John T. McCrone

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Department of Microbiology and Immunology
University of Michigan
Ann Arbor, MI 48109 USA
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Education

University of Michigan, Ann Arbor, Michigan USA — 2013-present
Ph.D. Candidate, Department of 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 — 2008-2012
B.S., Biochemistry and Mathematics, May 2012
Graduated with *Highest Distinction*
GPA : 3.963

Awards and Honors

Rackham Predoctoral Fellowship — 2017-present
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-present
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 6/2011-8/2011
School Sisters of St. Francis 5/2012-7/2012
San Jose el Teroso, Alta Verapaz, Guatemala
Courses taught included 4th grade English, middle school Math, and high school English, Physics, and Trumpet.

Presentations

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. **McCrone JT**, Woods RJ, Martin ET, Malosh RE, Monto AS, Lauring AS. 2017. Stochastic processes dominate the within and between host evolution of influenza virus.*Under Review* available at as preprint at doi: http://dx.doi.org/10.1101/176362
2. **McCrone JT**, Lauring AS. 2017. Genetic bottlenecks in intraspecies virus transmission. *Submitted*.
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. 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.
5. Visher E, Whitefield SE, **McCrone JT**, Fitzsimmons W, Lauring AS. 2016. The Mutational Robustness of Influenza A Virus. PLoS Pathog 12:e1005856.
6. **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.
7. 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.
8. 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

Other Notable Achievements

University of Wisconsin Marching Band 2008-2012
Rank Leader 2011
Madison, WI USA

Boston Marathon 2011 & 2012
Qualifying times 3:05:32 & 2:59:26
Boston, MA USA