

SARVESH V. SURVE

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EDUCATION

- Geisel School of Medicine at Dartmouth**, Hanover, NH **August 2021-June 2027 (expected)**
Doctor of Philosophy, Microbiology and Immunology
Thesis Title: *Bacteroides* as a potential CF probiotic
Advisor: Dr. George A. O'Toole
- Symbiosis International University**, Pune, MH, India **August 2016-June 2018**
Master of Science, Major in Biotechnology **GPA 9.21/10.0 (Rank 1/30)**
Thesis Title: Isolation and Characterization of Lactic Acid Bacteria from Indian Foods and their in-vitro probiotic evaluation
- University of Mumbai**, Mumbai, MH, India **August 2013-June 2016**
Bachelor of Science, Major in Biotechnology **GPA 6.85/7.0 (Rank 4/30)**

RESEARCH EXPERIENCE

- Geisel School of Medicine at Dartmouth**, Hanover, NH **August 2021-Present**
Graduate Research Fellow, PI: Dr. George A. O'Toole, Geisel School of Medicine
- Evolved probiotic strains of *Bacteroides* to have better fitness in cystic fibrosis (CF)-like environments
 - Investigating molecular mechanisms of *Bacteroides* adaptation to CF conditions
 - Published two middle-author research articles, with additional manuscripts in preparation.
 - Contributing to two patent applications based on thesis research.
- Marine Biological Laboratory**, Woods Hole, MA **July 2025-August 2025**
Student Researcher – Microbial Diversity Course
- Conducted an independent project titled “Spatial and Genomic Ecology of *Gracilibacteria* in Green Sulfur Bacteria Enrichment Cultures Using High-Resolution Imaging and Metagenomics.”
 - Trained in advanced microbial ecology methods.
 - Collaborative environment with intensive laboratory experience and field sampling.
- Symbiosis School of Biological Sciences**, Pune, MH, India **October 2018-June 2021**
Senior Research Fellow, PI: Dr. Ram Kulkarni
- Isolated two unique *L. plantarum* strains and characterized their probiotic potential. Used these strains to evolve tolerance to inhibitory chemicals for use in lignocellulosic fermentations
 - Molecular cloning and characterization of novel polyketide synthases, O-methyl transferases, hydroxylase, and sesquiterpene oxygenases from *Aquilaria malaccensis* in *E. coli* and yeast systems
 - Responsible for performing and troubleshooting experiments, analyzing data, writing reports and manuscripts, and training interns
 - Published three first-author papers. Generated data and helped conceptualize the MJRP grant that was awarded to Dr. Ram Kulkarni
- Institute of Nuclear Medicine and Allied Sciences**, Delhi, India **May 2017-June 2017**
Summer Research Fellow, PI: Dr. Paban Kumar Agrawala
- Internship awarded as a part of accepting the Science Academy Fellowship
 - Studied DNA break generation in sperm cells of irradiated C57BL/6 mice

AWARDS AND HONORS

- M2P2 scholarship** **August 2025**
Department of Microbiology and Immunology, Dartmouth College
Awarded for attending off-campus courses during Ph.D. Covers the cost of tuition, room, board, or travel.
- PG Merit Scholarship** **December 2016-June 2018**
Symbiosis International University
Awarded to the Rank 1 student in the M.Sc. program. The award includes a 50% tuition waiver for all the semesters of the master's degree
- DST INSPIRE Fellowship** **December 2018**
Ministry of Science & Technology, Government of India
Awarded to the Rank 1 student at each university in India to join a funded Ph.D. program (*did not accept*)
- CSIR-UGC NET-LS** **June 2018**
Ministry of Science & Technology, Government of India
Highly competitive exam in STEM to qualify for research fellowship positions in India. *All India Rank 22*

National fellowship awarded by the Indian Academy of Sciences to early-career students for experiencing STEM research in prestigious institutes across India

Awarded to members of Collaborative Undergraduate Biology Education (CUBE) for leadership and excellence

PUBLICATIONS

- **Surve, S. V.**, Eggins, S., Day, L. A., Huang, Y., Kahn, A., Charles-Orszag, Yang, J., A., O'Toole, G. A., Dawson, S. C., & Spear, J. R. (2025). Spatial and Genomic Ecology of *Gracilibacteria* in Green Sulfur Bacteria Enrichment. *In prep*.
- **Surve, S. V.**, Valls, R. A., Barrack, K. E., Gwilt, L. L., Gardner, T. B., & O'Toole, G. A. (2025). The Regional Landscape of the Human Colon Culturome in Health and Cystic Fibrosis. *In prep for submission in October*.
- **Surve, S. V.**, Valls, R. A., & O'Toole, G. A. (2025). Genome Sequences of 109 Gut Bacteria Isolated from Colonoscopy Samples of Individuals with and without Cystic Fibrosis. *In prep for submission in October*.
- Barrack, K. E., **Surve, S. V.**, Bezerra, A. V., Murphy, C. E., Soucy, S. M., Valls, R. A., & O'Toole, G. A. (2025). A genotoxin associated with colorectal cancer linked to gut dysbiosis in children with cystic fibrosis. *In review at PNAS*.
- Valls, R. A., Barrack, K. E., **Surve, S. V.**, Bliska, J. B., & O'Toole, G. A. (2025). Sex and intestinal-region-specific *Bacteroides* regulation of host response to pulmonary challenge. *In review at mBio*.
- Carmichael, M. M., Valls, R. A., Soucy, S., Sanville, J. L., Madan, J., L., **Surve, S. V.**, Sundrud, M. S., & O'Toole, G. A. (2025). Profiling Bile Acids in the Stools of Humans and Animal Models of Cystic Fibrosis. *Microbiology Spectrum* [Link](#)
- **Surve, S. V.**, Rajkhowa, R., Vyas, P., Vijayvargiya, M., Khare, S., & Kulkarni, R. (2024). Transcriptomic analysis identifies a furfural reductase in *Lactiplantibacillus plantarum*. *Biocatalysis and Agricultural Biotechnology*, 62, 103449. [Link](#)
- **Surve, S. V.**, Shinde, D. B., Fernandes, J. M., Sharma, S., Vijayvargiya, M., Kadam, K., & Kulkarni, R. (2024). Laboratory domestication of *Lactiplantibacillus plantarum* alters some phenotypic traits but causes non-novel genomic impact. *Journal of Applied Microbiology*, 135(2), 1xae035. [Link](#)
- Barrack, K. E., Hampton, T. H., Valls, R. A., **Surve, S. V.**, Gardner, T. B., Sanville, J. L., Madan, J. L., & O'Toole, G. A. (2024). An in vitro medium for modeling gut dysbiosis associated with cystic fibrosis. *Journal of Bacteriology*, 206(1), e00286-23. [Link](#)
- **Surve, S.**, Shinde, D. B., & Kulkarni, R. (2022). Isolation, characterization, and comparative genomics of potentially probiotic *Lactiplantibacillus plantarum* strains from Indian foods. *Scientific reports*, 12(1), 1940. [Link](#) (Collection: Top 100 in Microbiology – 2022)
- Haritwal, T., Gupta, N., Tiwari, M., **Surve, S.**, & Agrawala, P. K. (2017). Radiation countermeasures: current status. (Review)

CONFERENCES/PRESENTATIONS/POSTERS

- **69th Wind River Conference on Prokaryotic Biology** **June 2-6, 2025**
Breckenridge, Colorado
Presented a seminar titled “Mechanisms of Bile Acid Resistance in *Bacteroides*: A Role of DGRs”
- **Dartmouth Cystic Fibrosis Research Center (DartCF) Annual Retreat** **April 28-29, 2025**
Hanover, New Hampshire
Presented a seminar in a session titled “Multi-organ crosstalk”
- **Microbiology and Molecular Pathogenesis Program (M2P2) Retreat** **February 13-14, 2025**
Fairlee, Vermont
Presented a seminar titled “*Bacteroides* as a Potential CF Probiotic”
- **Dartmouth Cystic Fibrosis Research Center (DartCF) Seminar Series** **January 15, 2025**
Hanover, New Hampshire
Presented a seminar titled “*Bacteroides* as a Potential CF Probiotic”
- **BIO International Convention** **June 3-5, 2024**
San Diego, California
- **North American Cystic Fibrosis Conference** **November 3-5, 2023**
Phoenix, Arizona
Presented a poster titled “*Bacteroides* as a potential cystic fibrosis probiotic”
 - **Surve, S.**, Valls, R., Barrack, K., Gardner, T., & O'Toole, G. (2023). 521 *Bacteroides* as a potential cystic fibrosis probiotic. *Journal of Cystic Fibrosis*, 22, S275-S276. (Abstract)
 - Barrack, K., Valls, R., **Surve, S.**, Hampton, T., & O'Toole, G. (2023). 520 Developing an in vitro model of the cystic fibrosis gut. *Journal of Cystic Fibrosis*, 22, S275. (Abstract)

- **ASM Conference on Biofilms** **November 13-17, 2022**
Charlotte, North Carolina
- **North American Cystic Fibrosis Conference** **November 3-5, 2022**
Phoenix, Arizona
- **BESCON 2019** **October 18-19, 2019**
Chennai, India
Presented a poster titled “Adaptive evolution of *Lactobacillus plantarum* to develop tolerance towards furfural and 5-hydroxymethylfurfural”
- **VES College Biotechnology Seminar Series** **September 2015**
Mumbai, India
Presented a seminar titled “*Human Genome Project and its Impact on Biology*”

LEADERSHIP AND ACTIVITIES

Graduate Student Council, Dartmouth College, Hanover **August 2022-May 2023**
Student Life Chair

- Member of the Executive Board of the Graduate Student Council
- Advocated for better public transport around Dartmouth.
- Organized a monthly event series titled “Mental Health Mondays”

BioRender, Toronto, Canada (Remote) **August 2022-May 2023**
Campus Ambassador- Dartmouth College

- Initiating and maintaining the Dartmouth College and BioRender relations
- Strategizing the campus-wide licensing of the services
- Providing illustration resources for the Dartmouth community

TEACHING AND MENTORSHIP

Teaching

- **Teaching Assistant, BIO46 Microbiology, Dartmouth College – Spring 2023**
Assisted in course instruction, grading, and facilitated small group learning sessions.
- **Co-lead, Journal Club (MICR265) – Geisel School of Medicine – Winter 2025**
Co-organized and led discussions on microbial adaptations to complex environments.

Mentorship

- **Undergraduate Researchers (Dartmouth College)**
 - *E. Axel Abrahamson (May 2024–Present)*
 - *Citlalti V. Gaeta (Feb 2023–May 2024)*
- **Rotation Student**
 - *Kayla Ramirez Soto – MCB Graduate Program, Dartmouth College (Mar 2024–May 2024)*
- **M.Sc. Thesis Students, Symbiosis International University**
 - *Armaan Mistry (Dec 2019–May 2020)*
 - *Sahara Sarang (Dec 2020–May 2021)*
 - *Joyleen Fernandes (Dec 2019–May 2020)*
 - *Shruti Gaikwad (Dec 2020–May 2021)*

SKILLS AND INTERESTS

- Computer languages: Proficient in R, Python, Linux command-line; working knowledge of bash scripting.
- Bioinformatics: Genome assembly and annotation, variation analysis, comparative genomics, phylogeny, transcriptomics, microbiome analysis
- Languages: Marathi (fluent), Hindi (conversational), Sanskrit (basic)
- Interests: Formula 1, data analytics and visualization, science history, and currently visiting all the US National Parks

ADDITIONAL EXPERIENCE

- **NSF’s Interior Northeast I-Corps** **May 2024-June 2024**
Cornell University, New York (Remote)
Performed customer discovery for a potential start-up based on my graduate research
- **Graduate Rotations, MCB PhD Program – Dartmouth College (2021–2022)**
- **Effect on indole-producing *Bacteroides* in CF gut signalling** **March 2022-May 2022**
Rotation 3, MCB PhD program; Advisor: Dr. Benjamin D. Ross
- **CF vs NonCF: Microbiome analysis of colonoscopy samples** **December 2021-March 2022**
Rotation 2, MCB PhD program; Advisor: Dr. George A. O’Toole
- **Effect of Histone H3-tail on the nuclear cycles in *Drosophila embryogenesis*** **August 2021-November 2021**
Rotation 1, MCB PhD program; Advisor: Dr. Amanda A. Amodeo
- **Medical Lab Technician** **April 2015-May 2015**
H.J. Doshi Hospital, Mumbai, India
Clinical microbiology lab shadow