

Sarah E. Cobey
cobey@uchicago.edu
617 756 7204

Department of Ecology & Evolution
205 Erman Hall
1101 East 57th Street
Chicago, Illinois 60637

Education

- 2004-2009 **University of Michigan**, Ann Arbor
Ph.D. in Ecology and Evolutionary Biology
Advised by Mercedes Pascual
- 1998-2002 **Princeton University**
A.B. *summa cum laude* in Ecology and Evolutionary Biology
Certificates in Environmental Studies and Russian Studies

Academic appointments

- 2018- **University of Chicago**
Associate Professor in the Department of Ecology & Evolution
Committee on Microbiology (since 2018)
Graduate Program in Biophysical Sciences (since 2018)
- 2013-2018 Assistant Professor in the Department of Ecology & Evolution
Committee on Microbiology (2016-2018)
- 2010-2013 **Harvard School of Public Health**
Postdoctoral Research Fellow and NIH Kirschstein Fellow
Advised by Marc Lipsitch

Awards and fellowships

- 2016 Neubauer Faculty Development Fellowship, U. Chicago (\$10,000)
- 2014 NIH New Innovator Award (DP2AI117921; \$2.1 million; 5 years)
- 2014 James S. McDonnell Complex Systems Scholar Award (\$450,000; PI with co-PI Patrick Wilson; 4 years)
- 2011 NIH Kirschstein National Research Service Award (F32GM097997) (2 years)
- 2005 NSF Graduate Research Fellowship (3 years)
- 2005 YSSP Fellowship Grant from U.S. National Committee for IIASA
- 2002 Senior Book Prize, Department of Ecology and Evolutionary Biology, Princeton
- 2002 Phi Beta Kappa, Princeton
- 2002 Sigma Xi Society, Princeton

Publications

Pre-prints, submitted, or in review

- Wen, F., Malani, A. and **S. Cobey**. 2020. The beneficial effects of vaccination on the evolution of seasonal influenza. bioRxiv 162545; doi.org/10.1101/162545 (in review)
- Vieira, M.C., Donato, C.M., Arevalo, P., Rimmelzwaan, G.F., Wood, T., Lopez, L., Huang, Q.S., Dhanasekaran, V., Koelle, K. and **S. Cobey**. 2021. Lineage-specific protection and immune imprinting shape the age distributions of influenza B cases. medRxiv doi.org/10.1101/2020.09.30.20204909 (in review)

- Guthmiller, J.J., Utset, H.A., Henry, C., Li, L., Zheng, N., Sun, W., Vieira, M.C., Zost, S., Huang, M., Hensley, S.E., **Cobey, S.**, Palese, P. and P. Wilson. 2021. An egg-derived sulfated N-Acetylglucosamine glycan is an antigenic decoy of influenza virus vaccines. *bioRxiv* doi.org/10.1101/2021.03.16.435673 (in review)
- Holden, T.M., Richardson, R.A.K., Arevalo, P., Duffus, W., Runge, M., Whitney, E., Wise, L., Ezike, N.O., Patrick, S., **Cobey, S.** and J. Gerardin. 2021. Geographic and demographic heterogeneity of SARS-CoV-2 diagnostic testing in Illinois, USA, March to December 2020. *medRxiv* doi.org/10.1101/2021.04.14.21255476 (submitted)
- Clipman, S.J., Wesolowski, A., Mehta, S.H., Agarwal, S., **Cobey, S.**, Cummings, D.A.T., Gibson, D.G., Labrique, A.B., Kirk, G.D. and S. Solomon. 2021. SARS-CoV-2 testing in Florida, Illinois, and Maryland: access and barriers. *medRxiv* doi.org/10.1101/2020.12.23.20248789

Peer-reviewed

- Cobey, S.**, Larremore, D.B., Grad, Y.H. and M. Lipsitch. 2021. Concerns about SARS-CoV-2 evolution should not hold back effort to expand vaccination. *Nature Reviews Immunology* (in press)
- Bubar, K.M., Reinholt, K., Kissler, S.M., Lipsitch, M., **Cobey, S.**, Grad, Y.H. and D. B. Larremore. 2021. Model-informed COVID-19 vaccine prioritization by age and serostatus. *Science* 371(6532):916-921.
- Gostic, K.M., McGough, L., Baskerville, E., Abbott, S., Joshi, K., Tedijanto, C., Kahn, R., Niehus, R., Hay, J.A., De Salazar, P.M., Hellewell, J., Meakin, S., Munday, J., Bosse, N., Sherratt, K., Thompson, R.M., White, L.F., Huisman, J., Scire, J., Bonhoeffer, S., Stadler, T., Wallinga, J., Funk, S., Lipsitch, M., and **S. Cobey**. 2020. Practical considerations for measuring the effective reproductive number, R_t . *PLOS Computational Biology* 16(12):e1008409
- Dugan, H., Guthmiller, J.J., Arevalo, P., Huang, M., Chen, Y.Q., Neu, K.E., Henry, C., Zheng, N., Lan, L.Y., Tepora, M.E., Stovicek, O., Bitar, D., Palm, A.E., Stamper, C.T., Changrob, S., Utset, H.A., Coughlan, L., Krammer, F., **Cobey, S.** and P. Wilson. 2020. Preexisting immunity shapes distinct antibody landscapes after influenza virus infection and vaccination in humans. *Science Translational Medicine* 12(573)
- Arevalo, P., McLean, H.Q., Belongia, E.A. and **S. Cobey**. 2020. Earliest infections predict the age distribution of influenza A cases. *eLife* 2020;9:e50060
- Gouma, S., Kim, K., Weirick, M., Gumina, M.E., Branche, A., Topham, D.J., Martin, E.T., Monto, A.M., **Cobey, S.** and S. Hensley. 2020. Middle-aged individuals may be in a perpetual state of H3N2 influenza virus susceptibility. *Nature Communications*. 11(1):1-8.
- Cobey, S.** Perspective: Modelling Infectious Disease Dynamics. *Science*. 368(6492):713-714.
- Gouma, S., Zost, S. J., Parkhouse, K., Branche, A., Topham, D. J., **Cobey, S.**, and S. Hensley. 2019. Comparison of human H3N2 antibody responses elicited by egg-based, cell-based, and recombinant protein-based influenza vaccines during the 2017-2018 season. *Clinical Infectious Diseases*, eiz996.
- Ranjeva, S., Subramanian, R., Fang, V. J., Leung, G. M., Ip, D. K. M., Perera, R. A. P. M., Peiris, J. S. Malik, Cowling, B. J., and **S. Cobey**. 2019. Age-specific differences in the dynamics of protective immunity to influenza. *Nature Communications* 10:1660.
- Henry, C., Zheng, N., Huang, M., Cabanov, A., Rojas, K., Kaur, K., Andrews, S.F., Palm, A., Chen, Y., Li, Y., Hoskova, K., Utset, H.A., Vieira, M.C., Wrammert, J., Ahmed, R., Holden-Wiltse, J., Topham, D.J., Treanor, J.T., Ertl, H.C., Schmader, K.E., **Cobey, S.**, Krammer, F., Hensley, S.E., Greenberg, H., He, X. and P.C. Wilson. 2019. Influenza virus vaccination elicits poorly adapted B cell responses in elderly individuals. *Cell Host & Microbe* 13;25(3):357-366.e6.
- Neu, K.E., Guthmiller, J.J., Huang, M., La, J., Vieira, M.C., Kim, K., Zheng, N., Cortese, M., Tepora, M.E., Hamel, N.J., Rojas, K., Henry, C., Shaw, D., Dulberger, C.L., Pulendran, B.,

- Cobey, S.**, Khan, A., and P.C. Wilson. 2018. Spec-seq unveils transcriptional subpopulations of antibody-secreting cells following influenza vaccination. *Journal of Clinical Investigation* 129(1):93-105.
- Cai, F.Y., Fussell, T., **Cobey, S.** and M. Lipsitch. 2018. Use of an individual-based model of pneumococcal carriage for planning a randomized trial of a vaccine. *PLOS Computational Biology* 14(10):e1006333.
- Wen, F., Bell, S., Bedford, T. and **S. Cobey**. 2018. Estimating vaccine-driven selection in seasonal influenza. *Viruses*. 10(9):509.
- Lewnard, Joseph A. and **S. Cobey**. 2018. Immune history and influenza vaccine effectiveness. *Vaccines*. 62(2):28.
- Vieira, M., Zinder, D. and **S. Cobey**. 2018. Selection and neutral mutations drive pervasive mutability losses in long-lived B cell lineages. *Molecular Biology & Evolution* 35(5):1135-1146.
- Cobey, S.**, Gouma, S., Parkhouse, K., Chambers, B.S., Ertl, H.C., Schmader, K. E., Halpin, R.A., Lin, X., Stockwell, T. B., Das, S. R., Landon, E., Tesic, V., Youngster, I., Pinsky, B., Wentworth, D.E., Hensley, S.E. and Y.H. Grad. 2018. Poor immunogenicity, not vaccine strain egg adaptation, may explain the low H3N2 influenza vaccine effectiveness in 2012-2013. *Clinical Infectious Diseases*. 67(3):327-333.
- Ranjeva, S., Baskerville, E., Dukic, V., Villa, L., Lazcano-Ponce, E., Giuliano, A., Dwyer, G. and **S. Cobey**. 2017. Recurring infection with ecologically distinct human papillomavirus (HPV) types explains high prevalence and diversity. *PNAS* 114(51):13573-13578.
- Zost, S.J., Parkhouse, K., Gumina, M.E., Kim, K., Perez, S.D., Wilson, P.C., Treanor, J.J., Sant, A.J., **Cobey, S.** and S. Hensley. 2017. Contemporary H3N2 influenza viruses have a glycosylation site that alters binding of antibodies elicited by egg-adapted vaccine strains. *PNAS* 114(47):12578-12583.
- Cobey, S.**, Baskerville, E., Colijn, C., Hanage, W., Fraser, C. and M. Lipsitch. 2017. Host population structure and treatment frequency maintain balancing selection on drug resistance. *Journal of the Royal Society Interface* 14(33):20170295.
- Cobey, S.** and S. Hensley. 2017. Immune history and influenza virus susceptibility. *Current Opinion in Virology* 22:105-111.
- Cobey, S.** and E. Baskerville. 2016. Limits to causal inference with state-space reconstruction for infectious disease. *PLOS One* 11(12). e0169050.
- Lipsitch, M., Barclay, W., Raman, R., Russell, C.J., Belser, J.A., **Cobey, S.**, Kasson, P., Lloyd-Smith, J.O., Maurer-Stroh, S., Riley, S., Beauchemin, C.A.A., Bedford, T., Friedrich, T.C., Handel, A., Herfst, S., Murcia, P.R., Roche, B., Wilke, C.O., and C.A. Russell. 2016. Viral factors in influenza pandemic risk assessment. *eLife*. e18491.
- Wen, F., Bedford, T. and **S. Cobey**. 2016. Explaining the geographic origins of seasonal influenza A (H3N2). *Proceedings of the Royal Society B*. 283(1838).
- Pessia, A., Grad, Y., **Cobey, S.**, Puranen, J.S., and J. Corander. 2015. K-Pax2: Bayesian identification of cluster-defining amino acid positions in large sequence datasets. *Microbial Genomics*. 1(1).
- Cobey, S.**, Wilson, P. and F. Matsen. 2015. The evolution within us. *Philosophical Transactions of the Royal Society B*. 370(1676): 20140235.
- Childs, L., Baskerville, E. and **S. Cobey**. 2015. Tradeoffs in antibody repertoires to complex antigens. *Philosophical Transactions of the Royal Society B*. 370(1676): 20140245.
- Perron, G., Inglis, R., Pennings, P. and **S. Cobey**. 2015. Fighting microbial drug resistance: a primer on the role of evolutionary biology in public health. *Evolutionary Applications*. 8(3):211-222.
- Cobey, S.** 2014. Pathogen evolution and the immunological niche. *Annals of the New York Academy of Sciences* 1320:1-15.

- Cobey, S.** and M. Lipsitch. 2013. Pathogen coexistence through hidden regimes of apparent competition. *American Naturalist* 181(1):12-24.
- Cobey, S.** and M. Lipsitch. 2012. Niche and neutral effects of acquired immunity permit coexistence of pneumococcal serotypes. *Science* 335(6074):1376-1380.
- Flanagan, M., Parrish, C., **Cobey, S.**, Glass, G., Bush, R. and T. Leighton. 2011. Anticipating the species jump: Surveillance for emerging viral threats. *Zoonoses and Public Health* doi:10.1111/j.1863-2378.2011.01439
- Bedford, T., **Cobey, S.** and M. Pascual. 2011. Strength and tempo of selection revealed in viral gene genealogies. *BMC Evolutionary Biology* 11:220.
- Goldstein, E., **Cobey, S.**, Takahashi, S., Miller, J.C., and M. Lipsitch. 2011. Predicting the epidemic sizes of A/H1N1, A/H3N2, and B: a statistical method. *PLoS Medicine* 8(7):e1001051.
- Cobey, S.** and M. Pascual. 2011. Consequences of host heterogeneity, epitope immunodominance, and immune breadth for strain competition. *Journal of Theoretical Biology* 270(1):80-87.
- Cobey, S.**, Pascual, M. and U. Dieckmann. 2010. Ecological factors driving the long-term evolution of influenza's host range. *Proceedings of the Royal Society B* 277(1695):2803-2810.
- Bedford, T., **Cobey, S.**, Beerli, P. and M. Pascual. 2010. Global migrational dynamics underlie evolution and persistence of human influenza A (H3N2). *PLoS Pathogens* 6(5):e1000918.
- Cobey, S.** and K. Koelle. 2008. Capturing escape in infectious disease dynamics. *Trends in Ecology and Evolution* 23(10):572-577.
- Koelle*, K., **Cobey***, S., Grenfell, B. and M. Pascual. 2006. Epochal evolution shapes the phylodynamics of interpandemic influenza A (H3N2) in humans. *Science* 314:1898-1903. (*equal authorship)

Other publications

- Lipsitch, M., Joshi, K. and **S. Cobey**. 2020. Comment on Pan, A., Liu, L., Wang, C., et al., "Association of public health interventions with the epidemiology of the COVID-19 outbreak in Wuhan, China," *JAMA*. Published online April 20, 2020.
- Cobey, S.** 2018. Repeated vaccination may protect children from influenza infection. *JAMA Network Open* 1(6):e183730.
- Cobey, S.** and P. Wilson. 2018. Characterization of the immunologic repertoire: a quick start guide. *Immunological Reviews* 284(1):5-8.
- Cobey, S.** 2017. Immune evolution: Sick if you do, sick if you don't. *Nature Ecology & Evolution* (News & Views) 1, 1602-1603.
- Baskerville, E. and **S. Cobey**. 2017. Does influenza drive absolute humidity? *PNAS* (Letter) 114(2): E2270-E2271.
- Gilbert, J., Smith, D., Shogun, B., Packman, A., Kelley, S., Landon, E., Bhangar, S., Vora, G., Jones, R., Keegan, K., Stephens, B., Ramos, T., Kirkup, B., Levin, H., Rosenthal, M., Foxman, B., Chang, E., Siegel, J., **Cobey, S.**, An, G., Alverdy, J., Olsiewski, P., Martin, M., Marrs, R., Hernandez, M., Christley, S., Morowitz, M. and S. Weber. 2013. The Hospital Microbiome Project: Meeting Report for the 2nd Hospital Microbiome Project, Chicago, USA, January 15, 2013. *Standards in Genomics* 8(3).
- WHO Writing Group, Ampofo, W., Baylor, N., **Cobey, S.**, Cox, N., Daves, S., Edwards, S., Ferguson, N., Grohmann, G., Hay, A., Katz, J., Kullabutr, K., Lambert, L., Levandowski, R., Mishra, A., Monto, A., Siqueira, M., Tashiro, M., Waddell, A., Wairagkar, N., Wood, J., Zambon, M., Zhang, W. 2012. Improving influenza vaccine virus selection: Report of a WHO informal consultation held at WHO headquarters, Geneva, Switzerland, 14-16 June 2010. *Influenza and Other Respiratory Diseases* 6(2):142-152.

Cobey, S. 2005. “Sea lampreys in the Great Lakes.” *In* Ecological Networks. J.A. Dunne and M.P. Pascual, eds. (Oxford University Press).

Invited talks

Plenaries, keynotes, & featured talks

(Scheduled) Virtual Quantitative Biosciences Hands-on Workshop on Epidemic Modeling, Georgia Tech. May 2021.
 WHO Global Consultation on SARS-CoV-2 Variants of Concern. March 2021.
 AAAS 2021 Annual Meeting, “An Epidemiological Blueprint for Understanding the Dynamics of a Pandemic” Symposium. Respondent and speaker at news briefing. February 2021.
 Center for Molecular and Clinical Epidemiology of Infectious Diseases (MAC-EPID) Symposium. University of Michigan School of Public Health, Ann Arbor. October 2019.
 Bridging Scales: Microbial Eco-Evolutionary Dynamics Across the Space-Time Continuum. Gulbenkian Science Institute. Lisbon, Portugal. October 2018.
 American Society for Virology Annual Meeting. College Park, Maryland. July 2018.
 ASM Biothreats. Baltimore, Maryland. February 2018.
 Burroughs Wellcome Integrated Training Program. Microbial Systems Models: At the intersection of data and discovery, University of Michigan, Ann Arbor. August 2017.
 Viral Genomics and Evolution, Wellcome Genome Campus Scientific Conference. Cambridge, United Kingdom. June 2016.
 Forecasting Evolution? SFB 680 Conference. Lisbon, Portugal. July 2015.
 Microbes in Action! Dynamics of single cells to communities. 113th Meeting of the American Society for Microbiology. Denver, Colorado. May 2013.

Other invited talks

2021 (Scheduled) 2021 Program in Quantitative Genomics Conference, Harvard T.H. Chan School of Public Health. Boston, Massachusetts. October.
 (Scheduled) National Vaccine Advisory Committee. Washington, D.C. June.
 (Scheduled) Los Alamos National Laboratory, Theoretical Biology and Biophysics Division. Los Alamos, New Mexico. April.
 Virtual Analytic Exchange: “Global Dynamics of COVID-19: The Next Five Years,” Office of Analytic Outreach, Bureau of Intelligence & Research, U.S. Department of State. Washington, D.C. March.
 Institute for Global Health, Northwestern University. March 2021.
 Infectious Disease Across Scales seminar series, Emory University. February.
 Quantitative Evolution, Phylogeny and Ecology: from models to data and back. Institut Henri Poincaré (IHP), Sorbonne University. Paris. February.
 SARS-CoV-2 Modeling: What have we learned from this pandemic about how (not) to model disease spread? Theory and Modeling of Living Systems, Emory University. January.
 2020 Influenza and COVID-19: What should we expect this winter? Panel discussion. Library of Congress, Washington, D.C. December.
 Institute for Mathematical and Statistical Innovation, University of Chicago. Dealing with COVID-19 in Theory and Practice. October.
 (Postponed) Influenza and Other Infections. University of Tokyo, Japan. June.
 (Postponed) Delbrück Seminar on Evolution, University of Cologne, Germany. March.
 École Normale Supérieure, Paris. March.
 Systems Biology of Infectious Disease Workshop. Center for Viral Systems Biology, Scripps Research Institute, La Jolla, California. February.

- Virginia Technical University, Department of Biology, Blacksburg, Virginia. February.
- 2019 U.S. Centers for Disease Control, Influenza Division. Atlanta, Georgia. November.
 Bill & Melinda Gates Foundation Expert Consultation on Imprinting in Influenza.
 Seattle, Washington. November.
 Physical Concepts and Computational Models in Immunology. Ragon Institute, Boston,
 Massachusetts. September.
- Options X for the Control of Influenza, Singapore. August.
- 2018 University of California, San Diego, Department of Biology. December.
 Hong Kong University School of Public Health. December.
 University of Illinois, Chicago, Department of Microbiology and Immunology.
 November.
 Institute for Dynamical Modeling. Seattle, Washington. November.
 Towards a New Universal Influenza Vaccine: Lessons from the Great Influenza
 Pandemic of 1918 to Now. Human Vaccines Project, Sabin Vaccine Institute,
 Vanderbilt University Medical Center, Burroughs Wellcome Fund, and Sanofi.
 Nashville, Tennessee. November.
 NIH. Epidemiology and Evolutionary Dynamics of Broadly Cross-protective Influenza
 Vaccines. Bethesda, Maryland. September.
 Mount Sinai Icahn School of Medicine, Department of Microbiology. June.
 Stanford University, Department of Biology. April.
 University of Idaho, Department of Biology. March.
 University of California, Los Angeles, Department of Ecology & Evolutionary Biology.
 February.
- 2017 Princeton University, Department of Ecology & Evolutionary Biology. November.
 Infectious Disease Week (IDWeek). Evolution informing infectious diseases, infectious
 diseases informing evolution. San Diego, California. October.
 Mathematical Virology Satellite Symposium of the American Society of Virology
 Annual Meeting. Madison, Wisconsin. June.
 Stochasticity and Control in the Dynamics and Diversity of Immune Repertoires. Israeli
 Institute for Advanced Studies. Jerusalem, Israel. June.
 Immunology and Evolution of Influenza Symposium. Emory University. May.
 Math+X Simons Foundation Symposium on Immunology and Systems Biology.
 University of Pennsylvania. May.
 Innovative Approaches to Widening and Deepening Research on the Value of
 Vaccination. Harvard T.H. Chan School of Public Health. May.
 Harvard T.H. Chan School of Public Health, Department of Immunology & Infectious
 Disease. April.
 Northwestern University Lurie Children's Hospital, Pathology Grand Rounds. April.
 The value of vaccines in the avoidance of antimicrobial resistance. Chatham House,
 London. March.
- 2016 Exploring Predictive Models for Improving Influenza Vaccine Virus Selection. Princeton
 University. July.
 Influenza Immunology: Data, Systems, & Models. Yale University. June.
 New York University, Department of Biology. April.
- 2015 RAPIDD Workshop on Modeling and Predicting Influenza Phenotypes. Cambridge
 University. March.
- 2014 Ecology and Evolution of Infectious Disease, Center for the Study of Biodiversity in
 Amazonia. Merida, Mexico. November.
 Jacques Monod Conference: From emerging to pandemic viruses: Interplay between host
 ecology and viral evolution. Roscoff, France. April.
- 2013 J. Craig Venter Institute. December.

- Swarthmore College, Department of Biology. October.
Pre-2013 Hong Kong University. Area of Excellence: Control of Pandemic and Inter-Pandemic Influenza. July 2012.
Next-generation Molecular Evolutionary Epidemiology of Infectious Disease Satellite Meeting. Kavli Royal Society International Centre, Buckinghamshire, United Kingdom. May 2012.
Informal Consultation for Improving Influenza Vaccine Virus Selection. WHO, Geneva, Switzerland. June 2010.
Anticipating the Species Jump: Surveillance for Emerging Viral Threats. DTRA and SAIC, McLean, Virginia. December 2009.
Harvard School of Public Health, Department of Epidemiology. May 2007.
Influenza Seasonality Workshop. Center for Infectious Disease Dynamics, Penn State University. October 2006.

Symposia and sessions chaired or co-chaired

- Epidemics⁷ International Conference on Infectious Disease Dynamic, Planning Committee. Charleston, South Carolina. December 2019.
LabLinks Symposium on Evolution and Immunity, co-chaired with Alexander Chervonsky. University of Chicago. October 2016.
Special Session on Systems Immunology. Keystone Symposium: The Golden Anniversary of B Cell Discovery (X6). Banff, Canada. March 2015.
RAPIDD Workshop on Modeling and Predicting Influenza Phenotypes. Cambridge University. March 2015.
NESCent Working Group on the Evolution of Human Viruses. Durham, North Carolina. November 2013 – May 2014.
The Evolution and Genetics of Drug Resistance. Congress of the European Society for Evolutionary Biology. Lisbon, Portugal. August 2013.
Anticipating the Species Jump: Surveillance for Emerging Viral Threats. DTRA and SAIC, McLean, Virginia. March 2011.

Contributed talks and posters

- NIH High Risk, High Reward Symposium. Bethesda, Maryland. June 2019. (Talk)
Immunological Assays and Correlates of Protection for Next Generation Influenza Vaccines. Siena, Italy. (Poster)
Epidemics⁵. Clearwater Beach, Florida. December 2015. (Talk)
Pneumococci & Pneumococcal Disease Symposium (ISPPD8), Brazil. March 2012. (Talk/Poster)
Epidemics³. Boston, Massachusetts. December 2011. (Talk)
MIDAS Meeting. Atlanta, Georgia. June 2011. (Talk)
Epidemics. Asilomar, California. December 2008. (Poster)
Ecological Society of America Annual Meeting, Milwaukee, Wisconsin. August 2008. (Talk)
Viral Paradigms. Emory University, Atlanta, Georgia. January 2008. (Poster)
Preparedness to the Influenza Pandemic—an International Outlook. St. Petersburg, Russia. March 2007. (Talk)
EcoHealthONE. Madison, Wisconsin. October 2006. (Talk)
Bridging the Scales of Disease Dynamics. Vancouver, B.C. September 2006. (Poster)

Grant support

2021-2028	NIH NIAID Centers for Excellence in Influenza Research and Response (CEIRR) Contract 75N93021C00015. PI: Scott Hensley.
2020-2025	NIH NIAID U01, “The ‘Dynamics of the immune responses to repeat influenza vaccination exposures’ (DRIVE) Study.” 1U01AI153700-01. Contact PI with co-PI Benjamin Cowling.
2020-2025	HHS CDC U01. “Data-driven transmission models to optimize influenza vaccination and pandemic mitigation strategies” (with COVID-19 supplement). 5U01IP0001138. PI: Jonathan Zelner.
2020-2022	HHS CDC Contract 75D30120C07963. “Development of a multi-level integrated strategy for regional evaluation of influenza viruses and vaccines.” PI: Emily Martin.
2019-2026	NIH NIAID Sinai-Emory Multi-Institutional Collaborative Influenza Vaccine Innovation Center (CIVIC) (with COVID-19 supplement). PIs: Florian Krammer and Rafi Ahmed
2019-2024	NIH NIAID 1R01AI149747, “Longitudinal dynamics of protection after influenza infection and vaccination,” Contact PI with co-PI Aubree Gordon.
2019-2021	Bill & Melinda Gates Foundation Grand Challenge. PI: Patrick Wilson.
2016-2021	NIH NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS) subcontract. PIs: John Treanor/David Topham
2014-2019	NIH New Innovator Award DP2AI117921. PI: Cobey
2014-2018	James S. McDonnell Complex Systems Scholar Award; PI with co-PI Patrick Wilson
2016	NIH NIGMS Models of Infectious Disease Agent Study (MIDAS) subaward 5U54GM088558. PI: Marc Lipsitch
2013-2015	NSF National Evolutionary Synthesis Center Working Group, “Trends in the evolution of human viruses” (co-PI: Pleuni Pennings)
2014	University of Chicago BIG Ideas Generator Seed Grant. PI with co-PIs Fred Wulczyn and Stefano Allesina
2013	University of Chicago—Argonne Seed Grant. Co-PI with Jack Gilbert
2011-2013	NIH Kirschstein National Research Service Award F32GM097997
2008	Block Grant, Department of Ecology and Evolutionary Biology, U. Michigan
2007	Rackham Graduate Student Research Grant, U. Michigan

Teaching and professional service

Reviews	<i>American Journal of Epidemiology, American Naturalist, BioEssays, Ecology Letters, eLife, Frontiers in Immunology, Genome Medicine, Journal of Infectious Diseases, Journal of Molecular and Genetic Medicine, Journal of the Royal Society Interface, Journal of Theoretical Biology, Journal of Virology, Molecular Biology & Evolution, Nature, Nature Communications, Nature Ecology & Evolution, Nature Medicine, PLOS Biology, PLOS Computational Biology, PLOS Pathogens, PLOS One, Philosophical Transactions of the Royal Society, PNAS, Proceedings of the Royal Society B, Science, Science Advances, Scientific Reports, Trends in Parasitology, Vaccine, and other journals</i>
Grant reviews	US NIH DP2 New Innovator Award (mail-in reviewer, 2020) US NIH Infectious Diseases, Reproductive Health, Asthma and Pulmonary Conditions (IRAP) Study Section (ad hoc, 2020) US NIH Computational Immunology U01 Study Section (2019)

US NIH Modeling and Analysis of Biological Systems (MABS) Study Section
 (ad hoc, 2017, 2019; declined membership 2020 due to time)
 UK Biotechnology and Biological Sciences Research Council
 UK Medical Research Council
 US-Israel Binational Science Foundation
 Swiss National Science Foundation

Editing	<p>Board of Reviewing Editors, <i>eLife</i> (since January 2021) Associate Editor, <i>Science Advances</i> (since June 2020) <i>PLOS Computational Biology</i> (ad hoc, 2019) <i>Immunological Reviews</i> (co-editor of special issue: Characterization of the immunologic repertoire, 2018) <i>eLife</i> (ad hoc, 2017, 2018) <i>PLOS Genetics</i> (ad hoc, 2016) <i>Philosophical Transactions of the Royal Society</i> (co-editor of special issue: Dynamics of antibody repertoires, 2015) <i>Evolutionary Applications</i> (co-editor of special issue: Antimicrobial resistance, 2015)</p>
Doctoral students	<p>Chris Russo (rotations in 2020-2021, Program in Biophysics) Marcos Vieira (2014-2020, Ecology & Evolution) Frank Wen (2015-2018, MSTP) Sylvia Ranjeva (2013-2018, MSTP; co-advised with Greg Dwyer)</p>
Doctoral committees	<p>Qi Zhang, Ecology & Evolution, U. Chicago (2021-present) Sophie Horigan, Ecology & Evolution, U. Chicago (2021-present) Will Koval, Ecology & Evolution, U. Chicago (2020-present) Katie Dixon, Ecology & Evolution, U. Chicago (2019-present) Haley Dugan, Committee on Immunology, U. Chicago (2018-present) Jiawei Liu, Ecology & Evolution, U. Chicago (2018-present) Carlos Calzada, Ecology & Evolution, U. Chicago (2018-2020) Arvind Pillai, Ecology & Evolution, U. Chicago (2016-2021) Chris Stamper, Committee on Immunology, U. Chicago (2016-present) Alyson Yee, Committee on Microbiology, U. Chicago (2016-2019) Mauricio Santos-Vega, Ecology & Evolution, U. Chicago (2016-2018) Matthew Michalska-Smith, Ecology & Evolution, U. Chicago (2015-2018) Pamela Martinez, Ecology & Evolution, U. Chicago (2016-2017) Simon Lax, Ecology & Evolution, U. Chicago (2014-2017) Molly Gallagher, Ecology & Evolution, U. Chicago (2013-2017) Colin Kyle, Ecology & Evolution, U. Chicago (2013-2015)</p>
Postdoctoral fellows	<p>Qifang Bi (November 2020-present) Rachel Oidtman (September 2020-present) Lauren McGough (March 2020-present) Katelyn Gostic (September 2019-present) Phil Arevalo (September 2017-present) Kangchon Kim (April 2017-May 2020) Daniel Zinder (December 2015- June 2017)</p>
Undergraduate students	<p>Elena Whitney (Spring 2020-present) Dannie Griggs (Summer 2020-present)</p>

- Rohan Dandavati (Summer 2017)
 Graham Northrup (Summer 2017)
 Lev Tsypin (Summer 2015)
- Teaching ECEV 42900: Theoretical Ecology (with Greg Dwyer), 2014-2019, 2021
 Statistics and Modeling in Infectious Diseases (SISMID) 2.5-day course with Trevor Bedford, University of Washington, 2015-2019, 2021 (scheduled)
 BIOS 33365: Evolutionary & Genomic Medicine (with Chung-I Wu), 2015-2019
 MBL Woods Hole Quantitative Bootcamp, 2015-2017
- Committees E&E Diversity, Equity, and Inclusion Committee (2020-present, U. Chicago)
 E&E Search Committees (2018-2020, U. Chicago)
 E&E Student Advisory Committee (2017-2019, U. Chicago)
 E&E Population Genetics Search Committee (2016-2017, U. Chicago)
 E&E Computation Committee (2014-2016, U. Chicago)
 E&E Graduate Admissions Committee (2013-2014, U. Chicago)
 Center for Communicable Disease Dynamics representative to the MIDAS Software Sharing and Information Outreach Network (2011-2013, HSPH)
- Consulting Officer of the Governor, State of Illinois (2020-present)
 Keystone Strategy (2020-present)
 External advisor, NIH-CDC Arizona HEROES Cohort (2020-present)
 PATH (subaward through Harvard School of Public Health), 2014-2018
 Pfizer (subaward through Harvard School of Public Health), 2014-2016
- Outreach Interviews on COVID-19 with the *New York Times*, *Washington Post*, *Wall Street Journal*, *Chicago Tribune*, *The Atlantic*, *Washington Post*, *Scientific American*, *STAT*, *MIT Technology Review*, *Nature News*, *Science News*, *Quanta Magazine*, *Dagens Nyheter*, *Al Jazeera*, Salon, Vox, CNN Tonight with Don Lemon, Chris Hayes on MSNBC, BBC World Service “The Inquiry”, PRI’s “Science Friday,” Talking Points Memo, ABC News, CBS-2 Chicago, WGN TV, WGN Radio, Fox News Radio Rundown, WBEZ, and others, March 2020-present
 Panelist, Midwestern Office of the Council of State Governments, “Back to Business: Assessing Economic Reopening Strategies”, July 2020
 Interview, *Chemical and Engineering News*, “The Flu Shot and the Egg”, January 2020
 Interview, Nerdette Podcast, 8 March 2019
 Interview, *STAT*, “Flu science points to another culprit when vaccines fail—us,” 29 January 2019
 Interview, WBEZ The Morning Shift, 17 January 2018
 Interview, PBS NOVA, “Does the flu shot work?” 17 January 2018
<http://www.pbs.org/wgbh/nova/body/flu-shot-work.html>
 Interview, *STAT* and *Scientific American*, “‘The problem child of seasonal flu’: Beware this winter’s virus,” 8 January 2018
 Interview, *Scientific American*, “Flu vaccine ‘factories’ create errors that reduce protection,” 6 November 2017
 Interview, NPR Morning Edition, “Inside each flu shot, months of virus tracking and predictions,” 27 November 2015
 Talk, Senior Center, Chicago Cultural Center, 1 September 2015

Quotation, *Chicago Tribune*, “NorthShore University Health System develops Doppler for disease,” 27 January 2015
Article, “Scientists create accurate predictor of the next flu virus,” *The Conversation*, February 2014