

Erik C. Andersen

Assistant Professor Northwestern University

Department of Molecular Biosciences

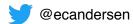
2205 Tech Drive

Evanston, IL 60208-3500 Office: 847-467-4382

Lab: 847-467-4264 Fax: 847-491-4461

erik.andersen@northwestern.edu

www.andersenlab.org www.elegansvariation.org





0000-0003-0229-9651



DATE UPDATED: April 8, 2019

MAJOR PROFESSIONAL INTERESTS

Evolutionary genetics; quantitative genetics; molecular genetics; developmental genetics

EDUCATION

1996-2000 B.S. in Biological Sciences with departmental honors

Stanford University, Stanford, CA Advisor: Dr. Matthew P. Scott

Dissertation: in vivo analysis of Drosophila heart-tube formation

2000-2008 Ph.D. in Biology

Massachusetts Institute of Technology (MIT), Cambridge, MA

Advisor: Dr. H. Robert Horvitz

Dissertation: The synthetic Multivulva genes and their suppressors regulate opposing cell fates

through chromatin remodeling

2008-2013 Post-doctoral fellowship

Princeton University

Advisor: Dr. Leonid Kruglyak

AWARDS, HONORS, AND FELLOWSHIPS

1996-1998	Robert C. Byrd Honors Scholarship recipient
1998	Stanford University Undergraduate research small grant recipient
1999, 1998	Howard Hughes Medical Institute Summer Research Fellowship
2000	Firestone Medal for Excellence in Undergrad. Research (top Biological Sciences researcher)
2005 - 2006	Anna Fuller Cancer Graduate Research Fellowship
2009 - 2011	Ruth L. Kirschstein National Research Service Award Recipient
2011 - 2012	National Cancer Institute Post-doctoral Fellow, training grant T32-CA009528
2012 - 2013	Howard Hughes Medical Institute Post-doctoral Fellow
2014 - 2018	Pew Scholar in the Biomedical Sciences
2015 -	Editorial Board Member of <i>Trends in Genetics</i>
2015 - 2017	March of Dimes Basil O'Connor Research Scholar
2015 - 2019	American Cancer Society Research Scholar
2017 -	Associate Editor for <i>BMC Genomics</i>
2018 - 2023	National Science Foundation CAREER Award Recipient

EMPLOYMENT

2013 - Assistant Professor of Molecular Biosciences, Northwestern University

Preceptor for the Interdisciplinary Biological Sciences Graduate Program (IBiS)

Full Member of the Robert H. Lurie Comprehensive Cancer Center

Member of the Chemistry of Life Processes Institute (CLP)

Member of Northwestern Institute on Complex Systems (NICO)

2008 - 2013 Post-doctoral fellow, Princeton University, Princeton, NJ, Advisor: Dr. Leonid Kruglyak

2000 - 2008 Graduate student, Biology Department at Massachusetts Institute of Technology (MIT),

Cambridge, MA, Advisor: Dr. H. Robert Horvitz

RESEARCH SUPPORT

PRESENT

2019 - 2022 Human Frontiers Science Program Research Grant

The repeatability of the genetic mechanisms underlying behavioral evolution Lead PI: Erik Andersen, co-PIs: Brown (Imperial, MRC), Hodgins (Monash)

2018 - 2023 National Institutes of Health (R01 ES029930) - NIEHS

Discovery of conserved molecular mechanisms underlying population-wide variation in toxin

responses

Lead PI: Erik Andersen, co-PIs: Baugh (Duke), Rockman (NYU)

2018 - 2023 National Science Foundation

CAREER Award (1751035)

Discovery of the molecular mechanisms underlying microevolution of phenotypic plasticity in a

developmental trait

PI - Andersen

2018 - 2022 National Institutes of Health (U2C OD026506) - NIEHS

Genetics and quantum chemistry as tools for unknown metabolite identification

Lead PI: Dr. Art Edison (UGA), co-PIs Andersen, Fernandez (Georgia Tech),

McIntyre (U of Florida), Merz (Missouri State), Schroeder (Cornell)

2018 - 2023 National Science Foundation (1764421) and Simons Foundation (597491)

Research Center for Mathematics of Complex Biological Systems

Understanding organismal growth and development through quantitative approaches

Lead Pls Dr. Rich Carthew and Dr. Bill Kath, co-Pls Andersen, Mangan, Bagheri, Braun, Wang

2018 - 2022 National Institutes of Health (R01 GM127433) - NIGMS

100k spontaneous mutations: the foundation for an evolutionary systems biology of C. elegans PI Dr. Charlie Baer (Univ. of Florida), PI Dr. Vaishali Katju (Texas A+M) with sub to Andersen

2017 - 2021 National Institutes of Health (R01 DK115690) - NIDDK

Large scale nutrigenetics and genomics in a tractable metazoan model

Multi-investigator Grant with EC Andersen, AJ Marian Walhout (UMass Medical School), Frank

Schroeder (Cornell)

2017 - 2019 National Institutes of Heath (R21 AG053638) - NIA

High-throughput multi-modal analysis of natural variation in C. elegans healthspan Multi-investigator Grant with Chris Fang-Yen (Univ. of Pennsylvania) and Andersen

2016 - 2019 National Institutes of Heath (R21 Al121836) - NIAID

Discovery and validation of avermectin resistance loci in free-living and parasitic nematodes

PI - Andersen with subcontract to Dr. Michael Kimber (Iowa State University)

2015 - 2019 American Cancer Society Research Scholar Grant

Elucidating the genetic causes of variation in chemotherapy-based toxicity

PI - Andersen

PAST

2014 - 2019 Pew Charitable Trusts, Scholars Program in the Biomedical Sciences

Elucidating the genetics of anthelmintic resistance in nematode-borne neglected tropical

diseases

PI - Andersen

2014 - 2019 National Institutes of Health (R01 GM107227) - NIGMS

Direct determination of the distribution of fitness effects of spontaneous mutations

PI Dr. Charlie Baer (University of Florida) with subcontract to Andersen

2018 Google, Inc.

Google Cloud Platform Research credit award

Optimization of computational pipelines to support the C. elegans Natural Diversity Resource

PI - Andersen

2016 - 2017 Amazon Web Services

Optimization of computational pipelines to support the C. elegans Natural Diversity Resource

PI - Andersen

2016-2017 IDP/Sherman Fairchild Research Innovation Challenge Award, Robert H. Lurie Comprehensive

Cancer Center

Validating individual differences in cytotoxicity to improve personalized chemotherapy treatment

regimens

Multi-investigator Grant with Andersen and Dr. Paul Burridge (Northwestern University)

2015 - 2017 March of Dimes Basil O'Connor Starter Research Grant

Identification of hookworm anthelmintic resistance genes to ameliorate maternal

and infant anemia

PI - Andersen

2016 Weinberg College Research Innovation Grant, Northwestern University

The Caenorhabditis elegans Natural Diversity Resource - a powerful tool to facilitate biomedical

discovery

PI - Andersen

2014 - 2016 Chicago Biomedical Consortium, Catalyst Grant

Uncovering "missing heritability" in an experimentally tractable model organism

Multi-investigator Grant with Andersen and Ilya Ruvinsky (University of Chicago)

2016 Data Scientist Initiative, Northwestern University

A novel statistical model to predict the removal of mobile genetic elements

Multi-investigator Grant with Andersen and Jiping Wang (Northwestern University)

2013 - 2014 American Cancer Society, Institutional Research Grant [93-037-18]

Elucidating the genetic causes of variation in chemotherapy-based toxicity

PI - Andersen

2013 - 2014 Chemistry of Life Processes, Chairman's Innovation Award

Using perturbations of heavy metal homeostasis to treat nematode-borne neglected tropical diseases

Multi-investigator Grant with Andersen and Thomas O'Halloran (Northwestern University)

PUBLICATIONS

corresponding authors in bold, *undergraduate co-authors in italics*, <u>graduate students and post-</u>docs in underline

h-index=21, i10-index=31, link to Google Scholar page (here)

- Lee D, Zdraljevic S, Cook DE, Frezal L, Hsu JC, Sterken MG, Riksen JAG, Wang J, Kammenga JE, Braendle C, Felix MA, Schroeder FC, Andersen EC (2019)
 Selection and gene flow shape niche-associated copy-number variation of pheromone receptor genes bioRxiv 580803; DOI https://doi.org/10.1101/580803
- 2. <u>Brady SC</u>, <u>Zdraljevic S</u>, <u>Bisaga KW</u>, Tanny RE, <u>Cook DE</u>, <u>Lee D</u>, <u>Wang Y</u>, **Andersen EC** (2019) A nematode-specific gene underlies bleomycin-response variation in <u>Caenorhabditis elegans</u> <u>bioRxiv</u> 565218; DOI <u>https://doi.org/10.1101/565218</u>
- Gimond C, Vielle A, Silva Soares N, <u>Zdraljevic S</u>, McGrath PT, **Andersen EC**, Braendle C (2019)
 Evolution of sperm competition: Natural variation and genetic determinants of *Caenorhabditis elegans* sperm size
 bioRxiv 501486; DOI https://doi.org/10.1101/501486
- Bernstein MR, Zdraljevic S, Andersen EC, and Rockman MV (2019)
 Tightly linked antagonistic-effect loci underlie polygenic demographic variation in *C. elegans bioRxiv* 428466; DOI https://doi.org/10.1101/428466
- Zdraljevic S, Fox BW, Strand C, Panda O, Tenjo-Castano FJ, Brady SC, Crombie TA, Doench JG, Schroeder FC, and Andersen EC (2019)
 Natural variation in arsenic toxicity is explained by differences in branched chain amino acid catabolism eLife; e:e40260
- 6. <u>Hahnel SR, Zdraljevic S</u>, Rodriguez BC, Zhao Y, McGrath PT, and **Andersen EC** (2018)

Extreme allelic heterogeneity at a *Caenorhabditis elegans* beta-tubulin locus explains natural resistance to benzimidazoles

PLoS Pathogens Oct 29; 14(10):e1007226

Citations: 1, Journal Impact Factor (2017): 6.158

7. <u>Brady SC</u>, <u>Evans KS</u>, Bloom JS, Tanny RE, <u>Cook DE</u>, Giuliani SE, <u>Hippleheuser SW</u>, <u>Zamanian M</u>, and **Andersen EC**.

Common genomic intervals underlie natural variation in diverse toxin responses *Genetics* accepted on Sept. 24, 2018

bioRxiv 325399; DOI: https://doi.org/10.1101/325399

8. Zamanian M, Cook DE, Zdraljevic S, Brady SC, Lee D, Lee J, and Andersen EC (2018)

Discovery of genomic intervals that underlie nematode responses to benzimidazoles

PLoS Neglected Tropical Diseases Mar 5; 12(3):e0006368

Citations: 5, Journal Impact Factor (2017): 4.367

9. Zdraljevic S and Andersen EC (2017)

Natural diversity facilitates the discovery of conserved chemotherapeutic response mechanisms *Current Opinions in Genetics and Development* Dec;47:41-47

Citations: 4, Journal Impact Factor (2017): 4.995

10. Zdraljevic S, Strand C, Seidel HS, Cook DE, Doench JG, and Andersen EC (2017)

Natural variation in a single amino acid substitution underlies physiological responses to topoisomerase II poisons

PLoS Genetics Jul 12; 13(7):e1006891

Citations: 16, Journal Impact Factor (2017): 5.540

11. Lee D, Yang H, Kim J, <u>Brady SC</u>, <u>Zdraljevic S</u>, <u>Zamanian M</u>, Kim H, Paik Y, Kruglyak L, **Andersen EC** and **Lee J** (2017)

The genetic basis of natural variation in a phoretic behavior

Nature Communications Aug 17; 8(1):273

Citations: 11, Journal Impact Factor (2016): 12.353

12. Laricchia KM, Zdraljevic S, Cook DE, and Andersen EC (2017)

The causes and consequences of natural variation in the distribution and abundance of transposable elements across the *Caenorhabditis elegans* species.

Molecular Biology and Evolution Sept 1; 34(9)2187-2202

Citations: 9, Journal Impact Factor (2017): 10.217

13. Garcia-Gonzalez AP, Ritter AD, Shrestha S, Andersen EC, Yilmaz LS, Walhout AJM (2017)

Bacterial metabolism affects the *C. elegans* response to cancer chemotherapeutics.

Cell Apr 20; 169(3)431-441

Citations: 40, Journal Impact Factor (2017): 31.398

14. Cook DE and Andersen EC (2017)

VCF-kit: Assorted utilities for the variant call format

Bioinformatics May 15; 33(10):1581-1582

Citations: 9, Journal Impact Factor (2017): 5.481

15. Mashock MJ, Zanon T, Kappell AD, Petrella LN, Andersen EC, Hristova KR (2016)

Copper oxide nanoparticles impact several toxicological endpoints and cause neurodegeneration in *Caenorhabditis elegans*

PLoS ONE Dec 2; 11(12):e0167613

Citations: 7, Journal Impact Factor (2017): 2.766

16. Evans KS, Zhao Y, Brady SC, Long L, McGrath PT, Andersen EC (2016)

Correlations of genotype with climate parameters suggest *Caenorhabditis elegans* niche adaptations *G3* Nov 18; [10.1534/g3.116.035162]

Citations: 10, Journal Impact Factor (2017): 2.742

17. Cook DE, Zdraljevic S, Roberts JP, Andersen EC (2016)

CeNDR, the *Caenorhabditis elegans* Natural Diversity Resource.

Nucleic Acids Research Jan 4; 45(D1):D650-D657

Citations: 41, Journal Impact Factor (2017): 11.561

18. Cook DE, Zdraljevic S, Tanny RE, Seo B, Riccardi DD, Noble LM, Rockman MV, Alkema MJ, Braendle C,

Kammenga JE, Wang J, Kruglyak L, Felix MA, Lee J, Andersen EC (2016)

The genetic basis of natural variation in *C. elegans* telomere length

Genetics Sept; 204(1):371-83

Citations: 35, Journal Impact Factor (2017): 4.075

19. Large EE, Xu W, Zhao Y, Brady SC, Long L, Butcher RA, Andersen EC, McGrath PT (2016)

Selection on a Subunit of the NURF Chromatin Remodeler Modifies Life History Traits in a

Domesticated Strain of Caenorhabditis elegans

PLoS Genetics July 28; 12(7):e1006219

Citations: 13, Journal Impact Factor (2017): 5.540

20. Zamanian M and Andersen EC. (2016)

Prospects and challenges of CRISPR/Cas genome editing for the study and control of neglected vector-borne nematode diseases

FEBS Sep; 283(17):3204-21

Citations: 21, Journal Impact Factor (20176): 4.530

21. Farhadifar R, Ponciano JM, Andersen EC, Needleman DJ, Baer CF. (2016)

Mutation Is a Sufficient and Robust Predictor of Genetic Variation for Mitotic Spindle Traits in *Caenorhabditis elegans*

Genetics Aug; 203(4):1859-1870

Citations: 10, Journal Impact Factor (2017): 4.075

22. Sterken MG, Snoek LB, Kammenga JE, Andersen EC. (2015)

The laboratory domestication of *C. elegans*

Trends in Genetics Mar; 31(5) 224-231

Citations: 57, Journal Impact Factor (2017): 10.556

23. Thompson OA, Snoek LB, Nijveen H, Sterken MG, Volkers RJM, Brenchley R, van't Hof A, Bevers RPJ,

Cossins AR, Yanai I, Hajnal A, Schmid T, Perkins JD, Spencer D, Kruglyak L, Andersen EC,

Moerman DG, Hillier LW, Kammenga JE, Waterston RH. (2015)

Remarkably divergent regions punctuate the genome assembly of the *Caenorhabditis elegans*

Hawaiian strain CB4856

Genetics May 19; 200(3) 975-989

Citations: 51, Journal Impact Factor (2017): 4.075

24. Andersen EC, Shimko TC, Crissman JR, Ghosh R, Gerke JP, Seidel HS, Kruglyak L. (2015)

A powerful new quantitative genetics platform combining *Caenorhabditis elegans* high-throughput fitness assays with a large collection of recombinant strains

G3 Mar 13; 5(5) 911-920

Citations: 37, Journal Impact Factor (2017): 2.742

25. Farhadifar R, Baer CF, Valfort AC, Andersen EC, Muller-Reichert T, Delattre M, Needleman DJ. (2015)

Scaling, Selection, and Evolutionary Dynamics of the Mitotic Spindle

Current Biology Mar 16; 25(6) 732-740

Citations: 33, Journal Impact Factor (2017): 8.851

26. Balla K, Andersen EC, Kruglyak L, Troemel E. (2015)

A wild *C. elegans* strain has enhanced epithelial immunity to a natural microsporidian parasite

PLoS Pathogens Feb 13; 11(2)e1004583

Citations: 23, Journal Impact Factor (2017): 6.158

27. Etienne V*, Andersen EC*, Ponciano JM, Blanton D, Cadavid A, Joyner-Matos J, Matsuba C, Tabman B, Baer CF. (2015)

The Red Death Meets the Abdominal Bristle: Polygenic Mutation for Susceptibility to a Bacterial Pathogen in *Caenorhabditis elegans*

Evolution Feb; 69(2) 508-519 *equal contribution

Citations: 5, Journal Impact Factor (2017): 4.201

28. Shimko TC, Andersen EC. (2014)

COPASutils: an R package for reading, processing, and visualizing data from COPAS large-particle flow cytometers

PLoS One Oct 20; 9(10):e111090

Citations: 18, Journal Impact Factor (2017): 2.766

29. Andersen EC, Bloom JS, Gerke JP, Kruglyak L. (2014)

A variant in the neuropeptide receptor *npr-1* is a major determinant of *Caenorhabditis elegans* growth and physiology

PLoS Genetics Feb; 10(2):e1004156

Citations: 61, Journal Impact Factor (2017): 5.540

Publications from research prior to Northwestern University:

undergraduate co-authors in italics, corresponding authors underlined

Felix MA, Jovelin R, Ferrari C, Han S, Cho YR, Andersen EC, Cutter AD, <u>Braendle C</u>. (2013)

Species richness, distribution and genetic diversity of *Caenorhabditis* nematodes in a remote tropical rainforest

BMC Evolutionary Biology 13(1), 10

Ghosh R, Andersen EC, Shapiro JA, Gerke JP, Kruglyak L. (2012)

Natural variation in a chloride channel subunit confers avermectin resistance in *C. elegans Science* 335(6068): 574-578.

Andersen EC*, Gerke JP*, Shapiro JA*, Crissman JR, Ghosh R, Bloom JS, Felix MA, <u>Kruglyak L</u>. (2012) Chromosome-scale selective sweeps shape *Caenorhabditis elegans* genomic diversity *Nature Genetics* 44(3): 285-290. *equal contribution

Andersen EC. (2011)

PCR-directed *in vivo* plasmid construction using homologous recombination in baker's yeast *Molecular Methods for Evolutionary Genetics*, 772; 409-421. *Invited book chapter

Raj A, Rifkin SA, Andersen EC, van Oudenaarden A. (2010)

Variability in gene expression underlies incomplete penetrance *Nature* 463(7283): 913-918.

Bessler JB, Andersen EC, Villeneuve AB. (2010)

Differential localization and independent acquisition of the H3K9me2 and H3K9me3 chromatin modifications in the *Caenorhabditis elegans* adult germ line *PLoS Genetics* 6(1): e1000830.

Reddy KC*, Andersen EC*, Kruglyak L, and Kim DH. (2009)

A polymorphism in *npr-1* is a behavioral determinant of pathogen susceptibility in *C. elegans Science* 323(5912): 382-384. *equal contribution

Andersen EC, Saffer AM, and Horvitz HR. (2008)

Multiple levels of redundant processes inhibit *Caenorhabditis elegans* vulval cell fates *Genetics* 179(4): 2001-2012.

Andersen EC and Horvitz HR. (2007)

Two *C. elegans* histone methyltransferases repress *lin-3* EGF transcription to inhibit vulval development

Development 134(16): 2991-2999.

Reddien PW, Andersen EC, Huang M, and Horvitz HR. (2007)

DPL-1 DP, LIN-35 Rb, and EFL-1 E2F act with the MCD-1 Zinc-finger protein to promote programmed cell death in *C. elegans Genetics* 175(4): 1719-1733.

Andersen EC, Lu X, and Horvitz HR. (2006)

C. elegans ISWI and NURF301 antagonize an Rb-like pathway in the determination of multiple cell fates

Development 133(14): 2695-2704.

Furlong EE, *Andersen EC*, Null B, White KP, and Scott MP. (2001)

Patterns of gene expression during *Drosophila* mesoderm development *Science* 293(5535): 1629-1633.

PROFESSIONAL TALKS

Departmental seminars and invited conference presentations (not including trainees):

19 Dept. of Genome Sciences, Univ. of Washington, Seattle, WA

Dept. of Infectious Diseases, Univ. of Georgia, Athens, GA

Dept. of Biology, Georgia Institute of Technology, Atlanta, GA

Ingram Cancer Center, Vanderbilt University, Nashville, TN

2018 Max Planck Institute for Developmental Biology, Tübingen, Germany

Dept. of Evolutionary Ecology and Genetics, Christian-Albrechts-Universitat, Kiel, Germany

Berlin Seminar for Resistance Research, Freie Universitat Berlin, Berlin, Germany

Robert H Lurie Comprehensive Cancer Center, Northwestern University, Chicago, IL

Dept. of Genetics, Washington University School of Medicine, St. Louis, MO

Dept. of Genetics, University of Pennsylvania, Philadelphia, PA

Dept. of Pathobiology, University of Pennsylvania, Philadelphia, PA

Dept. of Microbiology, Seoul National University, Seoul, Korea

Dept. of Biology, University of Oregon, Eugene, OR

Dept. of Biological Sciences, University of Southern California, Los Angeles, CA

Dept. of Cell Biology and Anatomy, Rosalind Franklin University, Chicago, IL

New York Univ. Center for Genomics and Sys. Bio. Parasite Workshop, Abu Dhabi, UAE

2017 Department of Biology, Univ. of California - San Diego, San Diego, CA

Department of Biology, Duke University, Durham, NC

Donnelly Centre for Cellular And Biomolecular Research, University of Toronto, Toronto, ON

Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY

Medical Research Council, London Institute of Medical Sciences, London, UK

Department of Biology, Carnegie Mellon University, Pittsburgh, PA

Host-Parasite Interactions, University of Calgary, Banff, Canada

Florida Area Worm Meeting (keynote), Florida Institute of Technology, Melbourne, FL

Department of Biology, Skirball Institute, New York University Medical School, New York, NY

Department of Biology, University of Minnesota, Minneapolis, MN

- 2017 Department of Biology, Indiana University, Bloomington, IN
 - New York University Center for Genomics and Systems Biology Symposium in Abu Dhabi, UAE
- 2016 Midwest Quantitative Biology at Purdue University, West Lafayette, IN
 - Molecular and Cellular Biology of Helminth Parasites X, Hydra, Greece
 - Computational Research Day, Northwestern University, Evanston, IL
 - Evolutionary Biology of *Caenorhabditis* and other nematodes (keynote), CSHL, Cold Spring Harbor, NY
 - Department of Genetics, University of Utah, Salt Lake City, UT
 - Department of Biology, University of Iowa, Iowa City, IA
 - Department of Biomedical Sciences, Iowa State University, Ames, IA
 - Anthelmintics: Discovery to Resistance II, San Diego, CA
- 2015 Program in Systems Biology, University of Massachusetts Medical School, Worcester, MA
 - Evolution seminar series, University of Wisconsin, Madison, WI
 - Biotechnology Training Program, Northwestern University, Evanston, IL
 - Department of Biology, Johns Hopkins University, Baltimore, MD
 - Department of Biology, University of Maryland, College Park, MD
 - Department of Pharmacology, Feinberg School of Medicine, Northwestern University, Chicago, IL
 - Midwest Neglected Infectious Disease Meeting, Notre Dame University, South Bend, IN
 - Quantitative genetics workshop, 20th International C. elegans meeting, UCLA, Los Angeles, CA
 - Michigan Area Worm Meeting, van Andel Institute, Grand Rapids, MI
- 2014 Northwestern Institute on Complex systems, Northwestern University, Evanston, IL
 - Fondation de Treilles: Revisiting the roles of phenotypic plasticity in evolution, Provence, France
 - Biology Department, Marquette University, Milwaukee, WI
 - Pharmacogenomics group, University of Chicago, Chicago, IL

Seminars before starting at Northwestern:

- Quantitative genetics workshop, 19th International C. elegans meeting, UCLA, Los Angeles, CA Molecular Bioscience Department, Northwestern University, Evanston, IL
 - Program in Systems Biology, University of Massachusetts Medical School, Worcester, MA
- Biology Department, Dartmouth University, Hanover, NH 2012
 - Human Genetics Department and Life Sciences Institute, University of Michigan, Ann Arbor, MI Genetics Department, University of Georgia, Athens, GA

 - Biology Department, Case Western Reserve University, Cleveland, OH
 - Biology Department and BioDesign Institute, Arizona State University, Phoenix, AZ
 - Center for Computational and Integrated Biology, Rutgers University, Camden, NJ
 - Biology Department, University of Florida, Gainesville, FL
- 2011 Evolution workshop, 18th International C. elegans meeting, UCLA, Los Angeles, CA Laboratory of Toxicology, NIEHS, Research Triangle Park, NC
- 2010 Institute for Evolutionary Biology Department, University of Edinburgh, Edinburgh, UK
- 2008 Featured talk at *C. elegans* Aging, Stress, and Pathogenesis meeting, Madison, WI
- 2000 Undergraduate research symposium, Stanford University, Stanford, CA

Seminars chosen from abstracts (not including trainees): (*selected for oral presentation)

- *Evolutionary biology of Caenorhabditis and other nematodes meeting, Hinxton, UK 2018 Evolutionary biology of Caenorhabditis and other nematodes meeting (poster), Hinxton, UK *Anthelmintics III, Indian Rocks Beach, FL
- *Molecular Helminthology: An Integrated Approach, Cape Cod, MA 2017
- *Midwest Neglected Infectious Disease meeting, U. of Notre Dame, Notre Dame, IN 2015
 - *Bridging the divide, 20th International C. elegans meeting, UCLA, Los Angeles, CA
- 2013 *19th International C. elegans meeting, UCLA, Los Angeles, CA Society for Molecular Biology of Evolution, Chicago, IL
- 2012 *Evolutionary biology of Caenorhabditis and other nematodes meeting, CSHL, NY
- 2011 *18th International C. elegans meeting, UCLA, Los Angeles, CA

2011 18th International *C. elegans* meeting (poster), UCLA, Los Angeles, CA 2010 *Evolutionary biology of Caenorhabditis and other nematodes meeting, Hinxton, UK Evolutionary biology of Caenorhabditis and other nematodes meeting (poster), Hinxton, UK Cold Spring Harbor Labs Automated Imaging and High-throughput Phenotyping, CSHL, NY 2009 *17th International C. elegans meeting, UCLA, Los Angeles, CA Gordon Research Conference on Quantitative Genetics and Genomics, Galveston, TX 2007 Department of Biology Annual Retreat, MIT, ** poster prize winner 2006 C. elegans Evolution and Development meeting, Univ. of Wisconsin, Madison, WI 2005 *15th International C. elegans meeting, UCLA, Los Angeles, CA Chromatin Structure and Function meeting, Nassau, Bahamas East Coast C. elegans meeting, Yale, New Haven, CT 2004 *14th International C. elegans meeting, UCLA, Los Angeles, CA 2003

2002 East Coast C. elegans meeting, University of New Hampshire, Durham, NH

PEER REVIEW AND RELATED ACTIVITIES

Editorial board:

2015 - Trends in Genetics

Associate editor:

2017 - 2019 BMC Genomics (Multicellular invertebrate genomics)

Guest editor:

PLoS Genetics. eLife

Reviewing activity: Academic Journals

American Naturalist, Biological Journal of the Linnean Society, BMC Evolutionary Biology, BMC Genetics, BMC Genomics, Cell, Development, eLife, EMBO, Environmental Microbiology, Genes and Development, G3, Genetics, Genome Research, Journal of Visualized Experiments, Heredity, Nature, Nature Scientific Reports, Nature Genetics, PLoS Genetics, PLoS Neglected Tropical Diseases, PLoS ONE, PLoS Pathogens, PNAS, Science, Scientific Reports, Trends in Genetics, Trends in Molecular Medicine, Trends in Parasitology

Reviewing activity: Grants and fellowships

2019	Ad hoc reviewer for Swiss 3R Competence Centre
2018	Scientific Advisory Board for P01AI127338 (PI Michael Ferdig, Notre Dame Univ.)
2017	Ad hoc reviewer for Bill and Melinda Gates Foundation
2014	Ad hoc reviewer for Human Frontiers Science Program
2014	Ad hoc reviewer for National Science Foundation (IOS)

PROFESSIONAL AFFILIATIONS AND SERVICE

Membership in Professional Societies:

Genetics Society of America, member Society of Molecular Biology and Evolution, member

Professional service:

2019 External thesis committee member for Amanda Shaver (Edison lab, Univ. of Georgia)

External thesis committee member for Aurian Garcia-Gonzalez (Walhout lab, UMMS)

Co-organizer of the Chicago Area Worm Meeting (ChAWM, www.chawm.org)

Scientific Advisory Board Member for P01AI127338 (PI Dr. Michael Ferdig, Notre Dame Univ.)

2018 Organizing committee for *C. elegans* dev., cell bio., and gene exp. meeting (Barcelona, Spain)

Chair of the Natural Variation session, C. elegans dev., cell bio., and gene exp. meeting

Co-organizer of the Chicago Area Worm Meeting (ChAWM, www.chawm.org)

Scientific Advisory Board Member for P01AI127338 (PI Dr. Michael Ferdig, Notre Dame Univ.)

2018 Organizing committee for Parasitic Nematodes meeting, NYU Abu Dhabi

External thesis committee member for Victoria Vu (Fraser lab, University of Toronto)

Poster judge, Northwestern Undergraduate Research Symposium

2017 Organizing committee for the 21st International *C. elegans* meeting

2017 Chair of the Evolution and Ecology parallel session, 21st International *C. elegans* meeting

2015 Organizing committee for the 20th International *C. elegans* meeting

Poster judge, 20th International C. elegans meeting - Evolution and Genomics section

Genetics Soc. of America Mentor Lunch, Postdoc search, 20th International C. elegans meeting

2014 Panelist, NUIN Post-doc Association, *Interviews and Start-up packages*

Poster judge, Northwestern Undergraduate Research Symposium

Panelist, Pathways to the Professoriate, How to prepare for a job interview?

2013 Poster judge, Northwestern Undergraduate Research Symposium

Panelist, Bioscientist Freshman seminar; How to find a research lab?

Poster judge, 19th International C. elegans meeting - Evolution and Genomics section

C. elegans community service:

Creator and advisor board member of the *C. elegans* Natural Diversity Resource (CeNDR, <u>link</u>)
This resource organizes and disseminates wild *C. elegans* strains, whole-genome sequence data, and enables genome-wide association mappings through a cloud-based service. Since 2016, over 1900 strains have been distributed to the community and over 2000 mappings have been performed.

TEACHING AND ADVISING

Undergraduate teaching:

2019	Biological Sciences 393: <i>Biomedical Genetics</i> (spring, 19 students)

Biological Sciences 398: Tutorial in Biology (Anna Derrick, Emily Jahn, Kailyn Parham)

Biological Sciences 399: *Independent Research* (Karol Bisaga, Grace Park)

2018 Biological Sciences 393: Genetic Analysis (winter, 28 students)

Biological Sciences 398: Tutorial in Biology (Karol Bisaga)

Biological Sciences 399: Independent Research (Karol Bisaga, Kimberly Collins,

Selina Deiparine, Grace Park)

2017 Biological Sciences 393: *Genetic Analysis* (spring, 22 students)

Biological Sciences 398: Tutorial in Biology (Kimberly Collins)

Biological Sciences 399: Independent Research (Selina Deiparine, Samuel Hamilton,

Grace Park)

2016 Biological Sciences 393: Genetic Analysis (spring, 17 students)

Biological Sciences 398: Tutorial in Biology

(Sarah Bier, Mattlyn Cordova, Selina Deiparine, Samuel Hamilton, Grace Park)

2015 Guest Lecture: University of Wisconsin-Madison Biology 675 - Evolution seminar

(fall, 8 students)

New course: Biological Sciences 393: Genetic Analysis (spring, 10 students)

Biological Sciences 398: Tutorial in Biology (Lautaro Cilenti)

Biological Sciences 399: *Independent Research* (Kreena Patel, Hillary Tsang)

2014 Biological Sciences 398: *Tutorial in Biology* (Mazeed Aro-Lambo, Kreena Patel, Hillary Tsang)

Graduate teaching:

2018 Interdisciplinary Biological Sciences 421: Rigor and Reproducibility

(summer, one guest lecture, 25 students)

Interdisciplinary Biological Sciences/Chemistry 416: Practical Training in Chemical Biology

Methods and Experimental Design (spring, five lectures, 10 students)

2017 Interdisciplinary Biological Sciences 421: Rigor and Reproducibility

(summer, one guest lecture, 15 students)

Interdisciplinary Biological Sciences/Chemistry 416: Practical Training in Chemical Biology

Methods and Experimental Design (spring, five lectures, 8 students)

Interdisciplinary Biological Sciences 421: Rigor and Reproducibility

(spring, one guest lecture, 5 students)

2016 Interdisciplinary Biological Sciences: Graduate Computational Biology Bootcamp

(fall, 3 days, eight hours per day, 19 students) - www.GitHub.com/AndersenLab/IBiS-Bootcamp

2015 Interdisciplinary Biological Sciences 402: Eukaryotic Molecular Biology

(fall, one guest lecture, 22 students)

Interdisciplinary Biological Sciences: Graduate Computational Biology Bootcamp

(fall, 3 days, eight hours per day, 22 students) - www.GitHub.com/AndersenLab/IBiS-Bootcamp

Interdisciplinary Biological Sciences 423: Ethics of peer review

(spring, one guest lecture, 41 students)

2014 Interdisciplinary Biological Sciences 402: Eukaryotic Molecular Biology

(fall, one guest lecture, 16 students)

New course: Interdisciplinary Biological Sciences: *Graduate Computational Biology Bootcamp* (fall, 3 days, eight hours per day, 16 students) - www.GitHub.com/AndersenLab/IBiS-Bootcamp

Interdisciplinary Biological Sciences 423: Ethics of peer review

(spring, one guest lecture, 42 students)

2013 Interdisciplinary Biological Sciences 402: Eukaryotic Molecular Biology

(fall, one guest lecture, 24 students)

K-12 advising:

Sarosh Nagar, Glenbrook North High School (2018-2019 academic year)

Britney Sun, Glenbrook North High School (summer 2018)

Ethan Schonfeld, Glenbrook North High School (summer 2018)

Lillian Tushman, Oak Park and River Forest High School (2016-2017 academic year)

Caitlin Westerfield, Evanston Township High School (2015-2016 academic year)

Matteo di Bernardo, Evanston Township High School (2015-2016 academic year)

Ainsley Tran, Oak Park and River Forest High School (2015-2016 academic year)

Lauren Mann, Oak Park and River Forest High School (2014-2015 academic year)

Jacob Cruger, Latin School of Chicago (summers 2013, 2014)

Gina Liu, Illinois Math and Science Academy (2013-2014 academic year)

Undergraduate advising:

Emily Jahn (2019 - , Class of 2020), Biological Sciences Major

Kailyn Parham (2019 - , Class of 2021), Biological Sciences Major

Anna Derrick (2019 - , Class of 2021), Biological Sciences Major

Katie Introcaso (2018 - , Class of 2022), Biological Sciences Major

Ellen Chao (2018 - , Class of 2021), Biological Sciences Major

2018 Summer URG recipient

Tim Sheng (2018 - , Class of 2019), Biological Sciences Major

2018 Summer URG recipient

Grace Park (2016 - , Class of 2019), Biological Sciences Major

2016 Posner Fellowship recipient

2017 Program in Biological Sciences Summer Grant recipient

Yihong Hu (2018 - 2019, Class of 2021), Biological Sciences Major

2018 Program in Biological Sciences Summer Grant recipient

Peter Finnegan (2017 - 2018, Class of 2020), Biological Sciences Major 2017 Program in Biological Sciences Summer Grant recipient

Karol Bisaga (2017 - , Class of 2020), Biological Sciences Major

2017 NU Bioscientist Summer Grant recipient

Kimberly Collins (2016 - 2018, Class of 2020), Biological Sciences Major 2017 NU Bioscientist Summer Grant recipient

Selina Deiparine (2016 - 2018, Class of 2018), Biological Sciences Major 2016 Summer URG recipient, 2016 Academic URG recipient

Rohit Rastogi (2016 - 2017, Class of 2019), Computer Science and Statistics Majors

Sarah Bier (2016 - 2017, Class of 2019), Biological Sciences Major 2016 Summer URG recipient

Mattlyn Cordova (2016 - 2017, Class of 2019), Gender Studies Major 2016 Program in Biological Sciences Summer Grant recipient

Joshua Roberts (2015-2016, Class of 2016), Computer Science Major

Nicholas Irons (2015, Class of 2018), Physics Major

2015 Summer URG recipient

Annika Zhang (2014-2015, Class of 2018), Biological Sciences Major 2015 Weinberg College Summer Grant recipient

Tyler Shimko (summers 2012, 2013, 2014, 2015, University of Utah Class of 2015), Biology Major

Barry Goldwater Scholarship recipient

Myriad Academic Scholarship recipient

Thomas Verender Hanks Scholarship recipient

National Science Foundation Graduate Research Fellowship recipient

Department of Energy Computational Science Graduate Fellowship Honorable Mention

Mazeed Aro-Lambo (2014, Class of 2017), Biological Sciences Major 2014 NU Bioscientist Summer Grant recipient

Stevie Hippleheuser (2014 - , Class of 2017), Biological Sciences Major

2016 Program in Biological Sciences Summer Grant recipient

2015 Summer URG recipient

2014 Weinberg College Summer Grant recipient

Camille Calvin (2014, Class of 2017), Mechanical Engineering Major

2014 Posner fellowship recipient

Hillary Tsang (2013 - 2016, Class of 2016), Biological Sciences Major

2015 Weinberg Summer Grant recipient

2014 Summer URG recipient

2014 Academic URG recipient

Lautaro Clienti (2013 - 2015, Class of 2017), Mechanical Engineering Major

2014 Academic URG recipient

Kreena Patel (2013 - 2015, Class of 2015), Biological Sciences and Psychology Double Major

2015 Emmanuel Margoliash Prize for Basic Research recipient

Winfred Hill Award recipient

James Alton James Scholar

Ellen Taus Scholarship recipient

J.G. Nolan Scholarship recipient

2014 Academic URG recipient

Zifan Xiang (2014 - 2015, Class of 2015), Biomedical Engineering Major

Stephen Chan (2013 - 2014, Class of 2014), Computer Science Major 2013 Summer URG recipient

Masters student advising:

Anita Huang (Biotechnology Program), 2018 - 2020

Ryan (Heechul) Chung (Quantitative and Systems Biology Masters), 2018 - 2019

Suma Aldakeel (advisor, Cindy Voisine - Northeastern Illinois Univ.), 2016 - 2017

Nick Timkovich (advisor, Luis Amaral - Interdisciplinary Biological Sciences Program), 2015

Kristen Larrichia (advisor, Nyree Zerega - Program in Plant Biology and Conservation), 2014 - 2015

Lucie Bastin-Heline (Master's exchange student, Ecole Normale Superior, Paris, France), 2014

Graduate student and post-doctoral advising:

Graduate PhD candidates:

Clayton Dilks (2018 -), Ph.D. student, Interdisciplinary Biological Sciences Program Funded by the Biotechnology NIH Training grant cluster (2019)

Ye Wang (2017 - 2019), Visiting Ph.D. student, Sichuan Agricultural University, China Funded by China Scholarship Council

Kathryn Evans (2016 -), Ph.D. student, Interdisciplinary Biological Sciences Program

Funded by the Cell and Molecular Basis of Disease NIH Training grant (2017-2019)

Recipient of travel awards from IBiS and the Northwestern Graduate School (2017)

Recipient of Biotechnology NIH Training grant cluster member, declined (2017)

Shannon Brady (2015 -), Ph.D. student, Interdisciplinary Biological Sciences Program

Recipient of the Dr. John N. Nicholson Fellowship (2018-2019)

Funded by the Biotechnology NIH Training grant (2015-2017)

National Science Foundation Graduate Research Fellowship Program (Honorable Mention)

Recipient of travel award from Union Biometrica (2016)

Recipient of travel awards from IBiS and the Northwestern Graduate School (2017)

Poster first prize winner Northwestern Computational Research Day (2017)

Poster prize winner 21st International C. elegans meeting

Best TA award IBiS Graduate Program (2017)

Daniel Cook (2014 - 2018), Ph.D. student, Driskill Graduate Program

Current position: Senior Programmer at VectorBase, London, U.K.

Funded by a National Science Foundation Pre-doctoral Fellowship (2015-2018)

Recipient of travel awards from IBiS and the Northwestern Graduate School (2016)

Northwestern Presidential Fellowship Finalist (2017)

Stefan Zdraljevic (2014 -), Ph.D. student, Interdisciplinary Biological Sciences Program

Recipient of the IBiS Rappaport Award for Research Excellence (2018)

Funded by the Cell and Molecular Basis of Disease NIH Training grant (2015-2017)

Recipient of travel awards from Northwestern Center for Genetic Medicine (2016, 2017)

Recipient of travel awards from IBiS and the Northwestern Graduate School (2015, 2017)

Chemistry of Life Processes Drug Discovery Scholar (2017)

Post-doctoral researchers:

Gaotian Zhang (2018 -), Ph.D. from Ecole Normale Superieure, Paris, advisor Dr. Marie-Anne Felix Timothy Crombie (2017 -), Ph.D. from University of Florida, advisor Dr. David Julian

Steffen Hahnel (2017 - 2018), Ph.D. from Justus-Liebig University, advisor Dr. Christoph Grevelding

Current position: Scientist at Bayer Animal Health, Germany

Recipient of DFG German Science Fellowship (2018-2020)

Recipient of Northwestern Post-doctoral Travel Award (2018)

Recipient of Burroughs-Wellcome Travel Award (2018)

Daehan Lee (2017 -), Ph.D. from Seoul National University, advisor Dr. Junho Lee Mostafa Zamanian (2014 - 2016), Ph.D. from Iowa State University, advisor Dr. Timothy Day

Current position: Assistant Professor of Pathobiological Sciences, University of Wisconsin - Madison

Recipient of NIH/NIAID K22 Career Transition Award (2016)

Recipient of Northwestern Post-doctoral Travel Award (2016)

Funded by the Bill and Melinda Gates Foundation (2014)

Bryn Gaertner (2014), Ph.D. from University of Oregon, advisor Dr. Patrick Phillips

Additional rotation graduate students:

Joy Nyaanga (Spring, 2019), Loraina Stinson (Winter, 2019), Emily Czajkowski (Fall, 2018), Julie Liang (Spring, 2018), Elan Ness-Cohn (DGP, Spring, 2018) Kyle Siegel (Spring, 2018), Clayton Dilks (Winter, 2018), Garth Fisher (Fall, 2017), Nicholas Sepulveda (Spring, 2017), Michael Schamber (Winter, 2017), Evan Buechel (Spring, 2016), Nic Daffern (Spring, 2016), Bryan Eder (Winter, 2016), Ryan Abdella (Winter, 2015), Erin Baker (Fall, 2014), Alex Karge (Spring, 2014), Saiorse McSharry (Winter, 2014), Amy Nilles (Fall, 2013), Ian Wolff (Summer, 2013)

Graduate thesis committee memberships:

Alex McFarland (advisor, Erica Hartman) 2018 -

Sumach Aldakeel (advisor, Cindy Voisine - Northeastern Illinois Univ.), 2016 - 2017

Adam Hockenberry (advisors, Luis Amaral and Michael Jewett) 2015 - 2017

Rachel Bakker (advisor, Rich Carthew) 2015 -

Joseph Muldoon (advisors, Neda Bagheri and Josh Leonard) 2015 -

Sarah Stainbrook (advisor, Keith Tyo) 2015 -

Timothy Toby (advisor, Neil Kelleher) 2015 - 2018

Rose Njoroge (advisor, Sarki Abdulkadir – DGP, Feinberg School of Medicine), 2014 - 2018

Keila Torre-Santiago (advisor, Sadie Wignall) 2014 - 2017

Aaron Sue (advisor, Thomas O'Halloran), 2014 -

Arianne Rodriguez (advisor, Yun Wang), 2014 (Transferred to DGP)

Ritika Giri (advisor, Richard Carthew), 2013 -

Lilien Voong (advisor, Alec Wang), 2013 - 2017

DEPARTMENT, COLLEGE, AND UNIVERSITY SERVICE

Departmental Service:

2017 Departmental Strategic Planning committee

2016 Faculty search committee

Departmental Strategic Planning committee

2015 Faculty search committee

2014 Departmental Program Review committee

Weinberg College of Arts and Sciences Service:

2016 Faculty search committee for the Neurobiology Department 2014 NUIN Post-doc Association, *Interviews and Start-up packages*

University-level Service:

2018 IBiS Graduate Admissions committee

Steering committee for NUSeg Facility in Northwestern Medicine

Qualifying examination committee, Chair (Alex McFarland, Hartman lab)
Masters Program in Quantitative and Systems Biology, Curriculum committee

Poster judge, Northwestern Undergraduate Research Symposium

Ad hoc reviewer for Chemistry of Life Processes undergraduate grants and fellowships

2018 Ad hoc reviewer for Data Science Initiative grants and fellowships 2017 Discussion organizer, Northwestern Computational Research Day Steering committee for NUSeq Facility in Northwestern Medicine Ad hoc reviewer for Chemistry of Life Processes undergraduate grants and fellowships Ad hoc reviewer for Data Science Initiative grants and fellowships 2016 IBiS Computational Bootcamp for incoming graduate students Lurie Cancer Center American Cancer Society IRG review panel Steering committee for NUSeq Facility in Northwestern Medicine Ad hoc reviewer for Chemistry of Life Processes undergraduate grants and fellowships 2016 Ad hoc reviewer for Data Science Initiative grants and fellowships 2015 **IBiS Graduate Admissions committee** IBiS Retreat committee, Co-chair IBiS Computational Bootcamp for incoming graduate students Qualifying examination committee (Rachel Bakker, Carthew lab) Qualifying examination committee, Chair (Joseph Muldoon, Bagheri and Leonard labs) Qualifying examination committee (Sarah Stainbrook, Tyo lab) Qualifying examination committee (Timothy Toby, Kelleher lab) 2014 Creation of IBiS Computational Bootcamp for incoming graduate students IBiS Retreat committee, Co-chair Qualifying examination committee (Aaron Sue, Morimoto lab) Qualifying examination committee (Arianne Rodriguez, Wang lab) Qualifying examination committee (Rose Njoroge, Abdulkadir lab) Masters thesis examination committee (Kristen Larrichia, Zerega lab) Poster judge, Northwestern Undergraduate Research Symposium **IBiS Graduate Admissions committee** 2013 Qualifying examination committee (Lilien Voong, Wang lab) Qualifying examination committee (Ritika Giri, Carthew lab)

Poster judge, Northwestern Undergraduate Research Symposium

COMMUNITY WORK

2018 - 2018	Mentored Britney Sun from Glenbrook North High School on variation in zinc responses Mentored Ethan Schonfeld from Glenbrook North High School on variation in stress responses
2016 - 2017	Mentored Lillian Tushman from Oak Park and River Forest High School on glucose responses Recipient of 3rd place All-Illinois Science Research Competition
2016 - 2017	Mentored Lillian Kameny from Alameda Community Learning Center on etoposide variation
2016 -	Assistant Den Leader, Pack 922
2016 - 2017	American Youth Soccer Organization (AYSO) U8 Head Coach, The Storm
2015 -	Hosted 80 5th grade students from Lincolnwood Elementary School for a day of science
2015 - 2016	Mentored Caitlin Westerfield from Evanston Township High School on pathway evolution
2015 - 2016	Mentored Ainsley Tran from Oak Park and River Forest High School on iron sensitivity
2015 - 2016	American Youth Soccer Organization (AYSO) U8 Head Coach, Golden Ninjas
2015 - 2016	Mentored Matteo di Bernardo from Evanston Township High School on anthelmintic sensitivity,
	Recipient of Columbia University Scientific Scholars Fellowship
2014 -	Lecturer on C. elegans genetics to the Latin School of Chicago advanced biology class
2014	Mentored Lauren Mann from Oak Park and River Forest High School on iodine sensitivity
2014	Co-organized with Jacob Cruger nematode collections with the Punahou School, Hawaii
2013, 2014	Mentored Jacob Cruger from Latin School of Chicago
2009	Organized nematode collections with Vassalboro Community School, Maine