

# SIMON LAX

## Postdoctoral Researcher, MIT

Physics of Living Systems Group, Department of Physics  
400 Technology Square, NE46-602, Cambridge, MA 02139  
[simonlax@mit.edu](mailto:simonlax@mit.edu)  
[simonlax.com](http://simonlax.com)

## Education

### The University of Chicago

*Ph.D.*, Ecology and Evolution

Advisors: Dr. Jack A. Gilbert & Dr. Catherine Pfister

Thesis: “*Our Microbial Interaction with Built Environments*”

Chicago, IL

2012 - 2017

### Columbia University

*B.A.*, Environmental Biology

Advisor: Dr. Gregory O’Mullan

Thesis: “*Proteobacteria Dominate the Bacterial Diversity in the Deep Subseafloor Sediments of the Cascadia Margin*”

New York, NY

2005 - 2009

## Professional Experience

### Jeff Gore Lab, Department of Physics, MIT

Postdoctoral Researcher

Cambridge, MA

2017 - Present

### Institute for Genomics and Systems Biology, Argonne National Laboratory

Resident Associate

Argonne, IL

2012 - 2017

### Research Foundation of CUNY

Research Assistant

New York, NY

2010 - 2012

### Institute for Cancer Genetics, Columbia University

Research Assistant

New York, NY

2009 - 2010

### Lamont-Doherty Earth Observatory: Biology Division

Research Assistant

Palisades, NY

2008

### Lamont-Doherty Earth Observatory: Geochemistry Division

Research Assistant

Palisades, NY

2007

## Teaching Experience

### The University of Chicago (Teaching Assistant)

BIOS 20196: Ecology and Conservation

BIOS 15123: The Microbiome in Human and Environmental Health

Chicago, IL

Fall 2016

Spring 2015

### CUNY Queens College (Adjunct Faculty)

ENSCI 100: Our Planet in the 21st Century

New York, NY

4 Sections (2010 - 2011)

### Guest Lectures

Public and Environmental Health (Northwestern University)

The Microbiome in Human and Environmental Health (University of Chicago)

Feb. 2016, Feb. 2017

April 2016

## Invited Talks

<b>Department of Biology, The University of Alaska</b> “Our Microbial Interaction with Built Environments”	<b>Fairbanks, AK</b> <i>February 2017</i>
<b>Yale-NUS Conference on Infectious Disease Transmission in Built Environments</b> “Bacterial Transmission in the Hospital Environment”	<b>Singapore</b> <i>January 2017</i>
<b>American Society for Microbiology/Society for Applied Microbiology</b> “Effects of Biocides on the Hospital Microbiome”	<b>Boston, MA</b> <i>June 2016</i>
<b>The Society for Healthcare Epidemiology of America</b> “The Microbiome of the Built Hospital Environment”	<b>Atlanta, GA</b> <i>May 2016</i>
<b>Department of Microbiology, The University of Wisconsin</b> “Our Microbial Interaction with Built Environments”	<b>La Crosse, WI</b> <i>March 2016</i>
<b>VIZBI 2015 (Visualization of Biological Data Conference)</b> “Visualizing Large Datasets in Microbial Ecology”	<b>Cambridge, MA</b> <i>March 2015</i>
<b>Chinese Academy of Soil Sciences</b> “Microbial Interaction between Humans and the Built Environment”	<b>Nanjing, CN</b> <i>February 2015</i>

## Contributed Talks

<b>American Academy of Forensic Sciences</b> “Inferring Patterns of Occupancy from Human Microbial Signatures”	<b>Las Vegas, NV</b> <i>February 2016</i>
<b>Sloan Conference on the Microbiology of the Built Environment</b> “Colonization and Succession of Hospital-Associated Microbial Communities”	<b>Boulder, CO</b> <i>July 2015</i>
<b>Environmental Design Research Association</b> “Our Microbial Interaction with the Built Environment”	<b>Los Angeles, CA</b> <i>May 2015</i>
<b>Geological Society of America Northeastern Meeting</b> “Ammonia-Oxidizing Microbial Communities along the Salinity Gradient of the Cape Fear Estuary”	<b>Hartford, CT</b> <i>March 2012</i>

## Publications

For an up to date list of publications, please see [simonlax.com/publications](http://simonlax.com/publications) or [Google Scholar](https://scholar.google.com/)

### [15] Bacterial colonization and succession in a newly opened hospital

**Simon Lax**, Naseer Sangwan, Daniel Smith, Peter Larsen, Kim M. Handley, Miles Richardson, Kristina Guyton, Monika Krezalek, Benjamin D. Shogan, Jennifer Defazio, Irma Flemming, Baddr Shakhshsheer, Stephen Weber, Emily Landon, Sylvia Garcia-Houchins, Jeffrey Siegel, John Alverdy, Rob Knight, Brent Stephens, Jack A. Gilbert  
*Science Translational Medicine* 9(391), eaah6500, **2017**

DOI:10.1126/scitranslmed.aah6500

**[14] Microbial community assembly and metabolic function during mammalian corpse decomposition**

Jessica L. Metcalf, Zhenjiang Zech Xu, Sophie Weiss, **Simon Lax**, Will Van Treuren, Embriette R. Hyde, Se Jin Song, Amnon Amir, Peter Larsen, Naseer Sangwan, Daniel Haarmann, Greg C. Humphrey, Gail Ackermann, Luke R. Thompson, Christian Lauber, Alexander Bibat, Catherine Nicholas, Matthew J. Gebert, Joseph F. Petrosino, Sasha C. Reed, Jack A. Gilbert, Aaron M. Lynne, Sibyl R. Bucheli, David O. Carter, Rob Knight

*Science* 351(6269), 158-162, **2016**

DOI:10.1126/science.aad2646

**[13] The influence of age and gender on skin-associated microbial communities in urban and rural human populations**

Shi Ying, Dan-Ning Zeng, Liang Chi, Yuan Tan, Carlos Galzote, Cesar Cardona, **Simon Lax**, Jack Gilbert, Zhe-Xue Quan

*PLoS One* 10 (10) e0141842, **2015**

DOI:10.1371/journal.pone.0141842

**[12] Athletic equipment microbiota are shaped by interactions with human skin**

Mariah Wood, Sean M. Gibbons, **Simon Lax**, Tifani W. Eshoo-Anton, Sarah M. Owens, Suzanne Kennedy, Jack A. Gilbert, Jarrad T. Hampton-Marcell

*Microbiome* 3(25), **2015**

DOI: 10.1186/s40168-015-0088-3

**[11] Forensic analysis of the microbiome of phones and shoes**

**Simon Lax**, Jarrad Hampton-Marcell, Sean M. Gibbons, Geórgia Barguil Colares, Daniel Smith, Jonathan Eisen, Jack A. Gilbert

*Microbiome* 3(21), **2015**

DOI: 10.1186/s40168-015-0082-9

**[10] Hospital-associated microbiota and implications for nosocomial infections**

**Simon Lax** & Jack A. Gilbert

*Trends in Molecular Medicine* 21(7), 427-432, **2015**

DOI:10.1016/j.molmed.2015.03.005

**[9] Collagen degradation and MMP9 activation by *Enterococcus faecalis* contribute to intestinal anastomotic leak**

Benjamin D. Shogan, Natalia Belogortseva, Preston M. Luong, Alexander Zaborin, **Simon Lax**, Cindy Bethel, Marc Ward, Joseph P. Muldoon, Mark Singer, Gary An, Konstantin Umanskiy, Vani Konda, Baddr Shakhsheer, James Luo, Robin Klabbers, Lynn E. Hancock, Jack A. Glibert, Olga Zaborina, John C. Alverdy

*Science Translational Medicine* 7(286), 286ra68, **2015**

DOI: 10.1126/scitranslmed.3010658

**[8] The soil microbiome influences grapevine-associated microbiota**

Iratxe Zarraonaindia, Sarah M. Owens, Pamela Weisenhorn, Kristin West, Jarrad Hampton-Marcell, **Simon Lax**, Nicholas A. Bokulich, David A. Mills, Gilles Martin, Safiyh Taghavi, Daniel van der Lelie, Jack A. Gilbert

*mBio* 6(2), e02527-14, **2015**

DOI:10.1128/mBio.02527-14

**[7] Our interface with the built environment: immunity and the indoor microbiota**

**Simon Lax**, Cathryn R Nagler, Jack A Gilbert

*Trends in Immunology* 36(3), 121-123, **2015**

DOI:10.1016/j.it.2015.01.001

**[6] Longitudinal analysis of microbial interaction between humans and the indoor environment**

**Simon Lax**, Daniel P Smith, Jarrad Hampton-Marcell, Sarah M Owens, Kim M Handley, Nicole M Scott, Sean M Gibbons, Peter Larsen, Benjamin D Shogan, Sophie Weiss, Jessica L Metcalf, Luke K Ursell, Yoshiki Vázquez-Baeza, Will Van Treuren, Nur A Hasan, Molly K Gibson, Rita Colwell, Gautam Dantas, Rob Knight, Jack A Gilbert

*Science* 345(6200), 1048-1052, **2014**

DOI: 10.1126/science.1254529

### **[5] The gut of geographically disparate *Ciona intestinalis* harbors a core microbiota**

Larry J Dishaw\*, Jaime Flores-Torres\*, **Simon Lax\***, Kristina Gemayel, Brittany Leigh, Daniela Melillo, M Gail Mueller, Lenina Natale, Ivana Zucchetti, Rosaria De Santis, Maria Rosaria Pinto, Gary W Litman, Jack A Gilbert

\*Shared first authorship

*PLoS One* 9(4), e93386, 2014

DOI: [10.1371/journal.pone.0093386](https://doi.org/10.1371/journal.pone.0093386)

### **[4] Reconstructing an ancestral genotype of two hexachlorocyclohexane-degrading *Sphingobium* species using metagenomic sequence data**

Naseer Sangwan, Helianthous Verma, Roshan Kumar, Vivek Negi, **Simon Lax**, Paramjit Khurana, Jitendra P Khurana, Jack A Gilbert, Rup Lal

*The ISME Journal* 8, 398-408, 2013

DOI: [10.1038/ismej.2013.153](https://doi.org/10.1038/ismej.2013.153)

### **[3] Comparative anatomy of chromosomal domains with imprinted and non-imprinted allele-specific DNA methylation**

Anupam Paliwal, Alexis M Temkin, Kristi Kerkel, Alexander Yale, Iveta Yotova, Natalia Drost, **Simon Lax**, Chia-Ling Nhan-Chang, Charles Powell, Alain Borczuk, Abraham Aviv, Ronald Wapner, Xiaowei Chen, Peter L Nagy, Nicholas Schork, Catherine Do, Ali Torkamani, Benjamin Tycko

*PLoS Genetics* 9(8), e1003622, 2013

DOI: [10.1371/journal.pgen.1003622](https://doi.org/10.1371/journal.pgen.1003622)

### **[2] Variants in CYP17 and CYP19 cytochrome P450 genes are associated with onset of Alzheimer's disease in women with Down syndrome**

Constance Chace, Deborah Pang, Catherine Weng, Alexis Temkin, **Simon Lax**, Wayne Silverman, Warren Zigman, Michel Ferin, Joseph H Lee, Benjamin Tycko, Nicole Schupf

*Journal of Alzheimer's Disease* 28(3), 601-612, 2012

DOI: [10.3233/JAD-2011-110860](https://doi.org/10.3233/JAD-2011-110860)

### **[1] Can glacial erosion limit the extent of glaciation?**

Michael R Kaplan, Andrew S Hein, Alun Hubbard, **Simon Lax**

*Geomorphology* 103(2), 172-179, 2009

DOI: [10.1016/j.geomorph.2008.04.020](https://doi.org/10.1016/j.geomorph.2008.04.020)

## **Book Chapters**

### **[1] Forensic Microbiology in Built Environments**

**Simon Lax** & Jack A Gilbert

*Forensic Microbiology*, Chapter 13, p. 328, John Wiley & Sons, 2017

## **Service**

**Peer reviewer for:** PNAS, The ISME Journal, Scientific Reports, Applied and Environmental Microbiology, Biology Letters, PLoS One, Microbial Ecology, Environmental Microbiology, Applied Microbiology and Biotechnology, Marine Genomics, BMC Infectious Diseases, PeerJ

## **Mentorship**

### **Undergraduate Research Supervised**

Miles Richardson, University of Chicago

2015 - 2017