Tomás Martín León, PhD – Modeling Team Lead & Lecturer

California Department of Public Health
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Research & Academic Positions

Team Lead, Modeling and Advanced Analytics Team, California Department of Public Health 2020–
Lead modeling and advanced analytics group for the state of California's COVID-19 response

Climate Sciences Consultant, Pacific Island Health Officers Association 2021–
Project: Dengue early warning systems in Micronesia and the Marshall Islands

Lecturer, School of Public Health, UC-Berkeley 2019–

Postdoctoral Researcher, School of Public Health, UC-Berkeley 2018–2020
Marshall Lab: Research on *Aedes* and *Anopheles* mosquito movement, ecology, and modeling

Education

Ph.D. in Environmental Health Sciences, University of California, Berkeley 2018
Designated Emphasis in Development Engineering
Dissertation: Elucidating Liver Fluke Transmission Dynamics: Synthesizing Lab, Field, & Modeling Methods
Advisor: Robert C. Spear

M.S. in Global Health and Environment, University of California, Berkeley 2014
Thesis: Environmental Factors Impacting Liver Fluke Transmission in Natural Waters and Aquaculture Systems

B.S. in Environmental Engineering, Georgia Institute of Technology 2012
Minor in Sociology

Awards and Fellowships

Templeton Ideas Challenge Prize (https://www.templeton.org/models-winners) 2020

Presidential Management Fellowship (declined) 2018

National Science Foundation Graduate Research Fellowship 2012–2017

Foreign Language and Area Studies Fellowship 2015–2016

Fulbright Student Research Scholarship (Thailand) 2014–2015

CDC ORISE Fellowship 2011–2012

Georgia Tech President's Scholarship 2008–2012

Outstanding Senior in CEE (Georgia Tech) 2011

Teaching

University of California, Berkeley

Introduction to GIS for Public Health – instructor of record and lecturer (2020, 2021, 2022)
Environmental and Occupational Epidemiology – guest lecture, "WaSH and Helminth Disease Epidemiology" (2019, 2020)
CRISPR Genome Editing: From Biology to Technology – guest lecture, "Gene Drives" (2020)
Infectious Disease Modeling – guest lecture, "Introduction to Stochastic Modeling" (2019)

Intro to Environmental Health Sciences (for MPH students) – graduate student instructor (2017)
Intervention Trial Design – graduate student instructor and guest lectures (2016)
Intro to Environmental Health Sciences (for MPH students) – guest lecture, "Environmental Pathways for Infectious Disease" (2015)

Mount Tamalpais College/Patten University

Public Health – curriculum designer and lead instructor (2019)
Environmental Justice Workshop – research assistant and guest lecturer (2019)

Other Experience

Tropical Disease Research Laboratory (Khon Kaen University) / Chinese Center for Disease Control and Prevention **Khon Kaen, Thailand/ Jiangmen and Chengdu, China**
Graduate Researcher/Fulbright Scholar *2013 - 2018*

- Developed hydrology-driven metapopulation disease transmission model for liver flukes in Thailand
- Conducted field work for M.S. and Ph.D. in Thai and Chinese villages studying the transmission of the liver flukes *Opisthorchis viverrini* and *Clonorchis sinensis* in aquaculture and natural settings
- Planned and coordinated research experiments and lab operations with collaborators and local field teams, processing water, snail, fish, and reservoir host samples

Centers for Disease Control and Prevention (NCEH/ATSDR) **Chamblee, GA**
Collegiate Leader in Environmental Health Intern/ORISE Fellow *2011 - 2012*

- Prepared environmental chemical exposure reports for brownfield sites across United States
- Developed programming tool to calculate doses of chemical and particulate emission exposures
- Modeled and analyzed emissions from contaminated Chinese drywall to determine human health effects

Environmental Microbial Genomics Lab (Georgia Institute of Technology) **Atlanta, GA**
Undergraduate Researcher with Dr. Konstantinidis *2010 - 2012*

- Studied strains of *E. coli* to differentiate between them in order to better determine which species indicate fecal contamination in water sources through isolation work and metagenomic mapping

Recent Peer-Reviewed Publications

T.M León, V. Dorabawila, L. Nelson, E. Lutterloh, U.E. Bauer, B. Backenson, M.T. Bassett, H. Henry, B. Bregman, C.M. Midgley, J.F. Myers, I.D Plumb, H.E. Reese, R. Zhao, M. Briggs-Hagen, D. Hoefer, J.P. Watt, B.J. Silk, S. Jain, E.S. Rosenberg (2022, *MMWR*). COVID-19 cases and hospitalizations by COVID-19 vaccination status and previous COVID-19 diagnosis—California and New York, May–November 2021.

L.A.C. Chapman, P. Shukla, I. Rodríguez-Barraquer, P.B. Shete, **T.M. León**, K. Bibbins-Domingo, G.W. Rutherford, R. Schechter, N.C. Lo (2022, *Scientific Reports*). Comparison of COVID-19 vaccine prioritization strategies in the United States.

A. Yu, B. Hughes, M. Wolfe, **T.M León**, D. Duong, A. Rabe, L. Kennedy, S. Ravuri, B. White, K. Wigginton, A. Boehm, D. Vugia (2022, accepted, *Emerging Infectious Diseases*). Estimating relative abundance of two SARS-CoV-2 variants through wastewater surveillance at two large metropolitan sites. Preprint available on Research Square: https://www.researchsquare.com/article/rs-1083575/v1

S.L. Wu, J.B. Bennett, H.M. Sánchez C., A.J. Dolgert, **T.M. León**, J.M. Marshall (2021, *PLoS CompBio*). MGDrivE 2: A simulation framework for gene drive systems incorporating seasonality and epidemiology dynamics.

T. Ha, **T.M. León**, K. Lalangui, P. Ponce, J.M. Marshall, V. Cevallos (2021, *Parasites & Vectors*). Household-Level Risk Factors for *Aedes aegypti* Pupal Density in Guayaquil Ecuador.

T.M. León, J. Vargo, E.S. Pan, S. Jain, P.B. Shete (2021, *Open Forum Infectious Diseases*). Nonpharmaceutical Interventions Remain Essential to Reducing COVID-19 Burden Even in a Well-Vaccinated Society: A Modeling Study.

J.M. Marshall, R. Raban, N.P. Kandul, J.R. Edula, **T.M. León**, O. Akbari (2019). Winning the tug-of-war between effector gene design and pathogen evolution in vector population replacement strategies. *Frontiers in Genetics*.

J.C. Utazirubanda, **T.M. León**, P. Ngom (2019). Variable selection via Group LASSO Approach: Application to the Cox Regression and frailty model. *Communication in Statistics: Simulation and Computation*.

T.M. León, T.C. Porco, C.S. Kim, S. Kaewkes, W. Kaewkes, B. Sripa, R.C. Spear (2018). Modeling liver fluke transmission in northeast Thailand: impacts of development, hydrology, and control. *Acta Tropica*.

P. Echaubard, **T.M. León**, K. Suwanatrai, J. Chaiyos, C.S. Kim, F.F. Mallory, S. Kaewkes, R.C. Spear, B. Sripa (2017). Experimental and Modeling Investigations of *Opisthorchis viverrini* Miracidium Transmission Over Time and Across Temperatures: Implications for Control. *International Journal for Parasitology* 47(5): 257-270.

T.M León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear (2022, in revision). Hydrology-informed metapopulation modeling of liver fluke transmission in the Lawa Lake complex of northeast Thailand. Preprint available on bioRxiv: https://www.biorxiv.org/content/10.1101/569913v2.full.pdf

G. Rašić, I. Filipović, S.L. Wu, **T.M. León**, J.B. Bennett, H.M. Sánchez C, J.M. Marshall, B.J. Trewin (2022, in revision). Eliminating *Aedes aegypti* from its southern margin in Australia: insights from genomic data and simulation modeling.

X. Chen, X. Li, X. Li, J. Liang, A. Lin, J. Li, G. Chen, **T.M. León**, Z. Pei, G. Zeng (2022, in revision). Vegetation Greening Would Increase Anthropogenic VOCs Emission Reduction Pressure for Mitigating Ozone Pollution in Megacity Clusters across China.

T.M. León, A. Cornel, K.K. Brisco, J.M. Marshall (2022, invited submission, *Ecology Letters*). Maximum likelihood method for analyzing mark-release-recapture data of *Aedes aegypti* using environmental and landscape data.

Mentoring

Students Supervised

Sindhu Ravuri, BS & BA, Bioengineering and Molecular & Cell Biology, UC-Berkeley	2021
Darpa Anireddy, BA(c), Public Health, UC-Berkeley	2020
Daniel Lopez, BA(c), Molecular & Cell Biology, UC-Berkeley	2020
Thien-An Ha, MPH, Epidemiology & Biostatistics, School of Public Health, UC-Berkeley	2019–2020
Cheyenne Butcher, MS, Environmental Health Sciences, School of Public Health, UC-Berkeley	2017–2018

Thesis Committees

Luis Rodrigo Careaga Sotomayor, MS Computer Science, Tecnológico de Monterrey, México	2019

Skills

Languages: English – native; Spanish – conversational; Thai – conversational
Programming/Software: R, QGIS, Git, Microsoft/Google tools – proficient; Python, SQL, MATLAB, C++, Julia – basic