

MIREILLE KAMARIZA, Ph.D.
mireille_kamariza@fas.harvard.edu
www.scholar.harvard.edu/mkamariza
78 Mount Auburn Street, Cambridge, MA 02138

CURRENT POSITION**Updated August 2021****Junior Fellow**

2019 - present

Harvard Society of Fellows
Harvard University

Cambridge, MA

EDUCATION

2015 – 2019 **Doctor of Philosophy**, Biology
Stanford University

2012 – 2015 **Masters of Arts**, Molecular and Cell Biology
University of California, Berkeley

2009 – 2012 **Bachelors of Science**, Biochemistry and Chemistry
University of California, San Diego

2008 – 2009 Biological Sciences
San Diego Mesa Community College, San Diego

ACADEMIC AWARDS AND GRANTS

2020 Chemical & Engineering News (C&EN) Talented 12 Award
American Chemical Society (ACS)

2017 – 2019 Ruth L. Kirschstein Pre-Doctoral National Research Service Award (F31)
National Institute of Allergy and Infectious Disease, National Institutes of Health

2016 – 2018 Diversifying Academia, Recruiting Excellence Doctoral Fellowship
Vice-Provost for Graduate Education, Stanford University

2014 – 2015 Chancellor's Fellowship
Office of Graduate Division, University of California, Berkeley

2012 – 2014 NSF Bridge to the Doctorate Graduate Fellowship
National Science Foundation, University of California, Berkeley

2009 – 2011 Maximizing Access to Research Careers Award
National Institute of General Medical Sciences, University of California,
San Diego

2012 – 2014 NSF Bridge to the Doctorate Graduate Fellowship
National Science Foundation, University of California, Berkeley

RESEARCH EXPERIENCE

Stanford University

Stanford, CA

Doctoral Fellow; Advisor: Carolyn Bertozzi, Ph.D.

2015 - 2019

Thesis project: Development of trehalose-dye conjugates for the rapid detection of mycobacteria with applications in research and medicine

- Initiated & designed project experiments
- Supervised multiple collaborative sub-projects around the world, including clinical studies in South Africa and Vietnam
- Directly trained and mentored one PhD student, three undergraduates and two high school students

University of California, Berkeley

Berkeley, CA

Masters Fellow; Advisor: Carolyn Bertozzi, Ph.D.

2012 - 2015

- Optimized standard operating procedures for laboratory mycobacterial labeling
- Investigated stress response mechanisms in mycobacteria
- Co-Taught two introductory to Biochemistry courses for Biology and Chemistry majors

University of California, San Diego

San Diego, CA

Undergraduate Scholar; Advisor: Tracy Johnson, Ph.D.

2010 - 2012

- Built genomic databases of the yeast *S. cerevisiae* mutant strains
- Investigated role and function of essential genes involved in the splicing mechanism of *S. cerevisiae*

ACADEMIC PUBLICATIONS

1. **Kamariza M.**, S. G. L. Keyser, A. Utz, B. D. Knapp, G. Ahn, C. J. Cambier, K. C. Huang, C. R. Bertozzi. Towards *Mycobacterium tuberculosis* detection at the point-of-care: a brighter solvatochromic probe permits the detection of mycobacteria within minutes." *JACS Au*. **2021**, 10.1021/jacsau.1c00173
 - Preprint: *BioRxiv*. 2020. <https://doi.org/10.1101/2020.05.29.124008>
2. Dinkele R, Gessner R, Koch AS, Morrow C, Gqada M, **Kamariza M.**, Bertozzi CR, Smith B, McLoud C, Kamholz A, Bryden W, Call C, Mizrahi V, Wood R, Warner DF. Capture and visualization of live *Mycobacterium tuberculosis* bacilli from tuberculosis bioaerosols. *PLoS Pathogens*. **2021**, <https://doi.org/10.1371/journal.ppat.1009262>
 - Preprint: *BioRxiv*. 2019. <https://doi.org/10.1101/2019.12.23.887729>
3. B. J. Patterson, R. Dinkele, S. Gessner, C. Morrow, **M. Kamariza**, C. R. Bertozzi, A. Kamholz, W. Bryden, C. Call, D. F. Warner, and R. Wood. Sensitivity Optimisation of Tuberculosis Bioaerosol Sampling. *PLoS One*. **2020**, DOI: <https://doi.org/10.1371/journal.pone.0238193>
 - Preprint: *MedRxiv*. 2020. <https://doi.org/10.1101/2020.05.03.20089425>
4. W.E. Allen, H. Altae-Tran, J. Briggs, X. Jin, G. McGee, A. Shi, R. Raghavan, **M. Kamariza**, N. Nova, A. Pereta, et. al., Population-scale longitudinal mapping of COVID-19 symptoms, behaviour and testing. *Nat. Hum. Behav.* **2020**. <https://doi.org/10.1038/s41562-020-00944-2>
 - Preprint: *MedRxiv*. 2020. <https://doi.org/10.1101/2020.06.09.20126813>
5. T. Dai, J. Xie, Q. Zhu, **M. Kamariza**, K. Jiang, C. R Bertozzi and J. Rao. A Fluorogenic Trehalose Probe for Tracking Phagocytosed *Mycobacterium tuberculosis*. *J. Am. Chem. Soc.* **2020**. <https://doi.org/10.1021/jacs.0c07700>

6. J. Stenger-Smith, **M. Kamariza**, I. Chakraborty, R. Ouattara, C. R. Bertozzi, and P. K. Mascharak. Enhanced Bactericidal Effects of Pyrazinamide Toward *Mycobacterium smegmatis* and *Mycobacterium tuberculosis* upon Conjugation to a {Au(I)-triphenylphosphine}⁺ Moiety. *ACS Omega*. **2020**, 5(12), 6826-6833. DOI: 10.1021/acsomega.0c00071
7. **Kamariza, M.**, *et al.*, Detection of live mycobacteria with a solvatochromic trehalose probe for point-of-care tuberculosis diagnosis. *Sci. Transl. Med.* **2018**, 10(430), eaam6310.
 - Preprint: *BioRxiv*. **2017**. <https://doi.org/10.1101/171553>
8. **Kamariza, M.**, Shieh, P. & Bertozzi, C., Imaging Mycobacterial Trehalose Glycolipids. *Methods in Enzymology*. **2018**, 598, 355-369.

PROFESSIONAL ACTIVITIES

- **Founder**, OliLux Biosciences, Inc. 2019 - present
- **Founding Chair**, Equity in Biomedicine Seminar Series 2020 – 2021
Broad Institute of Harvard and MIT
- **Co-Founder**, Stanford Black Bioscientist Organization, Stanford 2016 - 2017
- **Mentor** – Bay Area Scientists in Schools, UC Berkeley 2012 - 2015
- **Co-Founder**, OPEN-DOORS, UC San Diego 2011 - 2012

IN THE NEWS (select articles)

- **PBS NewsHour**: *In her bid to end TB, Mireille Kamariza is shattering stereotypes about scientists* by John Yang, Bria Lloyd, and Frank Carlson. 05/10/2021. Web link: <https://www.pbs.org/newshour/show/in-her-bid-to-end-tb-mireille-kamariza-is-shattering-stereotypes-about-scientists>
- **Harvard Gazette**: *The Star Chemist: How Mireille Kamariza pursued the fantastical to solve a deadly health problem* by Caitlin McDermott-Murphy. 01/29/2021. Web link: <https://news.harvard.edu/gazette/story/2021/01/an-invention-that-can-speed-up-the-race-to-stop-tb/>
- **Chemical and Engineering News (C&EN)**: *Mireille Kamariza: Diagnostics designer is fashioning a faster, cheaper way to detect tuberculosis* by Laura Howes. 08/20/2020. Web link: < <https://cen.acs.org/biological-chemistry/infectious-disease/Mireille-Kamariza/98/i31> >
- **American Chemical Society (ACS)**: *Mireille Kamariza's Personal Story of Discovery* by Bryan McBournie. 10/24/2018. Web link: < <https://axial.acs.org/2018/02/26/mireille-kamariza-discovery/> >
- **Stanford Magazine**: *A Faster, Cheaper TB Test* by Esther Landhuis. April 2017. Web link: <<https://medium.com/stanford-magazine/a-faster-cheaper-tb-test-3b9b82576184>>
- **American Chemical Society (ACS)**: *Talking Improved TB Testing with Mireille Kamariza* by Jesse Stanchak. 02/10/2017. Web link: <<http://axial.acs.org/2017/02/10/talking-improved-tb-testing>>
- **TheWire.In**: *An Old TB Detection Test Gets a Much-Needed Makeover* by Sarah Iqbal. 03/20/2017. Web link: <<https://thewire.in/science/an-old-tb-detection-test-gets-a-much-needed-makeover>>
- **National Public Radio (NPR)**: *They Never Told Her That Girls Could Become Scientists* by Esther Landhuis. 01/07/2017. Web link: <<https://www.npr.org/sections/goatsandsoda/2017/01/07/506751969/they-never-told-her-that-girls-could-become-scientists>>

PRESENTATIONS (select invited talks)

1. **Invited Presentation**, “Next-generation fluorogenic probes for the point-of-care detection of infectious diseases”. Presidential Symposium, American Chemical Society National Conference. *Virtual* – August 2021.
2. **Invited Presentation**, “My Journey in Science: Building Equitable BioMedicine,” Stanford Queer Perspectives Speaker Series 2020. *Virtual* – November 2020.
3. **Invited Presentation**, “Towards Equitable BioMedicine,” STANFORD.BERKELEY.UCSF Next Generation Faculty Symposium 2020. *Virtual* – October 2020.
4. **Award Presentation**, “Solvatochromic trehalose probe for point-of-care tuberculosis diagnosis in developing countries.” C&EN Futures Festival, American Chemical Society. *Virtual* – August 2020.
5. **Invited Presentation**, “Towards *Mycobacterium tuberculosis* detection at the point-of-care: a brighter solvatochromic probe permits the detection of mycobacteria within minutes.” Institute of Protein Design, University of Washington Seattle – *Seattle, USA*. Nov. 2019.
6. **Invited Presentation**, “Solvatochromic trehalose probe for point-of-care tuberculosis diagnosis in developing countries,” National Institute of Health, *Bethesda, MD*, Feb. 2018.
7. **Invited Presentation**, “New tools for TB screening,” Bill and Melinda Gates Foundation Tuberculosis Symposium, *Seattle, WA*, March 2017.
8. **Invited Presentation**, “A fluorogenic trehalose derivative for the fast and sensitive detection of *Mycobacterium tuberculosis*,” EMBO Conference, *Paris – France*, Sept 2016.

TEACHING

- **Head Graduate Student Instructor**, Spring 2015
Survey of the Principles of Biochemistry and Molecular Biology; UC Berkeley
- **Graduate Student Instructor**, Fall 2013
General Biochemistry and Molecular Biology Laboratory; UC Berkeley

MENTORSHIP

- **Ashley Utz**, undergraduate research assistant at Stanford University (2017-2019) – MD/PhD student at Stanford University School of Medicine
- **Megha Mohanakrishnan**, high school research assistant at Stanford University (2017-2019) – undergraduate student at University of Cincinnati College of Medicine
- **Hannah Kan**, high school research assistant at Stanford University (2017-2018) – undergraduate student at University of California, Davis
- **Brian Chu**, undergraduate research assistant at Stanford University (2016-2017) – medical student at University of Pennsylvania
- **Melodyanne Cheng**, high school research assistant at University of California, San Diego (2010-2012) – medical student at University of California, Los Angeles

LANGUAGES

- **Native:** English, French, Kirundi
- **Novice Speaker:** Swahili