Curriculum Vitae

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Education

2019– **Johns Hopkins University**, Baltimore, MD
PhD Student in Cell, Molecular, Developmental Biology and Biophysics
Advisor: Rajiv C. McCoy

2017 **Georgetown University**, Washington, DC
BS in Biology; Classical Studies

Professional experience

2023 Computational Biology Summer Associate
Tempus Labs, Chicago, IL

2017–2019 Science Policy Fellow
Science and Technology Policy Institute, Washington, DC

2013–2017 Undergraduate Researcher
Georgetown University Department of Biology

Fellowships

2021–2026 National Science Foundation Graduate Research Fellowship ($138,000)
2021–2022 Johns Hopkins Center for Educational Resources Technology Fellowship ($5,500)
2016 Georgetown University Research Opportunities Program ($3,500)
2015 Zukowski-Kolleng Fellowship, Georgetown University ($3,500)

Awards

2021 Victor G. Corces Teaching Award, Johns Hopkins Department of Biology ($400)
2021 Excellence in Teaching Award, Johns Hopkins School of Arts and Sciences (Finalist)
2018 Secure World Foundation Young Professionals Scholarship ($1,500)

Publications & presentations

Research articles

2022 **Carioscia, S.A.**,* Weaver, K.J.,* Bortvin, A.N., Pan, H., Ariad, D., Bell, A.D., McCoy, R.C. "A method for low-coverage single-gamete sequence analysis demonstrates adherence to Mendel's first law across a large sample of human sperm." *eLife*, https://doi.org/10.7554/eLife.76383 **Equal contribution*

2019 **Carioscia, S.A.**, Linck, E., Crane, K., Lal, B. "Assessment of the utility of a government strategic investment fund for space." *New Space Journal* 7, no. 4. doi.org/10.1089/space.2019.0006

2016 Rydzewski, W., **Carioscia, S.A.**, Lievano, G., Lynch, V., Patten, M. "Sexual antagonism and meiotic drive cause stable linkage disequilibrium and favour reduced recombination on the X chromosome." *Journal of Evolutionary Biology* 29, no. 6. doi/abs/10.1111/jeb.12866

2015 Patten, M., **Carioscia, S.A.**, Linnen, C. "Biased introgression of mitochondrial and nuclear genes: a comparison of diploid and haplodiploid systems." *Molecular Ecology* 24, no. 20. doi/abs/10.1111/mec.13318

Oral presentations

2022 **Johns Hopkins University Joint Genomics Working Group**, virtual
Genetic contributors to human pregnancy loss

2021 **Johns Hopkins University Joint Genomics Working Group**, virtual
Testing adherence to Mendel's Laws of Inheritance in humans

2020 **Space Education and Strategic Applications Conference**, virtual
Assessing the utility of government strategic investment in space

2019 **White House Office of Science and Technology Policy (OSTP)**, Washington, DC
The commercial development of supersonic aircraft

2018 **69th International Astronautical Congress (IAC)**, Bremen, Germany
Evaluating government's role in space commercialization

2018 **American Institute of Aeronautics and Astronautics (AIAA)**, Washington, DC
Challenges and ways forward in on-orbit servicing, assembly, and manufacturing

2018 **Intelligence Community Space Board (ICSB)**, Fairfax, Virginia
Global trends in space traffic management

2018 **White House Office of Science and Technology Policy (OSTP)**, Washington, DC
Improving controls on exports and foreign investment in the U.S. space industry

Poster presentations

Nov. 2023 **American Society of Human Genetics (ASHG)**, Washington, DC
Preimplantation genetic testing data from 129,479 IVF embryos reveals the landscape of haplo- versus triplo-sensitivity prior to blastocyst formation

2022 **Johns Hopkins Department of Biology Retreat**, Harper's Ferry, WV
Genetic contributors to human pregnancy loss phenotypes

2021 **15th Annual Genomics and Bioinformatics Symposium**, virtual
Strict adherence to Mendel's First Law across a large sample of human sperm

2021 **Biology of Genomes, Cold Spring Harbor Laboratory**, virtual
Haplotype phasing, genotype imputation, and mapping of meiotic crossovers from sparse gamete sequencing data

2020 **The Allied Genetics Conference (TAGC), Genetics Society of America**, virtual
Simulating the impact of Neandertal introgression on the distribution of fitness effects of human genetic variation

2019 **13th Annual Genomics and Bioinformatics Symposium**, Baltimore, MD
Simulating the impact of Neandertal introgression on the distribution of fitness effects of human genetic variation

2017 **Georgetown University Research Conference**, Washington, DC
Effects of chimerism on sibling rivalry in marmosets

2015 **Georgetown University Research Conference**, Washington, DC
Biased introgression of mitochondrial and nuclear genes: a comparison of diploid and haplodiploid systems

Government Reports

2019 The commercial development of civilian supersonic aircraft.
www.ida.org/commercial-development-of-civilian-supersonic-aircraft

2019 Short-term training opportunities in cancer informatics with implications for the emerging National Cancer Institute (NCI) Informatics Technology for Cancer Research (ITCR) Program.

2019 Review of U.S. government policy on life sciences dual-use research of concern.

2019 Personal genomic data case studies: ownership, sharing, and privacy issues.

2019 Evaluation of a human mission to Mars by 2033.
www.ida.org/evaluation-of-a-human-mission-to-mars-by-2033

2019 Toward the development of national planetary protection policy.
https://www.ida.org/research-and-publications/publications/all/t/to/towards-the-development-of-a-national-planetary-protection-policy

2019 Assessment of the utility of a government strategic investment fund for space.
www.ida.org/assessment-of-a-government-strategic-investment-fund-for-space

2018 Ways forward: on-orbit servicing, assembly, and manufacturing of spacecraft.
www.ida.org/D-10445

2018 Federally-funded infectious disease '-omics' databases.

2018 Examination of Federal assessment capabilities for ARPA-E.

2018 Improving controls on exports and foreign investment in space technologies.

2018 Global trends in space situational awareness and space traffic management. www.ida.org/D-9074

Conference Papers

2019 Linck, E., **Carioscia, S.A.**, Crane, K., Lal, B. "Preferred policy instruments to achieve U.S. Government goals for human spaceflight and private sector space markets." 70th International Astronautical Congress (IAC).

2018 Balakrishnan, A., **Carioscia, S.A.**, Caldwell, B., Lal, B. "Future of the space situational enterprise." Advanced Maui Optical and Space Surveillance Technologies Conference (AMOS). amostech.com/2018/Balakrishnan

2017 Lal, B., **Carioscia, S.A.** "Evaluating options for civil space situational awareness." Advanced Maui Optical and Space Surveillance Technologies Conference (AMOS). amostech.com/2017/Lal

Other Material

2020 "Science in space." Splash Weekly (Podcast).

2020 "Biotech, grad school, networking, and putting yourself out there." Titus Talks (Podcast). https://alexandertitus.com/Carioscia

2019 Lal, B., Crane, K., **Carioscia, S.A.**, Linck, E. "Strategic role of government in space commercialisation." *Room EU* 21(3). room.eu.com/strategic-role-of-government-in-space-commercialisation

2018 **Carioscia, S.A.**, Caldwell, B., Lal, B., Ouellette, S. "STPI holds panel on space traffic management." IDA Research Insight. www.ida.org/research-insight-9284

Teaching

Course Instructor

2023 Modeling Biological Populations, Johns Hopkins (AS.020.313, Intersession)

Teaching Assistant

Fall 2023 Quantitative Biology Bootcamp, Johns Hopkins (AS.020.607)

2021 Quantitative Biology, Johns Hopkins (AS.020.617, Fall)

2021 Developmental Genetics Lab, Johns Hopkins (AS.020.340, Spring)

2020 Developmental Genetics Lab, Johns Hopkins (AS.020.340, Fall)

Other Involvement

2023 Group Facilitator, Teaching Institute, Johns Hopkins Teaching Academy

2023 Guest Lecturer, Thesis Proposal Preparation, Johns Hopkins (AS.020.619)

2020-2023 Teaching Certificate Program, Johns Hopkins Teaching Academy

2023 Tutor, Quantitative Biology and Biophysics, Johns Hopkins (AS.020.674, Spring)
2022 Tutor, Quantitative Biology, Johns Hopkins (AS.020.617, Fall)
2022 Guest Lecturer, Communicating Science, Johns Hopkins (AS.020.619)
2022 Facilitator, Teaching Assistant Orientation, Johns Hopkins School of Arts and Sciences
2021 Facilitator, Teaching Assistant Orientation, Johns Hopkins School of Arts and Sciences
2021 Guest Lecturer, Seminar in Biotechnology, University of New Hampshire Manchester
2020–2021 Instructor, Computational Biology Workshop, Agara Bio Community Lab
2014–2017 Tutor, Georgetown University Writing Center

Research mentorship

Graduate

2022 Jack Dorman, PhD Rotation Student in Biology, NIH-JHU Graduate Partnership Program
2022 Matthew Isada, PhD Rotation Student in Biology, Johns Hopkins University

Undergraduate

2023– Angela Yang, B.S. in Biology & Computer Science, Johns Hopkins University

Computational skills

R, Python, Bash, Java, C++
Git, LaTeX, GCP, Docker, Kubernetes
`plink`, `bcftools`, `snakemake`

Academic, community, & university service

Committees

2022– Board Member, Rosslyn Business Improvement District (BID), Arlington, VA
2021– Board Member, Friends of the Mount Vernon Trail, Arlington, VA
2019– Class of 2017 Alumni Committee, Georgetown University
2019– Vice President, Johns Hopkins University Cycling Team
2018–2019 U.S. Air Force 2030 Science and Technology Strategy Executive Committee
2015–2016 Board Member, Georgetown University Triathlon Team

Education, volunteering, & outreach

2020–2023 First-year Student Mentor, Johns Hopkins University Biology Department
2020–2022 symBIOsis Board Member, Johns Hopkins University Biology Department

2020-2021	Organizing Committee, Career Information Seminars, Johns Hopkins Biology Department
2018–2021	Volunteer, Georgetown University Career Center
2016–2017	Undergraduate Director, Georgetown University Writing Center
2015–2017	Magis Row Living and Learning Community Leader, Georgetown University

Panels

2021	Moderator, Careers in Communication, Horizons by Hopkins Conference
2021	Panelist, National Institutes of Health Graduate School Fair
2021	Panelist, How Do I NOT Pay for Graduate School?, Johns Hopkins Life Design Lab
2021	Panelist, Using Twitter in Grad School, Johns Hopkins Graduate Career Services
2020	Session Moderator, Johns Hopkins Department of Biology Retreat
2020	Session Moderator, Space Education and Strategic Applications Conference
2019	Workshop Organizer, Science Policy and Communication Brown Bag Series
2018	Panelist, American Institute of Aeronautics & Astronautics Technical Committee Meeting
2018	Workshop Moderator, White House Office of Science and Technology Policy
2018	Panelist, Using Science in Policy, Arizona State University, Washington, DC
2018	Panelist, Alumni Careers, Georgetown University Writing Center

Society Memberships

2020–	Member, American Society of Human Genetics (ASHG)
2020–	Member, Association of Women in Science (AWIS)
2019–	Member, Genetics Society of America (GSA)
2019–	Member, Johns Hopkins University Women of Whiting (WOW)
2019–2022	Member, Johns Hopkins Science Policy Group