

# JOHN D. BLISCHAK

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## PROFESSIONAL EXPERIENCE

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### Postdoctoral Scholar

Nov 2016 - Present

Department of Human Genetics, University of Chicago, Chicago, IL

*Advisor:* Matthew Stephens

## EDUCATION

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### University of Chicago, Chicago, IL

Sep 2010 - Oct 2016

PhD Genetics, Genomics, and Systems Biology

*Advisor:* Yoav Gilad

*Thesis:* Transcriptomic approaches to investigate tuberculosis susceptibility

### Ohio University, Athens, OH

2010

BS Biological Sciences

*Advisors:* Edward O. List, Darlene E. Berryman, and John J. Kopchick

*Thesis:* The effects of growth hormone and insulin-like growth factor-1 treatments on hepatic gene expression in obese and diabetic mice with nonalcoholic fatty liver disease

## PRE-PRINTS

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\* denotes equal authorship

Hsiao CJ\*, Tung PY\*, **Blischak JD**, Burnett JE, Barr K, Dey KK, Stephens M, and Gilad Y. Characterizing and inferring quantitative cell cycle phase in single-cell RNA-seq data analysis. *bioRxiv*, 2019, doi: [10.1101/526848](https://doi.org/10.1101/526848)

Sarkar AK\*, Tung PY\*, **Blischak JD**, Burnett JE, Li YI, Stephens M, and Gilad Y. Discovery and characterization of variance QTLs in human induced pluripotent stem cells. *bioRxiv*, 2018, doi: [10.1101/424192](https://doi.org/10.1101/424192)

## PUBLICATIONS

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Blake LE\*, Thomas SM\*, **Blischak JD**, Hsiao CJ, Chavarria C, Myrthil M, Gilad Y, and Pavlovic BJ. A comparative study of endoderm differentiation in humans and chimpanzees. *Genome Biology*, 2018, doi: [10.1186/s13059-018-1490-5](https://doi.org/10.1186/s13059-018-1490-5)

Engelmann BW\*, Hsiao CJ\*, **Blischak JD**, Fourne Y, Khan Z, Ford M, and Gilad Y. A Methodological Assessment and Characterization of Genetically-Driven Variation in Three Human Phosphoproteomes. *Scientific Reports*, 2018, doi: [10.1038/s41598-018-30587-3](https://doi.org/10.1038/s41598-018-30587-3)

Knowles DA\*, Burrows CK\*, **Blischak JD**, Patterson KM, Serie DJ, Norton N, Ober C, Pritchard JK, and Gilad Y. Determining the genetic basis of anthracycline-cardiotoxicity by molecular response QTL mapping in induced cardiomyocytes. *eLife*, 2018, doi: [10.7554/eLife.33480](https://doi.org/10.7554/eLife.33480)

**Blischak JD\***, Tailleux L\*, Myrthil M, Charlois C, Bergot E, Dinh A, Morizot G, Chény O, Platen CV, Herrmann JL, Brosch R, Barreiro LB, and Gilad Y. Predicting susceptibility to tuberculosis based on gene expression profiling in dendritic cells. *Scientific Reports*, 2017, doi: [10.1038/s41598-017-05878-w](https://doi.org/10.1038/s41598-017-05878-w)

Tung PY\*, **Blischak JD\***, Hsiao CJ\*, Knowles DA, Burnett JE, Pritchard JK, and Gilad Y. Batch effects and the effective design of single-cell gene expression studies. *Scientific Reports*, 2017, doi: [10.1038/srep39921](https://doi.org/10.1038/srep39921)

Kariuki SN, **Blischak JD**, Nakagome S, Witonsky DB, and Di Rienzo A. Patterns of transcriptional response to 1,25-Dihydroxyvitamin D3 and bacterial lipopolysaccharide in primary human monocytes. *G3*, 2016, doi: [10.1534/g3.116.028712](https://doi.org/10.1534/g3.116.028712)

**Blischak JD**, Davenport ER, and Wilson G. A quick introduction to version control with Git and GitHub. *PLOS Computational Biology*, 2016, doi: [10.1371/journal.pcbi.1004668](https://doi.org/10.1371/journal.pcbi.1004668)

**Blischak JD**, Tailleux L, Mitrano A, Barreiro LB, and Gilad Y. Mycobacterial infection induces a specific human innate immune response. *Scientific Reports*, 2015, doi: [10.1038/srep16882](https://doi.org/10.1038/srep16882)

Banovich NE, Lan X, McVicker G, van de Geijn B, Degner JF, **Blischak JD**, Roux J, Pritchard JK, and Gilad Y. Methylation QTLs are associated with coordinated changes in transcription factor binding, histone modifications, and gene expression levels. *PLOS Genetics*, 2014, doi: [10.1371/journal.pgen.1004663](https://doi.org/10.1371/journal.pgen.1004663)

## BOOK CHAPTERS

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Kopchick JJ and **Blischak JD**. The Laron Mouse. Chapter 49 in *Laron Syndrome - From Man to Mouse: Lessons from Clinical and Experimental Experience*. Eds.: Laron Z and Kopchick JJ. Springer-Verlag GmbH Berlin, Heidelberg, doi: [10.1007/978-3-642-11183-9\\_49](https://doi.org/10.1007/978-3-642-11183-9_49)

## TEACHING

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### Differential Expression Analysis in R with limma

Aug 2018

*Instructor*

*DataCamp*

- I created an interactive, online course that teaches how to use the Bioconductor package limma to analyze gene expression data.

### Responsible, Rigorous and Reproducible Conduct of Research

April 2018

*Guest Lecturer*

*University of Chicago*

- I gave a guest lecture on “Effective strategies for computational reproducibility” to first-year graduate students.

### Genomics and Systems Biology

April 2014 - April 2017

*Guest Lecturer*

*University of Chicago*

- I gave an annual guest lecture on differential expression analysis of RNA-seq data.

### Software Carpentry

Jan 2013 - Sep 2017

*Instructor*

- Software Carpentry (SWC) is a non-profit organization dedicated to training scientists to write better code.
- Two-day workshops cover filesystem management with the Unix shell, programming with Python or R, and version control with Git and GitHub.
- I have organized five workshops and helped teach at an additional six.
- I led the effort to create the first official set of R lessons for SWC, and was the maintainer of these core R lessons from Sep 2014 to Apr 2016.

### Genomics and Systems Biology

Spring 2012

*Teaching Assistant*

*University of Chicago*

- Graduate level course covered the design and analysis of genome-wide experiments.

### Introduction to Probability and Statistics for Geneticists

Fall 2012

*Teaching Assistant*

*University of Chicago*

- Graduate level course covered conditional probability, Bayes rule, probability distributions (binomial, Poisson, normal), parameter estimation, and hypothesis testing.

## SERVICE

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Reviewer for the following journals: Nature Genetics, PLOS Computational Biology, PLOS Genetics

## ORAL PRESENTATIONS

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**Greater Cleveland R Group** Dec 2018  
*Independence, OH*

- Blischak JD. Introduction to the conda package manager for R users

**Workshop for Melbourne Integrative Genomics** Jul 2018  
*University of Melbourne, Melbourne, VIC*

- Blischak JD. Introduction to reproducible research with R Markdown, Git, and workflowr.

**Workshop for The Quantitative & Applied Ecology Group** Jul 2018  
*University of Melbourne, Melbourne, VIC*

- Blischak JD. Introduction to reproducible research with R Markdown, Git, and workflowr.

**useR!** Jul 2018  
*Brisbane, QLD*

- Blischak JD, Carbonetto P, Stephens M. The workflowr R package: a framework for reproducible and collaborative data science.

**Greater Cleveland R Group** May 2018  
*Independence, OH*

- Blischak JD, Carbonetto P, Stephens M. The workflowr R package: a framework for reproducible and collaborative data science.

**Workshop in Biostatistics** May 2018  
*Stanford University, Stanford, CA*

- Blischak JD, Carbonetto P, Stephens M. The workflowr R package: a framework for reproducible and collaborative data science.

**Scientists providing solutions** Mar 2015  
*Deloitte, Chicago, IL*

- Blischak JD. Scientists becoming programmers.

**Ohio Collaborative Conference on Bioinformatics** Jun 2010  
*Columbus, OH*

- Blischak JD, List EO, Berryman DE, Shen K, Wright-Piekarski J, and Kopchick JJ. The Use of Agilent 4 x 44K Whole Mouse Genome Microarrays for Analysis of Nonalcoholic Fatty Liver Disease.

## POSTER PRESENTATIONS

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**rstudio::conf** Feb 2018  
*San Diego, CA*

- Blischak JD, Carbonetto P, Stephens M. The workflow R package: a framework for reproducible and collaborative data science.

**Annual Meeting of the American Society for Human Genetics**  
*Orlando, Florida*

Oct 2017

- Blischak JD, Carbonetto P, and Stephens M. Organize and share your bioinformatics analysis with the R package workflow.

**Annual Meeting of the American Society for Human Genetics**  
*Vancouver, British Columbia*

Oct 2016

- Blischak JD, Knowles DA, Burrows CK, Patterson KM, Ober C, Pritchard JK, and Gilad Y. The impact of genetic variation on doxorubicin-induced cardiotoxicity.

**Annual Meeting of the Society for Molecular Biology and Evolution**  
*San Juan, Puerto Rico*

Jun 2014

- Blischak JD, Tailleux L, Mitrano A, Barreiro LB, and Gilad Y. Genetic variation affects the human innate immune response to infection with specific bacteria.

**Endocrine Society's Annual Meeting**  
*San Diego, CA*

Jun 2010

- Blischak JD, List EO, Berryman DE, Shen K, Wright-Piekarski J, Zacharias A, Kennedy A, Grier M, Davis C, and Kopchick JJ. Changes in Hepatic Gene Expression Following GH or IGF-1 Treatments in Mice with Diet-Induced Nonalcoholic Fatty Liver Disease.

## GRANT AWARDS

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NIH Genetics and Regulation Training Grant - Student Trainee	2010 - 2013
Provost Undergraduate Research Fund Award, Ohio University	2009
Student Enhancement Award, Ohio University	2009

## HONORS AND AWARDS

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Nan Xiao Prize for Computational Reproducibility, University of Chicago	2018
Honors Tutorial College Outstanding Senior Award, Ohio University	2010
Goldwater Scholar	2009