

Brianna Bibel

Assistant Professor of Biochemistry and Chemistry

Loyola Marymount University

Protein biochemist and educator

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Professional appointments

Loyola Marymount University (LMU) / Assistant Professor

AUGUST 2025 - PRESENT, Los Angeles, CA

Teach Biochemistry (lecture and laboratory sections); lead undergraduate research students in the investigation of bacterial Malate Dehydrogenase (MDH) enzymes and metabolic adaptations of *Bacillus safensis* enabling bioremediation of heavy metals.

Saint Mary's College of California (SMC) / Visiting Professor

JULY 2023 - JULY 2025, Moraga, CA

Taught upper-division biochemistry (lecture and laboratory sections), general chemistry laboratories, and general/organic/biochemistry (GOB) laboratories; designed and implemented Course-Based Undergraduate Research Experiences (CUREs); mentor undergraduate research students in the investigation of metabolic adaptations of *Bacillus safensis* in the bioremediation of heavy metals.

University of California, San Francisco (UCSF) / Postdoctoral researcher

APRIL 2022 - JULY 2023, San Francisco, CA

Performed mitochondrial ribosome profiling and purification for cryo-electron microscopy to investigate context-dependent effects of phenicol and oxazolidinone antibiotics on human mitochondrial ribosomes.

PI: Danica Fujimori, PhD

Cold Spring Harbor Laboratory (CSHL) / Graduate student, post

OCTOBER 2021 - APRIL 2022, Cold Spring Harbor, NY

Continued PhD research study regulation of the RNA interference (RNAi) protein Argonaute (Ago) by phosphorylation.

PI: Leemor Joshua-Tor, PhD

Education

CSHL Graduate School of Biological Sciences / PhD in Biological Sciences

AUGUST 2016 - OCTOBER 2021, Cold Spring Harbor, NY

Researched regulation of the RNA interference (RNAi) protein Argonaute (Ago) by phosphorylation using a combination of biochemical and biophysical assays; x-ray crystallography; and hydrogen-deuterium exchange mass spectrometry (HDX-MS).

PI: Leemor Joshua-Tor, PhD

Saint Mary's College of California (SMC) / BS in Biology

FEBRUARY 2013 - MAY 2016, Moraga, CA

Obtained a BS in Biology (4.0 GPA) and performed independent research on kinetics of the metallopeptidase neurolysin.

PI: Jeffrey Sigman, PhD

Additional laboratory experience

Gladstone Institute of Neurological Disease, U.C. San Francisco/ Donald A. King Fellow

JUNE 2015 - August 2015, San Francisco, CA

Elucidating the role of somatic expansion in human HD neurons' degeneration with nanobiopsy and longitudinal single cell analysis

PI: Steven Finkbeiner, M.D., Ph.D. in collaboration with Vanessa Wheeler, Ph.D. at Massachusetts General Hospital

Saint Mary's College of California (SMC) / Research Assistant

JUNE 2014 - AUGUST 2016, Moraga, CA

Study of the structural determinants in the hinge-clasp mechanism of the metallopeptidase neurolysin

PI: Jeffrey Sigman

Saint Mary's College of California (SMC) / Stockroom Assistant

MARCH 2015 - MAY 2016, Moraga, CA

Professional development

Cold Spring Harbor Laboratory Metabolomics Course

Cold Spring Harbor Laboratory

JUNE 2025, Cold Spring Harbor, NY

MCC Cohort Professional development workshops

Malate Dehydrogenase CUREs Community

JULY 2024 - Present, Online and San Diego, CA

Grading for Growth Book Club

ICABL (An Inclusive Community for the Assessment of Biochemistry and Molecular Biology)

MAY 2024 - AUGUST 2024, Online

STEP-UP: Introduction to Evidence-Based Pedagogy Course and teaching training workshops

UCSF Office of Career Development (OCD) and IRACDA programs

JANUARY 2023 - FEBRUARY 2023, San Francisco, CA

Select skills

Experimental techniques: Molecular cloning; recombinant protein expression; protein chromatography; spectroscopy; gel electrophoresis; enzymatic assays and data analysis; qPCR; RNA sequencing; ribosome sequencing; ribosome purification; mammalian, insect, and bacterial cell culture; surface plasmon resonance (SPR); microscale thermophoresis (MST); HPLC; FPLC; X-ray crystallography; hydrogen-deuterium exchange mass spectrometry (HDX-MS), small molecule mass spectrometry

Computational skills: PyMOL; basic Python; ChimeraX; molecular modeling and structural prediction; basic bioinformatics (including use of databases such as UniProt, PDB, GenBank, NCBI BLAST, etc.); Excel; GraphPad Prism; Adobe Illustrator; Google Colab; Jupyter Lab

Publications and Preprints

1. Garg, A, Braviner, L, Axhemi, A, **Bibel, B**, Joshua-Tor, L. (2026) Structural dynamics between Argonaute-2 and CK1 α promote target RNA release in microRNA-mediated silencing. *bioRxiv* 2026.03.23.713669; doi: <https://doi.org/10.64898/2026.03.23.713669>
2. **Bibel, B**. A Guide to PDB Structures and the RCSB PDB. In *Seeing the Invisible: Learning to Teach with Biomolecular Visualization* (OER). (2025) Acevedo, R., Procko, K., Eds.; The University of Texas at Austin, <https://doi.org/10.15781/m4zd-7691>

Publications (cont.)

3. **Bibel B**, Raskar T, Couvillion M, Lee M, Kleinman J, Takeuchi-Tomita N, Churchman LS, Fraser JS, Fujimori DG. (2025) Context-specific inhibition of mitochondrial ribosomes by phenicol and oxazolidinone antibiotics. *Nucleic Acids Research*, <https://doi.org/10.1093/nar/gkaf046>
4. Genova LA, Procko K, Grimes CL, Williams G, Cornely K, Shor A, Greene AS, **Bibel B**, Kumar SV, White HB. (2024) Glycolysis Can Be Fun: Rediscovering Glycolysis as a Problem-Solving Introduction to Metabolism. *CourseSource* 11. <https://doi.org/10.24918/cs.2024.22>
5. **Bibel B**, Elkayam E, Silletti S, Komives E, Joshua-Tor L. (2022) Target binding triggers hierarchical phosphorylation of human Argonaute-2 to promote target release. *eLife*, <https://elifesciences.org/articles/76908>

Conference presentations (talks)

1. **Bibel B**, Elkayam E, Silletti S, Komives E, Joshua-Tor L. (2022) Regulating the Regulator: Phosphorylation-mediated Regulation of the RNAi Effector Protein Argonaute, Prerecorded Oral Presentation, Biochemistry Global Summit (IUBMB-FEBS-PABMB 2022 Congress), Lisbon, Portugal (talk delivered virtually).
2. **Bibel B**, Elkayam E, Joshua-Tor L. (2021) Target binding triggers hierarchical phosphorylation of human Argonaute-2 to promote target release, Oral Presentation at CSHL Eukaryotic mRNA Processing Meeting, Online due to COVID-19.
3. **Bibel B**, Elkayam E, Joshua-Tor L. (2020) Mechanisms of phosphorylation-mediated regulation of the RNAi effector protein Argonaute 2, Oral Presentation at RNA Society's Annual Meeting, Online due to COVID-19.
4. **Bibel B**, Elkayam E, Joshua-Tor L. (2020) Mechanisms of phosphorylation-mediated regulation of the RNAi effector protein Argonaute 2, Oral Presentation, originally to be held as part of FASEB 2020, but held online as an American Society of Biochemistry and Molecular Biology (ASBMB) Spotlight Session due to COVID-19.
5. **Bibel B**, Sigman, J. (2014) "Structural determinants in hinge-bend motions of neuropeptidases. Expression, purification and molecular modeling of mouse neurolysin," SMC Summer Research Symposium, Moraga, CA.

Conference presentations (Workshops)

1. Procko K, Acevedo R, **Bibel B**, Fox K, Genova L, Taylor A. (2026) "Sorting out metabolism: Hands-on strategies for teaching pathways," ASBMB annual meeting, Washington DC.
2. Procko K, Genova L, **Bibel B**, Mertz PS, Acevedo R. (2025) "Reimagining Metabolism: Engaging Strategies to Teach Pathways," Transforming Undergraduate Education in the Molecular Life Sciences, Minneapolis, MN.

Conference Presentations (Posters)

1. de Sá A*, Apostol K*, Khosravi R*, Moore L*, Cortez N*, Zafiropoulou H*, Thomas J*, Berndsen C, **Bibel B**. (2026) "Biophysical analysis of *Bacillus* malate dehydrogenase (MDH) proteins reveals isoform-specific differences," LMU Undergraduate Research Symposium, Los Angeles, CA.
2. de Sá A*, Apostol K*, Khosravi R*, Moore L*, Cortez N*, Zafiropoulou H*, Thomas J*, Berndsen C, **Bibel B**. (2026) "Biophysical and enzymatic analysis of *Bacillus* malate dehydrogenase (MDH) proteins reveals isoform-specific differences," ASBMB annual meeting, Washington DC.

* indicates
undergraduate
student co-author

Conference presentations (posters) (cont'd)

* indicates undergraduate student co-author

3. Flagg M, **Bibel B**, Acevedo R, Beckham J, Mertz PS, Procko K (2025) "Development of Teaching with Molecular Visualization: A BioMolViz Guide for Educators, an Open Educational Resource," Transforming Undergraduate Education in the Molecular Life Sciences, Minneapolis, MN.
4. Cortez N*, Zafiropoulo H*, Abraham R*, **Bibel B**. (2025) "Analyzing *Bacillus safensis* malate dehydrogenase (MDH) properties and exploring its role in bioremediation potential," SMC Student Research Showcase and Conference, Moraga, CA.
5. Zafiropoulo H*, Cortez N*, **Bibel B**. (2025) "Characterizing Cr(VI) resistance and reduction by *Bacillus safensis* to analyze its bioremediation potential," SMC Student Research Showcase and Conference, Moraga, CA.
6. Reinwald C*, Bastida Marquez S*, Ippolito A*, **Bibel B**. (2025) "Metabolic adaptations in the malate dehydrogenase of *Bacillus safensis* and *Bacillus subtilis* for bioremediation," SMC Student Research Showcase and Conference, Moraga, CA.
7. Cortez N*, Zafiropoulo H*, Abraham R*, **Bibel B**. (2025) "Analyzing *Bacillus safensis* malate dehydrogenase (MDH) properties and exploring its role in bioremediation potential," ASBMB annual meeting, Chicago, IL. Abstract published in *Journal of Biological Chemistry* 2025, 301 (5, Supplement), 109157. <https://doi.org/10.1016/j.jbc.2025.109157>.
8. Zafiropoulo H*, Cortez N*, **Bibel B**. (2025) "Characterizing Cr(VI) resistance and reduction by *Bacillus safensis* to analyze its bioremediation potential," ASBMB annual meeting, Chicago, IL. Abstract published in *Journal of Biological Chemistry* 2025, 301 (5, Supplement), 109190. <https://doi.org/10.1016/j.jbc.2025.109190>.
9. Reinwald C*, Bastida S*, Ippolito A*, **Bibel B**. (2025) "The regulation of *Bacillus subtilis* and *Bacillus safensis* malate dehydrogenase to support the bioremediation of soils," ASBMB annual meeting, Chicago, IL. Abstract published in *Journal of Biological Chemistry* 2025, 301 (5, Supplement), 109123. <https://doi.org/10.1016/j.jbc.2025.109123>.
10. Cortez N*, Abraham R*, **Bibel B**. (2024) "Malate dehydrogenase's role in Supporting *Bacillus safensis*' ability to bioremediate Cr(VI)," SMC School of Science Summer Research Symposium, Moraga, CA.
11. Abraham R*, Cortez N*, **Bibel B**. (2024) "Characterizing *Bacillus safensis*' ability to resist and detoxify metals and optimizing its metal bioremediation potential," SMC School of Science Summer Research Symposium, Moraga, CA.
12. Kontonis B*, Zafiropoulo H*, **Bibel B**. (2024) "Metabolic Adaptations of *Bacillus safensis* for Metal Detoxification and its Potential for Bioremediation," SMC Spring Symposium, Moraga, CA.
13. Genova L., Procko K., Cornely K., Grimes C., Williams C., Shor A, Green A, **Bibel B** & White, H. (2024). "Rediscovering glycolysis: a card-sorting POGIL activity for student engagement," Discover BMB (national ASBMB conference), San Antonio, TX. Abstract published in *Journal of Biological Chemistry* 2024, 300 (3, Supplement), 105908. <https://doi.org/10.1016/j.jbc.2024.105908>.
14. **Bibel B**, Raskar T, Kleinman J, Fraser J, Galonić-Fujimori D. (2022) "Mechanism of mitochondrial ribosome inhibition by chloramphenicol and oxazolidinone antibiotics," UCSF QBC (Quantitative Biosciences Consortium) Retreat.
15. **Bibel B**, Elkayam E, Joshua-Tor L. (2021) "Regulating the Regulator: Phosphorylation-mediated Regulation of the RNAi Effector Protein Argonaute," Howard Hughes Medical Institute (HHMI) Molecular Biology of the Cell Meeting, Online due to COVID-19.

Conference presentations (posters) (cont'd)

16. **Bibel B**, Elkayam E, Joshua-Tor L. (2020) "Mechanisms of phosphorylation-mediated regulation of the RNAi effector protein Argonaute 2," CSHL Regulatory and Noncoding RNA Meeting, Online due to COVID-19.
17. **Bibel B**, Novak G, Wheeler V, Finkbeiner S. (2015) "Using nanobiopsy and RNA analysis to investigate somatic instability of the CAG repeat in Huntington's disease induced neurons," Huntington's Disease Society of America (HDSA) National Convention, Baltimore, Maryland.
18. **Bibel B**, Novak G, Wheeler V, Finkbeiner S. (2015) "Using nanobiopsy and RNA analysis to investigate somatic instability of the CAG repeat in Huntington's disease induced neurons," SMC School of Science Summer Research Student Poster Session, Moraga, CA.
19. **Bibel B**, Sigman, J. (2015) "Structural Determinants in Hinge-Bend Motions of Neurolysin," SMC Spring Symposium, Moraga, CA.
20. **Bibel B**, Sigman, J. (2015) "Structural Determinants in Hinge-Bend Motions of Neurolysin," American Chemical Society Northern California Undergraduate Research Symposium, Santa Cruz, CA.
21. **Bibel B**, Sigman, J. (2015) "Structural Determinants in Hinge-Bend Motions of Neurolysin," ASBMB Conference, Boston, MA.
22. **Bibel B**, Sigman, J. (2014) "Structural determinants in hinge-bend motions of neuropeptidases. Expression, purification and molecular modeling of mouse neurolysin," SMC Student Research Poster Session, Moraga, CA

Invited Talks

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| 1. "The mysterious malate dehydrogenase (MDH) of a magical microbe: Structure-function relationships of <i>Bacillus</i> MDH proteins," Indiana University. Bloomington, IN. | Mar 13, 2026 |
| 2. "Life with an alter ego: How becoming the bumbling biochemist changed my life and empowered me to empower others through biochemistry," Bloomington, IN. | Mar 12, 2026 |
| 3. "Building connections through molecular separations: the power of practical biochemistry education to unite and advance communities," Cytiva PRIME (Purification Research: Innovations in Molecular Exploration) Summit. Boston, MA. | Oct 15, 2025 |
| 4. "Developing and teaching a biochemical intuition," Wayne State Medical School: Biochemistry, Microbiology, and Immunology Department Winter Semester Seminar Series. Online. | Jan 30, 2024 |
| 5. "Regulating the Regulator: Phosphorylation-mediated Regulation of the RNAi Effector Protein Argonaute," Society of Biosciences in Cyprus (SBSCy) Seminar Series. Online. | Feb 3, 2022 |
| 6. "Bumbling my way through the use of social media to teach biochemistry as The Bumbling Biochemist," Experimental Biology conference. Orlando, FL. | Apr 9, 2019 |

Grants and Research Funding

SMART (Seaver Mentorship for Advanced Research and Training) grant	2026
Faculty Development Grant, SMC	2024, 2025
Malate Dehydrogenase CUREs Community (MCC) Cohort Fellowship, MCC	2024
F32, NIH NIAID, "Mechanism of mitochondrial ribosome inhibition by oxazolidinone antibiotics," Discussed (Impact Score 34) but unfunded	2022
RNA Society Travel Fellowship	2020
Graduate Research Fellowship Program (GRFP) fellow, National Science Foundation (NSF)	2016

Donald A. King Research Fellowship, Huntington's Disease Society of America (HDSA)	2015
Student Research and Development Grant, SMC	2015
Robert W. and Beverly J. Summers Scholarship for Summer Research, SMC	2014

Awards

Emerging Leader Distinguished Alumni Award, SMC	2023
Carlos Freitas Award, SMC Department of Biology <i>Awarded to the student with the most outstanding scholastic record in the Biology department</i>	2016
Campbell Award for Outstanding Scholastic Record in the School of Science, SMC School of Sciences <i>Awarded to the student with the most outstanding scholastic record in the School of Sciences.</i>	2016
Joseph McKenna Award for Most Outstanding Summer Research, SMC	2014
Fletcher Jones Summer Research Poster Award for Best Poster, SMC	2014

Professional affiliations

American Society for Biochemistry and Molecular Biology (ASBMB)
 American Chemical Society (ACS)
 American Society for Mass Spectroscopy (ASMS)
 Green Chemistry Teaching and Learning Community (GCTLC)

Institutional service

Loyola Marymount University

Alternative Grading Panel Discussion	November 21, 2025
Served as an invited panel member for a panel discussion hosted by the Center for Faculty Development (CFD)	

Saint Mary's College of California

American Society for Biochemistry and Molecular Biology Student Chapter	Oct 2024–May 2025
Founder and advisor	
SMC Summer Research Program	May 2024 – Aug 2024
Mentor <i>Mentored two undergraduate students in an intensive, 10-week research program</i>	
SMC STEM Center Lab Math Workshop	Sep 17, 2024
Instructor	
SMC Summer Research Program	Sep 22, 2024
Presentation judge	

Professional leadership and service

American Society for Biochemistry and Molecular Biology (ASBMB) 30th Annual Undergraduate Poster Competition (Washington DC)	Mar 2026
Undergraduate poster competition judge	

BioMolViz Working Group Member <i>Help develop visualization assessments and open educational resources to promote biomolecular visual literacy in the classroom.</i>	Jun 2024 – present
International Union for Biochemistry and Molecular Biology (IUBMB) Ambassador for Trainees (Inaugural) <i>Advocate for training scientists and serve as a liaison between the scientific trainee community and faculty.</i>	Jul 2023 – present
American Society for Biochemistry and Molecular Biology (ASBMB) 29th Annual Undergraduate Poster Competition (Chicago, IL) Undergraduate poster competition judge	Apr 2025
ASBMB 28th Annual Undergraduate Poster Competition (San Antonio, TX) Undergraduate poster competition judge	Mar 2024
IUBMB Trainee Initiative Leadership Committee Founding Member <i>Helped establish and build up an international organization bringing together students and postdocs interested in biochemistry, and connecting them with resources and trainee-focused events; helped organize webinars on protein folding and preprints as well as an in-person workshop geared towards addressing undergraduate and graduate student needs at the 2023 Discover BMB conference (ASBMB national conference).</i>	Jan 2022 – Aug 2023
IUBMB Trainee Ambassador (Inaugural) <i>Wrote weekly pieces on key biochemistry concepts and techniques; helped found the IUBMB Trainee Initiative; represented the IUBMB at national conferences.</i>	Apr 2022 – Jul 2023
CSHL Women in Science and Engineering (WiSE) Social Media Chair <i>Managed the program's website, Facebook, Twitter, and Instagram accounts; wrote and posted weekly profiles of women scientists; redesigned the organization's website; organized a Wikipedia "Women in STEM" edit-a-thon.</i>	Jan 2017 – Jan 2020
IUBMB Student Ambassador (Inaugural) <i>Wrote weekly pieces on key biochemistry concepts and techniques to help engage the next generation of biochemists through social media.</i>	May 2019 – Apr 2022
American Society for Biochemistry and Molecular Biology (ASBMB) Public Outreach Committee Member <i>Helped plan and implement ASBMB's outreach activities including a Special Symposium: "Science outreach: models, methods and measures" (October 2018).</i>	Aug 2018 – Sep 2019
New York Academy of Sciences NEXT Scholars Program Mentor <i>Mentored a female undergraduate student interested in a career in science.</i>	Feb 2017 – Jan 2018
Science Club, Saint Mary's College of California (SMC) Founder and President <i>Founded club; organized a school tour for underrepresented high school students interested in STEM careers; worked with a local elementary school to implement a project-based science program to teach children about environmental science and ecology and increase STEM interest and engagement.</i>	Aug 2015 – May 2016

Pedagogical training and professional development

Uncommon Sense Teaching Faculty Learning Community (FLC) hosted by the LMU Center for Faculty Development (CFD)	Sep 2025 – Dec 2025
MCC Cohort Professional development workshops (virtual and in person) hosted by the Malate Dehydrogenase CUREs	Jul 2024 – Present
Grading for Growth Book Club hosted by ICABL (An Inclusive Community for the Assessment of Biochemistry and Molecular Biology)	May – Aug 2024
STEP-UP: Introduction to Evidence-Based Pedagogy Course and teaching training workshops hosted by UCSF's Office of Career Development (OCD) and IRACDA (Institutional Research and Academic Career Development Award) programs.	Jan – Feb 2023

Educational outreach and additional teaching and mentorship experience

Created and maintain an active website (with over 20K visitors a month), YouTube channel (approximately 35K subscribers, 5K daily views, and 3.4K monthly watch hours), and social media presence (~56K followers on Instagram) communicating fundamental biochemistry concepts and walking people through experiments in an engaging manner targeted towards undergraduate students www.thebumblingbiochemist.com.

Provide free educational content as a collaborator for Harvard's LabXChange science education platform <https://www.labxchange.org/org/thebumblingbiochemist>.

Published multiple articles translating recently-published scientific papers for a general audience <https://massivesci.com/people/brianna-bibel>.

Commissioned by CSHL Meetings and Courses to write summaries of meetings <https://currentexchange.cshl.edu/blog?author=600089d6d6871d1532d663fb>.

Taught DNA extraction to elementary-school students and restriction digests to middle-school students at the Dolan DNA Learning Center (12hrs total, 2017).

Mentored a rotating graduate student in the Fujimori lab (January-April 2023).

Tutored a graduate student in biochemistry (Fall 2021-Spring 2022).

Tutored elementary-school through high-school students (2012-2015).

Mentored four undergraduate students in the laboratory while at SMC and hosted a high-school student for a shadow day at CSHL.