

## Quarterly Newsletter

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*A report on Scholarship and Academic Activities of Interdepartmental Food Science Graduate Program (IFSGP)*



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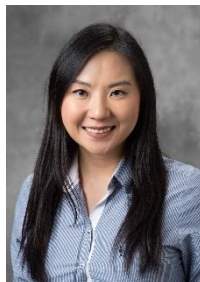
Welcome new 2018 Spring and Summer graduate students!



Tressie Barrett  
M.S.  
Feng Lab



Fernando Canteraro  
M.S.  
Mishra Lab



Monique Chung  
Ph.D.  
Huang Lab



Carine Nkemngong  
M.S.  
Oliver Lab



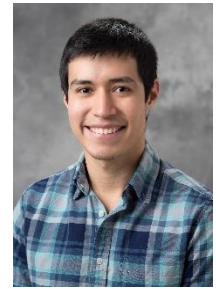
Arianna Romero Marcia  
M.S.  
Lindemann Lab



Maria Salazar Tijerino  
M.S.  
Huang Lab



Manoj Sawale  
M.S.  
Mishra Lab



Uriel Urbizo Reyes  
M.S.  
Liceaga Lab

### Peer-reviewed Publications

1. **Allan, M.C.**, B. Rajwa, and **L.J. Mauer**. 2018. Effects of sugars and sugar alcohols on the gelatinization temperature of wheat starch. *Food Hydrocolloids* 84:593-607.
2. **Alsulami, T.S.**, X. Zhu, M.U. Abdelhaseib, **A.K. Singh**, and **A.K. Bhunia**. 2018. Rapid detection and differentiation of *Staphylococcus* colonies using an optical scattering technology. *Analytical and Bioanalytical Chemistry* 410: 5445–5454. (**Research Highlighted in the Journal Cover Page, Sept issue**)
3. Bishehsari, F., P. Engen, N.Z. Preite, **Y.E. Tunçil**, A. Naqib, M. Shaikh, M. Rossi, S. Wilber, S. Green, and **B.R. Hamaker**. 2018. 1055-Prebiotic Treatment Corrects Composition of Gut Microbiota, Promotes SCFA Production, and Suppresses Colon Carcinogenesis. *Gastroenterology* 154(6):S-200.
4. Cardoso-Ugarte, G.A., N. Ramírez-Corona, A. López-Malo, E. Palou, **M.F. San Martín-González**, and M.T. Jiménez-Munguía. 2018. Modeling phase separation and droplet size of W/O emulsions with oregano essential oil as a function of its formulation and homogenization conditions. *Journal of Dispersion Science and Technology* 39(7):1065-1073.
5. **Corkran, S.C.**, **M. Bailey**, **J. Brar**, **C. Velasquez**, J. Waddell, **H.F. Oliver**, C.L. Bratcher, L. Wang, S. Kumar, and **M. Singh**. 2018. Comparison of processing parameters in small and very small beef processing plants and their impact on *Escherichia coli* prevalence. *LWT-Food Science and Technology* 95:92-98.
6. Elegbede, J.L., M. Li, **O.G. Jones**, **O.H. Campanella**, and **M.G. Ferruzzi**. 2018. Interactions Between Flavonoid-Rich Extracts and Sodium Caseinate Modulate Protein Functionality and Flavonoid Bioaccessibility in Model Food Systems. *Journal of Food Science* 83(5):1229-1236.
7. **Hall, F.**, P.E. Johnson, and **A. Liceaga**. 2018. Effect of enzymatic hydrolysis on bioactive properties and allergenicity of cricket (*Gryllosid sigillatus*) protein. *Food Chemistry* 262:39-47.
8. **Hasek, L.Y.**, R.J. Phillips, **G. Zhang**, K.P. Kinzig, C.Y. Kim, T.L. Powley, and **B.R. Hamaker**. 2018. Dietary Slowly Digestible Starch Triggers the Gut–Brain Axis in Obese Rats with Accompanied Reduced Food Intake. *Molecular Nutrition & Food Research* 62(5):1700117.
9. **Huang, J.Y.**, F. Xu, and W. Zhou. 2018. Effect of LED irradiation on the ripening and nutritional quality of postharvest banana fruit. *Journal of the Science of Food and Agriculture*. DOI 10.1002/jsfa.9093
10. **Kershaw, J.C.** and **C.A. Running**. 2018. Conditioning of human salivary flow using a visual cue for sour candy. *Archives of Oral Biology* 92:90-95.
11. Larrick, B.M., **K.-H. Kim**, S.S. Donkin, and D. Teegarden. 2018. 1, 25-Dihydroxyvitamin D regulates lipid metabolism and glucose utilization in differentiated 3 T3-L1 adipocytes. *Nutrition Research*. 58: 72-83
12. **Lee, B.-H.** and **B.R. Hamaker**. 2018. Maltase Has Most Versatile  $\alpha$ -hydrolytic Activity Among the Mucosal  $\alpha$ -glucosidases of the Small Intestine. *Journal of Pediatric Gastroenterology and Nutrition* 66:S7-S10.
13. **Lu, J.**, D.M. Campana, and **C.M. Corvalan**. 2018. Contraction of surfactant-laden pores. *Langmuir* 34(15):4701-4706.
14. **Pletsch, E.A.** and **B.R. Hamaker**. 2018. Brown rice compared to white rice slows gastric emptying in humans. *European Journal of Clinical Nutrition* 72(3):367.
15. Robayo-Torres, C.C., M. Diaz-Sotomayor, **B.R. Hamaker**, S.S. Baker, B.P. Chumpitazi, A.R. Opekun, and B.L. Nichols. 2018. <sup>13</sup>C-labeled-starch Breath Test in Congenital Sucrase-isomaltase Deficiency. *Journal of Pediatric Gastroenterology and Nutrition* 66:S61-S64.
16. Rosnow, J.J., S. Hwang, B.J. Killinger, Y.-M. Kim, R.J. Moore, **S.R. Lindemann**, J. A. Maupin-Furlow, and A. T. Wright. 2018. Cobalamin activity-based probe enables microbial cell growth and finds new cobalamin-protein interactions across domains. *Applied and Environmental Microbiology:AEM*. 00955-00918.
17. **Running, C.A.** 2018. Desensitization but not sensitization from commercial chemesthetic beverages. *Food Quality and Preference* 69:21-27.

18. **Running, C.A.** 2018. Oral sensations and secretions. *Physiology & Behavior*. 193: 234-237
19. **Voelker, A., J. Miller, C.A. Running, L.S. Taylor, and L.J. Mauer.** 2018. Chemical stability and reaction kinetics of two thiamine salts (thiamine mononitrate and thiamine chloride hydrochloride) in solution. *Food Research International* 112:443-456.
20. **West, A.M., P.J. Teska, C.B. Lineback, and H.F. Oliver.** 2018. Strain, disinfectant, concentration, and contact time quantitatively impact disinfectant efficacy. *Antimicrobial Resistance & Infection Control* 7(1):49.
21. **Zhu, X., D. Liu, A.K. Singh, R. Drolia, X. Bai, S. Tenguria, and A.K. Bhunia.** 2018. Tunicamycin Mediated Inhibition of Wall Teichoic Acid Affects *Staphylococcus aureus* and *Listeria monocytogenes* Cell Morphology, Biofilm Formation and Virulence. *Frontiers in Microbiology* 9:1352.
22. **Zhu, Y., C.-Y. Chen, J. Li, J.-X. Cheng, M. Jang, and K.-H. Kim.** 2018. In vitro exploration of ACAT contributions to lipid droplet formation during adipogenesis. *Journal of Lipid Research* 59:820-829.

### Book

1. **Bhunias, A.K.** (2018). *Foodborne Microbial Pathogens: Mechanisms and Pathogenesis*, 2<sup>nd</sup> Edition, Springer-Nature (New York) (Textbook).

### Book Chapters

1. **Mishra, D.K.** and N.K. Sinha. 2018. Principles of Vegetable Canning. *Handbook of Vegetables and Vegetable Processing* 5:365.

### Miscellaneous Publications

1. Teska, P., J. Howarter, **H. Oliver**, C. Jim Gauthier, K. Bixler, and X. Li. 2018. Characteristics of an Ideal Surface Damage Testing Protocol. [<https://www.infectioncontroltoday.com/environmental-hygiene/characteristics-ideal-surface-damage-testing-protocol>]

### Presentations

1. **Bai, X., Liu, D., Xu, L., Drolia, R., Bailey, T., Durkes, A.C., and Bhunia, A.K.** 2018. Biofilm-Isolated *Listeria monocytogenes* Exhibits Lower Intestinal and Extra-Intestinal Dissemination than Planktonic Cells Very Early in the Oral Infection of Mouse. American Society for Microbiology General Meeting, Atlanta, GA. Abstract No. 29, June 8-11, 2018. (Poster presentation)
2. **Bhunias, A.K.** 2018. (Invited Speaker) Impact of stress on detection of bacterial pathogens. Rapid Detection for Food Safety. Knowledge Foundation, Bethesda, MD June 27, 2018.
3. **Bhunias, A.K.** 2018. (Invited Speaker) *Listeria monocytogenes*: Molecular Mechanism during Gastrointestinal Phase of Infection. International Association for Food Protection Annual Meeting, Salt Lake City, UT. July 16-18, 2018. Session on "Listeriosis Outbreak – Special Session" # SS1
4. **Chapa, J.** 2018. Inverse estimation of fluid to particle heat transfer coefficient in aseptic processing. Inverse Problems Symposium, Michigan State University, East Lansing, MI. June 5, 2018.
5. **Chapa, J.** 2018. Simplifications of the validation of aseptic processing of multiphase particulate foods through the use of conservative simulated particles. Institute of Food Technologists Annual Expo (IFT 2018), Chicago, IL, USA. July 17, 2018.
6. **Cladis, D.P.,** Martin, B.R., Naja, F., Donángelo, C.M., Shyur, L.-F., Yang, F.L., Wiafe-Addai, B., Welch, A. and Weaver, C.M. 2018. Mineral and Phenolic Content in Representative Diets from Eight Countries for the International Breast Cancer and Nutrition Project. ASN Nutrition 2018, Boston, MA, June 10, 2018. (Poster presentation).
7. **Drolia\*, R., Tenguria, S.,** Durkes, A.C., Turner, J.R., and **Bhunias, A.K.** 2018. LAP Induces Intestinal Epithelial Barrier Dysfunction by Activating NF-κB and MLCK for *Listeria monocytogenes* Translocation in Caco-2 and Mouse Models. American Society for Microbiology General Meeting, Atlanta, GA. Abstract No. 88, June 8-11, 2018. [**\*ASM Travel Award Recipient**] (Poster presentation)
8. **Hayes, A.M.R.,** Swackhamer, C., Martínez, M.M., Mennah-Govela, Y.A., Bornhorst, G.M., **Hamaker, B.R.** 2018. Breakdown rate of couscous made from pearl millet versus wheat in a simulated gastric environment linked to gastric emptying. Institute of Food Technologists Annual Expo (IFT 2018), Chicago, IL, USA. July 15-18, 2018 (Poster presentation).

9. **Liu, D., Bailey, T.W., Zhu, X., Drolia, R., Singh, A.K., Seleem, M., and Bhunia, A.K.** 2018. Re-association of the Secreted LAP on Cell Wall of *Listeria monocytogenes* is Facilitated by Multiple Anchoring Partners. American Society for Microbiology General Meeting, Atlanta, GA. Abstract No. 1101, June 8-11, 2018. (Poster presentation)
10. **Mathipa, M.G., Bailey, T.W., Thantsha, M.S., and Bhunia, A.K.** 2018. Recombinant Probiotic *Lactobacillus casei* Expressing the invasion gene Internalins AB for prevention of *Listeria monocytogenes* Infection in vitro. American Society for Microbiology General Meeting, Atlanta, GA. Abstract No. 172, June 8-11, 2018. (Poster presentation)
11. **Mathipa, M.G., Bailey, T.W., Thantsha, M.S., and Bhunia, A.K.** 2018. Recombinant Probiotic *Lactobacillus casei* Expressing the Internalins AB or *Listeria* Adhesion Protein (LAP) affect specific stages in the *Listeria monocytogenes* Infection process in vitro. International Association for Food Protection Annual Meeting, Salt Lake City, UT, T2-07. July 16-18, 2018 (Oral presentation)
12. **Tenguria, S., Drolia, R., Durkes, A.C., and Bhunia, A.K.** 2018. *Listeria monocytogenes* Induced Gastroenteritis in a Mouse Model. American Society for Microbiology General Meeting, Atlanta, GA. Abstract No. 13, June 8-11, 2018. (Poster presentation)
13. **To, C., and Bhunia, A.K.** 2018. A 3D cell-based assay to detect Shiga-like toxin producing *Escherichia coli*. International Association for Food Protection Annual Meeting, Salt Lake City, UT T12-01. July 16-18, 2018 (Oral presentation)

### Graduated Students with Thesis/Dissertation Titles

#### Summer 2018

1. **Emma Barber-MS (Kokini):** Optimization of zein based surface enhanced raman spectroscopy biosensor for the detection of Gliadin as a marker for Celiac Disease
2. **Jack Burnett-MS (Oliver):** Prevalence of *Listeria monocytogenes* and *Salmonella enterica* in retail produce environments and strategies for their control
3. **Ciera Crawford-MS (Running):** Chocolate almond milk consumption changes salivary Proline-rich protein expression, which alter astringency and bitterness
4. **Paula Duarte Guevara-MS (Oliver):** Development of tools to reduce risk of nosocomial and foodborne pathogens exposure
5. **Luis Maldonado Mejia-PhD (Kokini):** Mechanistic understanding of the design and characterization of biocompatible nanodelivery systems of the encapsulation and delivery of Curcumin
6. **Breanna McArthur-PhD (Mattes):** The effects of mastication and digestion on the bioaccessibility of energy from walnuts
7. **Angarika Rayate-MS (Jones):** Interactions between sodium caseinate and polyglucose in aqueous solutions
8. **Randol Rodriguez Rosales-PhD (Yao):** Phytoglycogen and its derivatives to incorporate Curcumin for enhanced solubility and efficacy

### Graduate Student/Post Doctorate Achievements/Awards

1. **Anna Hayes-**Poster Competition Finalist (Nutrition Division), IFT 2018 Annual Food Expo, Chicago, IL, 2018. IFT Feeding Tomorrow General Graduate Scholarship Recipient, 2018-2019

### Other Noteworthy Recognitions

1. **Purdue Chapter-**Outstanding Chapter for Organizational Growth, IFT Annual Meeting and Expo, Summer 2018
2. **Purdue Food Science College Bowl-**2<sup>nd</sup> Place, Summer 2018
3. **Purdue Chapter-**Phi Tau Sigma Chapter of the Year, IFT, Summer 2018