

# Jennifer S. Sun

Rutgers University  
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## SUMMARY

I am a research scientist, professor, and freelance medical writer with broad expertise in neuroscience, microbiology, and molecular biology. I have over 13 years of experience in applied research – studying host-microbe interactions, insect hygro- and chemo-sensation, and algal biofuels.

## EDUCATION

2013-19 M.Sc., Ph.D. Molecular, Cellular, and Developmental Biology, Yale University  
2009-13 B.A. Molecular Biology and Biochemistry, Rutgers University – New Brunswick

## RESEARCH EXPERIENCE

2022-pres **Presidential Postdoctoral Research Fellow, Rutgers University**  
*Research Project:* Uncovering the role of endosymbionts in olfactory-guided host-seeking behavior in insect vectors of disease  
*Faculty Advisors:* Prof. Max Häggblom; Prof. Jeffrey M. Boyd; Prof. Alvaro Toledo

2021-22 **Grant Writer and Staff Scientist, New York Genome Center**  
*Faculty Advisor:* Prof. Neville E. Sanjana

2019-21 **Postdoctoral Research Fellow, Princeton University**  
*Research Project:* Phage manipulation of bacterial quorum-sensing-mediated communication  
*Faculty Advisor:* Prof. Bonnie L. Bassler

2013-19 **Doctoral Research, Yale University**  
*Thesis Project:* Humidity response depends on the small soluble protein Obp59a in *Drosophila*  
*Faculty Advisor:* Prof. John R. Carlson

2011-13 **Senior Thesis, Rutgers University**  
*Thesis Project:* Photoassembly efficiencies of natural isoforms of Photosystem II D1 subunit  
*Research Project:* Protein and lipid biosynthesis in the diatom *Phaeodactylum tricornutum*  
*Faculty Advisor:* Prof. G. Charles Dismukes

2010-12 **Independent Research, Rutgers University**  
*Research Project:* Relationship between mosquito larvae and parasitic mermithid nematodes  
*Faculty Advisor:* Prof. Randy R. Gaugler

## TEACHING EXPERIENCE

2022-pres Teaching Professor, Rutgers University – Microbial Biochemistry  
2022-pres Teaching Professor, Rutgers University – Experimental Biochemistry  
2021-pres Visiting Lecturer, Matheny Medical and Educational Center – Environmental Science  
2020-pres Instructor, KraftyLab  
2020-23 Virtual Experiences Coordinator, KraftyLab  
2020-23 Operations Director, KraftyLab  
2020-22 Adjunct Professor, Rutgers University – General Microbiology Laboratory  
2020-22 Instructor, Primoris Academy – Scientific Writing, Algebra II, and AP Chemistry  
2020-21 Instructor, Princeton University – Molecular Biology Junior Tutorials  
2018-20 Course Developer, Juno Science Academy – Biology and Neuroscience  
2018-20 Academic Advisor, Juno Science Academy – Biology and Neuroscience  
2018-19 Adjunct Professor, Gateway Community College – Introduction to Biology  
2018 Course Developer, Yale Pre-College Summer Program, JKCP – Environmental Science  
2018 Course Developer, New Harvest Inc. – Cellular Agriculture

2018 Certificate for Interdepartmental Neuroscience Program Laboratory Teaching – Fly Behavior  
 2015 Teaching Assistant, Yale University – Model Organisms in Biology Lab  
 2015 Teaching Assistant, Yale University – Molecular Biology  
 2012-13 Course Developer, Rutgers University – Careers in the Sciences  
 2011-13 Study Group Coordinator, Rutgers University – Summer Bridge Program  
 2011-13 Study Group Leader, Rutgers University – Summer Bridge Program  
 2011-12 Teaching Assistant, Rutgers University – Biochemistry  
 2011-12 Tutor, Rutgers University – RU-STEPed Up for Success  
 2011-12 Study Group Coordinator, Rutgers University – BEST Hall Study Groups  
 2011-12 Study Group Leader, Rutgers University – BEST Hall Study Groups

## **MENTORSHIP EXPERIENCE**

2023-24 Research Advisor, Rutgers University Aresty Research Scholar Program (Tia Hart)  
 2023-24 Honors Thesis Project Advisor, Rutgers University George H. Cook Scholars Program (Hazem Al Darwish, Safiyah Salama, Muqaddasa Tariq)  
 2023 Research Advisor, Rutgers University Department of Biochemistry and Microbiology – Research in Microbiology (Safiyah Salama, Muqaddasa Tariq)  
 2020-23 STEM Mentor, Cientifico Latino Graduate Student Mentorship Initiative  
 2017 Professional Ethics Facilitator, Yale Graduate School Matriculation Day  
 2014-16 Specialist, Faculty of 1000 LTD.  
 2014-15 New Haven Science Fair Project Mentor, Mauro Sheridan Interdistrict Magnet School  
 2013-14 New Haven Science Fair Project Mentor, James Hillhouse High School

## **RELATED PROFESSIONAL EXPERIENCE**

2024-25 President, Theobald Smith Society (The NJ Branch of ASM)  
 2023-24 Vice President, Theobald Smith Society  
 2023-24 Co-Chair, Intersections Science Fellows Symposium (ISFS) Outreach Steering Committee  
 2023-24 Social Media Manager, Postdoctoral Association Executive Board, Rutgers University  
 2023-24 New Brunswick Campus Representative, Postdoctoral Association Executive Board, Rutgers University  
 2023-24 New Brunswick Campus Event Coordinator, Postdoctoral Association Executive Board, Rutgers University  
 2023 Judge, New Jersey Academy of Science (NJAS) 68th Annual Meeting  
 2023 Invited Participant, Science Forward: Towards Inclusive Excellence in Academia, Associated Medical Schools of New York (AMSNY)  
 2023 Invited Reviewer, National Science Foundation (NSF) – Microbial Biology  
 2022-pres Consultant, New York Genome Center  
 2022-pres Consultant, The Rockefeller Foundation  
 2022-23 Copy Editor, The Rockefeller Foundation  
 2022-23 Executive Assistant, KraftyLab  
 2022 Invited Reviewer, National Science Foundation (NSF) – Systems and Molecular Biology  
 2020-24 Scholar Award Chair, P.E.O. International – Chapter Y, Princeton, NJ  
 2020-23 Contributing Author, NeurologyLive, MJH Life Sciences  
 2020-22 Recording Secretary, P.E.O. International – Chapter Y, Princeton, NJ  
 2020 Contributing Author, ContagionLive, MJH Life Sciences  
 2018-21 Board Secretary, Bulldog Innovation Group  
 2018-21 Administrative Assistant, Bulldog Innovation Group  
 2017-18 Team Captain, Yale Graduate Student Quantitative Biology Faculty Search Committee  
 2017-18 Treasurer, Yale Graduate Student Assembly  
 2016-18 MCDB Student Representative, Yale Graduate Student Assembly  
 2015-16 Co-Founder, Puraderma LLC  
 2014-18 Accounting Manager, The Graduate and Professional Student Center at Yale  
 2013-18 Judge, New Haven Science Fair  
 2012-13 Judge, North Jersey Regional Science Fair – Rutgers University Representative

## **PROFESSIONAL MEMBERSHIP**

2023-pres New Jersey Academy of Science  
2023-pres Theobald Smith Society  
2022-pres National Center for Faculty Development & Diversity  
2022-pres National Postdoctoral Association  
2019-pres American Society for Microbiology  
2018-pres P.E.O. Sisterhood  
2014-pres Genetics Society of America

## **AWARDS AND HONORS**

2023-24 Faculty Fellowship, Teaching Excellence Networks Course Transformation Summer Institute  
2023 Certificate for Implementation of Inclusive & Equitable Teaching Practices, Rutgers University  
2023 Certificate in The Business of Science for Scientists: Core Professional Skills that Make You Competitive for a Professional Career, SciPhD  
2022-24 Presidential Postdoctoral Research Fellowship, Rutgers University  
2021-22 Part-Time Lecturers Professional Development Fund Award, Rutgers University  
2021-22 BioBus Community Science Fellowship  
2020-21 National Institutes of Health Ruth L. Kirschstein Postdoctoral Individual National Research Service Award (NIH Kirschstein-NRSA, Parent F32)  
2020 Semifinalist, Howard Hughes Medical Institute (HHMI) Hanna H. Gray Fellows Program  
2019 John Spangler Nicholas Prize for Outstanding Doctoral Student in Experimental Zoology, Yale University  
2018 Certificate for Interdepartmental Neuroscience Program Laboratory Teaching, Yale University  
2018 Don Tucker Memorial Award for Graduate Student Research, AChemS XL Annual Meeting  
2018 MCDB Departmental Retreat Poster Presentation Award, Yale University  
2017-18 P.E.O. Scholar Award, International Chapter of the P.E.O. Sisterhood  
2015-16 Clark Fellowship, Dwight N. and Noyes D. Clark Scholarship Fund  
2015 MCDB Departmental Retreat Poster Presentation Award, Yale University  
2014-19 National Science Foundation Graduate Research Fellowship (NSF GRFP)  
2013 Henry Rutgers Scholars Award, Rutgers University  
2013 John A. Van Der Poel Scholarship, Rutgers University  
2012 SAS Paul Robeson Scholar Award, Rutgers University  
2012 Waksman Undergraduate Research Fellowship, Rutgers University  
2010-13 Aresty Undergraduate Research Fellowship, Rutgers University  
2010-13 Delta Epsilon Iota Honor Society  
2009-13 Dean's List, Rutgers University  
2009-13 Scarlet Scholarship, Rutgers University  
2009 Edward J. Bloustein Distinguished Student Award, HESAA

## **SPEAKING ENGAGEMENTS**

2023 Speaker, Theobald Smith Society Spring 2023 Symposium  
2023 Speaker, New Jersey Academy of Science (NJAS) 68th Annual Meeting  
2023 Poster Presenter, Microbiology at Rutgers University Symposium  
2023 Poster Presenter, Rutgers University Microbiome Program Annual Retreat  
2023 Poster Presenter, Science Forward: Towards Inclusive Excellence in Academia, Associated Medical Schools of New York (AMSNY)  
2021 Speaker, P.E.O. NJ State Chapter Fall Reciprocity  
2021 Speaker, Rutgers Department of Biochemistry and Microbiology Fermentation Seminar  
2021 Speaker, Princeton Department of Molecular Biology Colloquium  
2020 Speaker, Rutgers Department of Biochemistry and Microbiology Open House  
2019 Speaker, NYU Critical Metabolisms Symposium  
2018 Speaker, Yale Molecular, Cellular, and Developmental Biology Annual Departmental Retreat  
2018 Speaker, Yale Training Program in Genetics Annual Symposium

2018	Panelist, Yale BBS/MCGD Track Recruitment
2017	Speaker, Yale Training Program in Genetics Annual Symposium
2017	Panelist, Yale BBS/MCGD Track Recruitment
2017	Speaker, Yale Epidemiology of Microbial Diseases Research Forum
2016	Panelist, The Allied Genetics Conference
2016	Speaker, Yale Molecular, Cellular, and Developmental Biology Annual Departmental Retreat
2013	Speaker, 8th Rutgers Aresty Undergraduate Research Symposium
2011	Speaker, 7th Rutgers Aresty Undergraduate Research Symposium
2011	Speaker, 98th NJMCA Annual Meeting

## LITERATURE REVIEW ARTICLES

1. **JS Sun.** (2023) "How insect-associated microbes change insect brain behavior to benefit microbial spread." *FEMS Microbiology Ecology*. *Under Review*.
2. H-H Wessels, S Müller, A Méndez-Mancilla, **JS Sun**, & NE Sanjana. (2023) "RNA targeting CRISPR enzymes: Characterization and emerging applications." *Nature Reviews Genetics*. *Under Review*.
3. JA Morris, **JS Sun**, & NE Sanjana. (2023) "Next-Generation Forward Genetic Screens: Uniting High-Throughput CRISPR Perturbations with Single-Cell Analysis." *Trends in Genetics*. *Under Review*.
4. **JS Sun.** (2023) "Complement inhibition in myasthenia gravis." *NeurologyLive* 6 (3), pp 20-21.
5. **JS Sun.** (2023) "Therapeutic potential of IGF1 and MECP2 in Rett syndrome." *NeurologyLive* 6 (2), pp 18-19.
6. **JS Sun.** (2023) "Activation of both NRF2 and FXN in Friedreich Ataxia." *NeurologyLive* 6 (1), pp 14-15.
7. **JS Sun.** (2022) "A $\beta$  Protofil Elimination in Alzheimer Disease." *NeurologyLive* 5 (7), pp 14-15.
8. **JS Sun.** (2022) "Use of nanoparticles to combat neurodegenerative disease." *NeurologyLive* 5 (5), pp 20-21.
9. **JS Sun.** (2022) "Potential therapeutic role of the endocannabinoid system for migraine." *NeurologyLive* 5 (4), pp 16-17.
10. **JS Sun.** (2022) "Endoplasmic reticulum and/or mitochondrial-dependent neuronal degeneration in ALS." *NeurologyLive* 5 (3), pp 24-25.
11. **JS Sun.** (2022) "PDE10A inhibition in Tourette syndrome." *NeurologyLive* 5 (2), pp 24-25.
12. **JS Sun.** (2022) "Stimulation Approaches to Epilepsy." *NeurologyLive* 5 (1), pp 21-23.
13. **JS Sun.** (2021) "Serotonin Receptor Agonism in Dravet Syndrome." *NeurologyLive* 4 (6), pp 38-39.
14. **JS Sun.** (2021) "S1P Receptor Modulation in Multiple Sclerosis." *NeurologyLive* 4 (5), pp 36-38.
15. **JS Sun.** (2021) "GHB as a GABA Receptor Agonist for Narcolepsy Therapy." *NeurologyLive* 4 (4), pp 30-31.
16. **JS Sun.** (2021) "Myostatin inhibition in amyotrophic lateral sclerosis." *NeurologyLive* 4 (3), pp 33-34.
17. **JS Sun.** (2021) "Interleukin-6 (IL-6) receptors in the treatment of neuromyelitis optica spectrum disorder (NMOSD)." *NeurologyLive* 4 (2), pp 34-35.
18. **JS Sun.** (2021) "PACAP pathway and its role in migraine." *NeurologyLive* 4 (1), pp 35-36.
19. **JS Sun.** (2020) "Repulsive Guidance Molecule A (RGMA) inhibition for repair and protection in Multiple Sclerosis." *NeurologyLive* 3 (7), pp 34-35.
20. **JS Sun.** (2020) "Inhibiting cholesterol 24-hydroxylase for Epilepsy treatment." *NeurologyLive* 3 (5), pp 40-41.
21. **JS Sun.** (2020) "Selective inverse agonists of the histamine 3 receptor as non-habit-forming treatments for narcolepsy." *NeurologyLive* 3 (4), pp 40-41.
22. **JS Sun.** (2020) "Targeting Bruton Tyrosine Kinase for multiple sclerosis treatment." *NeurologyLive*. 3 (3), pp 40-41.
23. **JS Sun.** (2020, March 27). "Can we beat SARS-CoV-2? Lessons from other coronaviruses." *Contagion Live*. [contagionlive.com/news/can-we-beat-sarscov2-lessons-from-other-coronaviruses](https://contagionlive.com/news/can-we-beat-sarscov2-lessons-from-other-coronaviruses)
24. **JS Sun**, S Xiao, & JR Carlson. (2018) "The diverse small proteins called Odorant Binding Proteins." *Open Biology*. 8 (180208).

## PRIMARY RESEARCH ARTICLES

1. **JS Sun**, A Mashruwala, C Fei, & BL Bassler. (2022) "Bacterial LomR Induces the Vibriophage VP882 VqmA-Directed Quorum-Sensing Lysogeny-Lysis Transition." *bioRxiv*. doi: 10.1101/2021.11.15.468771
2. **JS Sun.** (2021) "Petri dish hygro taxis arena." *Bio-protocol*. [bio-protocol.org/prep916](https://bio-protocol.org/prep916)

3. **JS Sun**. (2019) "Desiccation survival." Bio-protocol. bio-protocol.org/prep22
4. S Xiao, **JS Sun**, & JR Carlson. (2019) "Robust olfactory responses in the absence of odorant binding proteins." eLife. 8 (e51040).
5. Z He, Y Luo, X Shang, **JS Sun**, & JR Carlson. (2019) "Chemosensory sensilla of the *Drosophila* wing express a candidate pheromone receptor required for sexual behavior." PLOS Biology. 17 (e2006619).
6. JS Chahda, N Soni, **JS Sun**, SAM Ebrahim, BL Weiss, & JR Carlson. (2019) "The molecular and cellular basis of olfactory response to tsetse fly attractants." PLOS Genetics. 15 (e1008005).
7. **JS Sun**, NK Larter, JS Chahda, D Rioux, A Gumaste, & JR Carlson. (2018) "Humidity response depends on the small soluble protein Obp59a in *Drosophila*." eLife. 7 (e39249).
8. **JS Sun**, NK Larter, JS Chahda, D Rioux, A Gumaste, & JR Carlson. (2018) "Humidity response depends on the small soluble protein Obp59a in *Drosophila*." Chemical Senses. 43 (7).
9. M Sanad, **JS Sun**, MSM Shamseldean, Y Wang, & R Gaugler. (2017) "Superparasitism and Population Regulation of the Mosquito-Parasitic Mermithid Nematodes *Romanomermis iyengari* and *Strelkovimermis spiculatus*." The Journal of Nematology. 49 (3).
10. RM Joseph, **JS Sun**, E Tam, & JR Carlson. (2017) "A receptor and neuron that activate a circuit limiting sucrose consumption." eLife. 6 (e24992).
11. R Delventhal, K Menuz, R Joseph, J Park, **JS Sun**, & JR Carlson. (2017) "The taste response to ammonia in *Drosophila*." Scientific Reports. 7 (43754).
12. JB Benoit, A Vigneron, NA Broderick, Y Wu, **JS Sun**, JR Carlson, S Aksoy, & BL Weiss. (2017) "Symbiont-induced odorant binding proteins mediate insect host hematopoiesis." eLife. 6 (e19535).
13. NK Larter, **JS Sun**, & JR Carlson. (2016) "Organization and function of *Drosophila* Odorant Binding Proteins." eLife. 5 (e20242).
14. DJ Vinyard, **JS Sun**, J Gimpel, GM Ananyev, SP Mayfield, & GC Dismukes. (2016) "Natural isoforms of the Photosystem II D1 subunit differ in photoassembly efficiency of the water-oxidizing complex." Photosynthesis Research. 128 (2), pp 141-150.
15. S Khan, **JS Sun**, & GW Brudvig. (2015) "Cation effects on the electron-acceptor side of Photosystem II." The Journal of Physical Chemistry B. 119 (24), pp 7722-7728.
16. LT Guerra, O Levitan, MJ Frada, **JS Sun**, PG Falkowski, & GC Dismukes. (2013) "Regulatory branch points affecting protein and lipid biosynthesis in the diatom *Phaeodactylum tricornutum*." Biomass and Bioenergy. 59, pp 306-315.
17. **JS Sun** & M Sanad. (2011) "Relationship between mosquito larvae and parasitic mermithid nematodes." Rutgers Science Review. 1 (1), pp 15-17.
18. **JS Sun** & M Sanad. (2011) "Relationship between mosquito larvae and parasitic mermithid nematodes." Proceedings of the 98th Annual Meeting of the New Jersey Mosquito Control Association, Inc. 98, pp 60-65.