

Daniel Moisés Lyons

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Education

University of Michigan, expected MD/PhD 2022
Medical Scientist Training Program
Department of Ecology and Evolutionary Biology (EEB)

University of Michigan, BS, April 2013
Majors: Biology, Anthropology; Minor: Philosophy of Science
Highest Honors for Thesis in Biology, GPA: 3.83

Research Experience

9/2016 – present UM Department of Microbiology/EEB, Dr. Adam Lauring
7/2016 – 9/2016 UM Department of Microbiology, Dr. Evan Snitkin
6/2015 – 8/2015 UM EEB, Dr. Jianzhi (George) Zhang
7/2013 – 6/2014 NIH-NIAID Laboratory of Immunology, Dr. Jinfang (Jeff) Zhu
9/2009 – 7/2013 UM-VA Medical Research Center, Dr. Michal Olszewski
5/2011 – 8/2011 Instituto de Nutrición y Tecnología de Alimentos, Univ. de Chile, Dr. Miguel Llanos

Research Fellowships

7/2018 – 8/2020 NIH-NIAID F31 Ruth L. Kirschstein National Research Service Award
7/2017 – 7/2018 UM Rackham Merit Fellowship
7/2013 – 6/2014 NIH-NIAID Intramural Research Opportunities Program
5/2012 – 8/2012 UM Medical School Pre-MSTP Summer Program (now UM SMART)
5/2012 – 8/2012 UM Honors Summer Fellowship
5/2011 – 8/2011 NIH Minority Health Disparities Intl. Research Training Program (MHIRT)
5/2010 – 8/2010 UROP Biomedical and Life Sciences Summer Fellowship

Grants & Awards

11/2012 UM Honors Travel Grant for International Conference
10/2012 Autumn Immunology Conference Registration Fee Grant
5/2011 UROP Travel Grant for International Conference
4/2010 UROP Outstanding Poster Award
5/2009 UM Alumni Association LEAD Scholarship \$10,000/year
5/2009 Huntington Woods Men's Club \$1000 Scholarship
5/2009, 5/2008 Liz-Parks Novitsky Science Fair First Place \$1000 Scholarship (twice)

Volunteer Activities

5/2015 – present UM Migrant Farm Clinic (summers)
9/2014 – present UM Asylum Collaborative
9/2014 – present UM Student Run Free Clinic
11/2013 – 6/2014 NIH Evolutionary Medicine Club, Founder
9/2012 – 4/2013 UM International Center, Conversation Circle Leader

Publications

Articles

1. Lyons DM and Lauring AS. “Mutation and Epistasis in Influenza Virus Evolution.” *Viruses*. 2018 Aug; 10(8).
1. Lyons DM and Lauring AS. “Evidence for the Selective Basis of Transition-to-Transversion Substitution Bias in Two RNA Viruses.” *Molecular Biology and Evolution*. 2017 Dec; 34(12).
2. Pauly MD, Lyons DM, Fitzsimmons WJ, Lauring AS. “Epistatic interactions within the influenza A virus polymerase complex mediate mutagen resistance and replication fidelity.” *mSphere*. 2017 Aug; 2(4).
3. Eastman AJ, He X, Qiu Y, Davis MJ, Vedula P, Lyons DM, Park YD, Hardison SE, Malachowski AN, Osterholzer JJ, Wormley FL Jr, Williamson PR, Olszewski MA. “Cryptococcal heat shock protein 70 homolog Ssa1 contributes to pulmonary expansion of *Cryptococcus neoformans* during the afferent phase of the immune response by promoting macrophage M2 polarization.” *J. Immunol*. 2015 Jun; 194(12):5999-6010.
4. He X* & Lyons DM*, Toffaletti DL, Wang F, Qiu Y, Davis MJ, Meister DL, Dayrit JK, Lee A, Osterholzer JJ, Perfect JR, Olszewski MA. “Cryptococcal Virulence Factors Identified by Mutant Screen Differentially Modulate Immune Responses in the Lungs and *C. neoformans* Dissemination to the Brain.” *Am J Pathol*. 2012 Oct;181(4):1356-66.

Oral Presentations

1. “Effects of Mutations & their Interactions in Influenza Virus.” SMBE Satellite Meeting Molecular Evolution and the Cell, Deer Valley, UT, 5/2018.
2. “Differential Fitness Effects of Transitions vs. Transversions In Viruses.” 9th Workshop in Virus Evolution, State College, PA, 3/2017.
3. “The Role of TLR9-Induced CCL7 in the Development of Anti-Cryptococcal Immunity.” Autumn Immunology Conference, Chicago, IL, 11/2012.

Poster Presentations

1. Schneider DJ, Podsiad A, Wilke CA, Penke LR, Lyons DM, Moore BB, Peters-Golden M. Alveolar macrophage-derived microvesicles protect alveolar epithelial cells from influenza infection. American Thoracic Society International Meeting, San Diego, CA, 5/2018.
2. Lyons DM. “Differential Fitness Effects of Transitions and Transversions.” Society for Molecular Biology and Evolution, Austin, TX 7/2017
3. Lyons DM. “Evolution & medicine: building a student movement.” Intl. Society for Evolution, Medicine, & Public Health Inaugural Meeting, Tempe, 3/2015.
4. Lyons DM, Qiu Y, Zeltzer S, Davis MJ, Zhang Y, Dayrit J, Olszewski MA. “Classical activation of pulmonary macrophages via TLR9 signaling is independent of production of CCL7/MCP3 during cryptococcal infection in a mouse model.” Midwest Neglected Diseases Conference, Notre Dame, 8/2012.
5. Qiu Y, Dayrit JK, Davis MJ, Lyons DM, Meister DL, Hadd Z, Jie M, Osterholzer JJ, Olszewski, MA. “Scavenger Receptor A Modulates the Adaptive Immune Response during Pulmonary Infections with *C. neoformans*.” ASM and ATS, San Francisco, 5-6/2012.
6. Lyons DM, Toffaletti DL, Zhang Y, Wang F, Lee A, Dayrit J, Perfect JR, Olszewski MA. “Mutants Selected for a Decreased Survival in Human CSF Exhibit Differential Potentials for Pulmonary Virulence and CNS Dissemination in Murine Host.” ICCS, Charleston, 5/2011.

7. Qiu Y* & Lyons DM*, Zhang Y, He X, Zeltzer Z, Dayrit J, Curtis JL, Williamson PR, Olszewski MA. "The Role of Macrophage Scavenger Receptor A during Pulmonary Infections with *C. neoformans*." ICCC, Charleston, 5/2011.
8. Zhang Y, Meister DL, Zeltzer S, Lyons DM, Coomes S, Lu Y, Huffnagle GB, Moore BB, Toews GB, Olszewski, MA. "Transient Depletion Of T-Cells Followed By *C. neoformans* Infection Induces Pathological Response That Mimics Immune Reconstitution Disease." ICCC and ATS, Charleston & Denver, 5/2011.
9. Zeltzer S, Zhang Y, Chen G, Osterholzer JJ, Lyons DM, Meister DL, Wang F, Toews GB, Bhan U, Standiford TJ, Olszewski MA. "Decrease in CCR2 ligand induction contributes to altered immune response to *C. neoformans* in TLR9^{-/-} mice through changes in early accumulation of leukocytes." ICCC, Charleston, 5/2011.
10. Zhang Y, Zeltzer S, Chen G, Osterholzer JJ, Lyons DM, Meister DL, Lu Y, Wang F, Bhan U, Toews GB, Standiford TJ, Olszewski MA. "TLR9 Facilitates Protective Immunity To *Cryptococcus Neoformans* By Supporting Early Production Of MCP3/5 And The Accumulation Of Ly6c⁺ Monocytes And DC In The Lungs." ATS, Denver, 5/2011.

*Authors contributed equally. Full bibliography at <http://tidy.ws/brhbhc>