Daniel E. Cook

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Education

Northwestern University	**Evanston, IL**
Ph.D. Graduate Student – Interdisciplinary Program in Biological Sciences (IBiS)	*2013-present*
University of Iowa	**Iowa City, IA**
B.S. Biology with Honors	*May 2010*

Experience

Andersen Lab, Northwestern University	**Evanston, IL**
Graduate Student	*2014–Present*

- Identified the gene and variant underlying natural variation in telomere length across the *C. elegans* species
- Assembled and processed the largest collection of *C. elegans* wild isolate sequence data in existence.
- Developed bioinformatic pipelines for processing whole-genome sequence data.
- Created a genome-wide association portal using cloud-based services for the *C. elegans* community (elegansvariation.org).
- Developed R and Python packages for processing genetic data.
- Creation and maintenance of laboratory website (andersenlab.org).

Ober Lab, University of Chicago	**Chicago, IL**
Research Assistant	*2012-2013*

- Assisted with development of databases for phenotypic and genotypic data.
- Helped disclose carrier status to individuals.

Murray Lab, University of Iowa	**Iowa City, IL**
Research Assistant	*2009-2012*

- Leveraged supercomputing resources to explore maternal-fetal gene-gene interactions.
- Conducted geographic analysis of Iowa newborn screen data.
- Collected Human Placental tissue for genetic, epigenetic, and expression studies.

Honors and Awards

- **2015** - IBiS Travel Award ($975)
- **2015** - Northwestern TGS Conference Travel Grant ($600)
- **2014** - National Science Foundation Graduate Research Fellowship (full support for three years)
- **2006** - University of Iowa National Scholars Award

Teaching

- **Fall 2016** - *Biol. Sci. 390* - Advanced Molecular Biology
- **Spring 2015** - *Biol. Sci. 393* - Genetic Analysis
- **Summer 2014-2016** - IBiS Computational Bootcamp

Computational Skills

Projects: GitHub.com/danielecook

Programming: Python, R, Bash, Stata, git

Web: HTML, Javascript, CSS, Django, Flask, Jekyll, Mediawiki, Wordpress

Cloud: AWS, Google Cloud Platform

Development: R, Python, Travis-CI

Database: SQL, BigQuery, Google Datastore

Genetic Analysis: bwa, Samtools, Bcftools, Plink, Galaxy

Other: LaTeX, Sketch, Affinity Designer

Publications

2016 **CeNDR, the Caenorhabditis elegans natural diversity resource [Epub Ahead of Print]**
Cook, Daniel E, Stefan Zdraljevic, Joshua P Roberts, and Erik C Andersen
Oct. 2016 *Nucleic Acids Research.* PMID: 27701074   DOI: 10.1093/nar/gkw893.

The Genetic Basis of Natural Variation in *Caenorhabditis elegans* Telomere Length
Cook, Daniel E, Stefan Zdraljevic, Robyn E Tanny, Beomseok Seo, David D Riccardi, Luke M Noble,
Matthew V Rockman, Mark J Alkema, Christian Braendle, Jan E Kammenga, John Wang, Leonid Kruglyak,
Marie-Anne Félix, Junho Lee, and Erik C Andersen
Sept. 2016 *Genetics* (204(1):371-83). PMID: 27449056   DOI: 10.1534/genetics.116.191148.

2015 **DYRK1A controls the transition from proliferation to quiescence during lymphoid development by destabilizing Cyclin D3**
Thompson, Benjamin J, Rahul Bhansali, Lauren Diebold, **Cook, Daniel E**, Lindsay Stolzenburg, Anne-Sophie
Casagrande, Thierry Besson, Bertrand Leblond, Laurent Désiré, and Sébastien Malinge
June 2015 *The Journal of experimental medicine* (212(6):953-70). PMID: 26008897   DOI: 10.1084/jem.
20150002.

2013 **The influence of maternal disease on metabolites measured as part of newborn screening**
Ryckman, Kelli K, Oleg A Shchelochkov, **Cook, Daniel E**, Stanton L Berberich, Sara Copeland, John M
Dagle, and Jeffrey C Murray
Sept. 2013 *The J. of Maternal-Fetal & Neonatal Medicine* (26(14):1380-3). PMID: 23550828   DOI:
10.3109/14767058.2013.791267.

The heritability of metabolic profiles in newborn twins.
Alul, Farah Y, **Cook, Daniel E**, Oleg a Shchelochkov, Lauren G Fleener, Stanton L Berberich, Jeffrey C
Murray, and Kelli K Ryckman
Mar. 2013 *Heredity* (110(3):253-8). PMID: 23149456   DOI: 10.1038/hdy.2012.75.

Clinical and environmental influences on metabolic biomarkers collected for newborn screening
Ryckman, Kelli K., Stanton L. Berberich, Oleg a. Shchelochkov, **Cook, Daniel E.**, and Jeffrey C. Murray
Jan. 2013 *Clinical Biochemistry* (46(1-2):133-8). PMID: 23010448   DOI: 10.1016/j.clinbiochem.2012.
09.013.

Generating Manhattan plots in Stata
Cook, Daniel E, Kelli R Ryckman, and Jeffrey C Murray
2013 *Stata Journal* (13(2):323-328).

2012 **Replication of clinical associations with 17-hydroxyprogesterone in preterm newborns**
Ryckman, Kelli K., **Cook, Daniel E.**, Stanton L. Berberich, Oleg a. Shchelochkov, Susan K. Berends,
Tamara Busch, John M. Dagle, and Jeffrey C. Murray
Jan. 2012 *J. of Ped. Endo. and Met.* (25(3-4):301-5). PMID: 22768660   DOI: 10.1515/jpem-2011-0456.

Presentations

2016 **The genetic basis of natural variation in *C. elegans* telomere length**
Selected Talk – International Conference on Quantitative Genetics, Madison WI.

The *C. elegans* natural diversity resource
Selected Talk – Midwest *C. elegans* meeting
Van Andel Research Institute, Grand Rapids, MI.

Variation in *pot-2* associated with differences in telomere length in *C. elegans*
Talk – OncDevBio Departmental Seminar, Northwestern University.

2015 **Genome-Wide and Species-Wide Variation in *C. elegans* Reveals Association of Telomere Length With Population Differences in *pot-2***
Selected Talk – International Worm Meeting 2015, UCLA.

Examining Genomic Variation in *C. elegans*
Talk – OncDevBio Departmental Seminar, Northwestern University.

2012 **Mapping Newborn Screen Data: A Geographic Exploration**
Poster – Pediatric Academic Societies Meeting, Boston, MA.

Professional Activities

○ **2015, 2016** - NSF Data Science Workshop @ University of Washington

Mentorship

Joshua Roberts, 2015-2016 - *Computer Science (CS) Undergraduate* - Helped Joshua further develop Python and web-application development skills. Joshua now works at Motivate International.
Rohit Rastogi, 2016 - *CS Undergraduate* - Fostered development of programming skills in R and Python.
Michael Jiang, 2016 - *CS Undergraduate* - Furthered knowledge of web development, programming, and understanding of SQL databases.

Volunteer Activities

Americorps   **Boston, MA**
Volunteer   *2010-2011*
○ Worked for ten months on a team with 15 fellow volunteers at the Maurice J. Tobin K-8 school.
○ Tutored and mentored a 6th-grade classroom.
○ Helped run an after-school program in partnership with community organizations.

Table-To-Table (2007-2010) - Salvaged food every week from distribution centers in central Iowa for distribution at area food pantries.
Appalachia Service Project - Went on eight annual one-week trips during high-school and college to make homes safer, warmer, and drier for disadvantaged families in the Appalachian mountains of Kentucky and Tennessee.
Alpha Phi Omega - Member, 3.5 years; Engaged in a large variety of volunteer work including performing environmental cleanups and teaching first-aid.