

Katherine Xue

Stanford University, Department of Biology
327 Campus Dr., Stanford, CA 94305-5020
kxue@stanford.edu

EDUCATION AND WORK EXPERIENCE

- 2019 – present **Stanford University**
Postdoctoral fellow
Advisors: Dmitri Petrov and David Relman
- 2014 – 2019 **University of Washington, Seattle**
PhD in Genome Sciences
Certificate in Science, Technology, and Society Studies
Dissertation: “Evolutionary dynamics of influenza virus across spatiotemporal scales”
Advisors: Jesse Bloom and Joshua Akey
- 2013 – 2014 **Harvard Magazine** (Harvard University alumni magazine)
Associate editor
- 2009 – 2013 **Harvard University**
A.B. in Chemical and Physical Biology, *summa cum laude*
Senior thesis advisor: Kirsten Bomblies

PUBLICATIONS

- Xue, K.S.**, Bloom, J.D. Linking influenza virus evolution within and between human hosts. *Virus Evolution* 6(1): veaa010. (2020). DOI: [10.1093/ve/veaa010](https://doi.org/10.1093/ve/veaa010)
- Xue, K.S.**, Bloom, J.D. Reconciling disparate estimates of viral genetic diversity during human influenza infections. *Nature Genetics* 51:1298-1301 (2019). DOI: [10.1038/s41588-019-0349-3](https://doi.org/10.1038/s41588-019-0349-3)
- Davis, A.K.F., McCormick, K., Gumina, M.E., Petrie, J.G., Martin, E.T., **Xue, K.S.**, Bloom, J.D., Monto, A.S., Bushman, F.D., Hensley, S.E. Sera from individuals with narrowly focused influenza virus antibodies rapidly select viral escape mutations *in ovo*. *J. Virol.*:00859-18 (2018). DOI: [10.1128/JVI.00859-18](https://doi.org/10.1128/JVI.00859-18)
- Xue, K.S.**, Moncla, L.H., Bedford, T., Bloom, J.D. Within-host evolution of human influenza virus. *Trends in Microbiol.* 26(8):781-793 (2018). DOI: [10.1016/j.tim.2018.02.007](https://doi.org/10.1016/j.tim.2018.02.007)
- Xue, K.S.**, Greninger, A.L., Pérez-Osorio, A., Bloom, J.D. Cooperating H3N2 influenza virus variants are not detectable in primary clinical samples. *mSphere* 3: e00552-17 (2017). DOI: [10.1128/mSphereDirect.00552-17](https://doi.org/10.1128/mSphereDirect.00552-17)
- Xue, K.S.**, Stevens-Ayers, T., Campbell, A.P., Englund, J.A., Pergam, S.A., Boeckh, M., Bloom, J.D. Parallel evolution of influenza across multiple spatiotemporal scales. *eLife* 6: e26875

(2017). DOI: [10.7554/eLife.26875](https://doi.org/10.7554/eLife.26875)

Press coverage in [The Atlantic](#), [Wired](#), and [Science News](#).

Xue, K.S., Hooper, K.A., Ollodart, A.R., Dingens, A., Bloom, J.D. Cooperation between distinct viral variants promotes growth of H3N2 influenza in cell culture. *eLife* 5: e13974 (2016). DOI: [10.7554/eLife.13974](https://doi.org/10.7554/eLife.13974)

Wright, K.M., Arnold, B.J., **Xue, K.S.**, Surinova, M., O'Connell, J., Bomblies, K. Selection on meiosis genes in diploid and tetraploid *Arabidopsis arenosa*. *Mol. Biol. Evol.* 32(4): 944-955 (2015). DOI: [10.1093/molbev/msu398](https://doi.org/10.1093/molbev/msu398)

Carroll, S.M., **Xue, K.S.**, Marx, C.J. Laboratory divergence of *Methylobacterium extorquens* AM1 through unintended domestication and past selection for antibiotic resistance. *BMC Microbiol.* 14:2 (2014). DOI: [10.1186/1471-2180-14-2](https://doi.org/10.1186/1471-2180-14-2)

Hollister, J.D., Arnold, B.J., Svedin, E., **Xue, K.S.**, Dilkes, B.P., Bomblies, K. Genetic adaptation associated with genome-doubling in autotetraploid *Arabidopsis arenosa*. *PLoS Gen* 8(12): e1003093 (2012). DOI: [10.1371/journal.pgen.1003093](https://doi.org/10.1371/journal.pgen.1003093)

AWARDS AND HONORS

James S. McDonnell Foundation Postdoctoral Fellowship Award in Understanding Dynamic and Multi-scale Systems, 2019-2021.

James F. Crow Early Career Researcher Award, Genetics Society of America, 2018.

Harold M. Weintraub Graduate Student Award, 2018.

Oeiras Best Talk Prize, Institut Gulbenkian de Ciência symposium, 2018.

Young Investigator Travel Award, Society for Molecular Biology and Evolution, 2018.

Finalist, Walter M. Fitch Award, Society for Molecular Biology and Evolution, 2017.

Young Investigator Travel Award, Society for Molecular Biology and Evolution, 2016.

Parker Travel Award for Best Poster, Department of Genome Sciences, 2016.

Fannie and John Hertz Foundation Fellowship, 2015-2019.

NSF Graduate Research Fellowship, 2014-2017.

Phi Beta Kappa, Alpha Iota chapter, Harvard University.

Herchel Smith-Harvard Undergraduate Science Research Fellowship, 2012.

SCIENCE WRITING

Bowdoin Prize, Undergraduate Essays in the Natural Sciences, Harvard University, 2013.

Berta Greenwald Leducky Undergraduate Fellowship, Harvard Magazine, 2011-2012.

Thomas Wood Award in Journalism, Harvard University, 2011.

SELECTED GENERAL-AUDIENCE PUBLICATIONS

Harvard Magazine writer profile: <http://harvardmagazine.com/profile/Katherine-Xue>

"How flu changes within the human body may hint at future global trends." *The Conversation*, June 27, 2017.

"The Ascent of Man." *Harvard Magazine*, July-August 2015. Book review: *Evolving Ourselves: How Unnatural Selection and Nonrandom Mutation Are Changing Life on Earth*.

"Synthetic Biology's New Menagerie." *Harvard Magazine*, September-October 2014. Feature article, synthetic biology.

"Superbug: An Epidemic Begins." *Harvard Magazine*, May-June 2014. Cover article, antibiotic resistance.

"Popular Science." *Harvard Magazine*, January-February 2014. Feature article, citizen science.

SCIENTIFIC PRESENTATIONS

ORAL PRESENTATIONS

- 2019 Global Infectious Disease Seminar, UW Madison.
J.F. Crow Institute Early-Career Scientist Seminar, UW Madison.
- 2018 Santa Fe Institute working group, "Integrating Critical Phenomenon and Multi-Scale in Virus Evolution"
Seminar, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.
Seminar, Friedrich Miescher Laboratory of the Max Planck Society, Tübingen, Germany.
Institut Gulbenkian de Ciência symposium - Microbial Eco-Evolutionary Dynamics (Oeiras Best Talk Prize).
Genetics Society of America Population, Evolutionary, and Quantitative Genetics Conference (James F. Crow Early Career Researcher Award).
Institute for Disease Modeling symposium.
- 2017 Gordon Research Conference, Microbial Population Biology. Student-selected talk.
Gordon Research Seminar, Microbial Population Biology.
Society for Molecular Biology and Evolution (Walter Fitch symposium).
Evolgenome seminar, Stanford University.
- 2016 Society for Molecular Biology and Evolution.
EVO-WIBO (Pacific Northwest conference on evolution).

POSTER PRESENTATIONS

- 2018 Society for Molecular Biology and Evolution.
- 2016 Options IX for the Control of Influenza.
- 2015 Gordon Research Conference, Molecular Mechanisms of Evolution.

TEACHING EXPERIENCE

Teaching assistant, Debates in Genetics, University of Washington, spring 2018. Lectured and held discussions on gain-of-function influenza experiments and personal genetics.

Teaching assistant, Fundamentals of Genetics and Genomics, University of Washington, fall 2016. Taught two weekly quiz sections.

EXTRACURRICULAR

Poster presentation, "The Genomics Salon: Translating Across Disciplines." UW Praxis pedagogy conference, February 9, 2018.

Roundtable presentation, "Writing Across Difference: Translating to Racial Equity." UW Praxis pedagogy conference, February 9, 2018.

Member, Writing Across Difference research cluster. Research group studying pedagogical methods for teaching writing in diverse contexts, 2017-2018.

Instructor, English language program for middle-school students, UNIWISE Bilingual School, Dongguan, China, summer 2014.

Instructor, intensive summer academic program for high-school students, MIT Educational Studies Program, Cambridge, Massachusetts, summer 2013.

Instructor, middle-school mathematics and physical sciences, WorldTeach Namibia Summer, S.I. !Gobs Secondary School, Omaruru, Namibia, summer 2011.

OUTREACH

SCIENCE COMMUNICATION

Guest lecture, "Elements of Visual Storytelling," UW science communication course, 2018, 2019.

Organizer, science writing workshop series, UW Genomics Salon, 2017.

Attendee, Compelling Science Storytelling workshop, 2017.

Attendee, Pacific Northwest ComSciCon (Communicating Science Conference), 2017.

Public lecture, "UW Science Now: How Flu Evolves in You," Seattle Town Hall, 2017.

Student, "Communicating Science to the Public," UW graduate course, 2017.

OUTREACH

Volunteer, Girls in Science camp for middle-school girls, Burke Museum, 2017.

Course assistant, Genome Hackers camp for high-school girls, 2017, 2018.

Volunteer, Life Sciences Research Weekend, Pacific Science Center, 2014-2017.

SERVICE

WORKSHOP AND SYMPOSIUM ORGANIZATION

Co-organizer, "Intra-host evolutionary dynamics." Symposium, Society for Molecular Biology and Evolution, Yokohama, Japan, 2018.

UNIVERSITY OF WASHINGTON

Co-founder, Molecular Evolution supergroup. Monthly Seattle-area chalk talk series on molecular evolution, 2017-2019.

Founder and co-organizer, UW Genomics Salon. Biweekly discussion group about science and society, 2016-2019. <https://genomicssalon.wordpress.com>

Graduate student representative, Genome Sciences curriculum committee, 2016-2019.

Communications officer, Women in Genome Sciences, 2016-2017.

PEER REVIEW

eLife, Molecular Biology and Evolution, Genetics, Journal of Virology, Virus Evolution, PLoS Pathogens, PLoS Genetics, PLoS Computational Biology, PLoS One, FEBS Letters, Journal of Medical Virology