

Guodong Zhang

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Education

1999-2003	B.S. (Chemistry)	Xi'an Jiaotong University, China
2003-2005	M.S. (Chemistry)	National University of Singapore (Adviser: Leslie Harrison)
2005-2010	Ph.D. (Food Science)	University of Wisconsin-Madison (Adviser: Kirk Parkin)
2010-2013	Postdoctoral	University of California-Davis (Adviser: Bruce Hammock)

Professional Experience

2013-2019	Assistant Professor, Department of Food Science, UMass-Amherst
2014-Present	Faculty member, Molecular and Cell Biology Program, UMass-Amherst
2019-Present	Associate Professor, Department of Food Science, UMass-Amherst
2019-Present	Adjunct faculty member, Cancer Center, UMass Medical School
2019-Present	Adjunct faculty member, School of Food Science, Nanjing University of Finance and Economics, and School of Medicine, Northwest University

Honors and Professional Service

Honors:

2020	Samuel Cate Prescott Award, Institute of Food Technologists (IFT)
2019	Young Scientist Research Award, American Oil Chemists' Society (AOCS)
2019-21	Editorial Advisory Board, Journal of Agricultural and Food Chemistry
2018	Junior Researcher Travel Award, AOCS Lipid Oxidation and Quality (LOQ) Division
2017	Travel Award, American Chemical Society (ACS)
2016	Flex Grant for Teaching/Faculty Development, UMass-Amherst
2014	Armstrong Fund of Science Award, UMass-Amherst
2014	Travel Award, American Chemical Society (ACS)
2014	Outstanding Poster Award, the 15 th International Winter Eicosanoid Meeting
2009	Vilas Travel Grant Award, UW-Madison
2005	Hollister Fellowship, UW-Madison

Professional Service:

2020	Panel reviewer, USDA, Agriculture and Food Research Initiative (AFRI) research program
2020	Chair, "GI Tract-non cancer: colon, liver, pancreas – emphasis on inflammation/ metabolic", 18 th International Winter Eicosanoid Conference, Baltimore, MD
2020	AOCS award committee member
2019	Panel reviewer, Congressionally Directed Medical Research Programs (CDMRP), Peer Reviewed Cancer Research Program
2019	Co-chair, "Role of the Microbiome in Mediating Health Effects of Dietary Components", ACS Fall 2019 National Meeting, San Diego, CA

- 2017 Panel reviewer, CDMRP, Prostate Cancer Research Program
- 2018 Member of Nomenclature and Terminology Roundtable, the 17th International Winter Eicosanoid Conference, Baltimore, MD
- 2017-18 Secretary, Dietary Bioactives Components Research Interest Section, American Society of Nutrition
- 2016 Grant reviewer, Genome British Columbia, Canada
- 2016 Grant reviewer, Mitacs, Inc. Canada
- 2016 Reviewer, Mahoney Life Sciences Paper Prize, UMass-Amherst
- 2013 Co-Chair, "Anti-Cancer Drug Discovery & Therapy" Drug Discovery & Therapy World Congress, Boston, MA

Honors of advised students in the laboratory:

- 2013 Alumni Fellowship, UMass-Amherst (Weicang Wang, PhD student)
- 2015 Travel award, Institute of Food Technologists (IFT) (Elvira Sukamtoh, BS/MS student)
- 2015 2nd place of IFT Undergraduate Research Competition (Elvira Sukamtoh, BS/MS student)
- 2015 Rising Researcher Award, UMass-Amherst (Elvira Sukamtoh, BS/MS student)
- 2016 Travel award, American Chemical Society (Elvira Sukamtoh, BS/MS student)
- 2016 1st place of American Chemical Society Undergraduate Student Research Award Symposium (Elvira Sukamtoh, BS/MS student)
- 2016 Alumni Fellowship, UMass-Amherst (Elvira Sukamtoh, BS/MS student)
- 2017 Graduate Student Travel Award, American Society for Pharmacology and Experimental Therapeutics (ASPET) (Weicang Wang, PhD student)
- 2017 Micha Peleg International Travel Award, UMass-Amherst (Weicang Wang, PhD student)
- 2017 IFT Feeding Tomorrow Graduate Scholarship (Weicang Wang, PhD student)
- 2017 NEIFT Graduate Student Scholarship (Weicang Wang, PhD student)
- 2017 Best Student Oral Presentation Award, Northeast Chapter of the Society of Toxicology (NESOT) Annual Meeting (Katherine Z. Sanidad, PhD student)
- 2017 Postdoctoral Poster Award, NESOT Annual Meeting (Haixia Yang, Postdoctoral fellow)
- 2018 Graduate Travel Award, NESOT (Katherine Z. Sanidad, PhD student)
- 2018 Phi Tau Sigma Founders Award (Weicang Wang, PhD student)
- 2018 Outstanding Poster Award, the 17th International Winter Eicosanoid Meeting (Weicang Wang, PhD student)
- 2018 Travel Award, 24th Annual Meeting of the North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry (NACSETAC) (Katherine Z. Sanidad, PhD student)
- 2018 Best Poster Award, 24th Annual Meeting of NACSETAC (Katherine Z. Sanidad, PhD student)
- 2018 Best Postdoctoral Publication Award, Society of Toxicology (Haixia Yang, Postdoctoral fellow)
- 2018 Travel Award, the Honor Society of Phi Kappa Phi (Weicang Wang, PhD student)
- 2019 AOCS Health and Nutrition Division Student Award (Weicang Wang, PhD student)
- 2019 AOCS Honored Student Award (Weicang Wang, PhD student)
- 2019 Outstanding Self-Financed Students Abroad Award from the Consulate General of the People's Republic of China in New York (Weicang Wang, PhD student)
- 2019 First place of Hultin Scholarship, UMass-Amherst (Jianan Zhang, PhD student)

Publications

Summary: > 60 publications, including 4 corresponding-author publications in *Science Translational Medicine*, *Cancer Research*, and *PNAS*, 2 corresponding-author publications featured as journal front covers of *Toxicological Sciences* and *Molecular Nutrition & Food Research*, and 2 first-author papers in *PNAS*.

Independent research at UMass-Amherst (2013-Present)

1. Edin M.L., Duval C., Zhang G., and Zeldin D.C. Role of linoleic acid-derived oxylipins in cancer. Submitted.
2. Sherman H.L., Mohan D., Mitra A., Pobezinskaya E.L., Pobezinsky L.A., Zhang G., Tew G.N., Osborne B.A., and Minter L.M. Liver Kinase B1 isoform expression correlates with T cell plasticity and metabolism downstream of Protein Kinase C theta and IL-6. Submitted.
3. Zhang J., Tu M., Liu Z., and Zhang G. Soluble epoxide hydrolase as a therapeutic target for obesity-induced disorders: roles of gut barrier function involved. Submitted.
4. Xie M., Yang J., Zhang J., Sherman H.L., Minter L.M., Hammock B.D., Park Y., and Zhang G. Effects of linoleic acid-rich diet on plasma profiles of eicosanoids and development of colitis in *Il-10^{-/-}* mice. Submitted.
5. Wang G., Zhang H., Zhang J., Sanidad K.Z., Parsonnet J., Haggerty T.D., Yang H., Ai L., Xie M., Cai Z., and Zhang G. Gut microbiota-mediated colonic metabolism of environmental chemical triclocarban. Submitted.
6. Zhang J., Freund M.A., Culler M., Yang R., Chen P.B., Park Y., Decker E.A., and Zhang G. How to stabilize ω -3 polyunsaturated fatty acids (PUFAs) in an animal feeding study? – effects of temperature, oxygen level, antioxidant on oxidative stability of ω -3 PUFAs in a mouse diet. **Journal of Agricultural and Food Chemistry**, in press.
7. Wang Y., Yang J., Wang W., Sanidad K.Z., Cinelli M.A., Wan D., Hwang S.H., Kim D., Lee K.S.S., Xiao H., Hammock B.D., and Zhang G. (2020) Soluble epoxide hydrolase is an endogenous regulator of obesity-induced intestinal barrier dysfunction and bacterial translocation. **PNAS** 117: 8431-8436.
8. Zhao B., Yang T., Qu Y., Mills A.J., Zhang G., and He L. (2020) Rapid capture and SERS detection of triclosan using a silver nanoparticle core – Protein satellite substrate. **Science of The Total Environment**, Doi: 10.1016/j.scitotenv.2020.137097.
9. Zhou J., Wang W., Zhang J., Du Z., Yang H., and Zhang G. (2020) Click chemistry-based imaging to study tissue distribution of curcumin-protein complex in mice. **Food & Function**, Doi: 10.1039/C9FO02012H.
8. Xie M., Zhang H., Wang W., Sherman H.L., Minter L.M., Cai Z., and Zhang G. (2019) Triclocarban exposure exaggerates spontaneous colonic inflammation in *Il-10^{-/-}* mice. **Toxicological Sciences** 174:92-99.
9. Wang W., Zhang J., and Zhang G. Cytochrome P450 monooxygenase eicosanoid pathway: a potential mechanistic linkage between dietary fatty acid consumption and colon cancer risk? **Food Science and Human Wellness** 8:337-343.

10. Wang Y., Dattmore D.A., Wang W., Pohnert G., Wolfram S., Zhang J., Yang R., Decker E.A., Lee K.S.S., and Zhang G. (2019) *trans, trans*-2,4-decadienal, a lipid peroxidation product, induces inflammatory responses via Hsp90- or 14-3-3 ζ -dependent mechanisms. **Journal of Nutritional Biochemistry** 76:108286.
11. Yang H., Sanidad K.Z., Wang W., Xie M., Gu M., Cao X., Xiao H., and Zhang G. (2019) Triclocarban exposure exaggerates colonic inflammation and colon tumorigenesis: roles of gut microbiota involved. **Gut Microbes** 24:1-12. Doi: 10.1080/19490976.2019.1690364.
12. Yang T., Qu Y., Hickey M.E., Wang W., Zhao B., Bi S., Zhang G., and He L. (2019) Mapping of Pesticide Transmission on Biological Tissues by Surface Enhanced Raman Microscopy with Gold Nanoparticle Mirror. **ACS Applied Materials & Interfaces** 11:44894-44904. Doi: 10.1021/acsami.9b16084.
13. Zhang J., Chen X., Yang R., Ma Q., Qi W., Park Y., Sanidad K.Z., Kim D., Decker E.A., and Zhang G. (2019) Thermally processed oil exaggerates colonic inflammation and colitis-associated colon tumorigenesis in mice. **Cancer Prevention Research** 12:741-750.
[Media coverage by UMass-Amherst and Boston Globe.](#)
14. Wang W., Yang J., Edin M.L., Wang Y., Luo Y., Wan D., Yang H., Sanidad K.Z., Song M., Bisbee A.H., Bradbury J.A., Nan G., Zhang J., Shih B., Lee K.S.S., Minter L.M., Kim D., Xiao H., Liu J., Hammock B.D., Zeldin D.C., and Zhang G. (2019) Targeted metabolomics identifies the cytochrome P450 monooxygenase eicosanoid pathway as novel therapeutic target of colon tumorigenesis. **Cancer Research** 79:1822-1830.
[Media coverage by UMass-Amherst.](#)
15. Yang H., Wang W., and Zhang G. (2019) Consumer antimicrobials on gut microbiota and gut health. **DNA and Cell Biology** 38:7-9
16. Sanidad K., Xiao H., and Zhang G. (2019) Triclosan, a common antimicrobial ingredient, on gut microbiota and gut health. **Gut Microbes** 20:1-4.
17. Rakariyatham K., Du Z., Yuan B., Gao Z., Song M., Pan C., Han Y., Wu X., Tang Z., Zhang G., and Xiao H. (2019) Inhibitory effects of 7,7'-bromo-curcumin on 12-O-tetradecanoylphorbol-13-acetate-induced skin inflammation. **European Journal of Pharmacology** 858:172479. Doi: 10.1016/j.ejphar.2019.172479.
18. Hao T., Xie Z., Wang M., Liu W., Zhang Y., Wang W., Zhang Z., Zhao X., Li P., Guo Z., Gao S., Lou C., Zhang G., Merritt J., Horsman G., and Chen Y. (2019) An anaerobic bacterium host system for heterologous expression of natural product biosynthetic gene clusters. **Nature Communications** 10:3665. Doi: 10.1038/s41467-019-11673-0.
19. Yang H., Sukamtoh E., Du Z., Wang W., Ando M., Kwakwa Y., Zhang J., and Zhang G. (2019) Click chemistry approach to characterize curcumin-protein interactions *in vitro* and *in vivo*. **Journal of Nutritional Biochemistry** 68:1-6.
20. Han Y., Song M., Gu M., Ren D., Zhu X., Cao X., Li F., Wang W., Cai X., Yuan B., Goulette T., Zhang G., and Xiao H. (2019) Dietary intake of whole strawberry inhibited colonic inflammation in dextran-sulfate-sodium-treated mice via restoring immune homeostasis and alleviating gut microbiota dysbiosis. **Journal of Agricultural and Food Chemistry** 67:9168-9177.
21. Sanidad K.Z., Sukamtoh E., Xiao H., McClements D. and Zhang G. (2019) Curcumin: Recent Advances in the Development of Strategies to Improve Oral Bioavailability. **Annual Review of Food Science and Technology** 10:597-617.

22. Zhang J., Sanidad K.Z., and [Zhang G.](#) (2019) Role of cytochrome P450 monooxygenase eicosanoid pathway in pathogenesis of colorectal cancer. **Oncoscience** 6:371-375.
23. Wang W., Sanidad K.Z., and [Zhang G.](#) (2019) Cytochrome P450 eicosanoid signaling pathway in colorectal tumorigenesis. **Advances in Experimental Medicine and Biology** 1161:115-123. Doi: 10.1007/978-3-030-21735-8_11.
24. Luo Y., Wu M., Deng B., Huang J., Hwang S., Li M., Zhou C., Zhang Q., Yu H., Zhao D., [Zhang G.](#), Qin L., Peng D., Hammock B.D., and Liu J. (2019) Inhibition of soluble epoxide hydrolase attenuates a high fat diet-mediated renal injury by activating PAX2 and AMPK. **PNAS** 116:5154-5159.
25. Wang Y., Wang W., Yang H., Shao D., Zhao X., and [Zhang G.](#) (2019) Intraperitoneal injection of 4-hydroxynonenal (4-HNE), a lipid peroxidation product, exacerbates colonic inflammation through activation of Toll-like receptor 4 signaling. **Free Radical Biology & Medicine** 131:237-242.
26. Wang Y., Wang W., Sanidad K., Shih P., Zhao X., and [Zhang G.](#) (2018) Eicosanoid signaling in carcinogenesis of colorectal cancer. **Cancer Metastasis Review** 37:257-267.
27. Wang W., Yang J., Zhang J., Wang Y., Hwang S., Qi W., Wan D., Kim D., Sun J., Sanidad K.Z., Yang H., Park Y., Liu J., Liu Z., Hammock B.D. and [Zhang G.](#) (2018) Lipidomic profiling reveals soluble epoxide hydrolase as a therapeutic target of obesity-induced colonic inflammation. **PNAS** 115:5283-5288.

Media coverage by [UMass-Amherst](#), [UC-Davis](#), [Boston Globe](#), and [NIH/NIEHS](#).

Comment by [Yang G.](#) (2018) Proinflammatory enzyme soluble epoxide hydrolase bridges obesity to colonic inflammation and potential carcinogenesis, **PNAS**, doi: [10.1073/pnas.1807520115](https://doi.org/10.1073/pnas.1807520115)

28. Yang H., Wang W., Romano K.A., Gu M., Sanidad K., Kim D., Yang J., Schmidt B., Panigrahy D., Pei R., Martin D.A., Ozay E.I., Wang Y., Song M., Bolling B.W., Xiao H., Minter L.M., Yang G., Liu Z., Rey F.E., and [Zhang G.](#) (2018) A common antimicrobial additive increases colonic inflammation and colon tumorigenesis in mice. **Science Translational Medicine** 10:eaan4116. Doi: 10.1126/scitranslmed.aan4116.

Media coverage by [UMass-Amherst](#), [Los Angeles Times](#), [Popular Science](#), [Canadian Broadcasting Corporation \(CBC\)](#), [Daily Mail](#), [La Vanguardia \(Spain\)](#).

See complete list of press release: <https://sciencetm.altmetric.com/details/43005321/news>.

29. Sanidad K., Yang H., Wang W., Ozay E., Yang J., Gu M., Karner M., Zhang J., Kim D., Minter L., Xiao H., and [Zhang G.](#) (2018) Effects of consumer antimicrobials benzalkonium chloride, benzethonium chloride, and chloroxylonol on colonic inflammation and colitis-associated colon tumorigenesis in mice. **Toxicological Sciences** 163:490–499.

Editor's Highlights: Antimicrobials induce colon inflammation and tumorigenesis. **Toxicological Sciences** 2018 163:331-2. Doi: [10.1093/toxsci/kfy108](https://doi.org/10.1093/toxsci/kfy108).

Featured on journal front cover: <https://academic.oup.com/toxsci/issue/163/2>

30. Kharat M., [Zhang G.](#), and McClements D. (2018) Stability of curcumin in oil-in-water emulsions: Impact of emulsifier type and concentration on chemical degradation. **Food Research International** 111:178-186.
31. Gorin S., Wakeford C., [Zhang G.](#), Sukamtoh E., Matteliano C.J., and Finch A.E. (2018) Beneficial effects of an investigational wristband containing *Synsepalum dulcificum* (miracle fruit) seed

oil on the performance of hand and finger motor skills in healthy subjects: A randomized controlled preliminary study. **Phytotherapy Research** 32:321-332.

32. Wang W., Yang J., Nimiya Y., Lee K., Sanidad K., Qi W., Sukamtoh E., Park Y., Liu, Z., and Zhang G. (2017) ω -3 polyunsaturated fatty acids and their cytochrome P450-derived metabolites suppress colorectal tumor development in mice. **Journal of Nutritional Biochemistry** 48:29-35.
33. Wang W., Yang J., Qi W., Yang H., Wang C., Tan B., Hammock B.D., Park Y., Kim D., and Zhang G. (2017) Lipidomic profiling of high-fat diet-induced obesity in mice: importance of cytochrome P450-derived fatty acid epoxides. **Obesity**, 25, 132-140.
34. Wang W., Yang H., Johnson D., Gensler C., Decker E., and Zhang G. (2017) Chemistry and biology of ω -3 PUFA peroxidation-derived compounds. **Prostaglandins & Other Lipid Mediators** 132: 84-91.
35. Zhu J., Sanidad K., Sukamtoh E., and Zhang G. (2017) Potential roles of chemical degradation in biological activities of curcumin. **Food & Function** 8, 907-914
36. Guo, X., Li, J., Tang, R., Zhang, G., Zeng, H., Wood, R. J., and Liu, Z. (2017) High Fat Diet Alters Gut Microbiota and the Expression of Paneth Cell-Antimicrobial Peptides Preceding Changes of Circulating Inflammatory Cytokines. **Mediators of Inflammation** 2017, 1-9.
37. Vieira, S. A., Zhang, G., and Decker, E. A. (2017) Biological Implications of Lipid Oxidation Products. **Journal of the American Oil Chemists' Society**, 1-13.
38. Yuan B., Ma N., Zhao L., Zhao E., Gao Z., Wang W., Song M., Zhang G., Hu Q., Xiao H. (2017) In vitro and in vivo inhibitory effects of a *Pleurotus eryngii* protein on colon cancer cells. **Food & Function** 8:3553-3562.
39. Yang H., Du Z., Wang W., Sukamtoh E., Zheng J., Sanidad K., and Zhang G. (2017) Structure and activity relationship of curcumin: role of methoxy groups in its anti-inflammatory and anti-colitis effects. **Journal of Agricultural and Food Chemistry** 65:4509–4515.
40. Sanidad K., Zhu J., Wang W., Du Z., and Zhang G. (2016) Effects of stable degradation products of curcumin on cancer cell proliferation and inflammation. **Journal of Agricultural and Food Chemistry** 64: 9189–9195.
41. Sanidad K., Sukamtoh E., Wang W., Du Z., Florio E., He L., Xiao H., Decker E. and Zhang G. (2016) Oxidative conversion mediates anti-proliferative effects of tert-butylhydroquinone (TBHQ): structure and activity relationship study. **Journal of Agricultural and Food Chemistry** 64:3743-8.
42. Kharat M., Du Z., Zhang G., and McClements D. (2016) Physical and chemical stability of curcumin in aqueous solutions and emulsions: Impact of pH and temperature. **Journal of Agricultural and Food Chemistry** 65: 1525-1532
43. Nimiya Y., Wang W., Du Z., Sukamtoh E., Zhu J., Decker E. and Zhang G. (2016) Redox modulation of curcumin stability: redox active antioxidants increase chemical stability of curcumin. **Molecular Nutrition & Food Research** 60:487-94.

Featured as journal front cover: <https://doi.org/10.1002/mnfr.201670031>
44. Wang W., Yang J., Yang H., Sanidad K., Hammock B.D., Kim D., and Zhang G. (2016) Effects of high-fat diet on plasma profiles of eicosanoid metabolites in mice. **Prostaglandins & Other Lipid Mediators** 127:9-13.

45. Zou L., Zheng B., Zhang R., Zhang Z., Liu W., Liu C., [Zhang G.](#), Xiao H. and McClements D. (2016) Influence of Lipid Phase Composition of Excipient Emulsions on Curcumin Solubility, Stability, and Bioaccessibility. **Food Biophysics** 11:213-225.
46. Zhang R., Zhang Z., Zou L., Xiao H., [Zhang G.](#), Decker E. and McClements D. (2016) Impact of Lipid Content on the Ability of Excipient Emulsions to Increase Carotenoid Bioaccessibility from Natural Sources (Raw and Cooked Carrots). **Food Biophysics** 11:71-80.
47. Wang W., Du Z., Nimiya Y., Sukamtoh E., Kim D. and [Zhang G.](#) (2015) Allicin inhibits lymphangiogenesis through suppressing activation of vascular endothelial growth factor (VEGF) receptor. **Journal of Nutritional Biochemistry** 29:83-9.
48. Wang W., Sukamtoh E., Xiao H. and [Zhang G.](#) (2015) Curcumin inhibits lymphangiogenesis in vitro and in vivo. **Molecular Nutrition & Food Research** 59:2345-54.
49. Wu X., Song M., Wang M., Zheng J., Gao Z., Xu F., [Zhang G.](#) and Xiao H. (2015) Chemopreventive effects of nobiletin and its colonic metabolites on colon carcinogenesis. **Molecular Nutrition & Food Research** 59:2383-94.
50. Zhang R., Zou L., Zhang Z., Xiao H., [Zhang G.](#), Decker E., and McClements D. (2015) Enhancement of carotenoid bioaccessibility from carrots using excipient emulsions: Influence of particle size of digestible lipid droplets. **Food & Function** 7:93-103
51. Zhang R., Zhang Z., Zou L., Xiao H., [Zhang G.](#), Decker E., and McClements D. (2015) Enhancing nutraceutical bioavailability from raw and cooked vegetables using excipient emulsions: Influence of lipid type on carotenoid bioaccessibility from carrots. **Journal of Agricultural and Food Chemistry** 63:10508-17.
52. Wang W., Zhu J., Lyu F., Panigrahy D., Ferrara K.W., Hammock B.D. and [Zhang G.](#) (2014) ω -3 polyunsaturated fatty acids-derived lipid metabolites on angiogenesis, inflammation and cancer. **Prostaglandins & Other Lipid Mediators** 113-115:13-20.

Post-doctoral research at UC-Davis (2010-13)

53. [Zhang G.](#), Panigrahy D., Hwang S., Yang J., Mahakian L., Wettersten H., Liu J., Wang Y., Ingham E., Tam S., Kieran M., Weiss R.H., Ferrara K.W. and Hammock B.D. (2014) Dual inhibition of cyclooxygenase-2 and soluble epoxide hydrolase synergistically suppresses primary tumor growth and metastasis. **PNAS** 111: 11127–11132.
- [Media coverage by UC-Davis and Science Daily](#)
54. [Zhang G.](#), Kodani S. and Hammock B.D. (2014) Stabilized epoxygenated fatty acids regulate inflammation, pain, angiogenesis and cancer. **Progress in Lipid Research** 53:108-123.
 55. Yang J., Bratt J., Franzi L., Liu J., [Zhang G.](#), Zeki A.A., Vogel C.F., Williams K., Dong H., Lin Y., Hwang S., Kenyon N.J., Hammock B.D. (2014) Soluble Epoxide Hydrolase Inhibitor Attenuates Inflammation and Airway Hyperresponsiveness in Mice. **American Journal of Respiratory Cell and Molecular Biology** 52: 46-55.
 56. [Zhang G.](#), Panigrahy D., Mahakian L., Yang J., Liu J., Lee K., Wettersten H., Ulu A., Hu X., Tam S., Hwang S., Ingham E., Kieran M., Weiss R.H., Ferrara K.W. and Hammock B.D. (2013) Epoxy metabolites of docosahexaenoic acid (DHA) inhibit angiogenesis, tumor growth and metastasis. **PNAS** 110: 6530-5.

[Media coverage by UC-Davis Department and Medical School, National Institute of Environmental Health Sciences and Science Daily](#)

57. Bogaert I., Zhang G.*, Yang J., Liu J., Ye Y. and Hammock B.D. (2013) Preparation of 20-HETE using multifunctional enzyme type 2 (MFE-2)-negative *Starmerella bombicola*. **Journal of Lipid Research** 54: 3215-9 (* co-first and co-corresponding author).
58. Hwang S., Weckler A., Zhang G., Morisseau C., Nguyen L. and Bruce D. Hammock. (2013) Structure-Activity Study of Hybrid Molecules between sorafenib and the Inhibitor. **Bioorganic & Medicinal Chemistry Letters** 23:3723-7.

PhD research at UW-Madison (2005-10)

59. Zhang G., Nitteranon V., Guo S., Qiu P., Li F., Nitteranon V., Xiao H. and Parkin K.L. (2013) Organoselenium compounds modulate extracellular redox by induction of extracellular cysteine and cell surface thioredoxin reductase. **Chemical Research in Toxicology** 26: 456-464.
60. Zhang G., Nitteranon V., Chan L.Y. and Parkin K.L. (2013) Glutathione conjugation attenuates biological activities of 6-dehydroshogaol from ginger. **Food Chemistry** 140:1-8.
61. Zhang G. and Parkin K.L. (2013) A tissue homogenate method to prepare gram-scale Allium thiosulfonates and their disulfide conjugates with cysteine and glutathione. **Journal of Agricultural and Food Chemistry** 61: 3030-3038.
62. Zhang G. and Parkin K.L. (2013) S-alk(en)ylmercaptocysteine: chemical synthesis, biological activities and redox-related mechanism. **Journal of Agricultural and Food Chemistry** 61:1896-1903.
63. Li F., Nitteranon V., Tang X., Liang J., Zhang G., Parkin K.L. and Hu Q. (2012) In vitro antioxidant and anti-inflammatory activities of 1-dehydro-[6]-gingerdione, 6-shogaol, 6-dehydroshogaol and hexahydrocurcumin. **Food Chemistry** 135:332-337.
64. Lu A., Ma Z., Zhuo J., Sun G. and Zhang G. (2012) Layer-by-layer structured gelatin nanofiber membranes with photoinduced antibacterial functions. **Journal of Applied Polymer Science** DOI: 10.1002/app.38131
65. Nitteranon V., Zhang G., Darien B. and Parkin K.L. (2011) Isolation and synergism of in vitro anti-inflammatory and quinone reductase (QR) inducing agents from the fruits of *Morinda citrifolia* (noni). **Food Research International** 44:2271-2277.
66. Li F., Wang Y., Parkin K.L., Nitteranon V., Liang J., Yang W., Li Y., Zhang G. and Hu Q. (2011) Isolation of quinone reductase (QR) inducing agents from ginger rhizome and their in vitro anti-inflammatory activity. **Food Research International** 44:1597-1603.
67. Lu A., Zhu J., Zhang G. and Sun G. (2011) Gelatin nanofibers fabricated by extruding immiscible polymer solution blend and their application in tissue engineering. **Journal of Materials Chemistry** 21:18674-18680.
68. Zhang G., Li B., Lee C. and Parkin K.L. (2010) Cysteine and glutathione disulfide conjugates of thiosulfonates: chemical synthesis and biological activities. **Journal of Agricultural and Food Chemistry** 58:1564-1571.
69. Imm J., Zhang G., Chan L.Y., Nitteranon V. and Parkin K.L. (2010) [6]-Dehydroshogaol, a minor component in ginger rhizome, exhibits quinone reductase inducing and anti-inflammatory activities that rival those of curcumin. **Food Research International** 43:2208-2213 (co-first author).

Patents

1. Parkin K.L. and Zhang G. Process of preparing conjugates of *Allium* organosulfur compound with amino acids, peptides and proteins. US Patent 8,481,284, assigned to Wisconsin Alumni Research Foundation.
2. Hammock B.D., Hwang S., Wagner K.M., Morisseau C., Weckler A.T. and Zhang G. Pyrazole inhibitors of COX-2 and sEH. US Patent 9,096,532, assigned to the Regents of the University of California.
3. Zhang G., Decker E. and Nimiya Y. Methods and formulations for increasing chemical stability and biological activity of phenolic compounds. US20170071901A1, assigned to UMass-Amherst.
4. Zhang G., Hammock B.D., Hwang S. and Wang W. Omega-3 lipid mediators and structural analogs as novel therapeutic drugs to treat pathological angiogenesis and cancer. US Patent application in progress, assigned to UMass-Amherst and UC-Davis.

Invited Talks

Feb 2020	Department of Veterinary and Animal Sciences, UMass-Amherst
April 2019	Department of Chemistry, Hong Kong Baptist University
Oct 2018	National Institute of Environmental Health Sciences (NIEHS)/National Institute of Health (NIH), Research Triangle Park, NC
Sept 2018	Mayer Human Nutrition Research Center on Aging, Tufts University, Boston, MA
June 2018	Dalian Polytechnic University, China
June 2018	Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China
June 2018	Shaanxi Normal University, China
June 2018	Institute for Advanced Study, Shenzhen University, China
June 2018	Nanjing University of Finance and Economics, China
May 2018	School of Biological Sciences, University of Hong Kong, China
May 2018	Department of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, China
March 2016	School of Life Sciences, Northwest University, China
March 2016	Department of Chemistry, Xi'an Jiaotong University, China

Meeting Presentation and Abstracts

1. Zhang G. Soluble epoxide hydrolase is an endogenous regulator of obesity-induced intestinal barrier dysfunction and bacterial translocation. Bioactive Lipids in Cancer, Inflammation and Related Diseases International Conference. St. Petersburg, FL, 20-23 Oct. 2019 (oral presentation).
2. Zhang J., Edin M.L., Yang J., Sanidad K.Z., Sherman H., Wang W., Minter L.M., Hammock B.D., Zeldin D.C., and Zhang G. Excess intake of dietary linoleic acid exaggerates colon tumorigenesis: roles of cytochrome P450 (CYP) metabolites involved. Bioactive Lipids in Cancer, Inflammation and Related Diseases International Conference. St. Petersburg, FL, 20-23 Oct. 2019 (Poster).
3. Zhang G. Oxidized Dietary Fat: A Novel Risk Factor of Inflammatory Bowel Disease and Colon Cancer via Altering Gut Microbiota. AOCs National Meeting, St. Louis, MO, 5-8 May, 2019 ([AOCs Young Scientist Research Award](#))

4. Wang Y., Wang W., Yang H., Shao D., Zhao X., and Zhang G. 4-HNE, an Endogenous Lipid Peroxidation Product, Exacerbates Colonic Inflammation through Activation of Toll-like Receptor 4 Signaling. AOCs Annual Meeting, St. Louis, MO, 5-8 May 2019.
5. Wang W., Yang J., Edin ML, Wang Y., Xiao H, Liu J, Hammock BD, Zeldin D, Zhang G. Targeted metabolomics identifies cytochrome P450 monooxygenase eicosanoid pathway as novel therapeutic target of colon tumorigenesis. AOCs National Meeting, St. Louis, MO, 5-8 May, 2019 ([Health and Nutrition Division Student Excellence Award](#)).
6. Zhang G. Environmental and dietary risk factors of colonic inflammation and colon cancer, The 2nd International Symposium on Food Nutrition and Health (ISFNH), 2018, Dalian, China, 14-16 September, 2018 ([invited talk](#)).
7. Zhang G. Oxidized Fat Increases Colitis and Colon Tumorigenesis through Activation of Toll-like Receptor 4 (TLR4) Signaling. Food & Function international symposium, 2018, Xi'an, China, 25-27 May 2018 ([invited talk](#))
8. Sanidad K.Z., Gu M., Yang H., Karner E., Wang W., Zhang J., Xiao H., Zhang G. Exposure to antimicrobials found in the environment perturbs gut microbiota in mice in vivo and in human fecal bacteria ex vivo. NACSETAC 24th Annual Meeting & Short Course, Durham, NH, 21-23 May 2018 ([Best Poster Award](#))
9. Zhang G. Dietary Intake of Mildly Oxidized Fat Increases Colitis and Colitis-associated Colon Tumorigenesis through Activation of Toll-like Receptor 4 (TLR4) Signaling. 2018 AOCs Annual Meeting & Expo, Minneapolis, MN, 6–9 May 2018 ([invited talk and AOCs Junior Investigator Travel Award](#))
10. Zhang G. Lipidomic Profiling Identifies P450/sEH Pathway as a Novel Therapeutic Target for Colon Cancer. The 17th International Winter Eicosanoid Conference, Baltimore, MD, 11-14 March 2018 ([invited talk](#))
11. Wang W., Yang J., Zhang J., Wang Y., Hwang SH, Qi W., Wan D., Kim D., Sun J., Sanidad K., Yang H., Liu Z., Liu J., Hammock B.D. and Zhang G. Lipidomic profiling reveals soluble epoxide hydrolase as a therapeutic target of obesity-induced colonic inflammation. The 17th International Winter Eicosanoid Conference, Baltimore, MD, 11-14 March 2018 ([Outstanding Poster Award](#))
12. Zhang J., Yang J., Wang W., Yang H., Sanidad K., Yang S-H., Sukamtoh E., Hammock B.D. and Zhang G. Pharmacological inhibition or genetic ablation of soluble epoxide hydrolase attenuates obesity-induced nonalcoholic fatty liver disease. The 17th International Winter Eicosanoid Conference, Baltimore, MD, 11-14 March 2018 (poster presentation)
13. Wang W, Wang Y, Edin M, Yang J, Yang H, Sanidad K, Wan D2, Song M, Xiao H, Liu Z, Liu J, Hammock B.D., Zeldin D and Zhang G. Lipidomic Profiling Identifies Cytochrome 450 as A Therapeutic Target for Colitis-Associated Colorectal Cancer. The 17th International Winter Eicosanoid Conference, Baltimore, MD, 11-14 March 2018 (poster presentation)
14. Yang H., Wang W., Romano K., Gu M., Sanidad K., Kim D., Yang J., Schmidt B., Panigrahy D., Pei R, Martin D, Ozay E., Wang Y., Song M., Xiao H., Minter L., Liu Z., Rey F. and Zhang G. Common Antimicrobials Triclosan Increases Colonic Inflammation and Colitis-Associated Colon Tumorigenesis in Mice. The Society of Toxicology 57th Annual Meeting and Tox Expo, San Antonio, TX, 11–15 March 2018 (poster presentation)
15. Sanidad K.Z., Yang H., Wang W., Ozay E.I., Gu M., Karner E., Zhang J., Minter L.M., Xiao H., Zhang G. Consumer Antimicrobials Enhance Colitis and Colitis-associated Colon Tumorigenesis in Mice. The Society of Toxicology 57th Annual Meeting and Tox Expo, San Antonio, TX, 11-15 March 2018 (poster presentation)

16. Wang W., Yang J., Edin M., Song M., Wan D., Xiao H., Liu J., Hammock B.D., Zeldin D.C., and Zhang G. Lipidomic profiling identifies cytochrome P450 epoxigenases as a novel therapeutic target of colorectal cancer. 15th International Conference on Bioactive Lipids in Cancer, Inflammation, and Related Diseases, October 22-25, 2017, Puerto Vallarta, Mexico ([invited talk and finalist of ERF Young Scientist Award](#)).
17. Sanidad K.Z., Yang H., Wang W., Yang J., Kim D., Gu M., Karner E., Ozay E.I., Minter, L.M., Xiao H., and Zhang G. Effects of antimicrobial ingredients benzalkonium chloride, benzethonium chloride, and chloroxylenol on colonic inflammation and colitis-associated colon tumorigenesis in mice. NESOT Annual Fall Meeting, Shrewsbury, MA, 20 October, 2017 ([Best Student Oral Presentation Award](#))
18. Yang H., Wang W., Romano K., Gu M., Sanidad K.Z., Xiao H., Minter L.M., Liu Z., Rey F.E., and Zhang G. Common antimicrobial additive increases colonic inflammation and colitis-associated colorectal tumorigenesis in mice. NESOT Annual Fall Meeting, Shrewsbury, MA, 20 October, 2017 ([Postdoctoral Poster Award](#))
19. Zhang G. Dietary intake of oxidized lipids exacerbates colon inflammation and colon cancer through activation of Toll-like receptor 4 (TLR4). 254th ACS National Meeting in Washington, DC, August 20-24, 2017 ([invited talk and Travel Award of American Chemical Society](#)).
20. Wang W., Yang J., Song M, Wan D., Yang H., Sanidad K., Hammock B.D., Xiao H, Liu Z, and Zhang G. Lipidomic profiling identifies cytochrome P450 as a therapeutic target for colitis-associated colorectal cancer. Experimental Biology National Meeting, Chicago, IL, 22-26 April, 2017 (oral and poster presentation)
21. Yang H., Wang W., Gu M., Sanidad K., Song M., Liu Z., Xiao H., Zhang G. Common antimicrobial additives increase colonic inflammation and colon tumorigenesis through modulation of Toll-like receptor 4 (TLR4) signaling. Experimental Biology National Meeting, Chicago, IL, 22-26 April, 2017
22. Sanidad K.Z., Wang W., Zhu J., Nimiya Y., Sukamtoh E., Du Z., and Zhang G. Manipulation of curcumin degradation to enhance its stability and biological activity. Experimental Biology National Meeting, Chicago, IL, 22-26 April, 2017 (poster)
23. Wang W., Yang H., Johnson D. Sanidad K., Sukamtoh E., Xiao H., Decker E., Zhang G. Oxidized corn oil increases colon inflammation and colon cancer. 2017 SRA conference, Amherst, MA, April, 2017 (oral finalist and poster presentation).
24. Zhang G. Cytochrome P450-derived fatty acid epoxides in pathology of colon cancer and obesity. 2016 International Symposium on PUFA and Metabolism, Tianjin, China, 22 Oct, 2016 ([invited talk](#)).
25. Nimiya Y., Wang W., Du Z., Sukamtoh E., Zhu J., Decker E. and Zhang G. Redox modulation of curcumin stability: redox active antioxidants increase chemical stability of curcumin. Experimental Biology National Meeting, San Diego, CA, 2-6 April, 2016
26. Wang W., Sukamtoh E., Xiao H. and Zhang G. Curcumin inhibits lymphangiogenesis in vitro and in vivo through suppressing VEGF receptor signaling. Experimental Biology National Meeting, San Diego, CA, 2-6 April, 2016
27. Wang W., Du Z., Nimiya Y., Sukamtoh E. and Zhang G. Allicin Inhibits Lymphangiogenesis in vitro and in vivo. Experimental Biology National Meeting, San Diego, CA, 2-6 April, 2016
28. Wang W., Yang J., Wang C., Tan B., Hammock B.D. and Zhang G. Oxylin profiles of adipose tissues in obese mice: diols of polyunsaturated fatty acids. The 16th International Winter Eicosanoid Conference, Baltimore, MD, 13-16 March, 2016

29. Zhang G. P450-derived Eicosanoids on Cancer Progression. The 16th International Winter Eicosanoid Conference, Baltimore, MD, 13-16 March, 2016 ([invited talk](#))
30. Wang W., Sukamtoh E., Xiao H. and Zhang G. Curcumin inhibits lymphangiogenesis in vitro and in vivo through suppressing VEGF receptor signaling. 2016 SRA conference, Amherst, MA, 8 April, 2016 (poster presentation).
31. Sukamtoh E., Sanidad K. Z., Wang W., Du Z., Florio E., He L., Xiao H., Decker E. A., and Zhang G. Quinone intermediate mediates cytotoxic effects of *tert*-butylhydroquinone (TBHQ). Undergraduate Research Symposium American Chemical Society National Meeting, San Diego, CA, 13-16 March, 2016 ([Travel Award and 1st place of American Chemical Society Undergraduate Student Research Award Symposium](#))
32. Sukamtoh E., Sanidad K. Z., Wang W., Du Z., Florio E., He L., Xiao H., Decker E. A., and Zhang G. Oxidative conversion mediates anti-proliferative activities of *tert*-butylhydroquinone (TBHQ): structure and activity relationship study. 22nd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA, 22 April, 2016
33. Wang W., Johnson D. Sanidad K., Sukamtoh E., Xiao H., Decker E., Zhang G. Oxidized fish oil increases colon inflammation and colon cancer. 2016 Hultin Scholarship Competition, Amherst, MA, 5 Feb, 2016 (oral presentation)
34. Sukamtoh E., Wang W., Xiao H., and Zhang G. Effects and Mechanisms of Curcumin on Lymphangiogenesis *in vitro*. Undergraduate Research Competition Institute of Food Technologists National Meeting, Chicago, IL, 12-14 July, 2015 ([Travel Award and 2nd place of IFT Undergraduate Research Competition](#))
35. Zhang G. Epoxy metabolites of docosahexaenoic acid (DHA) inhibit angiogenesis and tumorigenesis. Experimental Biology National Meeting, San Diego, CA, April, 2014 (poster presentation).
36. Zhang G. Molecular mechanisms for the anti-angiogenic and anti-tumor effects of omega-3 fatty acid docosahexaenoic acid (DHA). 248th ACS National Meeting, San Francisco, CA, 10-14 August, 2014 ([invited talk and Travel Award of American Chemical Society](#)).
37. Zhang G. Molecular mechanisms for the anti-angiogenic and anti-tumor effects of omega-3 fatty acid docosahexaenoic acid (DHA). 248th ACS National Meeting, San Francisco, CA, 10-14 August, 2014 (**Poster Presentation, Selected for SciMix of 2014 ACS meeting**).
38. Zhang G., Panigrahy D. and Hammock B.D. Soluble Epoxide Hydrolase on Angiogenesis, Tumor Growth and Metastasis. The 15th International Winter Eicosanoid Meeting, Baltimore, MD, 9-12 March, 2014 ([invited talk](#)).
39. Zhang G., Panigrahy D., Mahakian L., Yang J., Liu J., Lee K., Wettersten H., Ulu A., Hu X., Tam S., Hwang S., Ingham E., Kieran M., Weiss R.H., Ferrara K.W. and Hammock B.D. Epoxydocosapentaenoic acid (EDP): an omega-3 lipid mediator which inhibit angiogenesis, primary tumor growth and metastasis. Drug Discovery & Therapy World Congress, Boston, MA, 3-6 June, 2013 ([invited talk and session co-chair](#)).
40. Zhang G., Panigrahy D., Hwang S., Even L., Yang J., Liu J., Morisseau C., Inceoglu B., Ferrara K.W. and Hammock B.D. Soluble Epoxide Hydrolase as a Therapeutic Target for Cardiovascular Diseases and Cancer. FASEB Science Research Conferences, Phospholipid Metabolism: Disease, Signal Transduction, & Membrane Dynamics, Saxtons River, VT, 15-20 July, 2012 ([invited talk](#)).

41. Zhang G., Nitteranon V., Chan L.Y. and Parkin K.L. Comparative anti-inflammatory activities of ginger compounds: inhibition of NF- κ B signaling through induction of oxidative stress. Institute of Food Technologies Annual Meeting, Chicago, IL, 17-20 July, 2010.
42. Zhang G. and Parkin K.L. Redox modulation as a mechanistic feature of biological effects of cysteine and glutathione mixed disulfide conjugates of Allium thiosulfinates. Experimental Biology National Meeting, Anaheim, CA, 24-28 April, 2010.
43. Zhang G. and Parkin K.L. A chemoenzymatic method to prepare gram-scale Allium organosulfur compounds and their presumptive metabolic products, and associated biological activities. Experimental Biology National Meeting, Anaheim, CA, 24-28 April, 2010.
44. Zhang G., Lee C. and Parkin K.L. Cellular biological activities of mixed disulfide conjugates of Allium thiosulfinates with cysteine and glutathione. Institute of Food Technologies Annual Meeting, Anaheim, CA, 6-10 June, 2009.
45. Parkin K.L., Rankin S.D. and Zhang G. Control of organosulfur transformation in Alliums through processing for retention and enhancement of health-related bioactivities. USDA National Research Initiative Project Director's Meeting, New Orleans, LA, 27-28 June, 2008.

Research Support

As principal investigator (PI)

1. USDA Agriculture and Food Research Initiative (AFRI) Competitive Grant 2020-67017-30844, 04/15/2020-04/14/2023 (\$499,826)
"Interactions of oxidized PUFAs with gut microbiota to promote colonic inflammation"
 The goal of this project is to test the hypothesis that dietary intake of oxidized polyunsaturated fatty acids (PUFAs), even at low oxidative status, perturbs gut microbiota, resulting in increased colonic inflammation. We will use *Il-10^{-/-}* mice, 16S rRNA sequencing, and fecal transplant in germ-free mice to study the effects and mechanisms of oxidized PUFAs.
2. USDA AFRI Competitive Grant 2019-67017-29248, 3/1/2019-2/28/2021 (\$406,648)
"Modulation of colon tumorigenesis by dietary fatty acids"
 The goal of this project is to study the effects of dietary fatty acids on intestinal tumorigenesis, and study the roles of cytochrome P450 (CYP) monooxygenases involved.
3. USDA AFRI Competitive Grant 2016-67017-24423, 12/1/2015-11/30/2019 (\$500,000)
"Omega-3 Polyunsaturated Fatty Acids on Colon Cancer Prevention"
 The goal of this project is to study the effects and mechanisms of omega-3 fatty acids on colon cancer, and use LC-MS/MS-based lipidomics and transgenic animal models to elucidate the underlying mechanisms.
4. NIH/NCI R03CA237795, 09/23/2019-08/31/2021 (\$146,673)
"Prevention of obesity-enhanced colorectal cancer via targeting soluble epoxide hydrolase"
 The goal of this project is to establish sEH as a novel therapeutic target for obesity-enhanced colorectal cancer, and develop sEH inhibitors as novel agents for its prevention and/or treatment.
5. NIH/NCI R03CA218520, 03/01/2018-02/29/2020 (\$148,771)
"Prevention of colorectal cancer via targeting CYP epoxygenases"

The goal of this project is to use Cyp2c gene cluster knockout mice to study the roles of cytochrome P450 (CYP) monooxygenases in the development of colorectal cancer, and study the roles of CYP-produced eicosanoid metabolites involved.

6. USDA/Hatch, MAS00556, no measurable effort
"Bioactive Dietary Compounds on Chronic Diseases"
The goal of this project is to study the effects and mechanisms of dietary compounds on colonic diseases such as obesity, colonic inflammation, and gut dysbiosis.
7. Armstrong Fund of Science Award, UMass-Amherst, 09/01/2014-08/30/2016 (\$30,000)
"Co-administration of DHA and regorafenib synergistically inhibits colorectal cancer"
The goal of this project is to test the hypothesis that co-administration of regorafenib (a colorectal cancer drug) with docosahexaenoic acid (DHA) boosts the tissue levels of epoxydocosapentaenoic acids (EDPs, the metabolites of DHA) to produce enhanced inhibition on colorectal tumorigenesis.
8. Faculty Research Grant/Healey Endowment Grant (FRG/HEG), UMass-Amherst, 06/01/2016-05/31/2017 (\$14,830)
"Oxidized ω -3 fatty acids increase colon inflammation and associated colon carcinogenesis"
The goal of this seed grant from UMass-Amherst is to test the hypothesis that oxidized ω -3 PUFAs increase colon inflammation and colon cancer in animal models.
9. Industrial research grant from Miracle Fruit Oil, LLC, 09/01/2016-08/31/2017 (\$5,000)
"Food Bioactive Compound Research"
The goal of this industrial grant is to use bioassay-guided purification to identify anti-cancer and anti-inflammatory compounds from plant extract.
10. NSF of China, 01/01/2017-11/12/2019 (\$90,000)
" ω -3 polyunsaturated fatty acids enhance the therapeutic effects of regorafenib in colon cancer"
The goal of this project is to study the potential synergistic effects of fish oil with regorafenib on suppressing colon tumorigenesis.

As co-investigator

11. Congressionally Directed Medical Research Programs (PI: Gregory Tew), 01/01/2020-12/31/2022
"Supersuppressive-Induced Regulatory T-Cell Populations"
The goal of this project is to test the hypothesis that intracellular antibody delivery targeting key regulators of T cell effector function, Protein Kinase C Theta (PKC θ) and Sirtuin-1 (SIRT1), generates a super-suppressive iTreg phenotype that is a new solution for treating inflammatory bowel disease.
12. NIH/NCCIH R01AT010229 (PI: Hang Xiao), 09/20/2018-08/31/2022

“Characterization of Microbiota-derived Polymethoxyflavone Metabolites and their Anti-inflammatory Actions in the Colon”

The goal of this project is to study the roles of gut microbiota-mediated colonic metabolism in the anti-inflammatory effects of polymethoxyflavone.

13. USDA AFRI Competitive Grant (PI: Hang Xiao), 05/01/19-04/31/21

“Altered gut microbiota: a novel mechanism for potential adverse effects induced by foodborne titanium dioxide nanoparticles”

The objective of this project is to determine the effects of foodborne titanium dioxide nanoparticles in altering gut microbiota, and elucidate the role of altered gut microbiota in mediating potential adverse effects caused by titanium dioxide nanoparticles in different populations.

14. USDA AFRI Competitive Grant (PI: Hang Xiao), 03/01/19-02/28/22

“Promotion of colon health by cranberry”

The objective of this project is to establish the efficacy of cranberry and its key bioactive components in inhibiting colonic inflammation and carcinogenesis, and elucidate the molecular mechanism underlying these protective effects.

15. USDA AFRI Competitive Grant (PI: Hang Xiao), 02/01/20-01/31/23

“Gut Microbiota-Mediated Protective Effects of Whole Strawberry Against Colonic Inflammation”

The objective of this project is to study the effects of whole strawberry on colonic inflammation, and elucidate the roles of gut microbiota involved.

16. USDA/Hatch, MAS00492 (PI: Yeonhwa Park), 10/20/2015-09/30/2019

“Food Bioactives for Protection Against Inflammatory Diseases”

The goal of this project is to study the effects and mechanisms of dietary compounds on colonic inflammation and associated diseases.

17. Industrial research grant from Ajinomoto Co., Inc (PI: D. J. McClements), 02/17/2016-02/16/2017

“Development of Particle-based Delivery Systems to Protect, Retain, and Deliver Flavor Components”

The goal of this industrial grant to develop novel delivery system to capture and stabilize flavor compounds from food products.

18. Interdisciplinary Faculty Research Award, UMass-Amherst (PI: Katherine Reeves), 07/01/2020-06/30/2021

“Triclosan exposure and risk of colon disease in women”

The goal of this pilot grant is to develop analytical methods to measure triclosan (TCS) and its metabolites in human samples provided by the NHS/NHS2 biorepository, and test the roles of TCS in Apc mutation-induced exaggerated intestinal tumorigenesis.

Laboratory members

Current members:

- Jianan Zhang, PhD student (2016-present)
- Xijing Chen, MS student (2017-present)
- Jingwen Lin, MS student (2019-present)

- Lei Lei, visiting scholar (Northwest University, China, 2019-present)
- Maolin Tu, visiting scholar (Dalian Polytechnic University, China, 2019-present)
- Guangqiang Wang, visiting scholar (University of Shanghai for Science and Technology, China, 2019-present)
- Thejani Rupika Delgoda Clarke, visiting scholar (University of West Indies, Mona, Jamaica, 2019-present)

Previous members:

- Weicang Wang, PhD student (2014-19)
- Katherine Sanidad, PhD student (2014-19)
- Zheyuan Du, MS student (2014-16)
- Julia Zhu, MS student (2014-16)
- Elvira Sukamtoh, BS/MS student (2016-18)
- Jingyi Zhou, MS student (2017-19)
- Ran Yang, MS student (2017-19)
- Haixia Yang, postdoctoral fellow (2016-18)
- Minhao Xie, visiting scholar (Nanjing University of Finance and Economics, China, 2017-19)
- Yuxin Wang, visiting scholar (Northwest University, China, 2017-19)
- Yoshiki Nimiya, visiting graduate student (Tokyo University of Marine Science and Technology, Japan, 2014-15)
- Manami Ando, visiting graduate student (Tokyo University of Marine Science and Technology, Japan, 2016-17)
- Guanjun Nan, visiting graduate student (Xi'an Jiaotong University, China, 2017-18)
- Qin Ma, visiting graduate student (South China University of Technology, China, 2017-18)
- Yutong Dong, visiting graduate student (Nanjing University of Finance and Economics, China, 2019)