Emily R. Davenport

Curriculum Vitae – updated July 2017
Cornell University, Department of Molecular Biology and Genetics
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Education

2009 - 2014 Ph.D in Human Genetics
Certificate in University Teaching
University of Chicago; Chicago, IL

2003 - 2007 B.S. in Bacteriology (with comprehensive honors)
University of Wisconsin – Madison; Madison, WI

2005 International Study Program, selected participant
National University of Ireland, Galway; Galway, Ireland

Academic, Research, and Industry Experience

2014 - **Post-doctoral scholar**. Advisor: Andrew Clark (supported by NIH NRSA)
Department of Molecular Biology and Genetics, Cornell University; Ithaca, NY.

2009 - 2014 **Doctoral student**. Advisor: Yoav Gilad (supported by NIH training grant)
Department of Human Genetics, University of Chicago; Chicago, IL.

2008 - 2009 **Sequence Capture Technician**. Supervisor: Mindy Bennett.
Roche NimbleGen; Madison, WI.

2007 - 2008 **Forensic Scientist – DNA Analyst**. Supervisor: Sherry Culhane.
DNA Unit, Department of Justice - Wisconsin State Crime Lab; Madison, WI.

2004 - 2007 **Undergraduate Research Assistant/Independent Research**. Advisor: Steven Barclay
Department of Bacteriology, University of Wisconsin – Madison; Madison, WI.

2006 **International Research Experience for Students (IRES) in Microbiology Summer Research Program Participant**. Advisor: Sukathida Ubol
Department of Microbiology, Mahidol University; Bangkok, Thailand.

Publications

* denotes equal contribution

Submitted

12. Goodrich JK, **Davenport ER,** Clark AG, and Ley RE. *The relationship between the human genome and microbiome comes into view*. (Submitted Annual Reviews Genetics)

2017

11. Igartua C, **Davenport ER**, Gilad Y, Nicolae DL, Pinto J, and Ober C. *Host genetic variation in mucosal immunity pathways influences the upper airway microbiome*. Microbiome. 2017 Feb 1;5:16

2016

10. **Davenport ER**, Goodrich JK, Bell JT, Spector TD, Ley RE, Clark AG. *ABO antigen and secretor statuses are not associated with gut microbiota composition in 1,500 twins*. BMC Genomics. 2016 Nov 21;17:941

9. Beaumont M, Goodrich JK, Jackson MA, Yet I, **Davenport ER**, Vieira-Silva S, Debelius J, Pallister T Mangino M, Raes J, Knight R, Clark AG, Ley RE, Spector TD, and Bell JT. *Heritable components of the human fecal microbiome are associated with visceral fat*. Genome Biology. 2016 Sep 26;17:189

8. Goodrich JK, **Davenport ER**, Beaumont M, Jackson MA, Knight R, Spector TD, Bell JT, Clark AG, and Ley RE. *Genetic determinants of the gut microbiome in UK twins*. Cell Host and Microbe. 2016: 19(5), 731-743

7. Goodrich JK*, **Davenport ER***, Waters JL*, Clark AG, and Ley RE. *Cross-species comparisons of host genetic associations with the microbiome*. Science. 2016: 352(6285), 532-535

6. **Davenport ER**. *Elucidating the role of the host genome in shaping microbiome composition*. Gut Microbes. 2016: 7(2), 178-184

5. Blischak JD, **Davenport ER**, and Wilson G. *A quick introduction to version control with Git and GitHub*. PLoS Computational Biology. 2016;12(1):e1004668 (epub 2016 Jan 19)

2015

4. **Davenport ER,** Cusanovich DA, Michelini K, Barrerio LB, Ober C, and Gilad Y. *Genome-wide association studies of the human gut microbiota*. PLoS One. 2015;10(11):e0140301 (epub 2015 Nov 3)

   -----> *An Editor's Pick for the PLoS Microbiology special collection:*

http://collections.plos.org/microbiology-picks

-----> *An Editor's Pick for the PLoS Experimental Biology special collection:*

http://collections.plos.org/experimental-biology

2014

3. Zhou X, Cain CE, Myrthil M, Lewellen N, Michelini K, **Davenport ER**, Stephens M, Pritchard JK, and Gilad Y. *Epigenetic modifications are associated with inter-species gene expression variation in primates*. Genome Biology. 2014 Dec 3;15(12):547

2. **Davenport ER**, Mizrahi-Man O, Michelini K, Barreiro LB, Ober C, and Gilad Y. *Seasonal variation in human gut microbiome composition*. PLoS One. 2014;9(3):e90731 (epub 2014 Mar 11)

2013

1. Mizrahi-Man O, **Davenport ER**, and Gilad Y. *Taxonomic classification of bacterial 16S rRNA genes using short sequencing reads: Evaluation of effective study designs*. PLoS One. 2013;8(1):e53608 (epub 2013 Jan 7)

Presentations

Platform Presentations

2017 **Davenport ER**, Spector TD, Ley RE, and Clark AG. *Modeling human gut microbiome community structure across healthy and diseased states in 2,500 twins*. Society of Molecular Biology and Evolution Annual Meeting in Austin, Tx.

2017 **Davenport ER**, Spector TD, Ley RE, and Clark AG. *Modeling human gut microbiome community structure across healthy and diseased states in 2,500 twins*. Biology of Genomes in Cold Spring Harbor, NY.

2017 **Davenport ER**. *The role of host genetics in determining human gut microbiome composition*. The American Association of Physical Anthropologists Annual Meeting. Wiley Invited Podium Symposium - Humans as Holobionts: The Microbiome as a Biological System in Human Evolution. Invited platform presentation. New Orleans, LA.

2016 **Davenport ER**. *The role of host genetics in determining human gut microbiome composition*. The 2016 Nordic-North American Symposium on Antimicrobial Resistance and Molecular Population Genomics in Houston, TX.

2012 **Davenport ER**, Mizrahi-Man O, Barreiro LB, Ober C, and Gilad Y. *Examining the roles of diet, age, and sex on the composition of the human fecal microbiome*. University of Chicago Molecular Biosciences Cluster Retreat in Galena, IL.

Poster presentations

2015 **Davenport ER**, Goodrich JK, Bell JT, Spector TD, Ley RE, and Clark AG. *ABO antigen and secretor status are not associated with gut microbiota composition*. American Society of Human Genetics in Baltimore, MD.

2014 **Davenport ER**, Mizrahi-Man O, Michelini K, Barreiro LB, Ober C, and Gilad Y. *poopQTLs: Genome-wide associations of the human gut microbiota*. Society for Molecular Biology and Evolution Annual Meeting in San Juan, PR.

2013 **Davenport ER**, Mizrahi-Man O, Michelini K, Barreiro LB, Ober C, and Gilad Y. *Temporal variation in human gut microbiome composition in the Hutterites*. American Society of Human Genetics in Boston, MA.

2013 **Davenport ER**, Mizrahi-Man O, Michelini K, Barreiro LB, Ober C, and Gilad Y. *Examining the temporal stability of the fecal microbiome in an isolated, founder population*. Cell Symposium: the Microbiome and Host Health in Lisbon, Portugal.

2012 **Davenport ER**, Mizrahi-Man O, Barreiro LB, Ober C, and Gilad Y. *Examining the roles of diet, age, and sex on the composition of the human fecal microbiome*. American Society of Human Genetics in San Francisco, CA.

2012 **Davenport ER**, Mizrahi-Man O, Barreiro LB, Ober C, and Gilad Y. *Examining the genetic basis of interindividual variation in the human fecal microbiome*. International Human Microbiome Conference in Paris, France.

2011 Yao T, **Davenport ER**, Poroyko V, Liu D, Lemanske R, Gern J, Ober C, Jackson D, Gilad Y, Pinto J. *The nasal microbiome and development of asthma in a birth cohort*. Biology of Genomes, Cold Spring Harbor, NY.

Invited Seminars

2016 **Davenport ER**. *The role of host genetics in determining gut microbiome composition*. The Huck Institutes of the Life Sciences, Pennsylvania State University

2013 **Davenport ER**. *Seasonal variation in human gut microbiome composition*. Chicago State University

2013 **Davenport ER**. *Seasonal variation in human gut microbiome composition*. Emory: Yerkes National Primate Research Center

Teaching Experience

Teaching Assistantships

2014 University of Chicago, Biological Sciences Division: *HGEN 47300: Genomics and Systems Biology* (Taught 6 lectures)

2011 University of Chicago, Biological Sciences Division: *HGEN 47000: Human Genetics I*

2011 University of Chicago, Biological Sciences Division: *HGEN 47300: Genomics and Systems Biology*

2010 University of Chicago, Biological Sciences Division: *MGCB 31400: Genetic Analysis of Model Organisms*

Guest Lectures

2016 Cornell University, Molecular Biology and Genetics: *BIOMG 4870: Human Genomics – "Cystic Fibrosis and PKU"*

2016 Cornell University, Biological Sciences: *BIOMI 3210: Human Microbes and Health – "Microbiome studies in the Hutterites"*

2016 Pennsylvania State University, Biochemistry and Molecular Biology: *BMB 484: Functional Genomics – "Introduction to Population Genetics"*

2015 Cornell University, Molecular Biology and Genetics: *BIOMG 4870: Human Genomics – "Linkage disequilibrium mapping, or Genome-wide Association Studies (GWAS)"*

2011 University of Chicago, Biological Sciences Division: *HGEN 47000: Human Genetics I – "Human genome structure and variation"*

Workshops

2016 **Instructor** – "*Learn about Git and Github*", Cornell University, CPGSA

2016 **Instructor** – *"Introduction to R"*, University of Chicago, Biological Sciences Division (September)

Software Carpentry Workshops [content I taught]

2017 **Lead Instructor**, TGen, Phoenix, AZ (June) [R and version control with Git]

2016 **Instructor**, University of Chicago, Biological Sciences Division (September) [review of shell and R, writing reproducible reports, and version control with Git]

2016 **Lead Instructor**, Cornell University, Department of Molecular Biology and Genetics (August) [version control with Git]

2015 **Instructor**, University of Chicago, Biological Sciences Division (September) [review of shell and R, writing reproducible reports, and version control with Git]

2015 **Instructor**, Pennsylvania State University (June) [shell and version control with Git]

2014 **Instructor**, University of Chicago, Biological Sciences Division (September) [version control with Git]

2014 **Lead Instructor**, University of Toronto (July) [version control with Git]

2013 **Instructor**, University of Chicago, Biological Sciences Division (September) [shell]

2013 **Instructor**, University of Chicago. (June) [shell]

Data Carpentry Workshops [content I taught]

2016 **Instructor**, Cornell University (June) [reproducible reports with Rmarkdown and R programming]

2015 **Instructor**, Cornell University (January) [automating repetitive tasks with command line shell

Mentorship

Trang Dau – Undergraduate @ Cornell University, Lab of Andrew Clark (2017 -)

Trang is a Human Biology, Health, and Society major who became interested in the role that the microbiome plays in human health. She is currently leading a project in the Clark Lab examining whether the dynamics of microbial community assembly in the gut are influenced by host genetics, using samples from the large TwinsUK cohort.

Xiaoling Gong – Visiting scientist @ Cornell University, Lab of Andrew Clark (2016 - 2017)

Xiaoling is a mid-career investigator on a two-year fellowship from the Chinese Academy of Science visiting the Clark lab to expand the analysis of population structure of Japanese Eels, an important aquaculture species in Asia. During her time as a visiting scientist in the Clark Lab, I mentored her on the use of bioinformatics tools for analyzing RADseq data and the application of population genetic statistics to answer the open question of whether Japanese Eels are panmictic.

Monica Guardado – Undergraduate @ Penn State University, Lab of George Perry (2015 - 2017)

Monica became interested in host-microbiome dynamics during coursework for her Biology major. During her time in the Perry Lab, she's been examining whether termite-eating behavior in chimpanzees results in the transfer of termite microbiota into the chimpanzee gut. I've mentored her on both the wet lab and computational aspects of analyzing 16S rRNA sequencing data.

-----> *Awarded an American Society of Microbiology (ASM) Research Capstone Fellowship (2017)*

Academic Honors and Funding

2017	Genetics Society of America (GSA) DeLill Nasser Travel Award for Professional Development in Genetics ($1000)
2016 - 2019	NIH Ruth L. Kirschstein National Research Service Award (NRSA) – F32DK109595 ($168,414)
2014	University of Chicago Biological Sciences Division Travel Award ($500)
2011	University of Chicago Digestive Diseases Research Core Center (DDRCC) Pilot and Feasibility award ($20,000, written by E.R. Davenport to support dissertation research, submitted by Y. Gilad)
2010 - 2012	NIH Genetics and Regulation Training Grant (University of Chicago – 2 years of stipend support and tuition)
2007	Graduated with comprehensive honors: honors in Bacteriology and the liberal arts (University of Wisconsin – Madison)
2004	Dean's List (University of Wisconsin – Madison)
2003	William F. Vilas Scholarship (University of Wisconsin – Madison)

Professional Development

2016	**The Practice of Inclusive Teaching in STEM certificate** – Cornell University Center for Teaching Excellence
2016	**Building Mentoring Skills for an Academic Career certificate program** – Cornell University Center for the Integration of Teaching and Learning (CU-CIRTL)
2015 - 2016	**Postdoc Leadership Certificate Program** – Cornell University
2014	**Certificate in University Teaching** – University of Chicago Center for Teaching and Learning
2013	**Software Carpentry Instructor training** – Software Carpentry

Professional Affiliations

2017 - Genetics Society of America (GSA)
2017 - American Society for Microbiology (ASM)
2017 - American Association of Physical Anthropologists (AAPA)
2016 - National Postdoc Association (NPA)
2014 - Society for Molecular Biology and Evolution (SMBE)
2012 - American Society of Human Genetics (ASHG)
2011 - American Association for the Advancement of Science (AAAS)

Service

Reviewer Cell Host & Microbe, Diabetologia, Gut Microbes, Trends in Immunology, BMC Genomics, Scientific Reports, Applied and Environmental Microbiology, Microbiome, and PLoS ONE

Member (2017 -) American Society of Human Genetics (ASHG) Training and Development Committee

Member (2016 -) Cornell University Postdoctoral Advisory Council

Reviewer (2016 -) Sigma Xi Grants-In-Aid of Research, Cornell University

Member (2015 -) Genetics Education and Outreach Network (GEON)

Judge (2011, 2012, 2014) Annual Chicago Public Schools Student Science fair (for district fair winners)

Judge (2011 - 2014) Annual Chicago Area Undergraduate Research Symposium (CAURS)

Member (2010 - 2013) Molecular Biosciences organizational committee: student representative from the Department of Human Genetics on orientation week, annual molecular biosciences retreat, and recruitment organizing committees