Paul L. Maurizio

Contact Information

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Education

- ❑ **Ph.D.**, University of North Carolina at Chapel Hill (UNC-CH) 2018
  Bioinformatics & Computational Biology
- ❑ **Sc.M.**, Johns Hopkins University (JHU) Bloomberg School of Public Health 2011
  Molecular Microbiology & Immunology
  Certificate in Vaccine Science & Policy, Dept. of International Health 2010
- ❑ **B.A.**, Swarthmore College 2005
  Double Major: Biochemistry, Religion

Academic Positions Held

- ❑ **Postdoctoral Scholar/Fellow**, University of Chicago 08/2018–Present
  Department of Medicine, Section of Genetic Medicine
  Leading analysis of single-cell RNA-seq data from >130K PBMCs to study gene regulatory effects of social stress on immune response to pathogen stimulation; bioinformatic analysis of RNA-seq, ChIP-seq, and ATAC-seq studies; pipeline development; functional programming; immunogenomics; gene regulatory networks; nonhuman primate models of immunity
- ❑ **Visiting Scholar**, Johns Hopkins University, Baltimore, MD 07/2011–06/2012
  Bloomberg School of Public Health, Department of Molecular Microbiology & Immunology
  Molecular parasitology; transgenic model development; preclinical vaccine and adjuvant studies

Graduate Research

- ❑ **Graduate Research Assistant**, UNC-CH 05/2013–05/2018
  - Advisors: Mark T. Heise, Ph.D. & William Valdar, Ph.D.
  - Committee: Terrence S. Furey, Ph.D. (chair); Fernando Pardo-Manuel de Villena, Ph.D.; Ralph S. Baric, Ph.D.; Jeremy E. Purvis, Ph.D.
  - Research Areas: genome-wide QTL mapping; quantitative and statistical genetics; RNA-seq study design and analysis; virology and immunology
- ❑ **Graduate Research Assistant** (Rotations), UNC-CH 07/2012–05/2013
  - Advisors: David M. Margolis, M.D.; Aravinda M. de Silva, Ph.D.; Kristina De Paris, Ph.D.
  - Research Areas: molecular, clinical, and quantitative models for HIV-1, dengue virus & malaria
- ❑ **Graduate Research Assistant**, JHU 11/2009–05/2011
  - Advisor: Douglas E. Norris, Ph.D.
  - Research Areas: population genetics; vector ecology; flavivirus infection in *Culex* mosquitoes

Grants, Fellowships & Scholarships

- ❑ **PI, NIH/NIA F32**, Ruth L. Kirschstein National Research Service Award 2020–Present
  Sponsors: Luis B. Barreiro, Ph.D.; Matthew Stephens, Ph.D. (Statistics)
  Proposal: "Quantifying gene expression and network regulation in single cells to reveal the consequences of stress on the immune response" (#F32AG064883)
- ❑ **PI, UChicago Pilot Grant**, Department of Medicine 2019–2020
  Advisors: Luis B. Barreiro, Ph.D.; Patrick Wilson, Ph.D. (Rheumatology)
  Proposal: "Modeling the effects of social stress on cell-to-cell variation in the immune response to influenza vaccination"
- ❑ **Fellow, NIH T32 Fellowship**, Virology Training Grant, UNC-CH 2015–2016
- ❑ **Scholar, Master's Tuition Scholarship**, JHU 2010–2011
- ❑ **Fellow, Joshua Lippincott Fellowship**, Swarthmore College 2009–2010
- ❑ **Fellow, NSF Summer REU in Prokaryotic Biology**, University of Georgia 2004
  Advisor: Juergen Wiegel, Ph.D., Department of Microbiology
- ❑ **Fellow, NASA Astrobiology Summer Program**, Penn State University 2003
  Advisor: Hiroshi Ohmoto, Ph.D., Department of Geosciences

Honors & Awards

- ❑ **Award, Travel**, 2nd Annual Science Policy Symposium — 2018
  National Science Policy Network, NYC, NY
- ❑ **Award, Oral Presentation**, 15th Complex Trait Community Meeting, Memphis, TN — 2017
- ❑ **Award, Travel**, 2nd Penn Symposium on Mathematical & Computational Biology — 2017
  (declined, unable to attend), Philadelphia, PA
- ❑ **Award, Notable Poster**, 1st Annual Research Computing Symposium, UNC-CH — 2014
- ❑ **Award, Student Membership**, Tropical Medicine Dinner Club of Baltimore — 2010 & 2011
- ❑ **Award, Poster**, Entomological Society of America, 82nd Eastern Branch Meeting — 2011
  Harrisburg, PA
- ❑ **Award, Blue Ribbon Poster**, Johns Hopkins Global Health Day, JHU — 2011
- ❑ **Award, Global Health Field Research**, JHU Center for Global Health — 2010
- ❑ **Award, Simpson Student Fund**, Tropical Medicine Dinner Club of Baltimore — 2010
- ❑ **Deans' Award**, Swarthmore College — 2005

Preprints & Abstracts

Grieshop K, **Maurizio PL**, Arnqvist G and Berger D. Selection in males purges the standing genetic load on female fitness. doi: `https://doi.org/10.1101/2020.07.20.213132`. (*preprint*, posted 2020-07-21)

Simons ND, **Maurizio PL**, Batista J, Michopoulos V, Barreiro LB and Tung J. Parallel gene regulatory signatures of social stress and aging in rhesus macaques. 289th Annual Meeting of the American Association of Physical Anthropologists, April 15th–April 18th, **2020**. (*abstract*)

Keele GR, **Maurizio PL**, Oreper D and Valdar W. Bayesian decision theoretic design of two-founder experimental crosses given diallel data. doi: `https://doi.org/10.1101/489682`. (*working paper*, posted 2018-10-07)

Peer-Reviewed Publications

Sanz J, **Maurizio PL**, Snyder-Mackler N, Simons ND, Voyles T, Kohn J, Michopoulos V, Wilson M, Tung J and Barreiro LB. Social history and exposure to pathogen signals modulate social status effects on gene regulation in rhesus macaques. **2019**. *Proc Natl Acad Sci USA*. pii: 201820846. doi: `https://doi.org/10.1073/pnas.1820846116`. PMID:31611381. *8 citations*

Maurizio PL†, Fuseini H, Tegha G, Hosseinipour M and De Paris K. Signatures of divergent anti-malarial treatment responses in peripheral blood from adults and young children in Malawi. **2019**. *Malaria Journal*. 18(1):205. doi: `https://doi.org/10.1186/s12936-019-2842-7`. PMID:31234875. († = corresp. author)

Shorter JR*, **Maurizio PL***, Bell TA, Shaw GD, Miller DR, Gooch TJ, Spence JS, McMillan L, Valdar W and Pardo-Manuel de Villena F. **2019**. A diallel of the mouse Collaborative Cross founders reveals strong strain-specific maternal effects on litter size. *G3: Genes, Genomes, Genetics*. 9(5):1613-1622. doi: `https://doi.org/10.1534/g3.118.200847`. PMID:30877080. (* = equal contribution) *3 citations*

Maurizio PL, Ferris MT, Keele GR, Miller DR, Shaw GD, Whitmore AC, West A, Morrison CR, Noll KE, Plante KS, Cockrell AS, Threadgill DW, Pardo-Manuel de Villena F, Baric RS, Heise MT and Valdar W. **2018**. Bayesian diallel analysis reveals *Mx1*-dependent and *Mx1*-independent effects on response to influenza A virus in mice. *G3: Genes, Genomes, Genetics*. 8(2): 427-445. doi: `https://doi.org/10.1534/g3.117.300438`. PMID:29187420. *12 citations*

Turner SD, **Maurizio PL**, Valdar W, Yandell BS and Simon PW. Dissecting the genetic architecture of shoot growth in carrot (*Daucus carota* L.) using a diallel mating design. **2018**. *G3: Genes, Genomes, Genetics*. 8(2): 411-426. doi: `https://doi.org/10.1534/g3.117.300235`. PMID:29187419. *15 citations*

Espinosa DA, Yadava A, Angov E, **Maurizio PL**, Ockenhouse CF and Zavala F. **2013**. Development of a chimeric *Plasmodium berghei* strain expressing the repeat region of the *P. vivax* circumsporozoite protein for in vivo evaluation of vaccine efficacy. *Infection and Immunity*. 81(8):2882-2887. doi: `https://dx.doi.org/10.1128/IAI.00461-13`. PMID:23716612. *45 citations*

Walsh MC, Kim GK, **Maurizio PL**, Molnar EE and Choi Y. **2008**. TRAF6 auto-ubiquitination-independent activation of the NFκB and MAPK pathways in response to IL-1 and RANKL. *PLoS One*. 3(12):e4064. doi: `https://dx.doi.org/10.1371/journal.pone.0004064`. PMID:19112497. *170 citations*

Additional Publications

Maurizio PL. **2018**. Modeling the Host Genetic Determinants of Influenza Virus Pathogenesis in Mice. Doctor of Philosophy (Ph.D.) Dissertation. University of North Carolina at Chapel Hill. 270 pp. (dissertation, accepted 04/2018) `https://search.proquest.com/openview/f1d319c8076a26696dbe363364fcb0c3/`

Maurizio PL and Ferris MT. **2017**. "The Collaborative Cross Resource for Systems Genetics Research of Infectious Diseases." *Methods in Molecular Biology: Systems Genetics - Methods and Protocols*. Springer/Humana Press: New York, NY. Editors: Klaus Schughart, Robert Williams. doi: `https://dx.doi.org/10.1007/978-1-4939-6427-7_28`. PMID:27933545. (chapter) *5 citations*

Maurizio PL. **2011**. Detection and vertical transmission of *Culex* flavivirus in *Culex quinquefasciatus* (Diptera: Culicidae) mosquitoes from Zambia, Africa. Master of Science (Sc.M.) thesis. Johns Hopkins University. 127 pp. `https://catalyst.library.jhu.edu/catalog/bib_4040612`. (thesis)

Additional Professional Experience

- ❑ **Staff Research Associate**, University of California, Los Angeles, CA — 10/2007–07/2009
  Department of Microbiology, Immunology & Molecular Genetics
  Drug development; mouse and tissue culture models of muscular dystrophy
- ❑ **Research Specialist**, University of Pennsylvania, Philadelphia, PA — 10/2005–09/2007
  Department of Pathology & Laboratory Medicine
  Intracellular innate immune signal transduction; mouse models of immunity
- ❑ **Ecological Field Assistant**, Grand Canyon Trust, Flagstaff, AZ — 05/2005–07/2005

Professional Development

- ❑ **Selected Participant**, *GENETICS* Peer Review Training Program — 2018-2020
- ❑ **Attendee**, The Allied Genetics Conference 2020 (TAGC), April 22nd-25th, online — 2020
- ❑ **Attendee**, The Genetics of Human Disease, Cell Press Symposium, Chicago, IL — 2019
- ❑ **Participant**, Scientific Writing from the Reader's Perspective Workshop, UNC-CH — 2017
- ❑ **Participant**, Rigor & Reproducibility Workshop, UNC-CH — 2016
- ❑ **Student**, Systems Genetics Course, The Jackson Lab, Bar Harbor, ME — 2014
- ❑ **Participant**, Next Generation Sequencing Workshop, UNC-CH — 2014

Leadership & Service

- ❑ **Mentor**, Champions Program, University of Chicago — 11/2018–Present
  First-Generation, Low-Income, Immigrant (FLI) Network
  Service: One-on-one undergraduate mentorship; career development and goal achievement
- ❑ **Board of Directors**, Universities Allied for Essential Medicines, 501(c)(3) — 10/2015–10/2019
  Service: Human Resources Committee (2017–2019); Corporate Secretary (2015–2018); Fundraising Committee (2015–2017); oversight and decision-making; engaged with university student activities, access to medicines and human rights initiatives; strategic planning; supported organizational vision, mission, and values
- ❑ **Keynote Speaker**, Midwest FLI Summit — 04/2019
  Invited by University of Chicago Socioeconomic Diversity Alliance to present my career experience as a first-generation college graduate and biomedical researcher

- ❑ **Panelist**, Carolina Grad Student Firsts, UNC-CH 01/2018–04/2018
  Service: Volunteered on three speaker panels; promoted graduate and doctoral education to UNC-CH and Duke University first-generation undergraduates
- ❑ **Session Chair**, UNC-Chapel Hill Virology Colloquium, Chapel Hill, NC 10/2015
- ❑ **Session Chair**, Evolution 2014 Conference, Raleigh, NC 06/2014
- ❑ **Peer Mentor**, 1st-Year Group, Biol. & Biomed. Sci. Program, UNC-CH 09/2013–12/2013
- ❑ **Guest Blogger**, 12th Annual World Vaccine Congress, National Harbor, MD 04/2012
- ❑ **HIV Tester & Counselor**, Institute for Human Virology, Baltimore, MD 07/2010–01/2012
- ❑ **Tutor**, Health Professions Recruitment and Exposure Program, JHU 01/2010–03/2010

Teaching Experience

- ❑ **Coding Instructor**, Introduction to R, How to Learn to Code, UNC-CH 2016
  `https://bit.ly/IntroToR-HTLTC`
- ❑ **Coding Helper**, Software Carpentry Workshop (Git, SQL), UNC-CH 2016
- ❑ **Teaching Assistant**, Foundations in Population Genomics, BCB 722, UNC-CH 2014
- ❑ **Teaching Assistant**, Biological Chemistry Laboratory, CHEM 038, Swarthmore 2004

Skills & Travel

- ❑ **Programming, Computing & Statistics:** Python, R, SQL, Matlab, Mathematica, JAGS, Stan, bash, git, STATA
- ❑ **Graduate Courses Taken in Quantitative Methods:** Bayesian Statistics, Databases, Mathematical Modeling, Sequence Analysis, Infectious Disease Dynamics, Introduction to Statistical Modeling, Statistical Methods in Public Health, Structural Bioinformatics, Topics in Computer Science: Computational Genetics, Topics in Population Genetics
- ❑ **Extended Professional Travel:** Macha, Zambia (field work, 2010); Hangzhou, China (teaching, 2007); Marble Bar, Australia (field work, 2003)

Professional Affiliations

- ❑ **The Genetics Society of America (GSA)**, Member 2018–Present
- ❑ **Sigma Xi**, The Scientific Research Society 2004–Present
- ❑ **AAAS**, Science Program for Excellence in Science, Sponsored Membership 2014–2017