North Central Branch Officers/Planning Committee

President – Jeffrey Gray, Ph.D.
*Interim Vice President for Research, Director of the Master of Science in Biomedical Sciences, Professor of Microbiology and Immunology, Des Moines University

Vice President – Andrew Brittingham, Ph.D.
Professor of Microbiology and Immunology, Des Moines University

Secretary – Marie Nguyen, Ph.D.
Assistant Professor of Microbiology and Immunology, Des Moines University

Treasurer – Samina Akbar, Ph.D.
Assistant Professor of Microbiology and Immunology, Des Moines University

Agenda

Friday, October 7, 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 a.m.</td>
<td>Registration and Breakfast</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td><em>Yersinia enterocolitica</em> Virulence: The Cost of Doing Business</td>
</tr>
<tr>
<td></td>
<td>Andrew J. Darwin, Ph.D., NYU School of Medicine</td>
</tr>
<tr>
<td></td>
<td>***ASM Branch Lectureship Program Speaker</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>Poster Session</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>11 a.m.</td>
<td>Microbial Biology on Leaves: A Model for Understanding how Bacterial Interactions with a Host Intersect with Environmental Stress Tolerance</td>
</tr>
<tr>
<td></td>
<td>Gwyn Beattie, Ph.D., Iowa State University</td>
</tr>
<tr>
<td>Noon</td>
<td>Lunch and Poster Session</td>
</tr>
<tr>
<td>1 p.m.</td>
<td>Oral Abstract Presentations (Concurrent Sessions)</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>Break</td>
</tr>
<tr>
<td>2:45 p.m.</td>
<td>Oral Abstract Presentations (Concurrent Sessions)</td>
</tr>
<tr>
<td>4 p.m.</td>
<td>Adjourn</td>
</tr>
<tr>
<td></td>
<td>DMU Campus Tour (optional) – 50 minutes</td>
</tr>
<tr>
<td></td>
<td>• Biomedical Lab</td>
</tr>
<tr>
<td></td>
<td>• Simulation Lab</td>
</tr>
<tr>
<td></td>
<td>• Surgery Lab</td>
</tr>
<tr>
<td></td>
<td>• Wellness Center</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Cocktails, Dinner, and Networking</td>
</tr>
<tr>
<td>7:30 p.m.</td>
<td><em>Pseudomonas aeruginosa</em> ExoU: Killing from the Inside-Out</td>
</tr>
<tr>
<td></td>
<td>Dara W. Frank, Ph.D., Medical College of Wisconsin</td>
</tr>
<tr>
<td>8:30 p.m.</td>
<td>Presentation of Student Awards</td>
</tr>
<tr>
<td>9 p.m.</td>
<td>Adjourn</td>
</tr>
</tbody>
</table>
### Saturday, October 8, 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8 a.m.</td>
<td>North Central Branch ASM Business Meeting (members only)</td>
</tr>
<tr>
<td></td>
<td>Open Forum with Keynote Speaker Dr. Darwin. Open to all Students</td>
</tr>
<tr>
<td>8 a.m.</td>
<td>Environmental Microbiology</td>
</tr>
<tr>
<td></td>
<td>Virulence Pathogenesis</td>
</tr>
<tr>
<td>9 a.m.</td>
<td>Evolution and Ecology of Aerobic, Growth-Coupled Vinyl Chloride-Oxidizing Bacteria</td>
</tr>
<tr>
<td></td>
<td>Timothy E. Mattes, Ph.D., PE, University of Iowa</td>
</tr>
<tr>
<td></td>
<td>Open Forum with Keynote Speaker Dr. Darwin. Open to all Students</td>
</tr>
<tr>
<td>9:35 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>9:40 a.m.</td>
<td>The <em>Pseudomonas putida</em> Biofilm Matrix: Protein-Polysaccharide Interactions Critical to Biofilm Formation and Stress Relief</td>
</tr>
<tr>
<td></td>
<td>Larry Halverson, Ph.D., Iowa State University</td>
</tr>
<tr>
<td></td>
<td>Dissecting the Intestinal Microbiome</td>
</tr>
<tr>
<td></td>
<td>Thad Stanton, Ph.D., USDA/ARS/NADC</td>
</tr>
<tr>
<td>10:15 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>10: 20 a.m.</td>
<td>A Biological Market Underground Stabilizes Cooperation in the Arbuscular Mycorrhizal Symbiosis</td>
</tr>
<tr>
<td></td>
<td>Heike Bücking, Ph.D., South Dakota State University</td>
</tr>
<tr>
<td></td>
<td>Performing the Step from Gene Regulation to Application: FlhD/FlhC, a Global Regulator in <em>Escherichia coli</em></td>
</tr>
<tr>
<td></td>
<td>Birgit Pruess, Ph.D., North Dakota State University</td>
</tr>
<tr>
<td>10:55 a.m.</td>
<td>Closing Statements</td>
</tr>
<tr>
<td>11:15 a.m.</td>
<td>Adjourn</td>
</tr>
</tbody>
</table>

**Invited Speakers**

Gwyn Beattie, Ph.D.  
*Professor, Robert Earle Buchanan Distinguished Professor of Bacteriology for Research and Nomenclature, Iowa State University*

Heike Bücking, Ph.D.  
*Associate Professor of Biology and Microbiology, South Dakota State University*

Andrew Darwin, Ph.D.  
*Associate Professor of Microbiology, NYU School of Medicine*

Dara Frank, Ph.D.  
*Professor of Microbiology and Molecular Genetics, Medical College of Wisconsin*

Larry Halverson, Ph.D.  
*Associate Professor of Department of Plant Pathology and Microbiology; Chair, Interdepartmental Microbiology Graduate Program, Iowa State University*

Timothy Mattes, Ph.D., PE  
*Associate Professor of Civil and Environmental Engineering, University of Iowa*

Birgit Pruess, Ph.D.  
*Associate Professor of Microbial Physiology, North Dakota State University*
Poster Abstracts

**Environmental/Food/Plant Microbiology**

Effect of Gaseous Ozone on the Safety and Quality of Malting Barley  
Anuradha Vegi, North Dakota State University

Development of a DNA-fingerprinting Scheme for Food Isolates of *Bacillus cereus*  
Kristin Gulrud, St. Cloud State University

The Microbial Mixer: Do Streptomycetes Interaction Networks Vary in the Rhizosphere of Different Prairie Plants  
Jon Anderson, University of Minnesota-Twin Cities

Diversity of *Escherichia coli* Isolates in Brookings County, South Dakota  
Volker Brözel, South Dakota State University

Investigation of Geosmin-Degrading Bacterial Communities on Full-Scale GAC Filters  
Katheryn Hope, University of Minnesota

Evaluation of the Phylogeny and Cellular and Ecological Roles of Three Photosensory Proteins in *Pseudomonas syringae*  
Regina Nickel, Iowa State University

Stimulons and Traits Contributing to Epiphytic and Endophytic Growth of *Pseudomonas syringae* on Host Plants  
Xilan Yu, Iowa State University

Diversity, Structure and Affinity Reagent Applications of *Bacillus anthracis* Sterne Bacteriophages from Iowa Soil  
Michael Walter, University of Northern Iowa

Role of Periplasmic Glucans in *Pseudomonas aeruginosa* Fitness Under Water-Limiting Conditions  
Seth Wenner, Iowa State University

Contribution of Plant-Derived Carnitine to the Fitness of *Pseudomonas syringae* on Plants  
Michael Millican, Iowa State University

**General Microbiology**

A Free Web-Based Course Management and Instructional Tool for Microbial Bioinformatics  
Christopher Kvaal, St. Cloud State University

Characterization of Phosphorylcholine Catabolism and Osmoprotection in *Pseudomonas syringae*  
Shanshan Li, Iowa State University

Elemental Analysis for Characterization of *Mycobacterium avium* subsp. *paratuberculosis* Biofilms  
Jose Barriga, Minnesota State University - Mankato
Effectiveness of Disinfectants on Dormant *Mycobacterium avium* subspecies *paratuberculosis*
Jessica Jurovich, Minnesota State University

Type 3 Secretion System Targets and Mechanisms for Inhibition in *Yersinia pestis*
Danielle Jessen, University of North Dakota

Putative Gut Receptors for *Pea enation mosaic virus* in the Pea Aphid, *Acyrthosiphon pisum*
Lucas Linz, Iowa State University

Chemotactic Response of *Pseudomonas putida* F1 to Phenylacetate
Stacy Ngwesse, University of St. Thomas
Benjamin Schneider, University of St. Thomas

**Molecular and Cell Biology**

Regulation of Gene Expression in Response to Iron Limitation during Complementary Chromatic Adaptation of *Fremyella diplosiphon*
Travis Halfmann, South Dakota State University

Analysis of the Role of BipA and Pseudouridylations on Stress Protein Regulation in *Escherichia coli*
Lisa Burnette, University of North Dakota
Promisree Choudhury, University of North Dakota

Development of a Universal Oral Mammalian Orthoreovirus Vectored Vaccine for Infectious Diseases in Animals
Baoqing Guo, Iowa State University

Optimizing Growth Conditions of *Escherichia coli* HT115 (DE3) for Industrial-Scale Recombinant dsRNA Production
Patrick Jennings, Harrisvaccines, Inc.

A Mass-Differentiated Library Strategy for Functional Proteomic Identification of Sugar Nucleotidylytransferase Activities from Cell Lysates
Joy Jackson, Iowa State University

Investigation of the Triplet Interaction of *Phytophthora Sojae* Effector Proteins Avr1b or Avr1k with the Soybean Resistance Protein Rps1-K and Soybean E3 Ligase Gmpub1
Chunyu Liao, Iowa State University

Modeling the Expression Patterns of IFN-γ Regulated Genes to Differentiate Pigs Shedding High and Low Levels of *Salmonella*
Jolita Uthe, Iowa State University

RasP, a Site-2 Protease, Activates *Clostridium difficile* ECF Sigma Factor CsfT
Isaac Rockafellow, University of Iowa

YdfM: A Possible *Bacillus subtilis* Manganese Exporter
Kaila Schoenberger, Viterbo University

**Veterinary Microbiology**

Pathogenic *Escherichia coli* O11, O141, O157 and O158 Strains Circulating in Egyptian Broiler Flocks
Ashraf Hussein, Iowa State University
Metagenomic Evaluation of Culture-Negative Clinical Mastitis Samples
Joanna Kuehn, Iowa State University

Virulence of Flavobacterium columnare Mutants in a Zebra Fish Infection Model
Jacob Reisner, St. Norbert College

Identification of Gut Bacteria of the Zebra Finch
Blake Bashor, St. Norbert College

Nanoparticles Increased Intracellular Antibiotic Delivery and Subsequent Killing of Virulent Brucella abortus
Bryan Bellaire, Iowa State University

The Influence of Mycobacterial Infection on Intestinal Mucosal Homeostasis
Jesse Hostetter, Iowa State University

Attempts to Prevent Swine Influenza by Intranasal Administration of Alphavirus Replicon Particle Vaccine
Qi Chen, Iowa State University

Innate Immune Responses Of Porcine Macrophage Cell Line (Cdelta2+) to Virus-Associated Virulence Determinants
Jocelin Joseph, South Dakota State University

Contribution of Genes Involved in Biofilm Formation to Adherence of Escherichia coli O157:H7 to Epithelial Cells
Mishel Stephenson, Iowa State University

Genetic Mechanisms for Differential Expression of the CmeABC Efflux Pump in Naturally Occurring Isolates of Campylobacter jejuni
Tara Grinnage-Pulley, Iowa State University

Biomedical Microbiology

Molecular Analysis of CMY2 Plasmid Dissemination from Diverse Isolates of Salmonella
Holly Hulsebus, Des Moines University

Borreliaburgdorferi Enolase Is A Surface Exposed Plasminogen Binding Protein
Angela Floden, University of North Dakota

Time Course of TPS1 Induction Shows Slow Response of Yeast to Boric Acid Exposure
Kento Akasaka, Des Moines University

Integrons: Another Mechanism by which Salmonella Acquire Multiple Drug Resistance
Alex Hoover, University of Iowa

Increased Resistance to Multiple Antimicrobials in blaCMY-2 Salmonella Following Treatment with Ceftriaxone
Russell Hamilton, Des Moines University

Yeast Boric Acid Resistance Depends on Cytoplasmic Functions of Hog1
Jeffrey Messerly, Des Moines University
Role of Plasmids in the Virulence of Neonatal Meningitis Escherichia coli
Bryon Nicholson, Iowa State University

Degradation and Utilization of Complex Carbohydrates by Trichomonas vaginalis
Lauren Nawrocki, Des Moines University
Early Passage Neonate and Adult Keratinocytes are Sensitive to Herpes Simplex Virus-1-Dependent Apoptosis
Prajakta Pradhan, Des Moines University

Disease Exacerbation in a Multiple-Hit Mouse Model of Typhlocolitis Caused by Treatment with Prunella vulgaris and Hypericum gentianoides Extracts is Associated with Microbial Dysbiosis
Anne-Marie Overstreet, Iowa State University

Single-Dose Immunization of Pneumococcal Surface Protein A Encapsulated in Polyanhydride Nanoparticles to Enhance Humoral Immunity
Amy Schoofs, Iowa State University

Oral Abstracts

The Fate of Antibiotic Resistance Genes Following the Application of Treated Municipal Wastewater Solids to Soil
Tucker Burch, University of Minnesota

Exploring the Impacts of Antibiotics on the Microbial Communities in the Swine Intestinal Tract Requested Author and Institution
Torey Looft, Iowa State University and National Animal Disease Center

Antibiotic Resistance in Agricultural E. coli Isolates is Associated with Attachment to Quartz
Ping Liu, Iowa State University

Investigation of the Mechanism by which Statins Inhibit Growth of Staphylococcal Bacteria and their Synergistic Effects when Combined with Antimicrobials
Kelsey Randel, Des Moines University

Investigation of the Effects of Subtherapeutic Cephalosporin Treatment on the Fitness of blaCMY-2- Positive Salmonella
Paige Deike, Des Moines University

PCV2 is not Transmissible to Naïve Contact Pigs in an Infected Pig Population Closed for 140 Days After Exposure
Michelle Grabosch, Iowa State University

Commercial Subunit and Chimeric Porcine Circovirus type 2 (PCV2) Vaccines Administered to 5-day-old Piglets Induce Protective Immunity in an Experimental Triple Infection Model
Kevin O’Neill, Iowa State University

Characterization of Swine Influenza Virus PB1-F2 Properties in Swine and Human Cells
Jason Buehler, Iowa State University

Investigation of the Impact of Mammalian Orthoreovirus Infection on Hypoxic Cancer Cells
Pooja Gupta, Iowa State University

Inhibition of Herpes Simplex Virus 1 Replication by the Telomerase Inhibitor MST-312
Jarod Haberichter, Des Moines University

Transcriptional Analysis of the Worldwide Emergent, Multidrug Resistance-Encoding IncA/C Plasmid
Johnson, University of Minnesota
Enterohemorrhagic *Escherichia coli* O157:H7 Requires Quorum Sensing Transcriptional Regulators QseA and SdiA for Colonization and Persistence in the Bovine Intestinal Tract
*Vijay Sharma, USDA/ARS/MWA/NADC*

*Mitsukella jalaludinii* Inhibits Growth of *Salmonella enterica* serovar Typhimurium
*Uri Levine, USDA/ARS/MWA/NADC*

A Novel Two-Component Signaling System KguS/KguR Involved in the Utilization of α-Ketoglutarate Contributes To Virulence in Uropathogenic *Escherichia coli*
*Wentong Cai, Iowa State University*

Definition of the *Escherichia coli* O157:H7 Proteome Under Nutrient Limiting Conditions to Identify Targets for Efficacious Cattle Vaccines
*Indira Kudva, USDA/ARS/MWA/NADC*

Gene Regulation in *Escherichia coli* Biofilms
*Priyankar Samanta, North Dakota State University*

Swine MRSA Isolates Form Robust Biofilms
*Tracy Nicholson, NADC/ARS/USDA*

A *Cryptosporidium parvum* Rhomboid (CROM) Colocalizes with the Thrombospondin Related Adhesive Protein (TRAP-C1) During Invasion of Host Cells
*Ebot Tabe, North Dakota State University*

Identification of a Chemoreceptor for Amino Acids in *Pseudomonas putida* F1
*Kayla Williams, University of St. Thomas*

Isolation and Analysis of Cluster E Mycobacteriophage Elph10
*Allison Kraft, University of Wisconsin - River Falls*

Strategies to Remove Sodium Benzoate to Allow Ethanol Production from Expired Soft Drinks
*Jason Croat, South Dakota State University*

**Registration**

Education sessions
- Full member (with dues) - $70
- Full member (without dues) - $65
- Student member (with dues) - $40
- Student member (without dues) - $35

Evening reception
- Full member - $40
- Student - $30
Exhibitors

GenMark Dx

Microbiologics

Fisher Scientific

Disclosure Statement

Everyone in a position to control the content of this educational activity will disclose to the CME provider and to attendees all relevant financial relationships with any commercial interest. They will also disclose if any pharmaceuticals or medical procedures and devices discussed are investigational or unapproved for use by the U.S. Food and Drug Administration (FDA). Determination of educational content for this program and the selection of speakers are responsibilities of the program director. Firms providing financial support did not have input in these areas.

Contact

Vanessa Ross, CMP
Manager, Continuing Medical Education
3200 Grand Avenue
Des Moines, IA 50312
Office: 515-271-1541
vanessa.ross@dmu.edu
www.dmu.edu/cme