

John T. McCrone

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Postgraduate Training

Postdoctoral Research Associate 2018 -
University of Edinburgh, Edinburgh, Scotland
Advisor: Andrew Rambaut

Education

University of Michigan, Ann Arbor, Michigan USA 2018
Ph.D., Microbiology and Immunology
Advisor: Adam Lauring, MD, Ph.D.
Dissertation topic: "Influenza virus evolution within and between human hosts"

University of Wisconsin, Madison, Wisconsin USA 2012
B.S., Biochemistry and Mathematics
Graduated with *Highest Distinction*
GPA : 3.963

Awards and Honors

Rackham Predoctoral Fellowship 2017-2018
A University of Michigan fellowship awarded to doctoral candidates working on "unusually creative, ambitious, and impactful dissertations".

NIH Genetics Training Program 2014-2016
A T32 institutional training grant at the University of Michigan awarded to graduate students who demonstrate excellent research potential.

UW Agriculture and Life Sciences General Scholarship 2010
Awarded to undergraduates demonstrating high academic achievement and potential.

UW Cora I. Jayne Academic Merit Award 2009
Awarded to undergraduate students who show excellent academic potential.

Computational skills

R, Python, Julia, MATLAB, Bash programming, JavaScript, Maximum Likelihood, ODE models, Genomic processing (Bowtie2, Pycard, samtools, ect.), Microbiome processing (mothur), GNU Make, Unix/Linux, MacOS.

Research Experience

- Graduate Research Assistant** 2014-2018
University of Michigan, Ann Arbor, MI
Department of Microbiology and Immunology
Advisor: Adam Lauring, MD, Ph.D.
Project: "Influenza virus evolution within and between human hosts"
- Undergraduate Research Assistant** 2/2010-5/2012
University of Wisconsin, Madison, WI
Department of Bacteriology
Advisor: Charles Kasper, Ph.D.
Project: "Characterization of the extremophile *Ferroplasma acidomanus*"
- Undergraduate Research Assistant** 5/2010-7/2010
University of Missouri, Columbia, MO
Department of Molecular Microbiology and Immunology
Advisor: Chris Lorson, Ph.D.
Project: "The effect of putative therapeutics in a mouse model of spinal muscular atrophy"
- Summer Laboratory Assistant** 5/2009-7/2009
University of Missouri, Columbia, MO
Department of Molecular Microbiology and Immunology
Advisor: Chris Lorson, Ph.D.
Project: "The effect of diet on survival and phenotype of a mouse model for spinal muscular atrophy"
- Undergraduate Research Assistant** 8/2008-2/2009
University of Wisconsin, Madison, WI
Department of Biochemistry
Advisor: Alessandro Senes, Ph.D.
Project: "Characterization of integral membrane protein interactions in the *E. coli* divisome"
- Summer Laboratory Assistant** 5/2008-7/2008
Evonik Degussa, Janesville, WI
Department of Research and Development
Project involved: Assisting in the production and characterization of novel organic compounds

Teaching

- Graduate Student Assistant** 2016
University of Michigan Department of Microbiology and Immunology
Ann Arbor, MI 48109
MICRBIOL 350 - Introductory lab in medical microbiology

Visiting Teacher

School Sisters of St. Francis

San Jose el Teroso, Alta Verapaz, Guatemala

Courses taught included 4th grade English, middle school Math, and high school English, Physics, and Trumpet.

6/2011-8/2011
5/2012-7/2012

Invited Talks

6th Annual Institute for Disease Modeling Symposium

2018

“Stochastic processes constrain the within- and between-host evolution of influenza virus”

Presentations

Virus Genomics and Evolution

2018

Poster presentation: “Stochastic processes constrain the within- and between-host evolution of influenza virus”

Cells and Viruses: Gordon Research Conference

2017

Poster presentation: “The dynamics of intrahost influenza evolution within household transmission pairs”

American Society of Virology (ASV)

2016

Oral presentation: “The Effects of Vaccination and Transmission on the Intrahost Diversity of Influenza Virus”

American Society of Virology (ASV)

2015

Poster presentation: “Comprehensive Validation of a Deep Sequencing Pipeline for Assessing Intrahost Viral Diversity”

Publications

1. Fitzsimmons WJ, Woods RJ, **McCrone JT**, Woodman A, Arnold JJ, Yennawar M, Evans R, Cameron CE, Lauring AS. 2018. A speed-fidelity trade-off determines the mutation rate and virulence of an RNA virus. *PLoS Biol* 16:e2006459.
2. **McCrone JT**, Woods RJ, Martin ET, Malosh RE, Monto AS, Lauring AS. 2018. Stochastic processes constrain the within and between host evolution of influenza virus. *eLife* 7:24.
3. Fitzsimmons W, Woods RJ, **McCrone JT**, Woodman A, Cameron CE, and Lauring AS. 2017. Selection for replicative speed determines the mutation rate and virulence of an RNA virus. *Under review*
4. **McCrone JT**, Lauring AS. 2017. Genetic bottlenecks in intraspecies virus transmission. *Current Opinion in Virology* 28:20-25.
5. Debbink K*, **McCrone JT***, Petrie JG, Truscon R, Johnson E, Mantlo EK, Monto AS, Lauring AS. 2017. Vaccination has minimal impact on the intrahost diversity of H3N2 influenza viruses. *PLoS Pathog* 13:e1006194.
6. Visher E, Whitefield SE, **McCrone JT**, Fitzsimmons W, Lauring AS. 2016. The Mutational Robustness of Influenza A Virus. *PLoS Pathog* 12:e1005856.

7. **McCrone JT**, Lauring AS. 2016. Measurements of intrahost viral diversity are extremely sensitive to systematic errors in variant calling. *J Virol* 90:JVI.00667-16-6895.
8. Marino S, Gideon HP, Gong C, Mankad S, **McCrone JT**, Lin PL, Linderman JJ, Flynn JL, Kirschner DE. 2016. Computational and Empirical Studies Predict Mycobacterium tuberculosis-Specific T Cells as a Biomarker for Infection Outcome. *PLoS Comput Biol* 12:e1004804.
9. Butchbach MER, Rose FF, Rhoades S, Marston J, **McCrone JT**, Sinnott R, Lorson CL. 2010. Effect of diet on the survival and phenotype of a mouse model for spinal muscular atrophy. *Biochemical and Biophysical Research Communications* 391:835-840.

* Equal contribution