

Takehiro Kado

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PROFESSIONAL EXPERIENCE

- 08/2024- present** **Assistant professor**, Department of Biology, Missouri State University, Springfield, MO, U.S.
- 03/2024-07/2024** **Research Associate**, Latde Diagnostics, MA.
- 04/2019-07/2024** **Postdoctoral Fellow**, Department of Microbiology, University of Massachusetts Amherst, Amherst, MA, U.S. Advisors: Yasu S. Morita and M. Sloan Siegrist
- 04/2015-03/2019** **Research Assistant**, Graduate School of Veterinary Medicine, Kitasato University, Aomori, Japan. Advisor: Takashige Kashimoto

EDUCATION

- Ph.D.** (April 2015 – March 2019)
Graduate School of Veterinary Medicine, Kitasato University, Aomori, Japan
Advisor: Takashige Kashimoto
Dissertation: Development of a new method for identifying bacterial virulence genes essential for host immune evasion
- Doctor of Veterinary Medicine** (April 2009 – March 2015)
School of Veterinary Medicine, Kitasato University, Aomori, Japan
- Bachelor of Veterinary Medicine** (April 2009 – March 2015)
School of Veterinary Medicine, Kitasato University, Aomori, Japan

GRANTS & AWARDS

- 2025** **U.S.-Japan Cooperative Medical Sciences Program Collaborative Awards**, International Science & Technology Center (ISTC).
- 2025** **Summer Research Fellowship**, Graduate College, Missouri State University.
- 2024** **Faculty Research Grant**, Graduate College, Missouri State University.
- 2023** **Microbiome, Microbes & Infectious Diseases (MMID) Theme Summer Research Grant**, Institute for Applied Life Sciences, University of Massachusetts Amherst.
- 2022** **Microbiome, Microbes & Infectious Diseases (MMID) Theme Summer Research Grant**, Institute for Applied Life Sciences, University of Massachusetts Amherst.
- 2019** **Post-doctoral Fellowship for Young Scientists** from The Uehara Memorial Foundation
- 2017** **Young Scientist Award of the microbiology committee** at the 160th meeting of the Japanese Society of Veterinary Science

PUBLICATIONS

17. **Kado T**, Shivangi, Jordan J, Freundlich JS, Siegrist MS, Morita YS. Loss of *ag85A* disrupts plasma membrane domains and promotes free mycolic acid accumulation in mycobacteria. *bioRxiv*. 2025 Aug, doi: <https://doi.org/10.1101/2025.08.05.668640>
16. Maddox MJ, **Kado T**. Transcriptional regulator, metabolic, and pilus biosynthesis genes as candidate virulence markers in high-virulence *Mycobacterium abscessus*. *bioRxiv*. 2025 May, doi: <https://doi.org/10.1101/2025.05.08.652910>
15. Albano C, Nabawy A, Tran W, Prithviraj M, **Kado T**, Hassan M, Makabenta J, Rotello V, and Morita YS. Effective killing of *Mycobacterium abscessus* biofilm by nanoemulsion delivery of plant phytochemicals. *Microbiol Spectr*. 2025 Mar 4;13(3):e0216624.
14. Sparks IL., **Kado T**, Prithviraj M, Nijjer J, Yan J, Morita YS. Lipoarabinomannan mediates localized cell wall integrity during division in mycobacteria. *Nat Commun*. 2024 Mar 11;15(1):2191.
13. **Kado T**, Akbary Z, Motooka D, Sparks IL, Melzer ES, Nakamura S, Rojas ER, Morita YS, Siegrist MS. The cell wall polymer initiates plasma membrane partitioning in mycobacteria. *eLife*. 2023; 12: e81924
12. Prithviraj M*, **Kado T***, Mayfield AJ*, Young CD, Huang DA, Motooka D, Nakamura S, Siegrist MS, Moody DB, Morita YS, Genetic and lipidomic identification of tuberculostearic acid as a controller of mycobacterial membrane compartmentalization. *mBio*. 2023 Apr 25;14(2):e0339622. *Co-first authors.
11. Nguyen PP, **Kado T**, Prithviraj M, Siegrist MS, Morita YS. Inositol acylation of phosphatidylinositol mannosides: a rapid mass response to membrane fluidization in mycobacteria. *J Lipid Res*. 2022

Sep;63(9):100262.

10. Melzer ES, **Kado T**, García-Heredia A, Gupta KR, Meniche X, Morita YS, Sasseti CM, Rego EH, Siegrist MS. Cell Wall Damage Reveals Spatial Flexibility in Peptidoglycan Synthesis and a Nonredundant Role for RodA in Mycobacteria. *J Bacteriol*. 2022 May 11;e0054021.
9. García-Heredia A, **Kado T**, Sein CE, Puffal J, Osman SH, Judd J, Gray TA, Morita YS, Siegrist MS. Membrane-partitioned cell wall synthesis in mycobacteria. *eLife*. 2021;10:e60263
8. Kashimoto T, Yamazaki K, **Kado T**, Matsuda K, Ueno S. *mukB* is a gene necessary for rapid proliferation of *Vibrio vulnificus* in the systemic circulation but not at the local infection site in the mouse wound infection model. *Microorganisms*. 2021 Apr 27;9(5):934.
7. Yamazaki K, Kashimoto T, **Kado T**, Akeda Y, Yoshioka K, Kodama T, Yamamoto M, Okamura M, Kakuda T, Ueno S. Chemotactic invasion in deep soft tissue by *Vibrio vulnificus* is essential for the progression of necrotic lesions. *Virulence*. 2020 Dec;11(1):840-848.
6. Kashimoto T, Sugiyama H, Kawamidori K, Yamazaki K, **Kado T**, Matsuda K, Kodama T, Mukai T, Ueno S. *Vibrio vulnificus* hemolysin associates with gangliosides. *BMC Microbiol*. 2020 Mar;20(1):69.
5. **Kado T**, Kashimoto T, Yamazaki K, Matsuda K, Ueno S. Accurate prediction of anti-phagocytic activity of *Vibrio vulnificus* by measurement of bacterial adherence to hydrocarbons. *APMIS*. 2019 Feb;127(2):80-86.
4. Yamazaki K, Kashimoto T, Morita M, **Kado T**, Matsuda K, Yamasaki M, Ueno S. Identification of in vivo essential genes of *Vibrio vulnificus* for establishment of wound infection by signature-tagged mutagenesis. *Frontiers in Microbiology*. 2019 Feb 1;10:123.
3. Yamazaki K, Kashimoto T, Hashimoto Y, **Kado T**, Ueno S. Immunogenicity and protective efficacy of *Vibrio vulnificus* flagellin protein FlaB in a wound infection model. *The Journal of Veterinary Medical Science*. 2018 Jan 1;80(1):55-58
2. Kashimoto T, Akita T, **Kado T**, Yamazaki K, Ueno S. Both polarity and aromatic ring in the side chain of Tryptophan 246 are involved in binding activity of *Vibrio vulnificus* hemolysin to target cells. *Microb Pathog*. 2017 Aug;109:71-77.
1. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. Importance of fumarate and nitrate reduction protein for intestinal proliferation of *Vibrio vulnificus*. *FEMS Microbiol Lett*. 2017 Jan;364(1):fnw274.

PRESENTATIONS

23. **Kado T**. Gene loss, reduced growth, and increased membrane permeability in NTM isolates with possible clinical-to-environmental transitions. *Mycobacterial cell wall and replication meeting 2025*. Online, January 20 2026.
22. **Kado T**, Shivangi, Freundlich JS, Siegrist MS, Morita YS. Loss of *Ag85A* disrupts plasma membrane domains and promotes free mycolic acid accumulation in mycobacteria. *Molecular Biology of Bacteria and Phage Meeting 2025*. WI, poster presentation (265), August 2025.
21. **Kado T**. Mechanisms of plasma membrane domain formation and their role in mycobacterial growth. *MycoPRISM seminar*. Washington University, St. Louis. Invited presentation, June 2025.
20. **Kado T**. Potentiated aminocyclitol antibiotics by membrane fluidization–induced suppression of mycobacterial cell wall and outer membrane biosynthesis. *Chemistry/Biochemistry Department Seminar*. Missouri State University. Invited presentation, February 2025.
19. **Kado T**. Repurposing anesthetics to combat *Mycobacterium avium* complex. *Mycobacterial cell wall and replication meeting 2025*. Online, January 21 2025.
18. **Kado T**. Mechanisms Underlying Plasma Membrane Domain Formation in Bacterial Cells. *Meeting of the Missouri Branch of the American Society for Microbiology*. MO. Invited presentation, October 2024.
17. **Kado T**, Shivangi, Freundlich JS, Siegrist MS, Morita YS. Glycolipid accumulation in the outer membrane as a potential mechanism to control mycobacterial cell permeability. *Boston Bacterial Meeting*. MA, poster presentation (15), June 2024.
16. **Kado T**. Facilitating de novo separation of plasma membrane into functional domains with bilayer-intrinsic and -extrinsic structure. *Postdoc Showcase 2023 in the Molecular and Cellular Biology (MCB) Program*. MA, selected for the oral presentation, September 2023.
15. **Kado T**. How do bacteria organize their beautiful cell envelope structure? *Cornell future faculty symposium 2023*. NY, selected for the oral presentation, September 2023.
14. **Kado T**, Prithviraj M, Mayfield AJ, Akbary Z, Motooka D, Young CD, Huang DA, Sparks I, Melzer ES, Nakamura S, Rojas ER, Moody DB, Siegrist MS, Morita YS. Bilayer-Intrinsic and -extrinsic structure to separate mycobacterial plasma membrane into domains. *Boston Bacterial Meeting*. MA, poster

presentation (109), June 2023.

13. **Kado T**, Akbary Z, Motooka D, Melzer ES, Nakamura S, Rojas ER, Morita YS, Siegrist MS, A mycobacterial aPBP promotes membrane partitioning. *Gordon Research Seminar and Gordon Research Conference: Bacterial Cell Surfaces*. VT, poster presentation, June 2022.
12. **Kado T**, Sparks IL, Akbary Z, Motooka D, Melzer ES, Nakamura S, Rojas ER., Morita YS, Siegrist MS, Cell wall polymer initiates plasma membrane partitioning in mycobacteria. *University of Massachusetts Chemistry-Biology Interface Retreat*. MA, poster presentation, June 2022.
11. **Kado T**, Mycobacterial cell wall promotes membrane domain formation. *Dartmouth Microbiology and Molecular Pathogenesis Retreat*. VT, oral presentation, February 2022.
10. **Kado T**, Genes required for establishment and maintenance of membrane domains. *Boston TB meeting*. Online, oral presentation, May 2022.
9. **Kado T**, Motooka D, García-Heredia A, Nakamura S, Siegrist MS, Morita YS, Stress response genes to membrane fluidizers in mycobacteria. *EB2021*. Poster L5080. Online, poster presentation, April 2021.
8. **Kado T**, García-Heredia A, Siegrist MS, Morita YS. Genome-wide screening of genes important for membrane domain organization in *Mycobacterium smegmatis*. *Pioneer Valley Microbiology Symposium 2021*. Poster No. 1. MA, poster presentation, January 2021.
7. **Kado T**, Kashimoto T, Yamazaki K, Akeda Y, Kodama Y, Ueno S. Knock out of a putative transporter system in *Vibrio vulnificus* reduces lethality of mice. *The 17th Awaji International Forum on Infection and Immunity*. P-39. Hyogo, Japan, selected as the oral presentation, September 2018.
6. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. Developmental of ISLAP method: Evasion mechanism of neutrophil killing in *Vibrio vulnificus*. *The 160th meeting of the Japanese Society of Veterinary Science*. Kagoshima, Japan, oral presentation, September 2017.
5. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. Fumarate and nitrate reduction regulatory protein-dependent proliferation of *Vibrio vulnificus* in intestine is required for effective dissemination to further organs. *ASM Microbe 2016*. FRIDAY-553. MA, poster presentation May 2016.
4. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. Screening of virulence genes in *Vibrio vulnificus*. *The 70th Annual Meeting of the Tohoku branch of the Japanese Society for Bacteriology*. Aomori, Japan, oral presentation, August 2016.
3. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. *Vibrio vulnificus* proliferate fumarate and nitrate reduction regulatory protein dependently in the intestine. *The meeting of the Tohoku branch of the Japan Veterinary Medical Association 2015*. Iwate, Japan, oral presentation, October 2015.
2. **Kado T**, Kashimoto T, Yamazaki K, Ueno S. The proliferation of *Vibrio vulnificus* due to the adaptation to the anaerobic environment at the infection site. *The 157th meeting of the Japanese Society of Veterinary Science*. Hokkaido, Japan, oral presentation, September 2014
1. **Kado T**, Kashimoto T, Iwasaki C, Yamazaki K, Ueno S. Investigation of the risk factor of the *Vibrio vulnificus* infection using the bile duct ligated mice. *The 17th research meeting of the Kitasato Academy of Microbiology*. Kanagawa, Japan, oral presentation, August 2014.

MENTORING

Graduate students

2025 – present	Ellise T Dlabach: Master's student, Department of Biology, Missouri State University
2025 – present	Richard Adag-wene: Master's student, Department of Biology, Missouri State University
2025 – present	Fatemeh Ghaderibarmi: Master's student, Department of Biology, Missouri State University
2019 – 2024	Malavika Prithviraj: Ph.D. student, Microbiology Graduate Program, University of Massachusetts Amherst <i>Published a research manuscript (mBio 2023 Apr 25;14(2):e0339622.)</i>
2020 – 2024	Stefanos Stravoravdis: Ph.D. student, Microbiology Graduate Program, University of Massachusetts Amherst
2023 – 2024	Haley Aponte: Master's student, Microbiology Graduate Program, University of Massachusetts Amherst
2021 – 2023	Casey Albano: Master's student, Microbiology Graduate Program, University of Massachusetts Amherst
2021 – 2022	Brittany Anderson: 4+1 Master's Student, Microbiology Graduate Program, University of Massachusetts Amherst
2022 Fall	Katharina Elisabeth Mascha: Visiting Master's student from University of Konstanz, Germany, Microbiology Graduate Program, University of Massachusetts Amherst

Undergraduate students

- 2025-Present Mohan Grewal: Greenwood Laboratory School, Springfield MO
2025-Present Jamin B Fonyuy: Department of Biology, Missouri State University
2025-Present Rachel C Butler: Department of Biology, Missouri State University
2025-Present Mercedes D Stites : Biomedical Science, Missouri State University
2025-Present Ezoza Hikmatillaeva: Biomedical Science, Missouri State University
2025-Present Bryan A Montero-Gutierrez: Department of Biology, Missouri State University
2025 Summer Jathin K Bande: Central High School, Springfield MO
2025 Spring M.J. Maddox: Department of Biology, Missouri State University
Published a preprint (<https://doi.org/10.1101/2025.05.08.652910>)
2024 Fall Jake Jordan: Department of Biology, Missouri State University
2024 Fall Abby Cox: Department of Biology, Missouri State University
2024 Fall Hayden Stewart: Department of Biology, Missouri State University
2023 – 2024 Tristan Grieve: Department of Biology, University of Massachusetts
2021 – 2024 Alkmini Diamantidi: Department of Microbiology, University of Massachusetts
2023 Summer Olivia Sausa: Summer internship, University of Massachusetts
Hired by my summer research grant
2022 Summer Nandhini Rajesh Babu: Summer internship, University of Massachusetts
Hired by my summer research grant
2019 – 2022 Peter P. Nguyen: Department of Microbiology, University of Massachusetts
Published a research manuscript (J Lipid Res. 2022 Sep;63(9):100262.)
2018 – 2019 Kaho Matsuda: Department of Veterinary Medicine, Kitasato University
Listed in research manuscripts as an author (Microorganisms. 2021 May; 9(5): 934., BMC Microbiol. 2020 Mar 30;20(1):69.)
2017 – 2018 Kana Iguchi: Department of Veterinary Medicine, Kitasato University

TEACHING

- BIO 511/611/730 Immunology (~48 students). Instructor of record. 2024-present
- BIO 520/620 Pathogenic Microbiology (~48 students). Instructor of record. 2025-present
- BIO 312 Microbiology (~65 students). Instructor of record. 2025-present
- MICROBIO 330 Microbial Genetics (~65 students). Guest lecture. 2023
- MICROBIO 310 General Microbiology (~120 students). Guest lecture. 2022
- Teaching Assistant in Graduate School of Veterinary Medicine, Kitasato University, Aomori, Japan. Courses: Lab course and lecture of Veterinary Public Health. 2015-2019
- Mindfulness-Based Strengths Practice program (6 participants). Co-leader. 2023
- Monthly microbiology workshop for local community (1.5 hour, ~10 participants). Main speaker. 2023-present

SERVICE

- Secretary of Missouri Branch of American Society of Microbiology. 2024-present
- Manuscript review. *JoVE, Gene Rep., Microbiol. Spectrum, BMC Microbiol.*
- Ad Hoc manuscript review. *Eur J Pharm Biopharm., Front Cell Infect Microbiol., PLOS Genetics.*
- Postdoc advisory committee. 2023-2024
- Meeting organization. Mycobacterium cell wall meeting with ten laboratories. Online, July 2022
- Co-chair of session. Session of lipids and membranes. *EB2021*. Online, April 2021.

PROFESSIONAL DEVELOPMENT

- ASM Conference for Undergraduate Educators (ASMCUE) Summer Series. 2025
- Master Advisory Workshop. 2024
- Teaching Academy for Early Career Faculty Cohort. 2024
- Planning and Writing Successful Grant Proposals. 2024
- Research Mentor Training at UMass CNS. 2024
- Cornell Future Faculty Symposium. 2023
- COMPASS Training and Mentoring Program. 2023
- New England Future Faculty Workshop. 2023
- Johns Hopkins University Teaching Institute. 2023
- Advancing Learning Through Evidence-Based STEM Teaching. 2023

Takehiro Kado – Curriculum vitae

- Mindfulness-Based Strengths Practice program. 2022
- Academic Lab Management & Leadership Symposium. 2021
- Teaching at Teaching Intensive Institutions conference. 2020
- Grant Series I-III by the office of professional development at University of Massachusetts. 2020

MEMBERSHIP

- American Society for Microbiology (2016-present)
- American Society for Biochemistry and Molecular Biology (2020-2023)
- American Mensa (2023)
- Japanese Society for Bacteriology (2018-2019)
- Japanese Society of Veterinary Science (2014-2019)

BOOKS

- How to Be a Doctor: Secrets of a Student's Life for a Person Who Aims to Join Graduate School. [ASIN: B09XC5KRCT]
- The Serious Problem of Scholarship in Japan: Do Not Use Student Loan Scholarship in Japan. [ASIN: B09ZQ93R61]
- Go Doctor Go: Twelve stories which one doctor wants to tell you. [ASIN: B0C55MCY1K]
* “Saibou” or “Saibou kun” is his pen name.