

# Elizabeth Lauren Johnson, Ph.D.

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## ASSISTANT PROFESSOR

Division of Nutritional Sciences  
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## EDUCATION

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<b>Princeton University</b> Ph.D. Molecular Biology	(Jan 2014)
<b>Spelman College</b> B.S. Biology, Magna Cum Laude	(May 2008)

## PROFESSIONAL POSITIONS

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<b>Assistant Professor</b> Division of Nutritional Sciences, Cornell University	(2018 – present)
<b>Postdoctoral Research Associate</b> Department of Molecular Biology, Cornell University	(2014 – 2018)
<b>Visiting Researcher</b> Institute of Human Nutrition, Columbia University	(2014 – 2018)

## HONORS AND AWARDS

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NIH NIGMS Early Career Lecturer	(2021)
CIFAR Azrieli Global Scholar	(2021)
NIH NIGMS Early Stage Investigator Maximizing Investigators' Research Award	(2020)
Cell Mentor 1000 inspiring Black Scientists in America	(2020)
Princeton University Patrice Y. Johnson Memorial Service Award	(2014)
National Science Foundation Graduate Research Fellowship	(2009 – 2014)
Princeton University Department of Molecular Biology Teaching Award	(2012)
Phi Beta Kappa	(2008)
Spelman College Departmental Honors	(2008)

## PUBLICATIONS

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1. [Lee, MT](#), [Le HH](#), and **Johnson EL**. Dietary sphinganine is selectively assimilated by members of the mammalian gut microbiome. *J Lipid Res* (2020).
2. [Le HH](#) and **Johnson EL**. Going Keto? Say  $\beta$ HB-ye Bye to Your Gut Bifidobacteria. *Cell Host Microbe* (2020) **28**: 3-5.
3. Di Rienzi SC, **Johnson EL**, Waters JL, Kennedy EA, Jacobson J, Lawrence P, Wang DH, Worgall TS, Brenna JT, Ley RE. The microbiome affects liver sphingolipids and plasma fatty acids in a murine model of the Western diet based on soybean oil. *Journal of Nutritional Biochemistry* (2021).
4. **Johnson EL**, Heaver SL, Waters JL, Kim BI, Bretin A, Goodman A, Gewirtz A, Worgall T, Ley RE. Sphingolipids produced by gut bacteria enter host metabolic pathways impacting ceramide levels. *Nature Communications* (2020), 11: 2471.

5. Heaver SL, **Johnson EL**, Ley RE: Sphingolipids in host-microbial interactions. *Curr Opin Microbiol* (2018), 43:92-99.
6. **Johnson EL**, Heaver SL, Walters WA, Ley RE: Microbiome and metabolic disease: revisiting the bacterial phylum Bacteroidetes. *J Mol Med* (2017), 95(1):1-8.
7. Mitra M, **Johnson EL**, Swamy VS, Nersesian LE, Corney DC, Robinson DG, Taylor DG, Ambrus AM, Jelinek D, Wang W *et al*: Alternative polyadenylation factors link cell cycle to migration. *Genome Biol* (2018), 19(1):176.
8. Lee HN, Mitra M, Bosompra O, Corney DC, **Johnson EL**, Rashed N, Ho LD, Collier HA: RECK isoforms have opposing effects on cell migration. *Mol Biol Cell* (2018):mbcE17120708.
9. **Johnson EL**, Robinson DG, Collier HA: Widespread changes in mRNA stability contribute to quiescence-specific gene expression patterns in a fibroblast model of quiescence. *BMC Genomics* (2017), 18.
10. Suh EJ, Remillard MY, Legesse-Miller A, **Johnson EL**, Lemons JMS, Chapman TR, Forman JJ, Kojima M, Silberman ES, Collier HA: A microRNA network regulates proliferative timing and extracellular matrix synthesis during cellular quiescence in fibroblasts. *Genome Biol* (2012), 13(12).
11. Wang DJ, Legesse-Miller A, **Johnson EL**, Collier HA: Regulation of the let-7a-3 Promoter by NF-kappa B. *Plos One* (2012), 7(2).
12. **Johnson EL**, Suh EJ, Chapman TR, Collier HA: Identifying Functional miRNA Targets Using Overexpression and Knockdown Methods. In: *Regulatory RNAs: Basics, Methods and Applications*. Edited by Mallick B, Ghosh Z. Berlin, Heidelberg: Springer Berlin Heidelberg; (2012): 295-317.
13. Legesse-Miller A, Raitman I, Haley EM, Liao A, Sun LL, Wang DJ, Krishnan N, Lemons JMS, Suh EJ, **Johnson EL et al**: Quiescent fibroblasts are protected from proteasome inhibition-mediated toxicity. *Mol Biol Cell* (2012), 23(18):3566-3581.
14. Lemons JMS, Feng XJ, Bennett BD, Legesse-Miller A, **Johnson EL**, Raitman I, Pollina EA, Rabitz HA, Rabinowitz JD, Collier HA: Quiescent Fibroblasts Exhibit High Metabolic Activity. *Plos Biol* (2010), 8(10).
15. **Johnson EL**, Cunningham TW, Marriner SM, Kovacs JL, Hunt BG, Bhakta DB, Goodisman MAD: Resource allocation in a social wasp: effects of breeding system and life cycle on reproductive decisions. *Mol Ecol* (2009), 18(13):2908-2920.

## PREPRINTS

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1. Heaver, SL, Le HH, Teng P, Baslé A, Marles-Wright J, **Johnson EL**, Campopiano DJ, Ley RE. Inositol lipid synthesis is widespread in host-associated Bacteroidetes. <https://www.biorxiv.org/content/10.1101/2021.04.26.441525v1>.

\*Underline – Johnson Lab Members

## GRANT SUPPORT

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Granting Agency: NIH NIGMS Role: PI  
Award Type: R35 (Early Stage Investigator MIRA)  
Award Period: August 2020 – July 2025  
Title: Sphingolipid-dependent host-microbe interactions

Granting Agency: CIFAR Role: PI  
Award Period: April 2021 – April 2023

## COMPLETED GRANT SUPPORT

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Granting Agency: Biotechnology Resource Center Seed Grant

Role: PI

Award Period: November 2019 – March 2021

Title: Defining interactions of dietary lipids with the gut microbiome

## TEACHING EXPERIENCE

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Instructor  
• NS1220 Nutrition through the life cycle Cornell University, Ithaca, NY (Spring 2020, 2021)

Guest Lecturer  
• NS6140 “The microbiome during pregnancy, lactation, and early infant feeding” (Fall 2019, 2020)  
• NS1220 “Diet and the Microbiome” (Spring 2019)  
• BIOMI 3210 “Diet and the Microbiome” (Spring 2016)

Teaching Assistant  
• MOL 348 Cell and Developmental Biology Princeton University, Princeton, NJ (Spring 2012)  
• MOL 101B From DNA to Human Complexity (Fall 2011)  
• MOL 214 Introduction to Cellular and Molecular Biology (Spring 2010)

## MENTORING EXPERIENCE

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Postdoctoral Fellows  
• Henry Le, PhD Role: Research Mentor (Sept 2019 – present)

Graduate Students – Committee Chair  
• Min-Ting Lee Nutritional Sciences (Jan 2019 – present)  
    ◦ Awards: Center for Vertebrate Genomics scholar, CALS travel grant  
• Janine Comrie Nutritional Sciences (Jan 2020 – present)

Graduate Students – Committee Member  
• Brianna Tate Animal Science (Jan 2019 – present)  
• Amanda Davis Animal Science (Jul 2018 – Jul 2020)  
• Wanhui Kang Nutritional Science (Jun 2019 – present)  
• Xiyue Xiao Microbiology (Jun 2019 – present)  
• Samantha Goldman Ecology and Evolutionary Biology (Jun 2020 – present)

Undergraduate Students  
• Rebecca Ekeanyanwu Role: Research Advisor (Sept 2019 – May 2020)  
• Victoria Montero Role: Research Advisor (Jan 2019 – Aug 2019)  
• Tyra Onley Role: Summer Research Advisor (June 2019 – Aug 2019)

## PROFESSIONAL and COMMUNITY SERVICE

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- Executive Committee, International Society for Research in Human Milk and Lactation (2021 -
- Cornell Microbiome Supergroup Meeting, Founder and Organizer (2019 -
- American Society for Nutrition, Member (2018 -
- International Society for Research in Human Milk and Lactation, Member (2018 -
- American Society for Microbiology, Member (2014 -
- American Society for Biochemistry and Molecular Biology, Member (2019 –
- Princeton University’s Black Graduate Caucus, President (2010 – 2013)
- Princeton University Molecular Biology Outreach, Founder (2008 – 2012)

## **AD HOC REVIEWER**

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Nature Microbiology, Nature Chemical Biology, eLife, Molecular Nutrition and Food Research, Cell Press Community Review

## **PRESENTATIONS and CONFERENCES**

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- Northwestern Biological Anthropology Seminar (May 2021)
- Invited Speaker “Infant nutrition and feeding practices as modulators of the gut microbiome”
- Harvard Chan Microbiome in Public Health Center Symposium (May 2021)
- Invited Speaker “Dietary lipids as modulators of microbiome function”
  - 400+ participants
- Sphingolipid Webinar (May 2021)
- Invited Speaker “Sphingolipid-dependent diet-microbiome interactions”
- San Diego State University (March 2021)
- Invited Speaker “Infant diets as precise modulators of the gut microbiome”
- Georgetown University Department of Biology Seminar (February 2021)
- Invited Speaker “Infant diets as precise modulators of the gut microbiome”
- Morehouse College Biology Department Seminar (February 2021)
- Invited Speaker “Infant diets as precise modulators of the gut microbiome”
- University of Oregon Seminar (January 2021)
- Invited Speaker “Lipid-dependent diet-microbiome-host-interactions”
- Penn State Microbiome Center Seminar (December 2020)
- Invited Speaker “Metabolism of dietary lipids by the mammalian gut microbiome”
- Brown University Molecular Microbiology and Immunology Seminar (November 2020)
- Invited Speaker “Diet and microbiome derived lipids affect microbial and host metabolism”
- Bates College Seminar (September 2020)
- Invited Lecture “Dietary sphinganine is selectively assimilated by the mammalian microbiome”
- eCornell Keynote (June 2020)
- Invited Panelist “Supporting Mom’s and Babies: The urgent need for better medicine, research, and technology”
- Cornell BBS Symposium (August 2019)
- Invited Speaker “Exogenous sphingolipids affect gut microbes and host metabolism”
- Center for Microbiome Innovation (CMI) International Microbiome Meeting (March 2019)
- Invited Speaker “Sphingolipid production by gut microbiota regulates host metabolism”
- Precision Nutrition and Metabolism in Public Health and Disease (September 2018)
- Invited Talk “Sphingolipid production by gut microbiota regulates liver ceramide metabolism”
- ASM Beneficial Microbes (September 2016)
- Selected Talk “Sphingolipid-producing bacteria affect host lipid metabolism”
- ASM Beneficial Microbes (September 2014)
- Presented poster “Effect of microbiota-dependent sphingolipid metabolism on host sphingolipid homeostasis”
- Department Seminar Speaker at The College of New Jersey (November 2012)

- Invited Talk “Length Matters: How differential 3’UTR isoform expression is involved in the maintenance of reversible cell cycle exit”