

Jonah E. Einson

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EDUCATION

Columbia University: New York, NY Fall 2017 - Current
PhD Student: Biomedical Informatics
Advisor: Tuuli Lappalainen

University of Massachusetts: Amherst, MA Fall 2013 - Spring 2017
Bachelor of Science: Biochemistry and Molecular Biology *Cum Laude*
Bachelor of Science: Mathematics - Statistics
Commonwealth Honors College

RESEARCH EXPERIENCE

**Department of Systems Biology, Lappalainen Lab,
Columbia University, New York Genome Center**
Summer 2018 - Present

Analyzed human allele specific expression data from GTEx using a new statistical method, and am currently developing approaches to study incomplete penetrance from the perspective of alternative splicing and regulatory variation.

Department of Systems Biology, Rabadan Lab, Columbia University
Rotation Student - Spring 2018

Investigated viruses in the peripheral T-Cell lymphoma microenvironment, through genomic signatures.

Department of Systems Biology, Vitkup Lab, Columbia University
Rotation Student - Fall 2017

Studied the ecological dynamics of the human microbiome.

Department of Food Science, Sela Lab, UMass Amherst
Fall 2014 - Spring 2017

Conducted independent research in microbial ecology, genomics, and food related human health.

PUBLICATIONS

Ferraro NM, Strober BJ, **Einson J**, Li X, Aguet F, Barbeira AN, et al. Diverse transcriptomic signatures across human tissues identify functional rare genetic variation. *bioRxiv*. 2019 Oct

Mohammadi P, Castel SE, Cummings BB, **Einson J**, Sousa C, Hoffman P, et al. Genetic regulatory variation in populations informs transcriptome analysis in rare disease. *Science*. 2019 Oct

Einson JE, Rani A, You X, Rodriguez AA, Randell CL, Barnaba T, et al. A Vegetable Fermentation Facility Hosts Distinct Microbiomes Reflecting the Production Environment. *Appl Environ Microbiol*. 2018 15;84(22).

You X, Einson JE, Lopez-Pena CL, Song M, Xiao H, McClements DJ, et al. Food-grade cationic antimicrobial ϵ -polylysine transiently alters the gut microbial community and predicted metagenome function in CD-1 mice. *NPJ Sci Food* 2017 Dec

**SELECTED
TALKS**

“Allele specific expression analysis of population scale transcriptome data is sensitive to rare genetic variation” **Gordon Research Conference on Human Genetics and Genomics**, Waterville Valley NH, July 2019

**SELECTED
POSTERS**

J. Einson, C. Sousa, P. Mohammadi, T. Lappalainen, “Quantifying genome wide allelic specific expression variation prioritizes rare variants with regulatory effects” Human Genetics in NYC Conference, New York NY, February 2019

J. Einson, P. Mohammadi, S. Castel, T. Lappalainen, “An allele specific expression based approach for functional rare variant discovery,” Columbia University Department of Biomedical Informatics Fall Retreat, New York NY, September 2018

J. Einson, X. You, C. Randell, A. Rodriguez, M. Kotewicz, C. Elkins, M. Mammel, C. Tartera, T. Barnaba, A. Kinchla, D. Sela, “The Environmental Microbiomes of an Industrial Food Fermentation Facility,” Strategic Research Alliance Exposition, University of Massachusetts, Amherst MA, April 2017

J. Einson, X. You, C. Randell, A. Rodriguez, M. Kotewicz, C. Elkins, A. Kinchla, D. Sela, “The Use of Next-Generation Sequencing to Study Microbial Ecology in Industrial Food Production,” CAFE Summer Scholars Poster Session, Amherst MA, September 2016

J. Einson, X. You, H. Klein, A. Rodriguez, C. Randell, M. Bartlett, D. Sela, “Phyllosphere Microbial Ecology of Succulent Plants in a Greenhouse Environment,” ASM Microbe Meeting, Boston MA, June 2016

**UNDERGRAD
THESIS**

J. Einson, X. You, C. Randell, A. Rodriguez, M. Kotewicz, C. Elkins, M. Mammel, C. Tartera, T. Barnaba, A. Kinchla, D. Sela, “The Environmental Microbiomes of an Industrial Food Fermentation Facility,” Undergraduate Research Conference, University of Massachusetts, Amherst MA, April 2017

**TEACHING
EXPERIENCE**

Instructor Columbia Science Honors Program
Fall 2019 New York, NY
Co-taught a weekend course on bioinformatics and systems biology for highly motivated high school students. Prepared lecture slides and lab activities to fill 2.5 hour time slot.

Mentor Student Matters Research Internship
Spring 2019 New York, NY
Mentored a high school student from New York City throughout the course of a semester. Covered R programming and allele specific expression analysis techniques.

Teaching Assistant BINF G4006
Spring 2019 New York, NY
Assisted Dr. Adler Perotte with administrative tasks and wrote lab assignments for *Computational Methods*, a required survey course of statistics and machine learning for all students in the Department of Biomedical Informatics.

Teaching Assistant BINF G4001
Fall 2018 New York, NY
Scheduled speakers and graded essays for *Introduction to Computer Applications in Healthcare and Biomedicine*, a course designed to introduce students to the field of biomedical informatics.

Teaching Assistant Biochem 526
Fall 2016 Amherst, MA
Assisted running a senior biochemistry lab course. Responsibilities included conducting prep work, aiding in experimental design, and reviewing students’ writing.

Supplemental Instruction Leader

Spring 2014 - Fall 2016

Attended classes and held biweekly review sessions for Multivariate Calculus.

UMass Learning Resource Center

Amherst, MA

**AWARDS AND
SCHOLARSHIPS**

CAFE Summer Scholars Program *Summer 2016* A program directed by the Center for Agriculture, Food, and the Environment at UMass that provides students an opportunity to conduct research in a mentor's lab for the summer.

American Society for Microbiology Undergraduate Research Fellowship

Summer 2015 A national fellowship awarded to an undergraduate wishing to pursue a Ph.D. Included poster presentation and capstone program at the ASM Microbe Meeting, June 2016.

Research Assistant Fellowship *Spring 2016, Fall 2016* A grant presented by Commonwealth Honors College, to give a student the opportunity to explore independent research under the guidance of a faculty sponsor.

**PROFESSIONAL
MEMBERSHIPS**

American Medical Informatics Association

Phi Kappa Phi Honors Society