

# Lucy Mailing, B.A.

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Division of Nutritional Sciences & University of Illinois College of Medicine  
University of Illinois at Urbana-Champaign  
906 South Goodwin Avenue, Urbana, IL 61801

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## EDUCATION



**University of Illinois, Medical Scholars Program (2015-2024)**

**Ph.D., Nutritional Sciences, Urbana-Champaign** (expected 2019, GPA 3.97)

Dissertation: *“Diet and exercise modulate the gut microbiome with implications for health and disease”*.

**M.D., Chicago** (expected 2024)



**Kalamazoo College (2012-2015)**

**B.A. in Biology**, (Neuroscience concentration, Psychology minor)

GPA 3.96, summa cum laude

Thesis: *“Effects of bacterial metabolite butyrate and fiber-free diet on allergic phenotype in a murine model of peanut allergy.”*

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## CAREER PROFILE

**Research objective:** The gut is home to a dense consortium of microbes, collectively called the gut microbiota, that play crucial roles in host physiology and pathophysiology. An altered gut microbiota, or “dysbiosis”, has been associated with a wide range of chronic diseases. My research objective is to understand how lifestyle factors, such as diet and exercise, can influence gut microbial communities with potential implications for human health.

**Career goals:** I seek to make a significant impact on the greater scientific and medical community through both outstanding clinical practice and novel academic research. I hope to combine my research expertise in the gut microbiome, nutrition, and exercise science with a medical background in integrative medicine and gastroenterology to ultimately change the way we approach the prevention and treatment of chronic disease.

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## JOURNAL PUBLICATIONS

7. **Mailing, LJ**, Allen JM, Buford TW, Fields CJ, Woods JA. Exercise and the gut microbiome: a review of the evidence, potential mechanisms, and implications for human health. *Exercise & Sport Sciences Reviews* (2019). [DOI: 10.1249/JES.000000000000183](https://doi.org/10.1249/JES.000000000000183).

6. **Mailing, LJ**, Allen JM, Rytych J, Sun Y, Pence BD, Bhattacharya TK, Park P, Liu TW, Swanson K, Fahey GC, Rhodes JS, Kelley KW, Johnson RW, Woods JA. Behavioral response to fiber feeding is cohort-dependent and related to gut microbiota composition in mice. *Behavioural Brain Research* (2019). [DOI: 10.1016/j.bbr.2018.09.012](https://doi.org/10.1016/j.bbr.2018.09.012)
5. Matt SM, Allen JM, Lawson Ma, **Mailing LJ**, Woods JA, Johnson, RW. Butyrate and dietary soluble fiber improve neuroinflammation associated with aging in mice. *Frontiers in Immunology* (2018). [DOI: 10.3389/fimmu.2018.01832](https://doi.org/10.3389/fimmu.2018.01832)
4. Niemiro GM, Allen JM, **Mailing LJ**, Khan NA, Holscher HD, Woods JA, De Lisio M. Effects of endurance exercise training on inflammatory circulating progenitor cell content in lean and obese adults. *Journal of Physiology* (2018). [DOI: 10.1113/JP276023](https://doi.org/10.1113/JP276023)
3. Allen JM, **Mailing LJ**, Niemiro GM, Moore R, Cook MD, White BA, Holscher HD, Woods JA. Exercise alters gut microbiota composition and function in lean and obese Humans. *Medicine & Science in Sports & Exercise* (2018). [DOI: 10.1249/MSS.0000000000001495](https://doi.org/10.1249/MSS.0000000000001495).
2. Allen JM, **Mailing LJ**, Cohrs J, Salmonson C, Fryer J, Nehra V, Kashyap P, White BA, Woods JA. Exercise training-induced modifications of the gut microbiota can mediate host response to microbial colonization and colitis insult in gnotobiotic mice. *Gut Microbes* (2018). [DOI: 10.1080/19490976.2017.1372077](https://doi.org/10.1080/19490976.2017.1372077)
1. Nehra, V, Allen, JM, **Mailing, LJ**, Kashyap, PC, Woods, JA. Gut Microbiota: modulation of host physiology in obesity. *Physiology* (2016). [DOI: 10.1152/physiol.00005.2016](https://doi.org/10.1152/physiol.00005.2016).

### PREVIOUS RESEARCH EXPERIENCE



**Research Associate, Department of Biology, Kalamazoo College** (2013-2015)

- Studied proteins implicated in Alzheimer’s Disease from an evolutionary perspective using molecular techniques
- Worked as sole research associate under the direction of Dr. Jim Langeland, Professor of Biology



**Research Intern, Department of Pathology, University of Chicago** (2014)

- Studied the interactions between dietary fiber and the gut microbiota in a mouse model of peanut allergy
- Worked under the direction of Dr. Cathryn Nagler, Bunning Food Allergy Professor; wrote up results as a senior thesis for Kalamazoo College



**Research Intern, Department of Physiology, University of Michigan** (2013)

- Studied synaptic plasticity in hippocampal cell culture using molecular techniques and high-resolution confocal imaging
- Worked under Dr. Michael Sutton, Associate Professor of Molecular & Integrative Physiology

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## HONORS AND AWARDS

|   |      |
|---|------|
| <b>Young Scientist Award, <i>International Scientific Conference on Probiotics</i></b>    | 2019 |
| <i>Prebiotics, Gut Microbiota, and Health</i>   |      |
| <b>William Rose Endowed Award, <i>Division of Nutritional Sciences, UIUC</i></b>          | 2018 |
| <b>Dissertation Completion Fellowship, <i>Graduate College, UIUC</i></b>                  | 2018 |
| <b>Emerging Leaders in Nutrition Science Award, <i>American Society for Nutrition</i></b> | 2017 |
| <b>Nutrition Symposium Poster Award, <i>Division of Nutritional Sciences, UIUC</i></b>    | 2017 |
| <b>Margin of Excellence Travel Award, <i>Division of Nutritional Sciences, UIUC</i></b>   | 2017 |
| <b>Gamma Sigma Delta Honors Society, <i>College of ACES, UIUC</i></b>                     | 2016 |
| <b>Emerging Leaders in Nutrition Science Award, <i>American Society for Nutrition</i></b> | 2016 |
| <b>Margin of Excellence Travel Award, <i>Division of Nutritional Sciences, UIUC</i></b>   | 2016 |
| <b>Jonathan Baldwin Turner Graduate Fellowship, <i>College of ACES, UIUC</i></b>          | 2015 |
| <b>William E. Praeger Prize in Biology, <i>Kalamazoo College</i></b>                      | 2015 |
| <b>Phi Beta Kappa Honors Society, <i>Kalamazoo College</i></b>                            | 2015 |
| <b>Chi Alpha Sigma National College Athlete Honors Society</b>                            | 2015 |
| <b>NCAA Division III Soccer Academic All-American</b>                                     | 2014 |
| <b>Winifred Peake Jones Prize in Biology, <i>Kalamazoo College</i></b>                    | 2013 |
| <b>Physical Education Prize, <i>Kalamazoo College</i></b>                                 | 2013 |
| <b>Michigan Intercollegiate Athletic Association Academic Honor Roll</b>                  | 2013 |
| <b>Alpha Lambda Delta National Scholastic Honor Society</b>                               | 2013 |
| <b>Lux Esto Scholarship, <i>Kalamazoo College</i></b>                                     | 2012 |
| <b>National Merit Finalist, <i>National Merit Scholarship Corporation</i></b>             | 2012 |
| <b>Cengage Learning &amp; Birmingham SCHOLAR Scholarships</b>                             | 2012 |

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## GRANT & RESEARCH SUPPORT

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| <b>Margin of Excellence Research Award, <i>Division of Nutritional Sciences, UIUC</i></b>  | 2019 |
| <i>“Efficacy of the autoimmune protocol diet on the gut microbiome and gut barrier function in eczema and psoriasis patients” - \$5,000.</i> |      |
| <b>Crowdfund for AIP study, <i>Independent contributions, Indiegogo</i></b>  | 2019 |
| <i>“Efficacy of the autoimmune protocol diet on the gut microbiome and gut barrier function in eczema and psoriasis patients” - \$8,510.</i> |      |

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## PROFESSIONAL PRESENTATIONS

13. **Mailing LJ**. Modulating the gut microbiome for health: Evidence-based testing and therapeutic strategies. *Ancestral Health Symposium* (2019).
12. **Mailing LJ**, Allen JA, Wang SS, Kashyap P, White BA, Woods JA. Effects of transplanted exercised vs. sedentary gut microbiota on gene expression in gnotobiotic mice. Oral presentation, *International Scientific Conference on Probiotics, Prebiotics, Gut Microbiota, and Health* (2019).
11. **Mailing LJ**, Allen JA, Niemiro GM, Wang SS, Kashyap P, White BA, Holscher HD, De Lisio M, Woods JA. The effects of exercise on the gut microbiota and gut barrier function in states of health and disease Oral presentation, *Division of Nutritional Sciences Exit Seminar*.
10. **Mailing LJ**, Allen JA, Wang SS, Kashyap P, White BA, Woods JA. Effects of transplanted exercised vs. sedentary gut microbiota on gene expression in gnotobiotic mice. Oral presentation, *International Scientific Conference on Probiotics, Prebiotics, Gut Microbiota, and Health* (2019).
9. **Mailing LJ**, Woods JA. Training the gut: how exercise impacts the gut microbiota and gut barrier. Poster presentation, *Experimental Biology* (2019).
8. **Mailing LJ**, Allen JM, Niemiro G, Cohrs J, Holscher H, De Lisio M, Woods JA. Six weeks of aerobic exercise improves markers of insulin sensitivity and metabolic endotoxemia: correlations with the gut microbiota. Poster presentation, *American College of Sports Medicine Conference* (2018).
7. **Mailing LJ**, Allen JM, Niemiro G, Cohrs J, Holscher H, De Lisio M, Woods JA. Effects of a six week aerobic exercise intervention on the composition of oral and skin microbiota: a pilot study. Poster presentation, *Experimental Biology* (2018).
6. **Mailing LJ**, Allen JM, Niemiro G, Cohrs J, Holscher H, De Lisio M, Woods JA. Effects of a 6 week aerobic exercise intervention on gut bacterial metabolites in lean and obese adults. Oral presentation, *American College of Sports Medicine Conference* (2017).
5. **Mailing LJ**, Allen JM, Niemiro G, Cohrs J, Holscher H, De Lisio M, Woods JA. Effects of a 6 week aerobic exercise intervention on gut bacterial metabolites in lean and obese adults. Poster presentation, *Experimental Biology* (2017).
4. **Mailing LJ**, Allen JM, Nehra V, Holscher H, VanDyke C, Eden K, Swanson K, Boardman L, Murray J, Jensen M, Woods JA. Utilizing the gut microbiota to predict weight loss from a

volumetric diet and exercise program in obese adults. Poster presentation, *Conference for Individualizing Medicine* (2016).

3. **Mailing, LJ**, Allen JM, Liu TW, Bhattacharya TK, Park P, Pence BD, Johnson RW, Fahey GC, Swanson K, Rhodes JS, and Woods JA. Pectin feeding for 16 Weeks improves learning and memory in young C57Bl/6J Mice: a relationship to the gut microbiota? Poster presentation, *Experimental Biology* (2016).

2. **Mailing LJ**, Feehley T, Nagler C. Effects of bacterial metabolite butyrate and fiber-free diet on allergic phenotype in a murine model of peanut allergy. Senior thesis & poster presentation, *Kalamazoo College Diebold Symposium* (2015).

1. **Mailing, LJ**, Henry FE, Sutton MA. Homeostatic changes in synaptic plasticity driven by phosphatidic acid mediated mTORC1 signaling. Oral presentation, *University of Michigan Summer Undergraduate Research Symposium* (2013).

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**UNDERGRADUATE STUDENTS DIRECTLY MENTORED**

| <b>Name</b>       | <b>Degree</b>                  | <b>Period of Training</b> | <b>Current/Last Known Position</b>                          |
|-------------------|--------------------------------|---------------------------|---|
| Jared Weeks       | Molecular & Cellular Biology   | 2015-2018                 | Medical student at University of Illinois Rockford          |
| Josh Cohrs        | Molecular & Cellular Biology   | 2015-2018                 | University of Illinois College of Law, Baxter International |
| Collin Weintraub  | Molecular & Cellular Biology   | 2015-2017                 | Medical student at Virginia Commonwealth University         |
| John Zahour       | Molecular & Cellular Biology   | 2016-2018                 | Medical student at Saint Louis College of Medicine          |
| Monica Patel      | Molecular & Cellular Biology   | 2016-2018                 | Dental student at University of Illinois at Chicago         |
| Selena Wang       | I-health                       | 2015-2019                 | Applying to MD/PhD graduate programs                        |
| Haily Stillabower | Kinesiology & Community Health | 2016-2019                 | Applying to DO/PhD graduate programs                        |
| Julia Beck        | Molecular & Cellular Biology   | 2016-2019                 | Applying to MD programs                                     |
| Avani Patel       | Molecular & Cellular Biology   | 2017-2019                 | Applying to MD programs                                     |

|                 |                                       |           |                          |
|-----------------|---------------------------------------|-----------|--------------------------|
| Do Yeon Kim     | Agricultural & Biological Engineering | 2018-2019 | Applying to PhD programs |
| Nisheka Vanjani | Molecular & Cellular Biology          | 2018-2019 |                          |
| Megha Parikh    | I-health                              | 2018-2019 |                          |
| Akram Mahdi     | Molecular & Cellular Biology          | 2019      |                          |

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## UNIVERSITY SERVICE

### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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| Willard J. & Priscilla F. Visek Lecture Planning Committee | 2018-2019 |
| College of Medicine Research Day Planning Committee        | 2018-2019 |
| University Librarian's Student Advisory Council            | 2016-2017 |
| University Medical Student Council                         | 2015-2018 |
| Medical Scholars Program Advisory Committee                | 2015-2018 |

### MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

|   |              |
|---|--------------|
| American Physician Scientists Association   | 2018-present |
| American Gastroenterological Association  | 2018-present |
| International Scientific Association for Probiotics and Prebiotics - Students and Fellows Association | 2019-present |

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## RESEARCH OUTREACH / WEB-BASED WRITING



**NextGen Medicine**, Founder & Writer (Aug 2017 – present)

Write blog articles distilling complex scientific and medical literature on the gut microbiome, nutrition, and exercise science into practical, evidence-based articles for the educated lay person. [www.NGmedicine.com](http://www.NGmedicine.com)



**Kresser Institute**, Senior Research Associate & Writer (Feb 2015 – present)

Distill scientific and medical literature in a variety of research areas into evidence-based blog articles intended for a general audience. [www.kresserinstitute.com](http://www.kresserinstitute.com)

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