BIOGRAPHICAL SKETCH

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NAME: K. Leigh Greathouse

eRA COMMONS USER NAME (credential, e.g., agency login): Leigh_Greathouse

POSITION TITLE: Assistant Professor of Nutrition Science

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Stephen F. Austin State University, Nacogdoches, TX	B.S.	05/1997	Nutrition and Food Sci.
Texas Woman's University, Denton, TX	M.S.	08/2001	Sports Nutrition
University of Texas Houston Health Science Center and M.D. Anderson Cancer Center, TX	Ph.D.	05/2010	Molecular Carcinogenesis
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD	M.P.H.	05/2011	Epidemiology and Biostatistics
National Cancer Institute, Cancer Prevention Fellowship Program, Bethesda, MD	Post-doc	06/2014	Molecular Epidemiology of Lung Cancer

A. Personal Statement

My role in this project is that of PI. As a dietician and cancer biologist the main focus of my research group is to identify biomarkers and elucidate molecular mechanisms that can be used to define the relationship between diet, the microbiome and colon cancer pathogenesis. Using big data and machine learning techniques, we seek to define the relationship between diet, the microbiome and cancer. Our goal is to 1) delineate the dietary factors that modify the microbiome and its function, 2) develop microbial predictors that improve stratification of patients for obesity treatment, and 3) identify key functional pathways and mechanisms of the microbiota-host communication. Ultimately, our goal is to discover microbial and metabolic targets for the development of clinical tools to improve the treatment of and reduce mortality from colon cancer. As Co-PI of a dietary fiber intervention (RCT) investigating the effects on the microbiome, this research is poised to compliment these efforts *in vitro.* Currently, my lab is working together with several collaborators inside and outside of Baylor University, and have recently published research in *Genome Biology* and *BMJ Open Gastroenterology* that shows my ability to conduct this research.

B. Positions and Honors

Positions and Employment:

2010- 2014 **Postdoctoral Fellow***,* Cancer Prevention Fellowship Program, NCI, Bethesda, MD
2014- 2015 **Research Fellow**, National Cancer Institute, NIH, Bethesda, MD
2015-present **Assistant Professor** of Nutrition Sciences, Baylor University, Waco, TX; Adjunct Professor of Biology, Baylor University, Waco, TX

Other Experience and Professional Memberships:

2015-present Active Member of the American Association for Cancer Research
2015-present Editorial Board Member – *Carcinogenesis*
2018-present Editorial Board Member – *Genetic Testing and Molecular Biomarkers*

Honors:

2008	R.W. Butcher Award, Graduate School of Biomedical Science, University of Texas M.D. Anderson Cancer Center, Houston, TX
2008	Schissler Foundation Fellowship in Human Genetics of Disease, Graduate School of Biomedical Science, University of Texas, M.D. Anderson Cancer Center, Houston, TX
2010	Cancer Prevention Fellowship, National Cancer Institute
2012	National Institutes of Health Merit Award
2013	Aspen Cancer Conference Fellow
2016	Rising Star Young Investigator, Baylor University
2017	Fellow of the Texas Hunger Institute, Waco, TX
2019	URSA Leadership Award, Baylor University

C. Contributions to Science

***Selected Publications**

K. Leigh Greathouse, James R White, R. Noah Padgett, Brittany G Perrotta, Gregory D Jenkins, Nicholas Chia, Jun Chen. Gut microbiome meta-analysis reveals dysbiosis is independent of body mass index in predicting risk of obesity-associated CRC. bioRxiv 367466; doi: https://doi.org/10.1101/367466. *BMJ Open Gastroenterology.* 2019

K. Leigh Greathouse, J. White, V. Bliskovsky, A. Vargas, E. Polley, E. Bowman, M. Khan, A. Robles, B. Ryan, A. Dzutsev, G. Trinchieri, M. Pineda, S. Bilke, P. Meltzer, C. Deming, S. Conlan, J. Oh, J.A. Segre, C.C. Harris. Interaction between the microbiome and TP53 in human lung cancer. 2018 *Genome Biol, 19*(1), 123. doi:10.1186/s13059-018-1501-6

Daquigan N, Seekatz AM, **Greathouse KL**, Young VB, White JR. High-resolution profiling of the gut microbiome reveals the extent of *Clostridium difficile* burden. *NPJ Biofilms Microbiomes*. 2017 Dec 5;3:35. doi: 10.1038/s41522-017-0043-0. eCollection 2017. PubMed PMID: 29214047; PubMed Central PMCID: PMC5717231. 4 citations

Complete List of Published Works in MyBibliography:

https://www.ncbi.nlm.nih.gov/sites/myncbi/1RGAUfG1s69Q8/bibliography/53509358/public/?sort=date&direction=ascending.

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

University Research Committee (URC) Funding: $7318 (2018-2019)
Project title: *A fiber intervention to prevent weight gain and reduce stress levels for physicians in training.*
Investigators: LesLee Funderburk, PI, Leigh Greathouse, Co-PI.

My role in this project is as Co-PI. I conceived of this idea, designed the study and experiments and co-wrote the grant. Our hypothesis is that increased dietary fiber will prevent weight gain, increased adiposity and reduce perceived stress levels in residents at the Family Health Clinic as the result of changes in distal gut microbiota composition and function.

Undergraduate Research Student Award (URSA) Funding: $4946 (2019-2020)
Project title: *Characterization of Outer Membrane Vesicle RNA During the Phases of Growth of B. fragilis.* The goal of this study is to characterize the size and concentration outer membrane vesicles secreted at each phase of growth, as well as, sequence their RNAs to analyze the differences in gene expression.
Role: PI