

Diana Hazard Taft

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Publications

Ehrlich AM, Pacheco AR, Henrick BM, **Taft DH**, Xu G, Huda MN, Mishchuk D, Goodson ML, Slupsky C, Barile D, Lebrilla CB, Stephensen CB, Mills DA, Raybould HE. Indole-3-lactic acid associated with *Bifidobacterium*-dominated microbiota significantly decreases inflammation in intestinal epithelial cells. *BMC Microbiology*. 2020.

Depner M, **Taft DH**, Kirjavainen PV, Kalanetra KM, Karvonen AM, Kruegel S, Schmausser-Hechfellner E, Roduit C, et al. Maturation of the gut microbiome during the first year of life contributes to the protective farm effect on childhood asthma. *Nature Medicine*. 2020, 1:10.

Treiber ML, **Taft DH**, Korf I, Mills DA, Lemay DG. Pre- and post-sequencing recommendations for functional annotation of human fecal metagenomes. *BMC Bioinformatics*. 21:74.

Taft DH, Akre S, Madrid N, Knoesen A, Mills DA, Lewis ZT. Resident Microbes of Lactation Rooms and Daycares. *PeerJ*. 2019 December, 7:e8168.

Liu J, **Taft DH**, Johnson D, Treiber ML, Lemay DG, Mills DA. Seeding by colostrum and diet change drive the assembly of bovine resistome during early life. *Nature Communications*. 2019 September, 10(1), 4406.

Taft DH, Salinero L, Vongbhavit K, Kalanetra KM, Masarweh C, Yu A, Underwood MA, Mills DA. Bacterial Colonization and Antimicrobial resistance Genes in Neonatal Enteral Feeding Tubes. *FEMS Microbiology Ecology*. 2019 April, 95(4), f1z039.

Huda MN, Ahmad SM, Kalanetra KM, **Taft DH**, Alam MJ, Khanam A, Raqib R, Underwood MA, Mills DA, Stephensen CB. Neonatal Vitamin A Supplementation and Vitamin A Status Are Associated with Gut Microbiome Composition in Bangladeshi Infants in Early Infancy and at 2 Years of Age. *The Journal of Nutrition*, 149(6), 1075-1088

Huda MN, Ahmad SM, Alam MJ, Khanam A, Kalanetra KM, **Taft DH**, Raqib R, Underwood MA, Mills DA, Stephensen CB. *Bifidobacterium* abundance in early infancy and vaccine response at two years of age. *Pediatrics*. 2019, 143(2): e20181489

Taft DH, Liu J, Akre S, Huda MN, Ahmad S, Stephensen CB, Mills DA. Bifidobacterial dominance of the gut in early life and acquisition of antimicrobial resistance. *mSphere*. 2018 September, 3(5).

Bever C, Rand A, Nording M, **Taft DH**, Kalanetra KM, Mills DA, Breck MA, Smilowitz JT, German JB, Hammock B. Effects of triclosan in breast milk on the infant fecal microbiome. *Chemosphere*. 2018 July, 203: 467-73.

Oteiza PI, Fraga CG, Mills DA, and **Taft DH**. Flavonoids and the Gastrointestinal Tract: Local and Systemic Effects. *Molecular Aspects of Medicine*. 2018 June, 61:41-9.

Coombs K, **Taft DH**, Ward DV, Green BJ, Chew GL, Shamsaei B, Meller J, Indugula R, Reponen T. Variability of indoor fungal microbiome of green and non-green low-income homes in Cincinnati, Ohio. *The Science of the total environment*. 2017 August, 610-611:212-8.

Cox J, Ballweg R, **Taft DH**, Velayutham P, Haslam D, Porollo A. A Fast and Robust Protocol for Metataxonomic Analysis Using RNAseq Data. *Microbiome*. 2017 January 19, 5(1).

Ward DV, Scholz M, Zolfo M, **Taft DH**, Schibler KR, Tett A, Segata N, Morrow AL. Metagenomic Sequencing with Strain-Level Resolution Implicates Uropathogenic *E. coli* in Necrotizing Enterocolitis and Mortality in Preterm Infants. *Cell Reports*. 2016 March 29, 14(12): 2912-24.

Puri K*, **Taft DH***, Ambalavanan N, Schibler KR, Morrow AL, Kallapur SG. *Co-first authors. Association of Chorioamnionitis with Aberrant Neonatal Gut Colonization and Adverse Clinical Outcomes. *PLoS One*. 2016, 11(9): e0162734.

Liu K, Kurien BT, Zimmerman SL, Kaufman KM, **Taft DH**, Kottyan LC, Lazaro S, Weaver CA, Ice JA, Adler AJ, Chodosh J, Radfar L, Rasmussen A, Stone DU, Lewis DM, Li S, Koelsch KA, Igoe A, Talsania M, Kumar J, Maier-Moore JS, Harris VM, Gopalakrishnan R, Jonsson R, Lessard JA, Lu X, Gottenberg JE, Anaya JM, Cunninghame-Graham DS, Huang AJ, Brennan MT, Hughes P, Illei GG, Miceli-Richard C, Keystone EC, Bykerk VP, Hirschfield G, Xie G, Ng WF, Nordmark G, Eriksson P, Omdal R, Rhodus NL, Rischmueller M, Rohrer M, Segal BM, Vyse TJ, Wahren-Herlenius M, Witte T, Pons-Estel B, Alarcon-Riquelme ME, Guthridge JM, James JA, Lessard CJ, Kelly JA, Thompson SD, Gaffney PM, Montgomery CG, Edberg JC, Kimberly RP, Alarcón GS, Langefeld CL, Gilkeson GS, Kamen DL, Tsao BP, McCune WJ,

Salmon JE, Merrill JT, Weisman MH, Wallace DJ, Utset TO, Bottinger EP, Amos CI, Siminovitch KA, Mariette X, Sivits KL, Harley JB, Scofield RH. X Chromosome Dose and Sex Bias in Autoimmune Diseases: Increased 47,XXX in Systemic Lupus Erythematosus and Sjögren's Syndrome. *Arthritis and Rheumatology*. 2015 Dec. 29, doi: 10.1002/art.39560.

Taft DH, Ambalavanan N, Schibler KR, Yu Z, Newburg DS, Deshmukh H, Ward DV, Morrow AL. Center Variation in Intestinal Microbiota Prior to Late-Onset Sepsis in Preterm Infants. *PLoS One*. 2015, 10(6):e0130604.

Taft DH, Ambalavanan N, Schibler KR, Yu Z, Newburg DS, Ward DV, Morrow AL. Intestinal Microbiota of Preterm Infants Differ Between Hospitals and Over Time. *Microbiome*, 2(1):36 (October 1, 2014)

Greenwood C, Morrow AL, Lagomarcino A, Altaye M, **Taft D**, Yu Z, Newburg DS, Ward D, Schibler KR. Early empirical antibiotic use in preterm infants is associated with lower bacterial diversity and higher relative abundance of Enterobacter. *Journal of Pediatrics*, <http://dx.doi.org/10.1016/j.jpeds.2014.01.010> 165 (1), 23:29 (July 2014)

Morrow AL, Lagomarcino A, Schibler KR, **Taft D**, Yu Z, Wang B, Wagner M, Ward D, Gevers D, Kennedy M, Huttenhower C, Newburg DS. Early microbial and metabolomic signatures predict later onset of necrotizing enterocolitis in preterm infants. *Microbiome* 2013, 1:13 (16 April 2013).

Cheung HH, Lee TL, Davis AJ, **Taft DH**, Rennert OW, Chan WY. Genome-wide DNA methylation profiling reveals novel epigenetically regulated genes and non-coding RNAs in human testicular cancer. *British Journal of Cancer* 2010, 102 419-27 (January 5, 2010)

Funding

NICHD Individual Post-Doctoral Fellowship, "Effects of Bifidobacterium Dominance on the Infant Microbiome", F32HD093185

Co-investigator, internal Research in Progress grant, Cincinnati Children's Hospital and Medical Center, "Microbiome of Juvenile Idiopathic Arthritis"

Past traineeship, Pre-doctoral Fellow, University of Cincinnati's Molecular Epidemiology in Children's Environmental Health training program. NIH T32 ES 10957-11

Travel award to attend the 2013 Office of Dietary Supplements Research Practicum

Past traineeship funded by NICHD P01 HD13021 (Morrow, PI), "The Role of Human Milk in Infant Nutrition and Health"

Taft, Diana (PI), University of Cincinnati Graduate Student Governance Association, grant (\$500). "Maternal FUT2 genotype as a determinant of human milk sIgA concentrations"

Work experience

Assistant Project Scientist 2/2021 - present
University of California Davis

Post-Doctoral Research Fellow 6/2016 - 2/2021
University of California at Davis
F32 funded research fellow in laboratory of Dr. David A. Mills, Ph.D. Studying the normal development of the intestinal microbiota in term infants.

Post-Doctoral Research Fellow 8/2014 - 5/2016
Cincinnati Children's Hospital and Medical Center
Research fellow in laboratory of Dr. John Harley, M.D./Ph.D. Research focused on the microbiome in lupus.

Graduate Student 9/2009 - 8/2014
University of Cincinnati

Graduate student in research laboratory of Ardythe L. Morrow, Ph.D. Worked with term and preterm infant cohorts to study the intestinal microbiome during early life and its association with health and disease

Post-baccalaureate Intramural Research Awardee

7/2007 - 7/2009

National Institute of Child Health and Human Development

Trainee in the Reproductive and Adult Endocrinology Branch, Laboratory of Clinical Genomics. Investigated biomarkers of testicular cancer Funding through the Dean's Scholars program to support an Honor's Thesis, summer 2006. Examined the possible linkage of flower color polymorphisms in *H. matronalis* to other traits leading to differential survival across microclimates

Summer Research Intern

6/2005 - 8/2005

Boyce Thompson Institute

Internship at the Boyce Thompson Institute working in the laboratory of Dr. Peter Moffett on gene to gene Rx resistance in genetically engineered *N. benthamiana*. Used Virus Induced Gene Silencing to investigate the Rx resistance pathway.

Education

Ph.D.

2009 - 2014

University of Cincinnati

Advisor: Ardythe Morrow

Thesis focused on the intestinal microbiome of preterm infants and the risk of late-onset sepsis.

B.A.

2003 - 2007

Cornell University

Magna cum Laude Chemistry and Cum Laude Biology. Honors Thesis examined the possible linkage of flower color polymorphism in *H. matronalis* to other traits leading to differential survival across microclimates.

First Author Presentations

Taft DH, Ho S, Tancredi DJ, Stephenson C, Hinde K, von Mutius E, Pekkanen J, Dalphin JC, Lauener R, Riedler J, Morrow AL, Lewis ZT, Mills DA. Population Duration of Breastfeeding and Prevalence of *Bifidobacterium longum subspecies infantis*. Nutrition 2019 (Poster)

Taft DH. *Bifidobacterium*, breastfeeding, and infant health. 2018 6th Microbiome R&D and Business Collaboration Forum (Oral)

Taft DH, Ho S, Tancredi DJ, Stephenson C, Hinde K, von Mutius E, Pekkanen J, Dalphin JC, Lauener R, Riedler J, Morrow AL, Lewis ZT, Mills DA. Population Duration of Breastfeeding and Prevalence of *Bifidobacterium longum subspecies infantis*. 2018 International Milk Genomics Consortium Annual Symposium (Oral)

Taft DH, Liu J, Huda MN, Stephensen CB, Mills DA. Infant Gut Dominance by Bifidobacteria Correlates with Reduced Antimicrobial Resistance. 2017 Antimicrobials and Resistance: Opportunities and Challenges. Keystone Symposia. (Poster)

Taft DH, Liu J, Huda MN, Stephensen CB, Mills DA. Bifidobacterial dominance correlates with reduced infant gut antimicrobial resistance. 2017 International Milk Genomics Consortium Annual Symposium (Oral)

Taft DH, Dingess KA, Valentine CJ, Davidson BS, Ollberding NJ, Ward DV, Brenna JT, MacMahon RJ, Morrow AL. The fatty acid composition of human milk is associated with infant microbial community profile. 2016 Experimental Biology meeting abstracts. (Oral)

Taft DH, Ward DV, Ollberding NJ, Schibler KR, Ambalavanan N, Yu ZT, Newburg DS, Davidson BS, Morrow AL. Preterm infant gut microbiome and weight at 36 weeks corrected gestational age. 2015 Experimental Biology meeting abstracts. (Oral)

Taft DH, Ambalavanan N, Schibler KR, Yu Z, Newburg DS, Ward DV, Morrow AL. Intestinal microbiota of preterm infants differ between sites and over time: a comparison of two large neonatal intensive care units. 2014 Pediatric Academic Societies meeting abstracts. (Oral)

Taft DH, Ambalavanan N, Schibler KR, Yu Z, Newburg DS, Ward DV, Morrow AL. Intestinal colonization patterns differ prior to late-onset sepsis in premature infants. 2014 Experimental Biology meeting abstracts. (Poster) and 2014 Pediatric Academic Societies meeting abstracts. **(Oral)**

Taft D, Kottyan L, Lagomarcino A, Schibler K, Yu Z, Gevers D, Ward D, Huttenhower C, Newburg D, Morrow A. A pilot study of TLR4 polymorphism in relation to intestinal dysbiosis and risk of necrotizing enterocolitis in preterm infants. 2013 Pediatric Academic Societies meeting abstracts. (Oral)

Taft DH. University of Cincinnati Division of Biostatistics and Epidemiology seminar. "A pilot study of TLR4 polymorphism in relation to intestinal dysbiosis and risk of necrotizing enterocolitis in preterm infants." March 2013. (Oral)

Taft D, Jiang X, Huang P, Davidson B, Morrow AL. Maternal *fucosyltransferase 2* genotype alters milk immunoglobulin A levels specific to some strains of norovirus. 2012 Experimental Biology meeting abstracts. (Poster)

Other Presentations

Nguyen K, **Taft DH**, Mills DA. Complementary feeding affects the presence of antimicrobial resistance genes in infants. 2019 University of California at Davis Undergraduate Research Conference.

Sastry S, **Taft DH**, Mills DA, Boundy-Mills K. The performance of UNITE, dITSy, and dITSy-UNITE hybrid classifiers on yeast taxonomic assignment in ecological studies. 2019 University of California at Davis Undergraduate Research Conference.

Neville B, Liu J, **Taft DH**, Mills DA. Testing a putative fosfomycin resistance gene in *Bifidobacterium breve* UCC2003. 2018 University of California at Davis Undergraduate Research Conference.

Akre S, Joslin S, **Taft DH**, Mills DA. Human DNA decontamination software for WGS comparison and optimization using *in silico* and *in vivo* datasets. 2017 University of California at Davis Undergraduate Research Conference.

Huda, MN, Ahmad S, Kalanetra KM, **Taft DH**, Lewis ZT, Raqib R, Mills DA, Stephensen C. Infant stool microbiota at the time of vaccination at 6 w of age is associated with vaccine responses measured at 2 y of age. 2017 Bay Area Microbial Pathogenesis Symposium meeting abstracts.

Huda, MN, Ahmad S, Kalanetra KM, **Taft DH**, Lewis ZT, Raqib R, Mills DA, Stephensen C. Infant stool microbiota at the time of vaccination at 6 w of age is associated with vaccine responses measured at 2 y of age. 2017 American Association of Immunologists meeting abstracts.

Morrow AL, Lagomarcino A, Schibler KR, **Taft D**, Yu Z, Ward D, Gevers D, Huttenhower C, Newburg DS. Composition of the early intestinal microbiome associates with necrotizing enterocolitis or death in preterm infants. 2012 Pediatric Academic Societies meeting abstracts.

Greenwood C, Morrow AL, **Taft D**, Lagomarcino A, Yu Z, Newburg DS, Ward D, Gevers D, Schibler KR. Empirical and Antenatal Antibiotics Alter the Early Intestinal Microbiome of Premature Infants. 2012 Pediatric Academic Societies meeting abstracts.

Newburg DS, Yu Z, **Taft D**, Mukherjee P, Lagomarcino A, Schibler KR, Gevers D, Ward D, Morrow AL. The intestinal microbiome of preterm infants differs by gestational age and *FUT2* genotype. 2012 Pediatric Academic Societies meeting abstracts.

Teaching Experience and Invited Lectures

Instructor and Course Developer, "Microbiome Analysis for Beginners", in collaboration with Dr. Karen Kalanetra, Spring 2017 and Spring 2019, University of California at Davis

Lecture, "The Human Microbiome – At the Intersection of Genetics and Ecology", Advanced Fundamentals of Genetics class, University of Cincinnati, Fall Semester 2015

Instructor, MCAT Preparation Course Critical Analysis and Reasoning Section, University of Cincinnati, Summer Session 2015 and Winter Session 2016

Lecture, "Basics of Epidemiology", Radiology Fellows Research Lectures, University Hospital, Cincinnati, Spring 2014 and Fall 2015

Guest Lecture, "Understanding an Outbreak Investigation", Xavier University, September 2015

Teaching Assistant, "Introduction to Epidemiology", University of Cincinnati, Winter 2011, Winter 2012, Fall 2012, Fall 2013

Awards

Travel award to attend the International Milk Genomics Consortium Symposium, 2017

Finalist Translational Research Award Competition, American Society for Nutrition, Experimental Biology, 2016.

Nutritional Immunology Poster Competition at Experimental Biology, third place. 2014

University of Cincinnati Graduate Student Research Festival Poster Award Honorable Mention, 2013

Travel award to attend the 2013 Office of Dietary Supplements Research Practicum

Nominated by College of Medicine for University of Cincinnati's Excellence in Teaching Award 2012

Other Training Activities

Attended the five day 2017 Join Genome Institute IMG training on the analysis of bacterial genomic and metagenomic datasets in Walnut Creek, CA and received a certificate of completion

Attended the three day 2013 Office of Dietary Supplements Research Practicum focused on use, research, and regulation of dietary supplements in the United States at the Office of Dietary Supplements, National Institutes of Health in Bethesda, MD and received a certificate of completion

Attended the ten day summer 2012 the Strategies and Techniques for Analyzing Microbial Populations (STAMPs) course at the Marine Biological Laboratory in Woods Hole, MA and received a certificate of completion

Professional Memberships

Member of the American Society of Nutrition

Trainee member of the International Society for Research on Human Milk and Lactation

Member of the American Association for the Advancement of Science