

Tricia Van Laar

ASSOCIATE PROFESSOR OF MICROBIAL GENOMICS

Department of Biological Sciences, California State University Stanislaus

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Education

California State University, Fresno

MBA Fresno, CA

- Course work in Human Resources, New Venture Management, and Strategic Marketing

Expected 2024

The University of Texas at San Antonio

PH.D. IN BIOLOGY WITH AN EMPHASIS IN CELL AND MOLECULAR BIOLOGY San Antonio, TX

- Dissertation Project: Role of the mevalonate pathway in the patho-physiology of *Borrelia burgdorferi*
- Major Advisor: J. Seshu, Ph.D.

2012

University of the Pacific

MS IN BIOLOGY Stockton, CA

- Thesis Project: The behavior of Rad51D and XRCC2 in response to drug induced DNA damage and a continuing study of the fly Rad51 paralogs
- Major Advisor: Lisa Wrischnik, Ph.D.

2007

California State University, Stanislaus

BS IN BIOLOGY Turlock, CA

- Minor in Chemistry, Concentration in Genetics
- Research Project: Speciation of *Sylvilagus bachmani riparius*
- Major Advisor: Jim Youngblom, Ph.D.

2005

Professional Positions

Associate Professor of Microbial Genomics

CALIFORNIA STATE UNIVERSITY, STANISLAUS Turlock, CA

08/2024-Present

Assistant Professor of Microbial Genomics

CALIFORNIA STATE UNIVERSITY, STANISLAUS Turlock, CA

08/2022-08/2024

Associate Professor of Microbiology

CALIFORNIA STATE UNIVERSITY, FRESNO Fresno, CA

08/2021-08/2022

Assistant Professor of Microbiology

CALIFORNIA STATE UNIVERSITY, FRESNO Fresno, CA

08/2015-08/2021

Adjunct Instructor

ST. PHILIP'S COLLEGE San Antonio, TX

08/2014-08/2015

NRC Post-doctoral Fellow

US ARMY INSTITUTE FOR SURGICAL RESEARCH, DENTAL AND TRAUMA RESEARCH DETACHMENT JBSA Ft. Sam Houston, TX

04/2012-07/2015

Graduate Research and Teaching Assistant

THE UNIVERSITY OF TEXAS AT SAN ANTONIO San Antonio, TX

08/2007-03/2012

Graduate Research and Teaching Assistant

UNIVERSITY OF THE PACIFIC Stockton, CA

08/2005-08/2005

Undergraduate Research Assistant

ENDANGERED SPECIES RECOVERY PROGRAM Turlock, CA

04/2004-05/2005

Peer-Reviewed Publications (Student Authors Underlined>

2023

Whittaker, D. J., Atyam, A., Burroughs, N. A., Greenberg, J. M., Hagey, T. J., Novotny, M. V., Soini, H. A., Theis, K. R., **Van Laar, T. A.**, & Slade, J. W. G. (2023). Effects of short-term experimental manipulation of captive social environment on uropygial gland microbiome and preen oil volatile composition. *Frontiers in Ecology and Evolution*, 10. <https://www.frontiersin.org/articles/10.3389/fevo.2022.1027399>

2022

Van Laar, T. A., Biehler, L., & Slade, J. W. G. (2022). Draft Genome Sequence of a Multidrug-Resistant Strain of *Salmonella enterica* Serovar Typhimurium Isolated from a Pine Siskin (*Spinus pinus*). Microbiology Resource Announcements, e0098222. <https://doi.org/10.1128/mra.00982-22>

2020

Osborne, C. J., Wakeman-Hill, A. J., Loa, S. E., Crosbie, P. R., & **Van Laar, T. A.** (2020). *Rickettsia* spp. In Five Tick Species Collected in Central California. Journal of Medical Entomology, 57(5), 1596–1603. <https://doi.org/10.1093/jme/tjaa080>

Avila, A. T., **Van Laar, T. A.,** Constable, J. V. H., & Waselkov, K. (2020). 16S rRNA Gene Diversity of Bacterial Endophytes in Parasitic *Cuscuta campestris* and Its *Helianthus annuus* Host. Microbiology Resource Announcements, 9(43). <https://doi.org/10.1128/MRA.00968-20>

2019

Osborne, C. J., Crosbie, P. R., & **Van Laar, T. A.** (2019). *Borrelia parkeri* in *Ornithodoros parkeri* (Ixodida: Argasidae) Collected Using Compact Dry Ice Traps in Madera County, California. Journal of Medical Entomology, 56(2), 579–583. <https://doi.org/10.1093/jme/tjy213>

Esani, S., Chen, T., Leung, K. P., & **Van Laar, T. A.** (2019). Transcriptome Sequence of Antibiotic-Treated *Pseudomonas aeruginosa*. Microbiology Resource Announcements, 8(12). <https://doi.org/10.1128/MRA.01367-18>

2018

Van Laar, T. A., Esani, S., Birges, T. J., Hazen, B., Thomas, J. M., & Rawat, M. (2018). *Pseudomonas aeruginosa gshA* Mutant Is Defective in Biofilm Formation, Swarming, and Pyocyanin Production. mSphere, 3(2). <https://doi.org/10.1128/mSphere.00155-18>

2017

Miller, C. L., **Van Laar, T. A.,** Chen, T., Karna, S. L. R., Chen, P., You, T., & Leung, K. P. (2017). Global transcriptome responses including small RNAs during mixed-species interactions with methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. MicrobiologyOpen, 6(3). <https://doi.org/10.1002/mbo3.427>

Lin, Y.-H., Romo, J. A., Smith, T. C. 2nd, Reyes, A. N., Karna, S. L. R., Miller, C. L., **Van Laar, T. A.,** Yendapally, R., Chambers, J. P., & Seshu, J. (2017). Spermine and Spermidine Alter Gene Expression and Antigenic Profile of *Borrelia burgdorferi*. Infection and Immunity, 85(3). <https://doi.org/10.1128/IAI.00684-16>

2016

Van Laar, T. A., Hole, C., Rajasekhar Karna, S. L., Miller, C. L., Reddick, R., Wormley, F. L., & Seshu, J. (2016). Statins reduce spirochetal burden and modulate immune responses in the C3H/HeN mouse model of Lyme disease. Microbes and Infection, 18(6), 430–435. <https://doi.org/10.1016/j.micinf.2016.03.004>

2015

Van Laar, T. A., Chen, T., You, T., & Leung, K. P. (2015). Sublethal concentrations of carbapenems alter cell morphology and genomic expression of *Klebsiella pneumoniae* biofilms. Antimicrobial Agents and Chemotherapy, 59(3), 1707–1717. <https://doi.org/10.1128/AAC.04581-14>

2013

Childers, B. M., **Van Laar, T. A.,** You, T., Clegg, S., & Leung, K. P. (2013). MrkD1P from *Klebsiella pneumoniae* strain IA565 allows for coexistence with *Pseudomonas aeruginosa* and protection from protease-mediated biofilm detachment. Infection and Immunity, 81(11), 4112–4120. <https://doi.org/10.1128/IAI.00521-13>

2012

Van Laar, T. A., Lin, Y.-H., Miller, C. L., Karna, S. L. R., Chambers, J. P., & Seshu, J. (2012). Effect of levels of acetate on the mevalonate pathway of *Borrelia burgdorferi*. PLoS One, 7(5), e38171. <https://doi.org/10.1371/journal.pone.0038171>

2011

Raju, B. V. S., Esteve-Gassent, M. D., Karna, S. L. R., Miller, C. L., **Van Laar, T. A.,** & Seshu, J. (2011). Oligopeptide permease A5 modulates vertebrate host-specific adaptation of *Borrelia burgdorferi*. Infection and Immunity, 79(8), 3407–3420. <https://doi.org/10.1128/IAI.05234-11>

Editor Accepted Publications (Student Authors Underlined)

2017

Esani, S., Constable, J. V. H., & **Van Laar, T. A.** (2017). Draft Genome Sequence of a Multidrug-Resistant Strain of *Enterococcus faecalis*, PM01, Isolated from the Nest of an American Bushtit, *Psaltirparus minimus*. *Genome Announcements*, 5(11). <https://doi.org/10.1128/genomeA.00017-17>

2016

Kennedy, V., **Van Laar, T. A.**, Aleru, O., Thomas, M., Ganci, M., & Rawat, M. (2016). Genome Sequences of Three Spore-Forming Bacteria Isolated from the Feces of Organically Raised Chickens. *Genome Announcements*, 4(5). <https://doi.org/10.1128/genomeA.00880-16>

Nelson, R. L., Castro, M. A., Katti, M., Eisen, J. A., & **Van Laar, T. A.** (2016). Genome Sequence of a Multidrug-Resistant Strain of *Bacillus pumilus*, CB01, Isolated from the Feces of an American Crow, *Corvus brachyrhynchos*. *Genome Announcements*, 4(4). <https://doi.org/10.1128/genomeA.00807-16>

2014

Van Laar, T. A., Chen, T., Childers, B. M., Chen, P., Abercrombie, J. J., & Leung, K. P. (2014). Genome Sequence of a Multidrug-Resistant Strain of *Klebsiella pneumoniae*, BAMC 07-18, Isolated from a Combat Injury Wound. *Genome Announcements*, 2(6). <https://doi.org/10.1128/genomeA.01230-14>

Book Chapters

Seshu, J., Smith, T. C. 2nd, Lin, Y.-H., Karna, S. L. R., Miller, C. L., & **Van Laar, T. A.** (2018). Analysis of DNA and RNA Binding Properties of *Borrelia burgdorferi* Regulatory Proteins. *Methods in Molecular Biology* (Clifton, N.J.), 1690, 155–175. https://doi.org/10.1007/978-1-4939-7383-5_13

Invited Presentations

- 2024 **Investigating Microbiome and Immune Response Dynamics during Avian Malaria Infection in Migratory Birds:** Research, Scholarship, and Creative Activities Celebration, Stanislaus State
- 2023 **Math is for the Birds:** Seminar Series for the Quantitatively Curious, Stanislaus State
- 2023 **Microbiology of Avian Systems:** Seminar Series, University of the Pacific
- 2023 **Avian Microbial Genomics:** Seminar Series, Stanislaus State
- 2020 **The Birds of Fresno State:** Monthly Meeting, Fresno Audubon Society
- 2019 **We did something bad: Is this the end of the antibiotic era?:** Colloquium, Fresno State
- 2018 **Good drugs gone bad: Antimicrobial resistance research at Fresno State:** Seminar Series, UC Merced
- 2018 **GMOs and transgenic organisms – threat or opportunity?:** Central Valley Cafe Scientifique, Fresno, CA
- 2017 **Good drugs gone bad: Antimicrobial Resistance:** Central Valley Cafe Scientifique, Fresno, CA
- 2016 **Good drugs gone bad: An investigation of antimicrobial/resistance and tolerance in war-wound pathogens:** Seminar Series, Stanislaus State
- 2015 **A biologist and a sociologist walk into a...CRISPR:** Central Valley Cafe Scientifique, Fresno, CA
- 2011 **Role of the mevalonate pathway in the patho-physiology of *Borrelia burgdorferi*:** South Texas Center for Emerging Infectious Diseases, The University of Texas at San Antonio

Grants and Funding (Total funding: \$819,891)

Stanislaus State

2024	CSUBIOTECH New Investigator Grant	\$15,000
2023	Research, Scholarly, and Creative Activity Award	\$10,000
2022	National Science Foundation New Faculty Enhancement Grant (Co-PI)	\$467,622
2022	Research, Scholarly, and Creative Activity Award	\$10,000

Fresno State

2022	CSUPERB New Investigator Seed Grant (Co-PI)	\$14,919
2020	College of Science and Mathematics Scholarly and Creative Activity Award	\$5,000
2019	CSU-STEM NET Grant (Co-PI)	\$50,000
2019	CSU Program for Education and Research in Biotechnology Curriculum Redesign Award	\$15,000
2018	College of Science and Mathematics Professional Development Award	\$5,000
2018	College of Science and Mathematics Scholarly and Creative Activity Award (Co-PI)	\$5,000
2018	College of Science and Mathematics Scholarly and Creative Activity Award (Co-PI)	\$5,000
2017	Biology Travel Award	\$1,000
2017	College of Science and Mathematics Scholarly and Creative Activity Award	\$7,000
2017	College of Science and Mathematics Scholarly and Creative Activity Award	\$5,000
2017	College of Science and Mathematics Professional Development Award	\$950
2016	Biology Travel Award	\$500
2016	College of Science and Mathematics Professional Development Award	\$1,200
2015	Biology Travel Award	\$1,000

Older Funding

2012	National Research Council Post-Doctoral Fellowship	\$150,000
2011	Center for Excellence in Infection Genomics Doctoral Scholarship	\$30,000
2010	South Texas Center for Emerging Infectious Diseases PhD Fellowship	\$30,000
2010	UTSA Presidential Dissertation Fellowship	\$1,500

Honors and Awards

Fresno State

2020	Provost Award for Promising New Faculty
2019	Outstanding Advisor Nominee

Older Awards

2009	O.B. Williams Award for Oral Presentation at Texas ASM meeting
2005	First Place Oral Presentation Stanislaus State Research Competition

Outreach and Service

Stanislaus State

- Darwin Day Presenter (2024)
- CSUBIOTECH Nagel Award Selection Committee (2023-Present)
- ASPIRE STEM 4 PALS Presenter (2023-present)
- Social Media (Instagram/Twitter) (2022-Present)

Fresno State

- American Society for Microbiology Abstract and Travel Award Reviewer (2020-present)
- Fresno Audubon Society Campus Walks (2019-2022)
- American Ornithological Society Poster Judge (2018-present)
- College of Science and Mathematics Day of Giving (2018)
- Feria de Educacion/Day of Discovery (2018-2022)
- Science Olympiad Preparation with University High School (2017 & 2018)
- Central California Research Symposium Judge (2017-2021)
- Annual Biomedical Conference for Minority Students Presentation Judge (2016)
- Café Scientifique Website, Facebook Page, Twitter Account (2016-2022)
- Division of Graduate Studies Symposium Judge (2016)
- Head Microbiology Judge for the Central California Regional Science, Math & Engineering Fair (2016)
- Expanding Your Horizons Presenter (2015-2018)

Professional Society Membership

- American Ornithological Society
- American Society for Microbiology

Professional Service

- Associate editor for mSystems
- Reviewer for Genes, Medical Sciences, mSystems, Microbiome, Microorganisms, Molecules, Molecular Biology and Evolution, Data, Biomolecules, Pharmaceuticals
- Reviewer for NSF
- Reviewer for Microbiology: An Evolving Science 5e Textbook (Norton Publishing)

Teaching Activities (*Indicates course I developed)

Stanislaus State

- General Microbiology Lecture and Lab (MBIO 3010/3032)
 - Introductory Genetics (BIOL 3350)
 - Medical Microbiology (BIOL 4300)
 - Bioinformatics (BIOL 4810)*
- Genetic Biotechnology (BIOL 4840)
 - Biology Colloquium (BIOL 4960)
 - Research Design and Data Analysis (BIOL 5500)
 - Graduate Seminar (BIOL 5961)

Fresno State

- Introductory Biology (BIOL 1A)
 - Introductory Microbiology (BIOL 20)
 - Genetics (BIOL 102)
 - Cell Biology (BIOL 103)
 - Honors Experimental Design (BIOL 111H)
 - Microbiology (BIOL 120)
 - Medical Microbiology (BIOL 121)
 - Bioinformatics (BIOL 151)
 - Immunology (BIOL 157)
- Field Ornithology (BIOL 189T)*
 - Microbial Bioinformatics (BIOL 189T)*
 - Scientific Writing (BIOL 250)
 - Vector-Borne Diseases (BIOL 260T)*
 - Bacterial Pathogenesis (BIOL 260T)*
 - Revenge of the Killer Microbes (GE) (NSCI 125)
 - Biotechnology and Its Impact on Society (GE) (NSCI 120)
 - Blood (GE) (NSCI 121)
 - Revenge of the Killer Microbes (GE) (NSCI 125)

St. Philip's College

- Microbiology for Allied Health and Nursing (lecture and lab)
- Biology II for Science Majors (lecture and lab)

The University of Texas at San Antonio (teaching associate and guest lecturer)

- General Biology I
- Microbiology
- Bacterial Pathogenesis

University of the Pacific (teaching associate)

- General Biology I
- General Biology II
- Microbiology
- Genetics