

# Daniel E. Cook

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## Education

### Northwestern University

*Ph.D. Graduate Student – Interdisciplinary Program in Biological Sciences (IBiS)*

**Evanston, IL**

*2013-present*

### University of Iowa

*B.S. Biology with Honors*

**Iowa City, IA**

*May 2010*

## Experience

### Andersen Lab, Northwestern University

*Graduate Student*

**Evanston, IL**

*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](http://elegansvariation.org)).
- Developed R and Python packages for processing genetic data.
- Creation and maintenance of laboratory website ([andersenlab.org](http://andersenlab.org)).

### Ober Lab, University of Chicago

*Research Assistant*

**Chicago, IL**

*2012-2013*

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

### Murray Lab, University of Iowa

*Research Assistant*

**Iowa City, IL**

*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 Biology Bootcamp

## Computational Skills

**Projects:** [GitHub.com/danielecook](https://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:** L<sup>A</sup>T<sub>E</sub>X, Sketch, Affinity Designer

## Publications

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**2016 The genome-wide abundance and distribution of transposons across the *Caenorhabditis elegans* species [Pending]**

Laricchia, Kristen M, Stefan Zdraljevic, **Daniel E Cook**, and Erik C Andersen  
Dec. 2016.

**Conserved Natural Genetic Variation in Topoisomerase II Affects Response to a Class of Chemotherapeutics [Pending]**

Zdraljevic, Stefan, **Daniel E Cook**, Samuel K Rosenberg, Hannah S Seidel, and Erik C Andersen  
Dec. 2016.

**Natural variation in *Caenorhabditis* reveals role for heritable small RNAs in nematode benzimidazole resistance [Pending]**

Zamanian, Mostafa, **Daniel E Cook**, Daehan Lee, Samuel K Rosenberg, Junho Lee, and Erik C Andersen  
Dec. 2016.

**VCF-kit: Assorted utilities for analyzing genetic variation [Submitted]**

Cook, **Daniel E** and Erik C Andersen  
Oct. 2016 *Bioinformatics*.

**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, **Daniel E Cook**, Lindsay Stolzenburg, Anne-Sophie Casagrande, Thierry Besson, Bertrand Leblond, Laurent Désiré, Sébastien Malinge, and John D Crispino  
2015 *Journal of Experimental Medicine* 212.6. 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, **Daniel E Cook**, 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, **Daniel E Cook**, 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, **Daniel E Cook**, 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**

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### **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**

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

## Mentorship

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**Joshua Roberts, 2015-2016** - *Computer Science (CS) Undergraduate* - Helped 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

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### 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 6<sup>th</sup>-grade classroom.
- Helped run an after-school program in partnership with community organizations.

**Table-To-Table (2007-2010)** - Salvaged food every week from grocery stores and distributors 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.