracy Stiles and Linda Han, Massachusetts Department of Public Health State Laboratory Institute, Boston, MA, USA

P3-154 Comparison of Cumulative Drip Sampling to Whole Carcass Rinses for Estimation of *Campylobacter* spp. and Quality Indicator Organisms from Processed Broiler Chickens – J. ERIC LINE, Norman J. Stern, Brian B. Oakley and Bruce S. Seal, U.S. Department of Agriculture-ARS, Athens, GA, USA

P3-155 Pilot-scale Validation of a *Salmonella* Thermal Inactivation Model Applied to Whole-muscle Meat and Poultry Products Cooked in a Moist-air Impingement Oven – IAN M. HILDEBRANDT, Bradley P. Marks, Nicole O. Hall, Michael James, Alden M. Booren and Elliot T. Ryser, Michigan State University, East Lansing, MI, USA

P3-156 A Universal Thermal Inactivation Model for *Salmonella* in Meat and Poultry Products – MARIA ISABEL TENORIO-BERNAL, Bradley P. Marks, Alden M. Booren and Elliot Ryser, Michigan State University, East Lansing, MI, USA

P3-157 Antilisterial Properties of Marinades against Post-cooking Inoculated Chicken Breast Meat during Refrigerated Storage and Microwave Oven Reheating – ALIYAR FOULADKHAH, Ifigenia Geornaras and John N. Sofos, Colorado State University, Fort Collins, CO, USA

P3-158 Quadruplex PCR for Rapid Detection of Generic *Salmonella*, *Salmonella* Subspecies I, *S. Typhimurium* and *S. Enteritidis* in Layer Hen Housing Environments – HYUN JOONG KIM, Hongwei Xin and Byron F. Brehm-Stecher, Iowa State University, Ames, IA, USA

P3-159 Thermal Inactivation of Avian Influenza Virus in Liquid Egg Products – REVIS A. CHMIELEWSKI, Joan R. Beck and David E. Swayne, U.S. Department of Agriculture-SEPRL-ARS, Athens, GA, USA

P3-160 Thermal Inactivation Kinetics of *Salmonella* Enteritidis and Oranienberg in Commercially-acquired 10%–salted Liquid Whole Egg – JOSHUA B. GURTLER, Harry M. Marks, Deana R. Jones and Rebecca R. Bailey, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA

P3-161 The Heat Destruction of *Salmonella* Enteritidis in Liquid Egg White as a Function of Heat Treatment, Temperature and Heating Rate – CSABA NEMETH, Laszlo Friedrich, Jozsef Suranyi and Csaba Balla, Corvinus University of Budapest, Budapest, Hungary

Education

P3-162 Consumer Confidence in Food Related Practices: Is It a Valid Measure of Food Safety? – SANDRIA GODWIN, Fur-Chi Chen, Rick Stone and Agnes K. Kilonzo-Nthenge, Tennessee State University, Nashville, TN, USA

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