

What Makes the UGA Center for Food Safety Tick?

Michael Doyle
Director

UGA Center for Food Safety



Center for Food Safety

To maintain or improve the safety of foods through the development of methods that detect, control, or eliminate pathogenic microorganisms or their toxins



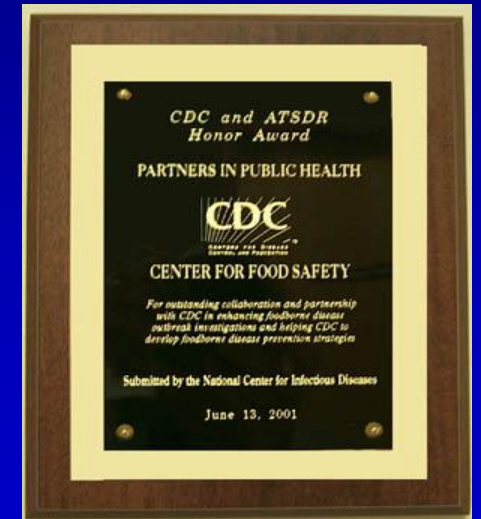
UGA Center for Food Safety - Background

- Established in 1993
 - ▲ Initially Center for Food Safety and Quality Enhancement at Griffin Campus
 - ▲ Changed to Center for Food Safety in 2001
 - ◆ Increased faculty with sole focus on food safety and more Athens faculty
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Board of Advisors



Governmental & Institutional Collaborators



UGA Center for Food Safety - Faculty

Principal Researchers

18 Faculty Members

5 - 10 Postdoctoral Scientists

Multi-disciplinary

- Environmental Health Science (College of Public Health)
 - Avian Medicine (College of Veterinary Medicine)
 - USDA
 - Toxicology
 - Microbiology
 - Food Science (College of Agriculture & Environmental Sciences)
 - Microbiology (CAES)
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UGA Center for Food Safety - Faculty

- Bacteriologists
 - ▲ *E. coli* O157 (STEC), *Listeria*, *Salmonella*, *Campylobacter*, etc.
 - Parasitologist
 - ▲ *Cyclospora*, *Cryptosporidium*
 - Virologist
 - ▲ Noroviruses, Hepatitis
 - Mycotoxicologists
 - ▲ Aflatoxin, Trichothecenes, Vomitoxin
 - Avian veterinarians
 - ▲ *Salmonella*, *Campylobacter*
 - Epidemiologist
 - Food toxicologist; risk assessment
 - Bioinformatics
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Dr. Michael Doyle

Regents Professor of Food Microbiology
Director, Center for Food Safety

- Food microbiology with a focus on bacterial foodborne pathogens
- Pathogens under study include *Escherichia coli* O157:H7 and other serotypes of enterohemorrhagic *E. coli*, *Salmonella* spp., *Campylobacter jejuni*, and *Listeria monocytogenes*
- Develops treatments to kill harmful microbes on produce, meat and poultry





Dr. Larry Beuchat

Distinguished Research Professor

- Over 40 years of research at Center for Food Safety
- Over 380 publications
- Evaluate various methods for reducing *Salmonella* on pecans
- Behavior and survival of *Salmonella* on dried fruits





Dr. Jennifer Cannon

Assistant Professor

- Improving methods for detecting viruses in foods and water by molecular and cell culture assays
- Determine virus transfer to kitchen utensils and produce items during in home preparation
- Evaluate the effectiveness of commonly used treatments to control harmful microbes in food processing
- Investigate alternative methods for sanitizing produce and hands
- Epidemiologic studies addressing the risk of virus contamination of ready-to-eat foods by farm workers

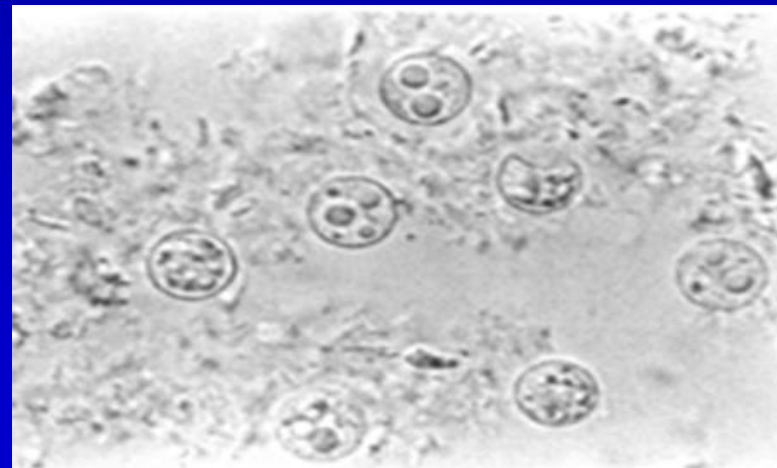
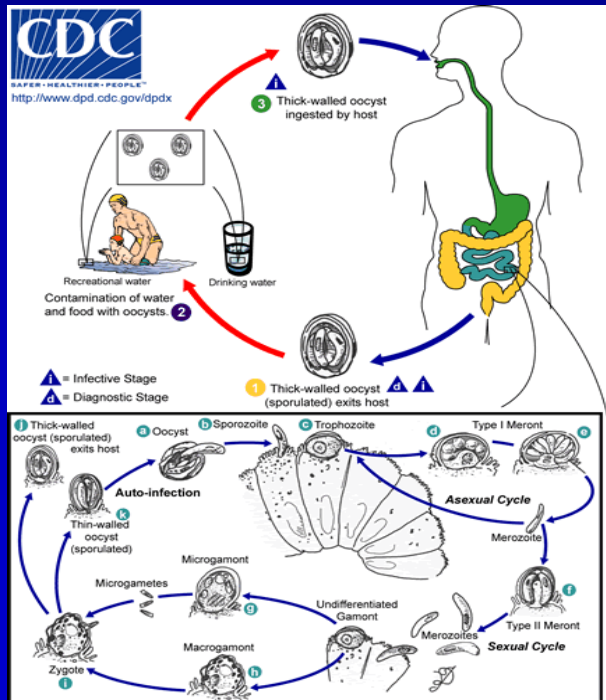




Dr. Ynes Ortega

Associate Professor

- Food Parasitology
- Detection of human and animal parasites in foods and the environment; pathogenesis of coccidian parasites with emphasis on *Cryptosporidium parvum* and *Cyclospora cayentanensis*
- Methods to kill parasites on foods





Dr. Walid Alali

Assistant Professor

- Research aims at understanding foodborne pathogen transmission and levels in farm animals (especially in poultry production systems)
- Evaluating methods to control harmful microbes in pre- and post-harvest animal production environments





Dr. Marilyn Erickson

Associate Professor

- Determine the role of different types of manure and carbon amendments on killing harmful microbes during composting
- Determine pathogen survival on gloves worn by field workers during harvesting fruits and vegetables and the effectiveness of sanitizers to inactivate those pathogens
- Identify the conditions under which harmful microbes get into lettuce when its growing in the field





Dr. Xiangyu Deng

Assistant Professor

- CDC Fellow
- Molecular subtyping of foodborne bacterial pathogens
- Bioinformatics of foodborne bacterial pathogens, including *Salmonella* and *Listeria monocytogenes*

Dr. Tong Zhao

Assistant Research Scientist

- Detection of harmful bacteria on food, including *E. coli* O157:H7, *Salmonella*, *Listeria monocytogenes*, and *Campylobacter*
- Ecology and reduction of carriage of *Escherichia coli* O157:H7 in cattle

- Development of beneficial bacteria to reduce/eliminate *E. coli* O157:H7 and *L. monocytogenes* in processing plants



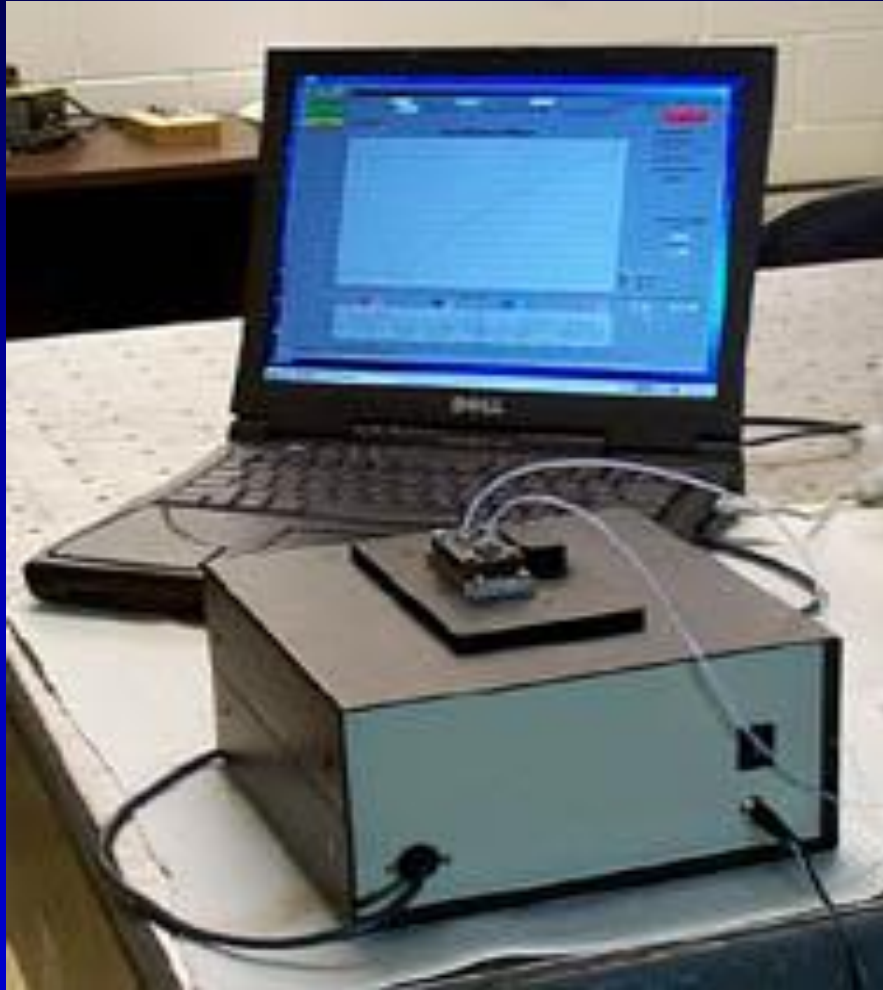
Isolation of Competitive Exclusion Bacteria for Reduction of *Salmonella* or *Campylobacter* in Chickens



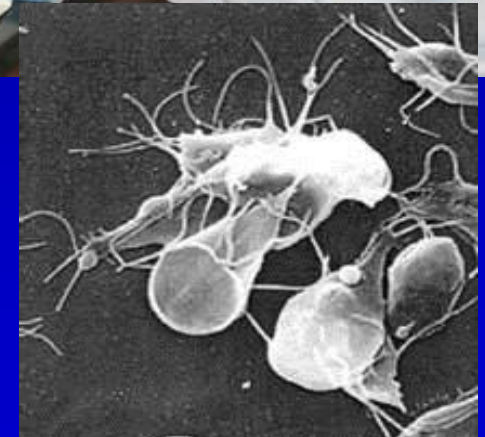
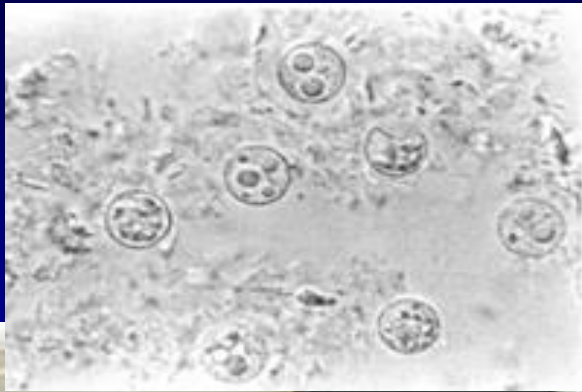
Biocontrol of *Listeria monocytogenes* in Floor Drains of Processing Plants



Real-time Detection of Pathogens Using Biosensors



Optimizing Detection of Protozoan Parasites in Produce



Treatments for Elimination of Pathogens in Produce and on Poultry



Norovirus transfer to gloves and field-appropriate inactivating treatments



UGA Center for Food Safety – Examples of Research Projects

- \$400,000 - \$500,000 annually in unrestricted contributions from food industry
 - ▲ Receive general input from CFS-BOA
- USDA – Norocore - Norovirus detection in foods – Grant
- USDA – *E. coli* O157 interventions for cattle – Grant
- Center for Produce Safety – Pathogen interventions for produce - Grant
- USDA – *E. coli* O157 on leafy greens - Grant
- USDA-FAS-EMP - *Salmonella* on raw poultry - Grant

UGA Center for Food Safety – Examples of Research Projects

- AMI – *Salmonella* levels in bone marrow and neck skin of turkey - Grant
 - USDA-GA Tech – Efficient capture and preconcentration with magnetic microbeads – Grant
 - State of Georgia – Pathogens interventions for produce – Grants
 - USDA – Controlling *Salmonella* on nuts – Grant
 - NIH – Effect of biogeography on *Salmonella* diversity – Grant
 - NSF – Food safety workshop – Grant
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UGA Center for Food Safety – Examples of Research Projects

- FDA – Detection of foodborne parasites – Grants
 - USDA – Competitive exclusion bacteria for *Salmonella* in poultry – Grant
 - USDA – Persistence of *Salmonella* in low-moisture foods - Grants
 - FDA – Dose response risk assessment for *Listeria* – Grant
 - USDA – Vaccine for *Salmonella* in poultry – Grant
 - American Meat Institute – *Salmonella* in turkeys - Grant
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UGA Center for Food Safety – Annual Meeting

- Presentations by leaders at FDA, CDC, USDA and selected CFS faculty addressing timely topics on food safety
 - Topics and speakers largely input of BOA
 - Invitation only
 - 150-200 participants
 - No media; no lawyers
 - Open discussions; no report of proceedings
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UGA Center for Food Safety – Keys to Success

- Engage the food industry; a research and outreach program that is both relevant to the industry and addresses real solutions
 - Only food companies highly committed to raising the bar for safer foods
 - Be focused
 - ▲ Well-defined mission; don't dilute
 - **Credibility** with federal and state food-related agencies, industry and consumers
 - Strong collaboration with government (especially CDC)
 - ▲ Host CDC Food Industry Safety Forum
 - A faculty that is willing and committed to addressing topics that are relevant to the industry's interests
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