

## CURRICULUM VITAE

**K. Leigh Greathouse, Ph.D., M.P.H., M.S., R.D.**

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**RESEARCH OBJECTIVE:** Determine how the diet and microbiome converge to influence obesity- associated cancer risk, prognosis and survivorship

**CITIZENSHIP AND VISA STATUS:** U.S.A.

### EDUCATION:

- 2011 Masters of Public Health (Epidemiology and Biostatistics), **Johns Hopkins Bloomberg School of Public Health**, Baltimore, MD
- 2010 Ph.D. Molecular Carcinogenesis, Graduate School of Biomedical Sciences, **University of Texas M.D. Anderson Cancer Center**, Science Park Research Division, Smithville, TX
- 2001 M.S., Exercise and Sports Nutrition, **Texas Woman's University**, Denton, TX
- 1997 B.S., Nutrition and Food Science  
**Stephen F. Austin State University**, Nacogdoches, TX

### PROFESSIONAL LICENSURE:

- 2000-Present Registered Dietitian (#841205)
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### ACADEMIC EMPLOYMENT AND PROFESSIONAL EXPERIENCE:

- 2015-Present Assistant Professor, Nutrition Sciences, Robbins College of Health and Human Sciences, Baylor University, Waco, TX
- 2014-2015 *Research Fellow*, National Cancer Institute, Bethesda, MD
- 2010-2014 *Postdoctoral Fellow*, Cancer Prevention Fellowship Program, NCI, Bethesda, MD
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### HONORS AND AWARDS:

- 2015-Present Editorial Board Member – *Carcinogenesis*
- 2016 Rising Star, Office of the Vice President for Research, Baylor University
- 2012 National Institutes of Health Merit Award
- 2008 Schissler Foundation Fellowship in Human Genetics of Disease, Graduate School of Biomedical Science, University of Texas M.D. Anderson Cancer Center, Houston, TX

## SCHOLARLY ACTIVITY:

### Research Interests

Colon cancer prevention (primary, secondary, and tertiary)  
Obesity prevention  
Microbiome-host interactions  
Diet-microbiome interactions

### REFEREED AND SUBMITTED PUBLICATIONS (SELECTED):

**K. Leigh Greathouse**, Rashmi Sinha, Emily Vogtmann. (2019). "DNA extraction for human microbiome studies: The issue of standardization. *Genome Biology*." *Genome Biology*

Faucher MA, **Greathouse KL**, Hastings-Tolsma M, Padgett RN, Sakovich K, Choudhury A, Sheikh A, Ajami NJ, Petrosino JF (2019). Exploration of the vaginal and gut microbiome in African American women by body mass index, class of obesity, and gestational weight gain: A pilot study.. *American Journal of Perinatology*

**Greathouse, K. L.**, White, J. R., Padgett, R. N., Perrotta, B. G., Jenkins, G. D., Chia, N., & Chen, J. (2018). Gut microbiome meta-analysis reveals dysbiosis is independent of body mass index in predicting risk of obesity-associated CRC. *BMJ Open Gastroenterology*

**Greathouse, K. L.**, White, J. R., Vargas, A. J., Bliskovsky, V. V., Beck, J. A., von Muhlinen, N., . . . Harris, C. C. (2018). Interaction between the microbiome and TP53 in human lung cancer. *Genome Biology*, 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.

**Greathouse KL**, Faucher MA, Hastings-Tolsma M. The Gut Microbiome, Obesity, and Weight Control in Women's Reproductive Health. West J Nurs Res. 2017 Aug;39(8):1094-1119. doi: 10.1177/0193945917697223. Epub 2017 Mar 17. PubMed PMID: 28303750.

Falana K, Knight R, Martin CR, Goldszmid R, **Greathouse KL**, Gere J, Young H, Kuo WP. Short Course in the Microbiome. J Circ Biomark. 2015 Jul 27;4:8. doi: 10.5772/61257. eCollection 2015 Jan-Dec. PubMed PMID: 28936244; PubMed Central PMCID: PMC5572982.

Brid M Ryan, PhD, Jin Jen, MD, Ana I Robles, PhD, Cain McClary, MD, Kara Calhouna, BS, Elise D Bowmana, M.Sc., Kirsi Vähäkangas, MD, **K. Leigh Greathouse**, PhD, Wang, Yie, MD, Susan Olivo Marston, PhD, Angela S. Wenzlaff, MPH, Bo Dengb, MD, Ping Yang, MD, Ann G. Schwartz, PhD, Curtis C Harris, MD. A DRD1 Polymorphism Predisposes to Lung Cancer among those Exposed to Secondhand smoke during Childhood. Cancer Prevention Research. 2014 Oct 3.

**Greathouse KL**, Bredfeldt T, Everitt JI, Lin K, Berry T, Kannan K, Mittelstadt ML, Ho SM, Walker CL. Environmental Estrogens Differentially Engage the Histone Methyltransferase EZH2 to Increase Risk of Uterine Tumorigenesis. Mol Cancer Res. 2012 Apr;10(4):546-57. Appeared as a Highlight in this issue.

Bredfeldt, T.G, **Greathouse, K.L.**, Berry, T.D., Hensley, S., Safe, S.H., Hung, M.C., Bedford, M.T., Walker, C.L. Non-Genomic estrogen receptor signaling modulates EZH2. Molecular Endocrinology 2010 24, 5:993-1006.

**K.L. Greathouse**, K.L., J.D. Cook, K. Lin, B.J. Davis, T. Berry, T. Bredfeldt, C.L.Walker. Identification of uterine leiomyoma genes developmentally reprogrammed by neonatal exposure to diethylstilbestrol. Reproductive Sciences. 2008 Oct; 15(8): 765-778.

### BOOK CHAPTER

Elisa Morales, Jun Chen, **K. Leigh Greathouse**. Compositional Analysis of the Human Microbiome in Cancer

**GRANT FUNDING:**

PENDING

Career Development Award (Greathouse) DoD	05/01/2020-03/31/2022 \$485,000
Identification of the dietary and microbial factors that predict chemotherapy-induced diarrhea in colon cancer. The goal of this study is to identify the dietary and microbiome factors among colon cancer patients undergoing chemotherapy that predict chemotherapy induced diarrhea. Role: PI	
R21 (Greathouse) NIH/NCI	06/01/2020-05/31/2023 \$367,662
Identification of the dietary and microbial factors that predict chemotherapy-induced diarrhea in colon cancer. The goal of this study is to identify the dietary and microbiome factors among colon cancer patients undergoing chemotherapy that predict chemotherapy induced diarrhea. Role: PI	
MIRA (Greathouse) NIH/NIGMS	07/01/2020-06/31/2025 \$1,717,790
Decoding the Role of Bacterial Outer Membrane Vesicle and Small RNAs in Host Inflammation. Role: PI	
DoD (Trawick)	08/01/2020-07/31/2023 \$944,895
Targeting Hypoxia in Lethal Prostate Cancer with Bioreductively Activated Anticancer Prodrugs Role: Co-PI	
R21 (Greathouse) NIH/NCI	06/01/2020-05/31/2023 \$557,484
Targeting Metastatic Prostate Cancer with Bioengineered Outer Membrane Vesicles Designed to Deliver Bioreductively Activated Anticancer Prodrugs. Role: PI	

ACTIVE

Faculty Research Investment Program Baylor University	6/01/2019-05/31/2020 \$50,000
Mediation of Host-Pathogen Interaction by Bacterial Outer Membrane Vesicle Small RNAs in Colon Cancer. The goal of this project is to determine the effect of bacterial outer membrane vesicles and their small RNA cargo on TLR activation and inflammation in 3D colon organoids. Role: PI	
Undergraduate Research Student Award Baylor University	6/01/2019-05/31/2020 \$4946
Characterization of Outer Membrane Vesicle RNA During the Phases of Growth of <i>B. fragilis</i> . 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	

COMPLETED

University Research Committee Baylor University	06/01/2018-05/31/2019 \$7,318
A fiber intervention to prevent weight gain and reduce stress levels for physicians in training. The goal of this randomized placebo-controlled pilot study is to understand how the fiber supplement Prebiotin affects the gut microbiome structure and function, and perceived stress in a cohort of medical residents. Role: Co-PI	
University Research Committee Baylor University	06/01/2017-05/31/2018 \$7,430
Mediation of Host-Pathogen Interaction by Bacterial Outer Membrane Vesicle Small RNAs in Colon Cancer. The goal of this study was to investigate the differential expression of small RNA cargo within in two strains of <i>Bacteroides fragilis</i> , ETBF and NTBF. Role: PI	
University Research Committee Baylor University	06/01/2016-05/31/2017 \$7350
Validation of 2FA as a Tool for Studying Oxytocin Receptors in Human Brain. The goal of this study was to validate the human-specific antibody 2FA using multiple different molecular techniques in both human tissues and human cell lines. Role: Co-PI	
Collaborative Faculty Research Program (CFRIP) Baylor University	06/01/2016-05/31/2017 \$75,000
Identification of a Multi-omic Predictive Signature for Preterm Birth in Obese African American Women. The purpose of this pilot study was to collect preliminary data to profile the gut and vaginal microbiota, diet, and urinary metabolites in pregnant African-American women who are obese. Role: Co-PI	
Summer Research Sabbatical Baylor University	06/01/2016-09/01/2016 Summer Salary
Microbiome Alterations in Colorectal Carcinoma Between Obese and Non-Obese Individuals. The purpose of this project was to determine if the microbiome mediates the risk of colon cancer in individuals who are obese as compared to those with normal weight. Role: PI	
Center for Cancer Research FLEX Synergy Award (Harris) NCI (Intramural)	06/01/2015-05/31/2018 \$1.2 M
The Microbiome-inflammation relationship in the etiology of lung cancer. The purpose of this study was to determine the effect of the lung microbiome, specifically <i>Acidovorax</i> , on the tumorigenesis in an animal model of lung cancer by profiling the lung microbiome, metabolome, proteome, and cytokine expression. Role: Co-I	

**Laboratory Website:** <https://www.laboratoryofhumanhealthandbehavior.com/new-page-1>