

Michael S. Costello

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EDUCATION

- Ph.D., Molecular, Cellular, and Developmental Biology** 2025
University of California, Santa Barbara
- M.A., Molecular, Cellular, and Developmental Biology** 2021
University of California, Santa Barbara
- B.S., Biology** 2016
University of Central Florida, Orlando

RESEARCH EXPERIENCE

- Graduate Student Researcher** 2018–2025
Molecular, Cellular, and Developmental Biology, University of California, Santa Barbara
Advisors: Christopher Hayes & Diego Acosta-Alvear
- Visiting Researcher** 2020
Boston Children’s Hospital, Harvard Medical School
Advisor: Yang Shi
- Research Scientist** 2017–2018
College of Optics and Photonics, University of Central Florida
Advisors: Ayman Abouraddy, Joshua Kaufmann, Felix Tan
- Laboratory Technician** 2017–2018
Burnett School of Biomedical Sciences, University of Central Florida
Advisor: Sean Moore
- Undergraduate Honors Thesis** 2015–2016
Burnett School of Biomedical Sciences, University of Central Florida
Advisor: Sean Moore

TEACHING

- Teaching Assistant, General Microbiology** 2023–2025
University of California, Santa Barbara
- Teaching Assistant, Biochemistry** 2019
University of California, Santa Barbara
- Teaching Assistant, Introductory Biology Lab** 2018
University of California, Santa Barbara

PUBLICATIONS

- [1] **Costello MS**, Neumann B, Cuthbert BJ, Holuová J, Raimondi MW, Garza-Sanchez F, Bumba L, Torres JA, Holznecht N, Mendoza J, Prombhul S, Weimbs T, Morrissey MA, Acosta-Alvear D, Low DA, Šebo P, Goulding CW, Gonen S, Hayes CS. Bacteria deliver a microtubule-binding protein into mammalian cells to promote colonization. *Science*. 2026 Feb 19;391(6787):825–830. doi:10.1126/science.adz2737
- [2] Zappa F, Muniozguren NL, Wilson MZ, **Costello MS**, Ponce-Rojas JC, Acosta-Alvear D. Signaling by the integrated stress response kinase PKR is fine-tuned by dynamic clustering. *J Cell Biol*. 2022;221(7):e202111100. doi:10.1083/jcb.202111100
- [3] Rauch JN, Valois E, Solley SC, Braig F, Lach RS, Audouard M, Ponce-Rojas JC, **Costello MS**, Baxter NJ, Kosik KS, Arias C, Acosta-Alvear D, Wilson MZ. A scalable, easy-to-deploy protocol for Cas13-based detection of SARS-CoV-2 genetic material. *J Clin Microbiol*. 2021;59(4):e02402-20. doi:10.1128/JCM.02402-20
- [4] Ponce-Rojas JC*, **Costello MS***, Proctor DA, Kosik KS, Wilson MZ, Arias C, Acosta-Alvear D. A fast and accessible method for the isolation of RNA, DNA, and protein to facilitate the detection of SARS-CoV-2. *J Clin Microbiol*. 2021;59(4):e02403-20. *Co-first authors. doi:10.1128/JCM.02403-20
- [5] Rauch JN, Valois E, Ponce-Rojas JC, **Costello MS**, et al. Comparison of SARS-CoV-2 screening using RT-qPCR or CRISPR-based assays in asymptomatic college students. *JAMA Netw Open*. 2021;4(2):e2037129. doi:10.1001/jamanetworkopen.2020.37129
- [6] Smith AM, **Costello MS**, Kettring AH, Wingo RJ, Moore SD. Ribosome collisions alter frameshifting at translational reprogramming motifs in bacterial mRNAs. *Proc Natl Acad Sci USA*. 2019;116(43):21769–21779. doi:10.1073/pnas.1910613116

PATENTS

Arias-Gonzalez C, Acosta-Alvear D, Wilson M, Kosik K, **Costello M**, Ponce-Rojas C. Scalable, easy-to-deploy system and reagents thereof for CRISPR-associated nuclease-based detection of pathogen genetic material. [International Publication No. WO 2021/216573 A1](#) (Published 28 Oct 2021).

ORAL PRESENTATIONS

- Molecular Genetics of Bacteria and Phages Meeting, Madison, WI** 2024
Bordetella Deploys a Microtubule-Binding Protein to Colonize Respiratory Epithelia.
- European Toxins Meeting, Crieff, Scotland** 2023
A contact-dependent inhibition system repurposed for inter-kingdom targeting.
- Sigtuna Meeting on Bacterial Toxins, Sigtuna, Sweden** 2023
A contact-dependent inhibition system repurposed for inter-kingdom targeting.

POSTER PRESENTATIONS

European Toxins Meeting , Bilbao, Spain	<i>2025</i>
Molecular Genetics of Bacteria and Phages Meeting , Madison, WI	<i>2025</i>
European Toxins Meeting , Crieff, Scotland	<i>2023</i>
Molecular Genetics of Bacteria and Phages Meeting , Madison, WI	<i>2017</i>
American Society of Microbiology , Miami, FL	<i>2017</i>
Molecular Genetics of Bacteria and Phages Meeting , Madison, WI	<i>2016</i>
American Society of Microbiology , Miami, FL	<i>2016</i>

MENTORSHIP

Undergraduate Research Mentor — M. Raimondi Recipient of Andrew and Mary Weinberg Summer Fellowship and URCA Award.	<i>2023–2026</i>
Undergraduate Research Mentor — C. Pattulo and H. Delaney	<i>2023–2024</i>
Undergraduate Research Mentor — A. Kasler URCA Award recipient.	<i>2020–2021</i>
Undergraduate Research Mentor — D. Orellana MARC Scholar.	<i>2020</i>

OUTREACH AND SERVICE

Graduate Seminar Coordinator Molecular, Cellular, and Developmental Biology, University of California, Santa Barbara	<i>2024–2025</i>
Science Night Advisor Kellogg Elementary School, Snata Barbara	<i>2022–2023</i>
Science Day Advisor Kellogg Elementary School, Santa Barbara	<i>2019</i>

AWARDS

Chang Travel Award — UCSB	<i>2023</i>
Chang Fellowship for Best Graduate Student Seminar — UCSB	<i>2022</i>
Honorable Mention — NSF GRFP	<i>2020</i>
Jean Devlin Fellowship — UCSB	<i>2019</i>
Charles A. Storke Fellowship — UCSB	<i>2019</i>
Burnett Honors in the Major Scholarship — UCF	<i>2016</i>