

	<p style="text-align: center;"><b>Ramakrishna Nannapaneni, Ph.D.</b>  Associate Professor, Food Microbiology and Food Safety  Department of Food Science, Nutrition and Health Promotion  Mississippi State University</p>	<p style="text-align: right;">Phone: 662-325-7697  Email: <a href="mailto:nannapaneni@fsnhp.msstate.edu">nannapaneni@fsnhp.msstate.edu</a>  Web page:  <a href="http://www.fsnhp.msstate.edu/faculty/detail.php?faculty=rn">http://www.fsnhp.msstate.edu/faculty/detail.php?faculty=rn</a></p>
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## Academic Positions Held

<b>Associate Professor</b>	<b>2012-Current</b>
<b>Assistant Professor</b>	<b>2007-2011</b>
<b>Department of Food Science, Nutrition and Health Promotion</b>	
<b>Mississippi State University</b>	

Duties: Microbial stress adaptation, antimicrobial resistance, whole-cell microbiology, immunology, food safety and molecular food microbiology of *Listeria monocytogenes*, *Campylobacter jejuni*, *Vibrio*, *Salmonella*, and *E. coli* O157:H7 in Food Science.

### Key Achievements:

- ⇒ Led research on four major foodborne bacterial pathogens, including *Listeria monocytogenes*, *Campylobacter*, *E. coli* O157:H7 and *Salmonella* by collaborating with various scientists from different universities, industry and USDA and has evolved on different themes simultaneously, including:
  - Survival, persistence and stress adaptation of foodborne bacterial pathogens by whole-cell and molecular models
  - Destruction of various foodborne bacterial pathogens by novel antimicrobials
  - Monoclonal antibodies recognizing specific epitopes of foodborne bacterial pathogens
  - Antibiotic resistant foodborne bacterial pathogens and their persistence in foods
  - Microbial protein expression
  - Bacteriophages against foodborne bacterial pathogens
  - Human and animal cell models for microbial virulence expression
  - Novel GRAS antimicrobials and their synergistic interactions
- ⇒ Created a new BSL-2 laboratory in Herzer for whole-cell, immunological and molecular research capacities.
- ⇒ Developed strong internal collaborations as well as national and international collaborations on both novel antimicrobial research and microbial protein expression of foodborne bacterial pathogens for generating many joint publications.
- ⇒ Demonstrated the potential of a diverse range of novel antimicrobial approaches, such as bacteriophages, lauric arginate and natural citrus compounds for the reduction of foodborne bacterial pathogens and led to many high quality publications.
- ⇒ Current work is leading to a new understanding on the microbial protein expression during stress adaption, primarily during cold shock and cold growth for elucidating the mechanisms of cold-adaption of *Listeria monocytogenes* in ready-to-eat food products besides other stress-hardened conditions for generating more high impact publications.
- ⇒ Developed collaborations with Dairy Management Inc. and Southern Dairy Foods Research Center by winning DMI Discovery grant and participated in their annual meetings at North Carolina State University (2009, 2010, 2011).
- ⇒ Joined a Multi-State Research Project S-1033, Control of foodborne pathogens in pre and post harvest environments, CRIS MIS-401100 and approved by NIFA.
- ⇒ Led to many joint publications with the University of Arkansas scientists and with two other USDA groups including Southern Plains Agricultural Research Center, Food and Feed Safety Research Unit at Texas and USDA Poultry Production and Product Safety at AR with whom I shared close ties on various research interests.

- ⇒ Developed strong international collaboration with Dr. Steven Hagen of MICREOS Food Safety (formerly EBI Food Safety), a Netherlands firm on foodgrade bacteriophage against *L. monocytogenes* and generated several journal articles.
- ⇒ Developed strong international collaboration with Dr. Taurai Tasara of the University of Zurich in Switzerland on cold adaptation of *L. monocytogenes* by genomic and proteomic approaches and generated several joint publications.
- ⇒ Collaborated with CVM-Basic Sciences, Biological Sciences, and LSBI for genomic and proteomic approaches on microbial stress adaptation by submitting national competitive and internal competitive grant proposals.
- ⇒ Collaborated with various faculty in FSNHP by submitting competitive grant proposals with Drs. Schilling, Silva, Behrends, Haque, and Yoder) and led to several joint publications. Collaborated with Dr. Ty Schmidt, Animal and Dairy Sciences on *E. coli* O157:H7 contamination and transmission through flies for the development of a novel real-time archetype for monitoring *E. coli* O157:H7 transmission/contamination in cattle.
- ⇒ Led to a new collaboration with University of Minnesota, CalPoly, Cornell University and with USDA Food Safety Intervention Technologies at Eastern Regional Research Center in Wyndmoor for the NIFSI 2010 and 2011 grant proposal on controlling *L. monocytogenes* cold growth in fresh soft cheeses.
- ⇒ Led to collaborations with USDA-ARS Environmental Microbial and Food Safety Laboratory in Beltsville for the AFRI 2010 grant proposal on the elimination of stress- injured cells of *E. coli* O157:H7 in fresh cut vegetables.
- ⇒ Led to a collaboration with Alabama State University, North Carolina State University and Clemson University for AFRI 2011 grant proposal on risk factors for *Campylobacter* and *Salmonella* in poultry.
- ⇒ Generating new proteomic data for collaborating with USDA Integrated Biomolecular Resources of Microbial Food Safety Research Unit at Eastern Regional Research Center in Wyndmoor, PA on microbial protein expression.
- ⇒ Collaborating with Alabama State University for new AFRI 2011 grant proposal on risk factors for *Campylobacter* and *Salmonella* in poultry.
- ⇒ Collaborated with various scientists by submitting national and internal competitive grant proposals totaling over \$3,563,428; one nationally competitive NRI grant proposal was ranked in the top 29% in 2009.
- ⇒ Awarded national and internal competitive grants totaling \$452,850 as of August 2011.  
Panelist for the USDA CSREES AFRI National Integrated Food Safety Initiative in 2009.
- ⇒ Invited to serve as a Panelist for the USDA CSREES AFRI National Integrated Food Safety Initiative in 2010 and 2011.
- ⇒ Served as a reviewer for New York Sea Grant (2011).
- ⇒ Served as a Ad-hoc Reviewer for the USDA's Small Business Innovation Research Program (SBIR) Phase I, Food Science and Nutrition program (2010)
- ⇒ Served as an Associate Center Director for the Center for Detection Technologies for the National Alliance for Food Safety and Security (NAFSS) (2007-2008)
- ⇒ Served as a Center Director for the Center for Detection Technologies for the National Alliance for Food Safety and Security (NAFSS) (2008-2009)
- ⇒ Appointed to the Editorial Board for Agricultural, Food and Analytical Bacteriology (AFAB) peer-reviewed journal beginning 2011
- ⇒ Serving as an Associate Editor for the Poultry Science Food Safety and Processing section (since 2010).
- ⇒ Delivered a talk at the IFT 2012 for the symposium on “Challenges in Microbiological Safety of Food Products and Food

Security in the Indian Subcontinent” in July 2012.

- ⇒ Appointed as a member for the Institutional Biosafety Committee (IBC) of Mississippi State University (2009 to 2012) and (2012-2015)
- ⇒ Served as a member for the FSNHP Graduate policies Committee (2009-10).
- ⇒ Served as a faculty Advisor for the Food Science Club beginning Fall 2009.
- ⇒ Represented FSNHP in the IDB (Institute of Digital Biology) new Federal initiative led by Dr. Susan Bridges and appeared for the Office of Research and Economic Development initial hearings session held on November 30, 2007 on “New Alternatives for Decreasing Dependence on Antibiotic Usage” .
- ⇒ Served on the AOAC Marine and Freshwater Foods Community Meeting, which was developed to discuss methods of analysis for select antibiotic and pesticide residues in shrimp, catfish, and tilapia and to agree on a fit-for-purpose statement and met with the representatives of Southern Shrimp Alliance and Catfish Farmers of America for discussions on the Rapid screening of imported seafoods for the presence or absence indication of multi-antibiotic residues.

**Project Scientist - Food Safety Consortium**  
**Postdoctoral Associate, Department of Food Science**  
**University of Arkansas**

**1995 to 2007**

Duties: Served as a Project Leader & Co-PI with Dr. MGJ on foodborne bacterial pathogen detection, virulence, antibiotic resistance and control (*L. monocytogenes*, *Campylobacter*, *E. coli* O157:H7 and *Salmonella*) in the Arkansas Section of the Food Safety Consortium & Coordinator for UAF Hybridoma & Monoclonal Antibody Lab at Biomass Research Ctr. reporting to Dr. Geren, Dean of Graduate School.

**Key Achievements:**

- ⇒ Awarded several nationwide competitive grants in Food Safety with Dr. MGJ (total sum of \$279,000) besides Annual Food Safety Consortium grants (1995-2006).
- ⇒ Wrote 3-5 grant proposals annually for the Food Safety Consortium as a co-PI with Dr. MGJ that ranked high in external evaluations (1995-2006).
- ⇒ Awarded USDA-CSREES Food Safety Special grant for immunoblot quantitation of pathogens from raw & RTE meat and poultry products with Dr. MGJ (1999).
- ⇒ Awarded US Poultry & Egg Assoc. competitive grant for *Campylobacter* detection/enumeration from raw poultry with Dr. MGJ (1998).
- ⇒ Awarded EPRI-Food Technology Center grant for biosensor work on foodborne pathogens with MGJ (1996).
- ⇒ Awarded National Alliance for Food Safety-ARS subcontract grant with ISU/NADC, Ames, IA on *L. m. virulence* (2000).
- ⇒ Published an enumeration method for antibiotic-resistant *Campylobacter* in Applied and Environmental Microbiology (2005).
- ⇒ Developed MAb probes specific for different epitopes of *C. jejuni* undergoing complete characterization, presented at ASM and IFT national meetings (2004, 2005).
- ⇒ Demonstrated virulence of starvation-stressed cells of *L. monocytogenes* in human cell models, presented at ASM, IAFP and IFT national meetings (2004, 2005, 2006).

- ⇒ Demonstrated unstable expression of *L. monocytogenes* species-specific epitopes using monoclonal antibodies published in Applied and Environmental Microbiology (1998).
- ⇒ Author/co-author of 11 refereed journal articles, 46 refereed national research abstracts, 48 non-refereed written proceedings, 42 oral presentations, and 35 grant proposals, in Dr. Johnson' lab.
- ⇒ Year after year, delivered high quality oral presentations of research updates at the three state Food Safety Consortium (University of Arkansas, Kansas State University & Iowa State University). These talks, for both experts and non-experts, were attended by the scientists/non-scientists from industry, academia and USDA.
- ⇒ Collaborated with scientists at USDA-ARS-NADC (Dr. Wesley's group) and with ISU (Dr. Mendonca's group), UAF POSC (Dr. Lee, Dr. Slavik), and USDA-ARS-Poultry Production (Dr. Huff) on LM/*Campylobacter* virulence.
- ⇒ Sought opportunities for undergraduate/graduate teaching at UA. Team-taught FDSC 2503 Food Safety & Sanitation with Dr. MGJ (Spring 2000; Purdue score 3.8). Team-Taught graduate course ANSC/POSC 5743 Advanced Analytical Methods in Animal Science/Poultry Science (30 hours of lectures, hands-on lab sessions) with Purdue scores of 4.0 to 4.9 (1999-2006). Delivered guest lectures for FDSC 4124 Food Microbiology and other food science courses.
- ⇒ Appointed as ex-officio graduate committee member by Dr. Johnson. Provided dedicated assistance in research methods direction for graduate/undergraduate students. Known as an excellent team-worker & team-leader in Dr. MGJ lab.
- ⇒ Awarded Department of Food Science Outstanding Research Program Support Award (2002) and outstanding postdoctoral associate award (2007).

**Project Scientist- Arkansas Biotechnology Center  
Research Associate, Department of Plant Pathology  
University of Arkansas**

**1993 to 1995**

Duties: Development of new monoclonal antibody probes and Immunodiagnosics for *Pyricularia grisea* (fungal pathogen of rice), Reporting to Dr. Gergerich and Dr. Lee.

**Key Achievements:**

- ⇒ Developed 16 kDa specific MAb probe capable of detecting spores of fungal pathogen *Pyricularia grisea* infecting rice.
- ⇒ Developed extensive monoclonal antibody library recognizing different epitopes of *Pyricularia grisea*.
- ⇒ Author of one research paper in Arkansas rice research series & 4 abstracts in Phytopathology (1996).
- ⇒ Commercialized new MAb probes in collaboration with AgDia, a diagnostic company, who developed rice blast diagnostic kit.
  - ⇒ Provided rice blast specific antigen fractions for Strategic Diagnostics polyclonal antibody program.

**Research Associate- Mycotoxins  
International Crops Research Institute for the Semi-Arid Tropics, India**

**1983 to 1992**

Duties: Pre- and post-harvest aflatoxin complex in peanuts & monoclonal antibody technology transfer from University of Strathclyde, UK to ICRISAT, India, Reporting to Drs. D. McDonald & V.K. Mehan. Three-year study leave from

Sep. 1987-Dec. 1990 for Ph.D. in the UK.

### **Key Achievements:**

- ⇒ Author/coauthor of 4 journal articles with ICRISAT Scientists.
- ⇒ Identified genetic resistance to pre-harvest aflatoxin by extensive screening of peanut germplasm lines.
- ⇒ Demonstrated interactions of drought stress on pre-harvest aflatoxin problem in peanuts.
- ⇒ Co-authored 3 research papers at ICRISAT on pre-harvest aflatoxin research published in Peanut Science.
- ⇒ Transferred University of Strathclyde MAb-based technologies to ICRISAT labs.
- ⇒ Developed MAb-based aflatoxin detection assays for peanuts at ICRISAT published in Mycotoxin Research (1993) after return from University of Strathclyde.
- ⇒ Annually rated as an outstanding research associate at ICRISAT.
- ⇒ Later hired by U of A Biotechnology Center and Plant Pathology Dept. for developing rice blast monoclonal antibodies and their commercialization in collaboration with U.S. diagnostic industries.

## **Professional Memberships in Microbiology**

Member of American Society for Microbiology.  
Member of International Association for Food Protection.  
Member of Institute of Food Technologists.  
Member of Sigma Xi U of A Chapter.

## **Education**

**University of Strathclyde, Glasgow, UK**

**Sep. 1987 - Dec. 1990**

**Department of Bioscience & Biotechnology**

**Ph.D. Applied Microbiology Division (Mycotoxins), 1991**

- ⇒ Awarded Commonwealth Scholarship by British Council (1987-1990), Reporting to Prof. J.E. Smith & Dr. J. Lacey.
- ⇒ Author of 6 refereed journal articles from Ph.D. research in the U.K. published in the Association of Official Analytical Chemists, Mycological Research, Mycopathologia, Journal of Food Protection, Internal Journal of Food Microbiology, Mycotoxin Research, and Food Additives and Contaminants.
- ⇒ Developed monoclonal antibody assays for aflatoxin B<sub>1</sub>, T-2 toxin and Ochratoxin A from a single extract of grain (published in Journal of Association of Official Analytical Chemists, 1990).
- ⇒ Author of multiple effect hypothesis for mycotoxins, including Aflatoxin B<sub>1</sub>, Ochratoxin A and T-2 toxin. (published in Mycopathologia, 1996; J. Food Protection, 1996 and Food Additives and Contaminants, 1996).
- ⇒ Demonstrated fungal and bacterial interactions on the grain surface using scanning electron microscopy (published in Mycological Research, 1991).
- ⇒ Demonstrated effects of fumigation/gamma irradiation on stored grain (in International J. Food Microbiology, 1986).

- ⇒ Coauthor of 2 book chapters on Mycotoxins with Dr. Lacey (Rothamsted) and Prof. Smith (Strathclyde) and Prof. Magan (Cranfield Institute of Technology) (1991, 1998).
- ⇒ Contributed to BBC show Horizon on Ochratoxins (1990).
- ⇒ Conducted research in the Immunology labs of Prof. Stimson's group (with Dr. Alan Candlish) who later evaluated UAF Dr. MGJ lab's *Listeria* monoclonal antibody probes sent to UK.
- ⇒ 8-page summary of University of Strathclyde Applied Microbiology/Biotechnology program available via web-link.
- ⇒ Awarded Fowden Research Prize of Rothamsted Experimental Station (1990).

**G.B. Pant University of Agriculture & Technology    July 1981 - Nov. 1983**  
**Pantnagar, U. P, India**  
**M.S. Agric in Plant Pathology (on Mycotoxigenic fungi), 1983**

- ⇒ Awarded ICAR Junior Fellowship by all India written competition in Plant Pathology & Microbiology.
- ⇒ Total semester credits hours completed 72 with GPA of 4.923 out of 5.0.
- ⇒ Extensive course work on fungi, bacteria and viruses affecting plants/stored grain, and also in Biochemistry and Statistics.
- ⇒ Masters research on mycotoxigenic and storage fungi in pre-harvest and post-harvest complexes.
- ⇒ Published 3 journal articles from thesis on pre-harvest mycotoxigenic fungi.

**G.B. Pant University of Agriculture & Technology    July 1977 - Jun. 1981**  
**Pantnagar, U.P., India**  
**B.S. Honors, Agriculture & Animal Husbandry, 1981**

- ⇒ Total semester credits hours completed 159 with GPA of 4.484 out of 5.0.
- ⇒ Awarded National Merit Scholarship (1975-1981). Awarded University Merit Certificates and Honors Certificate.
- ⇒ Extensive course work in all branches of Agricultural Sci., including Plants, Poultry, Cattle and Food Science.
- ⇒ GBPUAT known as the first Land-Grant University in India established in 1960 with leadership effort from the University of Illinois, Urbana-Champaign.

## **Research & Fellowship Awards**

- State Pride award, Mississippi State University (2011)  
State Pride award, Mississippi State University (2010)  
Awarded UAF Department of Food Science Outstanding Postdoctoral Associate Research Award (2007)  
Awarded UAF Department of Food Science Outstanding Research Program Support Award (2002)  
Awarded Fowden Research Prize of Rothamsted Experimental Station (1990)  
Awarded Commonwealth Scholarship, British Council, UK (1987-1990)  
Awarded Junior Fellowship, Indian Council of Agricultural Research, India (1981-1983)  
Awarded University Merit Scholar, G.B. Pant University of Agriculture & Technology (1977-1981)  
Awarded National Merit Scholarship, Government of India (1977-1981)

## Competitive Grants Awarded or Submitted

- (71) Nannapaneni, R. (PI), K. Soni (Co-PI). 2012. Factors contributing to the formation of highly stable acid stress-resistant, alkaline stress-resistant, heat stress-resistant, oxidative stress-resistant and salt stress-resistant phenotypes in *Listeria monocytogenes* and their potential cross-resistance to GRAS antimicrobials. MAFES 2012 Strategic Research Initiative (Submitted November 25, 2011), (Project role: PI Nannapaneni 80%; Co-PI Soni 20%), \$49,130 (funded).
- (70) Sharma, Chander Shekhar, (PI), R. Nannapaneni (co-PI), A. Keiss. 2012. Reduction of levels of *Salmonella* and *Campylobacter* on raw chicken carcasses and ground poultry by USDA approved antimicrobial treatments. MAFES 2012 Strategic Research Initiative (Submitted November 25, 2011), (Project role: PI Sharma 80%; Co-PI Nannapaneni 10%, Co-PI Keiss 10%), \$35,200 (funded).
- (69) Sharma, Chander Shekhar, (PI), R. Nannapaneni, R. W. Wills, H. Bailey. 2011. Pre- and Post-harvest control of foodborne pathogens in poultry products, Research Facilitation Grant for Interdisciplinary, Cross-College Research Group on Food Safety, Office of Research and Economic Development (ORED), Mississippi State, \$2000 (funded).
- (68) Oyarzabal, O.A. (PI), S. Katariou, D. K. Carver, Nannapaneni, R., J.D. Helm, J.K. Northcutt, L. Marzen, D.H. Henry. 2012. Risk factors and potential role of regional, seasonal and climatic effects on prevalence of *Campylobacter* and *Salmonella* in broiler chickens and turkey production. AFRI Food Safety Challenge Area Program A4161 (submitted for Oct 11, 2011 deadline) (total budget 2.5 million), Mississippi State sub-award \$207,920 (pending).
- (67) Nannapaneni, R. (PI/PD), K. Soni (Co-PI), W. Schilling (Co-PI), F. Diez-Gonzalez (co-PI), N. Farkye (Co-PI), S. Murphy (Co-PI). 2011. Method for making fresh soft cheese with enhanced microbial safety against *L. monocytogenes* and other pathogenic and spoilage microorganisms. USDA AFRI NIFSI 2011 grant proposal submitted June 27, 2011 \$599,967 (not funded).
- (66) Nannapaneni, R. (PI), K. Soni (co-PI). Stress adapted surrogates of *Listeria monocytogenes* and *Salmonella* and their destruction in aquaculture and seafood products and in processing environments, MAFES FSI, July 1, 2011 to June 30, 2012, \$44,200 (funded)
- (65) Nannapaneni, R. (PI). Bridge funding award for Qian Shen, MSU Office of the Graduate School, July 1, 2011 to June 30, 2012, \$23,000 (includes \$18000 stipend and about \$5000 tuition) (funded).
- (64) Nannapaneni, R. (PI), K. Soni (co-PI), W. Schilling (co-PI). Broad-spectrum natural antimicrobial activity of essential oils against foodborne pathogens and spoilage microflora in aquaculture and poultry products, MAFES SRI, Jan 1, 2011 to Dec 31, 2011, \$39,000 (funded).
- (63) Nannapaneni, R. (PI), K. Soni (co-PI). Increased lethality of *Listeria monocytogenes* in aquaculture products/ seafood products by combined effects of bacteriophage with other antimicrobials. MAFES FSI, July 1, 2010 to June 30, 2011, \$48,950 (funded)
- (62) Nannapaneni, R. (PI), K. Soni (co-PI) and Jetu Patel, USDA-ARS-EMFSL (co-PI). Favorable conditions for persistence, survival and multiplication of healthy, injured and environmental-stress adapted *E. coli* O157:H7 cells on spinach and lettuce and their destruction. USDA CSREES AFRI A1301 grant proposal submitted, May 26, 2010, \$499,158 (not funded).
- (61) Nannapaneni, R. (PI/PD), K. Soni (Co-PI), W. Schilling (Co-PI), J. Luchansky (Co-PI), P. Tomasula (Co-PI), S. Mukhopadhyay (Co-PI), D. Van Hekken (Co-PI), N. Farkye (Co-PI), S. Murphy (Co-PI). 2010. Antilisterial processing technology for enhancing the microbial safety of Queso fresco cheese. USDA AFRI NIFSI 2010 grant proposal submitted Jan 19, 2010, \$599,734 (not funded).
- (60) Nannapaneni, R. (PI), K. Soni (Co-PI), J. Silva (co-PI), and W. Schilling (Co-PI). Natural biocides with synergistic GRAS antimicrobials for decreasing *Salmonella*, *Listeria monocytogenes* and total microbial loads to enhance safety and

- quality of fresh, frozen and smoked aquaculture food products. MAFES Special Research Initiative, Jan to Dec 2010, \$49,660 (funded)
- (59) Nannapaneni, R. (PI), K. Soni (Co-PI). Cold-growth proteome of wild type of *Listeria monocytogenes* to detect new ways to eliminate food poisoning of refrigerated ready-to-eat food products. MAFES Special Research Initiative, Jan to Dec 2010, \$49,440 (not funded)
- (58) Srinivasan, R. (PI), R. Nannapaneni (co-PI) and Hui Wang (co-PI). Xylitol production using fiber separated from DDGS and ground corn flour, MAFES Special Research Initiative, \$62,812 (not funded).
- (57) Nannapaneni, R., K. Soni (co-PI), and W. Schilling (co-PI). Enhancing microbial safety of fresh soft Queso fresco cheese by GRAS lauric arginate application. Funded by Dairy Management Inc. (DMI) Discovery Grant Program and Southeast Dairy Foods Research Center (SDFRC), November 2008 to May 2010, \$50,840 (funded)
- (56) Nannapaneni, R. (PI), K. Soni, S. Yoder (co-PI) and W. Schilling (co-PI). New GRAS Bacteriophage LISTEX™ P100 for Quantitative Reduction of *Listeria monocytogenes* Loads in Aquaculture Products/Seafood Products. MAFES Food Safety Initiative, 2008-2009, \$48,800 (funded)
- (55) Nannapaneni, R. (PI), K. Soni (co-PI), S. Yoder (co-PI) and W. Schilling (co-PI). New GRAS Bacteriophage LISTEX™ P100 for quantitative reduction of *Listeria monocytogenes* loads in aquaculture products/seafood products. MAFES Food Safety Initiative, 2007-2008, \$48,400 (funded)
- (54) Nannapaneni, R. (PI), K. Soni (Co-PI), Control of the cold growth of *Listeria monocytogenes* in seafood products by listericidal activity of two novel GRAS antimicrobials, bacteriophage Listex P100 and lauric arginate. USDA CSREES AFRI 93231 Biological Approaches to Food Safety Program, July 2009 to June 2011, \$260,720 (submitted May 6, 2009; not funded) (missed by 3% margin after being ranked in the high priority category).
- (53) Nannapaneni, R. (PI), K. Soni (Co-PI), Unique proteins governing cold-adaptation of *Listeria monocytogenes* EGDe serotype 1/2a identified by proteomic analysis of wild-type and *cspA* deletion mutant. USDA CSREES AFRI 91312 Microbial Genomics Program, July 2009 to June 2012, \$384,660 (submitted April 16, 2009; not funded).
- (52) Nannapaneni, R. (PI) and M. Lawrence (co-PI). Proteome of *Listeria monocytogenes* EGDe Serotype 1/2a in Cold-Adapted and Non-Adapted Cells by Two Complementary Quantitative Proteomic Approaches. USDA-CSREES-NRICGP, \$328,138 (not funded)
- (51) Nannapaneni, R. (PI), W.M. Mikel (Co-PI), K. Soni (Co-PI). Inactivation of *E. coli* O157:H7 and *Salmonella* on the surfaces of lettuce, spinach, tomatoes and hot peppers by lauric arginate bactericidal surface treatment. USDA-CSREES SCRI, Oct 2008 to Sep. 2009, \$141,281 (not funded).
- (50) Nannapaneni, R. (PI) and W.B. Mikel (Co-PI). Rapid screening of seafood for the presence or absence of multi-antibiotic residues by 4 h Premi@Test. Special Research Initiative 2009, MAFES, Jan. 2009 to Dec. 2009, \$49,800 (not funded)
- (49) Nannapaneni, R. and K. Soni (Co-PI). Destruction of *E. coli* O157:H7 and *Salmonella* on intact and fresh-cut bagged produce by GRAS lauric arginate bactericidal spray. Special Research Initiative 2009, MAFES, Jan. 2009 to Dec. 2009, \$49,800 (not funded)
- (48) Nannapaneni, R. (PI), K. Soni, J.M. Behrends, W. Schilling and S. Yoder. GRAS lauric arginate bactericidal spray for the destruction of *E. coli* O157:H7 to enhance the microbial safety of beef trim, ground beef and ground beef patties. National Cattlemen's Beef Association (NCBA) Beef Safety Research Proposal 2009, Submitted Nov. 17, 2008 \$47,040 (not funded).
- (47) Nannapaneni, R. (PI), K. Soni (Co-PI), and Wes Schilling (Co-PI). Enhancing microbial safety of fresh soft Queso fresco cheese by LISTEX P100 bacteriophage application Dairy Management Inc. (DMI) Discovery grant 2008, Nov. 1, 2008 to Oct. 31, 2009, \$50,840 (not funded).



- (46) Nannapaneni, R. (PI), Nanduri, B. (PI). Identifying Key Genes Controlling Cold Tolerance in *Listeria monocytogenes* EGDe Serotype 1/2a, MAFES 2008 Food Safety Initiative, 2007-2008, \$50,000 (not funded).
- (45) Schilling, M.W. (PI), Smith, B., Nannapaneni, R., Behrends, J.M. Processing and smoking effects on the quality and safety of enhanced catfish filets. MAFES 2008 Food Safety Initiative, 2007-2008, \$32,000 (funded).
- (44) Nannapaneni, R. (PI), K. Soni (Co-PI), and W. Schilling (Co-PI). Lauric arginate bactericidal surface treatment of ready-to-eat frankfurters, ham and turkey breast products immediately prior to vacuum packaging as an end-point hurdle against growth of *Listeria monocytogenes*, AMI foundation, preproposal submitted Aug., 2008, \$78,000 (not funded).
- (43) Nannapaneni, R. (PI), K. Soni (Co-PI), and W. Schilling (Co-PI). Lauric arginate in combination with potassium lactate and sodium diacetate for the bactericidal surface treatment of ready-to-eat frankfurters, ham and turkey breast products immediately prior to vacuum packaging as an end-point hurdle against growth of *Listeria monocytogenes*, AMI foundation, preproposal submitted Aug., 2008, \$78,000 (not funded).
- (42) Nannapaneni, R. (PI), K. Soni (Co-PI), and W. Schilling (Co-PI). Listex P100 bacteriophage surface treatment of ready-to-eat frankfurters, ham and turkey breast products immediately prior to vacuum packaging as an end-point hurdle against growth of *Listeria monocytogenes*, AMI foundation, preproposal submitted Aug., 2008, \$78,000 (not funded).
- (41) Yoder, S (PI), C.N. Cutter, J.H. Behrends, T. Schmidt, R. Nannapaneni, K. Soni. Investigation and validation of antimicrobial interventions against *Escherichia coli* O157:H7 on raw ground beef components. National Cattlemen's Beef Association (NCBA) Beef Safety Research Proposal 2009, Submitted Nov. 17, 2008 \$34,328 (not funded).
- (40) Behrends, J.H. (PI), S. Yoder, R. Nannapaneni and K.A. Soni. Prevalence of *Salmonella* spp., non O157 STECs, and *E. coli* O157:H7 at pork processing facilities pre-harvest and post-harvest. National Cattlemen's Beef Association (NCBA) Beef Safety Research Proposal 2009, Submitted Nov. 17, 2008 \$68,382 (not funded).
- (39) Behrends, J. (PI), S. Yoder (co-PI), R. Nannapaneni (Co-PI). Prevalence of *Salmonella* spp. at pork processing facilities pre-harvest and post-harvest, NPB#08-227, National Pork Board 2008 (not funded).
- (38) Behrends, J. (PI), S. Yoder (co-PI), R. Nannapaneni (Co-PI), and K. Soni (Co-PI). Prevalence of non O157 STECs and *E. coli* O157:H7 at pork processing facilities pre-harvest and post-harvest, NPB#08-225. National Pork Board 2008 (not funded)
- (37) Yoder, S. (PI), Behrends, J. (Co-PI), and R. Nannapaneni (Co-PI). Prevalence of *Clostridium difficile* at pork processing facilities pre-harvest and post-harvest, NPB#08-231, National Pork Board 2008 (not funded).
- (36) Bridges, S. (Department of Computer Science and Engineering), M. Lawrence (College of Veterinary Medicine), S. Burgess (Director of the LSBI, College of Veterinary Medicine), B. Nanduri (College of Veterinary Medicine), J. L. Smith (Biological Sciences), R. Nannapaneni (Food Science Nutrition and Health Promotion), A. Minerick (Dave C. Swalm School of Chemical Engineering), and S. Gwaltney (Chemistry). New Alternatives for Decreasing Dependence on Antibiotic Usage, 2009 \$3 million; 2010 \$3 million (initial hearings held on Nov 30, 2007) (not funded).
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- (34) Nannapaneni, R. (co-PI) and M. G. Johnson (PI). Interactions of GRAS Antimicrobial Treatments, Anaerobic Conditions, Low Temperature, Under Dark vs. Lighted Conditions on Stress-Hardened *Listeria monocytogenes* Survival and Control and Differences in Invasiveness in Human Caco-2 Cell Model, for "Enhancing Safety of Poultry Products", USDA-CSREES, Food Safety Consortium, July 2007 - June 2010 (submitted Sep. 9, 2006, approved funding at 50% level for 2007-08).
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- (7) Nannapaneni, R. (Co-PI), and M.G. Johnson (PI), Monoclonal antibodies species-specific or serotype-specific for *Listeria monocytogenes*, and Tissue culture virulence assays for *E. coli* 0157:H7, *Campylobacter* and *Arcobacter* species, “Enhancing Safety of Poultry Products”, USDA-CSREES Food Safety Consortium, Jul 1998 - Jun 1999.
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- (5) Nannapaneni, R. (Co-PI), and M.G. Johnson (PI), Monoclonal antibodies for species-specific epitopes of *Listeria*

*monocytogenes*, and Tissue culture assays to rapidly detect enterohemorrhagic *E. coli* 0157:H7, *Campylobacter* species, “Enhancing Safety of Poultry Products”, USDA-CSREES Food Safety Consortium, Jul 1997 - Jun 1998.

- (4) Nannapaneni, R., (PI), and M.G. Johnson (co-PI), Development of piezoelectric biosensor for *Listeria monocytogenes* utilizing monoclonal antibodies, EPRI-FTC, Sep. 1996 - Dec. 97.
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- (1) Hettiarachchy, J. (PI), M.G. Johnson and R. Nannapaneni, three SILO research proposals - PCR assay for amino peptidase gene in *Listeria*, Nov.1996 - April 97; Pathogenicity of *Listeria* serotypes to hybridoma cells, Nov. 1997 - April 98; Relative pathogenicities of *L. monocytogenes* serotypes, Nov. 1998 - April 1999, for SILO Advisory Council UG Res. Fellowship (SURF) grant funds.

## Publications – Peer-Reviewed Journal Articles

- (45) Soni, K., M. Desai, A. Oladunjoye, F. Skrobot, and R. Nannapaneni. 2012. Increased lethality of *Listeria monocytogenes* in Queso fresco cheese by combining bacteriophage P100 with GRAS antimicrobials. *International Journal of Food Microbiology*
- (44) Desai, M., K.A. Soni, R. Nannapaneni, W. Schilling, and J. Silva. 2012. Reduction of *Listeria monocytogenes* biofilms on stainless steel surfaces by essential oils. *Journal of Food Protection* (accepted in May 201) (in press).
- (43) Desai, M., K.A. Soni, R. Nannapaneni, W. Schilling, and J. Silva. 2012. Reduction of *Listeria monocytogenes* in fresh catfish fillets by essential oils. *Journal of Food Science* Accepted in June 2012) (in press).
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- (38) Sekhon, R.K., M. W. Schilling, T. W. Phillips, R. M. J. Aikins, M. M. Hasan, R. Nannapaneni, and W. B. Mikel. 2010. Effects of carbon dioxide and ozone treatments on the volatile composition and sensory quality of dry cured ham. *Journal of Food Science* 75: C452-C458
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- (32) Heo, S.A., R. Nannapaneni, M.G. Johnson, J.S. Park, and K.H. Seo. 2009. Production and characterization of a monoclonal antibody to *Campylobacter jejuni*. *Journal of Food Protection* 72: 870-875
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- (25) Kannan A, N. Hettiarachchy, M.G. Johnson, and R. Nannapaneni. 2008. Human colon and liver cancer cell proliferation inhibition by peptide hydrolysates derived from heat-stabilized defatted rice bran. *J Agric Food Chem.* 56(24):11643-11647.
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- (20) Mendonca, A.F., M.G. Romero, M.A. Lihono, R. Nannapaneni and M.G. Johnson. 2004. Radiation resistance and

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region of Uttar Pradesh. Indian Journal of Mycology and Plant Pathology 19: 311-312.

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## Other Journal Articles in Pipeline

- (46) Soni KA, Nannapaneni R & Tasara T. 2012. Effect of CspA deletion in *Listeria monocytogenes* cold acclimation (to be submitted to Proteomics).
- (47) Soni KA, Nannapaneni R & Tasara T. 2012. Proteome analysis of cold acclimation and cold growth response in *Listeria monocytogenes* (to be submitted to Proteomics).
- (48) Soni K., M. Desai, A. Olajunjoye, and R. Nannapaneni. 2012. Compatibility of phage P100 against different GRAS antimicrobials and their combined short-term lethality against *Listeria monocytogenes* in cold smoked salmon (to be submitted to Journal of Food Protection)

## Publications – Peer-Reviewed Book Chapters

- (5) Nannapaneni, R. 2012. Methods for identification of bacterial foodborne pathogens. Chapter 4, pp. 45-55, In: Food Science Text Series - Microbial Food Safety An Introduction, Omar A. Oyarzabal and Steffen Backert (eds.), 262 pages, Springer, New York, NY.
- (4) Nannapaneni, R., O. Orzabal, S.C. Ricke, and M.G. Johnson. 2010. Fluoroquinolone-resistant *Campylobacter jejuni* in raw poultry products. Chapter 18, p. 247-258, In: Perspectives on Food Safety Issues of Food Animal Derived Foods, S.C. Ricke and F.T. Jones (eds.) University of Arkansas Press, Fayetteville, AR.
- (3) Nannapaneni, R. and M.G. Johnson. 2010. Advances in antibody-based technologies for *Listeria monocytogenes*. Chapter 14, p. 177-193, In: Perspectives on Food Safety Issues of Food Animal Derived Foods, S.C. Ricke and F.T. Jones (eds.) University of Arkansas Press, Fayetteville, AR.
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## Publications - Non-Refereed Proceedings

- (54) Nannapaneni, R., K. Soni, and W. Schilling. 2011. Enhancing microbial safety of fresh soft Queso fresco cheese by GRAS lauric arginate application. DMI funded project, SDFRC annual report 2011.
- (53) Nannapaneni, R., K. Soni, and W. Schilling. 2010. Enhancing microbial safety of fresh soft Queso fresco cheese by GRAS lauric arginate application. DMI funded project, SDFRC annual report 2010.
- (52) Nannapaneni, R. 2008. Germ warfare series: Battle against *Campylobacter*, in National Provisioner, May 2008

- (51) Nannapaneni, R., R. Story, K.C. Wiggins, and M.G. Johnson. 2007. Characterization of a specific monoclonal antibody probe 209B11 against *Campylobacter jejuni* and non-*C. jejuni* isolates, 6p, in 2007 Food Safety Consortium Annual Report, University of Arkansas, Fayetteville.
- (50) Nannapaneni, R., K.C. Wiggins, R. Story and M.G. Johnson. 2007. One-year starvation-stressed cells of *Listeria monocytogenes* Scott A serotype 4b invade human cell line Caco-2, 5p, in 2007 Food Safety Consortium Annual Report, University of Arkansas, Fayetteville.
- (49) Nannapaneni, R., K.C. Wiggins, R. Story and M.G. Johnson. 2007. Differences in total *Campylobacter* and total ciprofloxacin-resistant *Campylobacter* loads on retail raw chicken carcasses from one processor but two different retail sources in 2006, 4p, in 2007 Food Safety Consortium Annual Report, University of Arkansas, Fayetteville.
- (48) Nannapaneni, R., R. Story, K.C. Wiggins, and M.G. Johnson. 2006. New monoclonal antibody probes against *Campylobacter* and *Campylobacter jejuni*, 6p, in 2006 Food Safety Consortium Annual Report, Oct. 1-3, 2006 University of Arkansas, Fayetteville.
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## Oral Presentations

- (51) Nannapaneni, R. 2012. Factors contributing to the rise of antibiotic-resistant foodborne bacterial pathogens in the Indian Subcontinent and strategies for minimizing them, present in the IFT 2012 Symposium on Challenges in Microbiological Safety of Food Products and Food Security in the Indian Subcontinent, Las Vegas, July 2012.
- (50) Controlling *Listeria monocytogenes* in Queso fresco cheese, presented at the Southern Dairy Foods and Research Center (SDFRC) Annual Meeting on August 15-16, 2011 at North Carolina State University.
- (49) Over-view of MSU FSNHP Research and Dairy Processing Plant, presented at the at the Southern Dairy Foods and Research Center (SDFRC) Annual Meeting on August 15-16, 2011 at North Carolina State University.
- (48) Keeping *Listeria* at bay, graduate seminar, Department of Food Science, Nutrition and Health Promotion (Spring 2011)
- (47) Microbes: our great enemy or our great friend, undergraduate seminar, Department of Food Science, Nutrition and Health Promotion (Spring 2011)
- (46) Understanding the biology of *Listeria monocytogenes* in food processing environments and in refrigerated food products and its destruction using natural antimicrobials, Seminar in Biochemistry and Molecular Biology Dept., Fall 2010, Mississippi State University.
- (45) Enhancing microbial safety of fresh soft Queso fresco cheese by GRAS lauric arginate application, at the Southern Dairy Foods and Research Center (SDFRC) Annual Meeting on August 9-10, 2010 at North Carolina State University.
- (44) Enhancing microbial safety of fresh soft Queso fresco cheese by GRAS lauric arginate application, at the Southern Dairy Foods and Research Center (SDFRC) Annual Meeting on August 11-12, 2009 at North Carolina State University.
- (43) Antibiotic resistance and virulence of *Campylobacter jejuni* from poultry, 2006 Food Safety Consortium Annual Meeting held at University of Arkansas, Oct 1-3, 2006.
- (42) Antibodies for foodborne bacterial pathogens: past, present and future, 2006 Food Safety Consortium Annual Meeting held at University of Arkansas, Oct 1-3, 2006.
- (41) Antibiotic-Resistant *Campylobacter* loads in retail raw chicken carcass rinses, 2005 Food Safety Consortium Annual Meeting held at Kansas State University, Oct 2-4, 2005.
- (40) Newly Developed *Campylobacter* Monoclonal Antibody Probes, 2005 Food Safety Consortium Annual Meeting held at Kansas State University, Oct 2-4, 2005.
- (39) Antibiotic-Resistant *Campylobacter* in raw chicken carcass rinses, 2004 Food Safety Consortium Annual Meeting at



Iowa State University, Oct. 3-5, 2004.

- (38) *In Vitro* Virulence of Long-term Starved Cells of *Listeria monocytogenes*, 2004 Food Safety Consortium Annual Meeting at Iowa State University, Oct. 3-5, 2004.
- (37) Virulence of *Listeria monocytogenes* and ciprofloxacin resistance of *Campylobacter* from raw chicken, 2003 Food Safety Consortium Annual Meeting, University of Arkansas, Oct. 12-13, 2003.
- (36) Virulence of *Listeria monocytogenes* long-term starved cells, Department of Food Science Seminar, University of Arkansas, Sep. 2003.
- (35) Ciprofloxacin-resistant *Campylobacter jejuni* on raw chicken carcasses & Virulence of stress hardened cells of *Listeria monocytogenes*, Seminar at N-terminus, aLF Technologies, Nov. 20, 2002.
- (34) Fluoroquinolone-resistant *Campylobacter jejuni* and non-*jejuni* in raw poultry. Cell & Molecular Biology Departmental Seminar at Ctr. of Excellence for Poultry Science, November 11, 2002.
- (33) Ciprofloxacin-resistant *Campylobacter jejuni* in rinses from pre-and post-chilled and retail raw broiler carcasses: Isolation, enumeration, and phenotypic/genotypic (PCR) characterization, 2002 Food Safety Consortium Annual Meeting, KSU, Manhattan, KSU, Oct. 13-15, 2002.
- (32) *Campylobacter* in raw poultry: enumeration and antibiotic resistance, 2001 Food Safety Consortium Annual Meeting, ISU, Ames, Iowa, Sep. 16-18, 2001.
- (31) *Listeria monocytogenes*, EHEC and *Salmonella* survival on hypochlorous acid and CPC-treated fresh produce, 2001 Food Safety Consortium Annual Meeting, ISU, Ames, Iowa, Sep. 16-18, 2001.
- (30) Next generation tools for muscle food safety, at West Virginia University, Division of Animal and Veterinary Sciences Seminar, Feb. 21, 2001.
- (29) Food safety in the new millennium, Dept. of Food Science Seminar, University of Arkansas, Jan. 22, 2001.
- (28) Reduction of foodborne pathogens in poultry products, Center of Excellence for Poultry Science Seminar, University of Arkansas, Dec. 18, 2000.
- (27) Foodborne bacterial pathogens and virulence expression, Cell & Molecular Biology Seminar, Center for Excellence in Poultry Science, University of Arkansas, Nov. 17, 2000.
- (26) Virulence expression of spiral and coccoid forms of *Campylobacter*, 2000 Food Safety Consortium Annual Meeting, Fayetteville, Sep. 17-19, 2000.
- (25) Immunoblot reactivity of Monoclonal antibody probes for *Listeria monocytogenes*, 2000 Food Safety Consortium Annual Meeting, Fayetteville, Sep. 17-19, 2000.
- (24) Distance Education in Food Safety, Dept. Food Science Seminar, U of Arkansas, Nov. 1999
- (23) *In vitro* virulence and cytotoxicity tests of foodborne pathogens, 1999 Food Safety Consortium Annual Meeting, Shangri-La Resort, OK, Oct. 17-19, 1999.
- (22) Utilization of *Listeria* diagnostic monoclonal and polyclonal antibodies in biosensors, 1999 Food Safety Consortium Annual Meeting, Shangri-La Resort, Afton, OK, Oct. 17-19, 1999.
- (21) Biosensors for pathogens and strategies for concurrent detection of multiple pathogens, 1998 Food Safety Consortium Annual Meeting, Kansas City, October 4-6, 1998.
- (20) New virulence assays for foodborne pathogens, 1998 Food Safety Consortium Annual Meeting, Kansas City, October 4-

6, 1998.

- (19) New bacteriocins and their inhibitory activities against pathogens in poultry products, 1998 Food Safety Consortium Annual Meeting, Kansas City, October 4-6, 1998.
- (18) Monoclonal antibody strategies for detection of foodborne pathogens, 1997 Food Safety Consortium Annual Meeting, Kansas City, October 13-14, 1997.
- (17) Virulence assays for pathogenic isolates of EHEC 0157:H7 & *Campylobacter*, 1997 Food Safety Consortium Annual Meeting, Kansas City, October 13-14, 1997.
- (16) Characterization of Bacteriocins and their purification, 1997 Food Safety Consortium Annual Meeting, Kansas City, October 13-14, 1997.
- (15) Nannapaneni, R.K., and M.G. Johnson. 1996. Development of Piezoelectric biosensor for *Listeria monocytogenes* utilizing monoclonal antibodies, 6 minute Video prepared for the Electric Power Research Institute-Food Technology Center, St. Paul, Minnesota.
- (14) Characterization of genus-specific and species-specific monoclonal antibodies to *Listeria monocytogenes*, Department of Food Science Seminar, December 1, 1996.
- (13) Monoclonal antibodies to cell surface antigens of *Listeria monocytogenes*, 1996 Food Safety Consortium Annual Meeting, Kansas City, October 21-22, 1996.
- (12) *In vitro* cell assays to rapidly detect pathogenic isolates of *Listeria monocytogenes* and EHEC 0157:H7, 1996 Food Safety Consortium Annual Meeting, Kansas City, October 21-22, 1996.
- (11) Bacteriocins against *Listeria monocytogenes*, 1996 Food Safety Consortium Annual Meeting, Kansas City, October 21-22, 1996.
- (10) Antibodies for cell surface proteins of *Listeria monocytogenes*, 1995 Food Safety Consortium Annual Meeting, Kansas City, October 25-26, 1995.
- (9) Development of a monoclonal antibody specific for rice blast isolates of *Pyricularia grisea*, American Phytopathological Society Annual Meetings, August 12-18, 1995, Pittsburgh.
- (8) Milestones during the development of monoclonal antibodies against rice blast pathogen, for AgDia Inc. during the 1994 APS Annual Meetings at Albuquerque, August 6-10, 1994
- (7) Development of monoclonal antibodies for mycotoxins, Department of Plant Pathology Seminar, University of Arkansas, March 6, 1993.
- (6) Development of specific and sensitive monoclonal antibodies to the rice blast pathogen, at Strategic Diagnostics Inc, Delaware, December 15, 1993.
- (5) Development immunological techniques for aflatoxins, ICRISAT, India, March 15, 1991.
- (4) Enzyme-linked immunosorbent assays for mycotoxins using monoclonal antibodies, at the 5th International Working Conference on Stored Product Protection, September 9-14, 1990, Bordeaux, France.
- (3) Determination of mycotoxins from a single extract of barley grain using monoclonal antibodies, Rothamsted Experimental Station, Harpenden, December 18, 1990.
- (2) Monoclonal antibody based immunoassays for mycotoxins, at the British Mycological Society Meeting on "Modern Methods and Approaches to the Study of Fungal Ecology", April 10-12, 1989, U. of Lancaster, UK.

- (1) Influence of interspecific competition and environmental interactions on mycotoxin production in barley, Rothamsted Experimental Station, Harpenden, October 25, 1989.

## Scientific Video

Nannapaneni, R.K., and M.G. Johnson. 1996. Development of Piezoelectric biosensor for *Listeria monocytogenes* utilizing monoclonal antibodies, 6 minute Video prepared for the Electric Power Research Institute-Food Technology Center, St. Paul, Minnesota.

## Graduate & Undergraduate Student Research Direction

Qian Shen, Ph.D., FSNHP – Molecular aspects of bacterial stress adaptation and their destruction  
Priyanka Jangam, M.S., FSNHP – Antibodies for foodborne bacterial pathogens  
Pooja Pandare, M.S., FSNHP – Antimicrobial resistance in foodborne bacterial pathogens  
Monil Ajitbhai Desai, M.S., FSNHP – Efficacy of bacteriophages and other antimicrobials  
Ademola Oladunjoye, M.S., FSNHP – Efficacy of bacteriophages and other antimicrobials  
Trey Skrobot, M.S., FSNHP – Efficacy of antimicrobials  
Terrisha Buckley, B.S., Shackouls Honors Undergraduate research program – Antimicrobial resistance in foodborne pathogens  
Sana Mujahid of CVM Basic Sciences - Proteomics research on *L. monocytogenes*  
Nirathi Keerthi Govindu, M.S., Biological Sci. – Monoclonal antibodies against foodborne bacterial pathogens  
Udgayathri Kolli, M.S., Biological Sci. – Monoclonal antibodies against food borne bacterial pathogens  
Andy Heo, Ph.D., FDSC—Immunization in mice, Monoclonal antibody fusions, Mab Screening and Characterization, Tissue culture methods for animal cell lines.  
Keith C. Wiggins, B.S., FDSC — Fluoroquinolone resistant *Campylobacter* isolation.  
Ryan Dare, B.S., Microbiology — Antimicrobial rinse treatments for *Salmonella*  
M. Varshney, M.S. Agril. Eng. - *Salmonella* ELISA and biosensor assays with Mab and PAb.  
M. Sostrin, Ph.D., FDSC — Microtiter-based assays for *Lm.* interactions with additives.  
Moezni Osman, M.S., FDSC - Cytotoxicity assays for *Campylobacter*.  
Mandy M. Cox, M.S., FDSC— *Listeria monocytogenes* microcolony virulence.  
Carl Gilbert, Ph.D, POSC - Virulence and Cytotoxicity assays for *Campylobacter*  
Ana Gisbert, M.S., POSC/Ag.Eng. - Virulence and Cytotoxicity assays for *Campylobacter*  
John Moore, M.S., FDSC - EHEC cytotoxicity recovery from ground beef.  
Deborah Hoyt, M.S., FDSC - Use of hybridoma cell assay for virulence of *Bacillus cereus*.  
John Hettiarachchy, B.S. Hon. — *Listeria monocytogenes* virulence tests, Coaching on three consecutive SILO grants awarded to JH on 1996, 97, 98.  
Christy Roup, M.S., Microbiology—Special Problems, *Yersinia*.  
Charles Vo., M.A. Microbiology — Immunofluorescence for Foodborne pathogens.  
Erica Kroger, M.S., FDSC — Microtiter sensitivity assays of bacteriocins vs. *L. monocytogenes*.  
Clint Abner, B.S. Hon., Microbiology — Immunoblotting for *Listeria monocytogenes*  
Joshua Saldivar, B.S. FDSC — *Campylobacter* isolation from raw poultry carcass rinses.  
IFT Judge for the Graduate Student Paper Competition Abstract Reviews (1999-00). Poultry Science Graduate Student Paper Competition Judge (2001-2002).

## Undergraduate/Graduate Teaching

FNH 8111, Graduate Seminar, Food Science, Nutrition and Health Promotion (Beginning Spring 2012)

FDSC 2503, Food Safety and Sanitation, Distance Education Course, Team-Taught (30 lectures) with Dr. Johnson via CIV+Web, Spring 2000, UAF Dept. Food Science. Purdue score of 3.8.

FDSC 4124 Dr. Johnson's Food Microbiology Course, 6 h guest lectures on Quantitative detection of microbes, Production and characterization of monoclonal antibodies, Antibody- and DNA-based pathogen detection methods, Spring Semesters 1996-2006 UAF.

FDSC 4713 Dr. Crandall's Food Product Development and Technology Course, 2 h guest lectures on "Understanding the Basics of Foodborne Pathogens", Spring 2001, UAF Dept. Food Science.

FDSC 1103 Dr. Howell's Food Science Facts & Myths Course, 2 h guest lectures on "Introduction to Food Microbiology, Spring 2001, UAF Department of Food Science.

ANSC/POSC 5743, Advanced Analytical Methods in Animal Science, Team-taught (30 h) with Drs. Kreider, Kegley, Rosencrans and Beers, Fall Semesters 1999-2005, UAF Department of Animal Science. Purdue scores of 4.0 to 4.9.

## Online Distance Education Course Materials

Nannapaneni, R.K. and M.G. Johnson. 2000. FDSC 2503, Food Safety and Sanitation. UAF Bumpers College Food Science Department Distance Education Course, <http://www.uark.edu/~fss>

## References

**Dr. Sam K.C. Chang**, Professor and Head, Department of Food Science, Nutrition and Health Promotion, Mississippi State University, PO Box 9805, Mississippi State, MS 39762, Phone: 662-325-8880; Fax: 662-325-8728; [schang@msstate.edu](mailto:schang@msstate.edu)

**Dr. Juan Silva**, Professor and Interim Head, Department of Food Science, Nutrition and Health Promotion, Mississippi State University, PO Box 9805, Mississippi State, MS 39762, Phone 662/325-3200; Fax: 662-325-8728; [jls@ra.msstate.edu](mailto:jls@ra.msstate.edu)

**Dr. Benjy Mikel**, Associate Vice President, International Programs, Executive Director, International Institute, Mississippi State University, 150 Lloyd Ricks Watson Bldg, Mississippi State, MS 39762, Phone: 662-325-5508, [wbm50@msstate.edu](mailto:wbm50@msstate.edu)

**Dr. Michael G. Johnson**, Professor of Emeritus, Food Microbiology & Food Safety, Department of Food Science, 2650 N. Young Avenue, University of Arkansas, Fayetteville, AR 72704, Phone: 479-575-4778; Fax: 479-575-6936, Email: [mjohnson@uark.edu](mailto:mjohnson@uark.edu)

**Dr. Steve Ricke**, Donald "Buddy" Wray Chair in Food Safety and Director, Center for Food Safety and Microbiology - IFSE, Department of Food Science, University of Arkansas, Fayetteville, AR 72704, Phone: 479-575-4678; Fax: 479-575-6936; Email: [sricke@uark.edu](mailto:sricke@uark.edu)

**Prof. Dr. Daniel Y.C. Fung**, Professor of Food Science, Department of Animal Sciences and Industry, 225 Call Hall, Kansas State University, Manhattan, KS 66506, Phone: 785-532-5654, Fax: 785-532-5681, Email: [dfung@oznet.ksu.edu](mailto:dfung@oznet.ksu.edu)

**Dr. Curtis L. Kastner**, Professor, Meat Science & Associate Department Head, Department Research Coordinator, Department of Animal Sciences and Industry, Kansas State University, 241 Weber Hall, Manhattan, KS 66506-0201, Phone: 785-532-1234, Fax: 785-532-7059, Email: [ckastner@oz.oznet.ksu.edu](mailto:ckastner@oz.oznet.ksu.edu)

**Dr. Marlene E. Janes**, Associate Professor, Department of Food Science, 111 Food Science Building, Louisiana State University, Baton Rouge, LA 70803-4200, Phone 225-342-5812 ext 139, Fax: 225-342-0027, Email: [mjanes@agctr.lsu.edu](mailto:mjanes@agctr.lsu.edu)

**Dr. Irene V. Wesley**, Research Microbiologist - Pre-harvest Food Safety, USDA-ARS, National Animal Disease Center, 2300 Dayton Drive, PO Box. 70, Ames, IA 50010, Phone: 515-663-7291, Fax: 515-663-7458; Email: [iwesley@nadc.ars.usda](mailto:iwesley@nadc.ars.usda)

**Dr. D. Ramkishan Rao**, National Program Leader, Food Science and Technology, USDA-CSREES, Mail Stop 2220, 1400 Independence Avenue, Washington, DC 20250. Phone: 202-401-6010; Fax: 202-401-5179; Email: [rrao@csrees.usda.gov](mailto:rrao@csrees.usda.gov)