

# 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>

### 2024

**Van Laar, T. A.**, Greenberg, J. M., Theis, K. R., Whittaker, D. J., & Slade, J. W. G. (2024). 16S rRNA Gene Sequencing of Microbiota from the Preen Oil and Cloaca of Chipping Sparrows (*Spizella passerina*). Microbiology Resource Announcements. <https://doi.org/10.1128/mra.00576-24>

## 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)

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### 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, *Psaltriparus 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

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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](https://doi.org/10.1007/978-1-4939-7383-5_13)

## Invited Presentations

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- 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)

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### Stanislaus State

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

### Fresno State

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

### Older Funding

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

## Honors and Awards

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### 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

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### Stanislaus State

- Pre-Health Advisor (2024-Present)
- 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

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- American Ornithological Society
- American Society for Microbiology

## Professional Service

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- 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)

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### Stanislaus State

- General Microbiology Lecture and Lab (MBO 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