

Aditya M. Kunjapur

Assistant Professor, Chemical and Biomolecular Engineering, University of Delaware

150 Academy St., Colburn Lab 215, Newark, DE 19716 | kunjapur@udel.edu

Education

- 2015 - 2018 Post-Doctoral Research Fellow, Genetics, Harvard Medical School
Advisor: Prof. George M. Church
Focus: Employing evolutionary techniques to improve genetic code expansion for biocontainment
- 2010 - 2015 Ph.D., Chemical Engineering, Massachusetts Institute of Technology (MIT)
Advisor: Prof. Kristala L. J. Prather
Thesis: Microbial engineering for aldehyde biosynthesis
- 2006 - 2010 B.S., Chemical Engineering, University of Texas at Austin (UT)
Minor: Business Foundations (MAN, MKT, FIN, LEB, ACC, MIS, ECO, SDS)

Professional Experience*Primary Role*

- 2019 - Assistant Professor, Chemical and Biomolecular Engineering, University of Delaware

Other Academic Affiliations

- 2022 - Faculty Member, Microbiology Graduate Program, University of Delaware
 2021 - Council Member, Engineering Biology Research Consortium
 2020 - Thrust Co-Director, Center for Plastics Innovation, University of Delaware
 2020 - Member, Engineering Biology Research Consortium
 2020 - Steering Committee Member, Chemistry-Biology Interface Predoctoral Program, University of Delaware
 2019 - Faculty Trainer, Chemistry-Biology Interface Predoctoral Program, University of Delaware
 2019 - Affiliated Faculty Member, Delaware Environmental Institute, University of Delaware
 2019 - Affiliated Faculty Member, Delaware Biotechnology Institute, University of Delaware

Industrial Experiences

- 2021 - Co-Founder, Nitro Biosciences, Inc.
 2016 Consultant, EnEvolv (acquired by Zymergen in 2020)
 2013 Intern Associate, Terawatt Ventures
 2006 - 2010 Intern (5 summers), Shell Upstream Americas and ExxonMobil Production

Teaching Experience

- SP 20/21/22 Instructor, CHEG621: Metabolic Engineering, University of Delaware
 F 19/20 Co-Instructor, CHEG332: Chemical Engineering Kinetics, University of Delaware
 SP 13 Teaching Assistant (TA), Graduate Kinetics and Reactor Design, MIT Chemical Engineering
 SU 11/12 Co-Instructor, "Microbial Chemical Factories", MIT Educational Studies Program
 SU 11/12 Co-TA, "Fermentation Tech." & "Downstream Processing", MIT Short Courses
 SP 09 TA, Material and Energy Balances, UT Chemical Engineering
 F 08, SP 09 Tutor and Grader, Transport Phenomena, UT Chemical Engineering

Selected Awards

- 2022 Office of Naval Research Young Investigator Awardee
 2021 New Innovator Awardee from the Foundation for Food and Agriculture Research
 2021 Recipient of the Langer Prize in Innovation and Entrepreneurial Excellence
 2020 American Institute of Chemical Engineers (AIChE) 35 Under 35 Awardee
 2019 Emerging Leaders in Biosecurity Initiative Fellow from the Johns Hopkins Center for Health Security
 2017 Synthetic Biology (SB7.0) Biosecurity Fellow
 2014, 2015 Conference Travel Awardee from the MIT Graduate Student Council, NSF, and Dow Chemical
 2014 Synthetic Biology Engineering Research Center (SynBERC) Oral Presentation Awardee
 2011 National Science Foundation (NSF) National ERC Elevator Pitch 3rd Place Awardee
 2010 NSF Graduate Research Fellow
 2010 Chevron-MIT Energy Initiative Fellow
 2010 National Tau Beta Pi Williams Fellow
 2009 University of Texas Unrestricted Endowed Presidential Scholar
 2007 Shell Oil Company Technical Scholar
 2006 Micron Science and Technology Scholar
 2006 U.S. Presidential Scholar

Peer Reviewed Publications(† denotes equal contributions, * denotes corresponding, **IF** = Impact Factor)

ORCID: 0000-0001-6869-9530

23. Stork, D.A.; Jones, M.A.; Garner, E.C.; Kunjapur, A.M. "Incorporation of a chemically diverse set of non-standard amino acids into a gram-positive organism." *Accepted at Bio-Protocol*. **IF = N/A**
22. Hinton, Z.R.; Talley, M.R.; Kots, P.A.; Le, A.V.; Zhang, T.; Mackay, M.E.; Kunjapur, A.M.; Bai, P.; Vlachos, D.G.; Watson, M.P.; Berg, M.C.; Epps, T.H.; Korley, L.T.J. "Innovations toward the valorization of waste plastics." *Annual Review of Materials Research*. 2022 52, 249-280. DOI: 10.1146/annurev-matsci-081320-032344 **IF = 16.3**
21. Dickey, R.M.†; Forti, A.M.†; Kunjapur, A.M.* "Advances in engineering microbial biosynthesis of aromatic compounds and related compounds." *Bioresour. Bioprocess*. 2021 8 (1), 1-17. (Invited review) DOI: 10.1186/s40643-021-00434-x **IF = 4.6**
20. Stork, D.A.; Squyres, G.R.; Kuru, E.; Gromek, K.A.; Rittichier, J.; Jog, A.; Burton, B.M.; Church, G.M.; Garner, E.C.; Kunjapur, A.M.* "Designing efficient genetic code expansion in *Bacillus subtilis* to gain biological insights." *Nat. Commun*. 2021 12 (1), 1-12. DOI: 10.1038/s41467-021-25691-4 **IF = 14.9**
19. Kunjapur, A.M.†*; Napolitano, M.G.†; Hysolli, E.†; Noguera, K.; Appleton, E.M.; Schubert, M.G.; Jones, M.A.; Iyer, S.; Mandell, D.J.; Church, G.M.* "Synthetic auxotrophy remains stable after continuous evolution and in co-culture with mammalian cells." *Sci. Adv*. 2021 7 (27), eabf5851. DOI: 10.1126/sciadv.abf5851 **IF = 13.1**
18. Wannier, T.M.; Ciaccia, P.N.; Ellington, A.D.; Filsinger, G.T.; Isaacs, F.J.; Javanmardi, K.; Jones, M.A.; Kunjapur, A.M.; Nyerges, A.; Pal, C.; Schubert, M.G.; Church, G.M. "Recombineering and MAGE." *Nat. Rev. Methods Primers*. 2021 1 (7). DOI: 10.1038/s43586-020-00006-x. **IF = N/A**
17. Parker, M.; Kunjapur, A.M.* "Deployment of engineered microbes: Contributions to the bioeconomy and considerations for biosecurity." *Health Secur*. 2020 18 (4), 278-296. DOI: 10.1089/hs.2020.0010. **IF = 1.4**
16. Sulzbach, M.; Kunjapur, A.M.* "The pathway less traveled: Engineering biosynthesis of nonstandard functional groups." *Trends Biotechnol*. 2020 38 (5), 532-545. DOI: 10.1016/j.tibtech.2019.12.014. **IF = 13.7**
15. Butler, N.D.; Kunjapur, A.M.* "Carboxylic acid reductases in metabolic engineering." *J. Biotechnol*. 2020 307 (1), 1-14. DOI: 10.1016/j.jbiotec.2019.10.002. **IF = 3.2**

Before appointment at the University of Delaware:

14. Kunjapur, A.M.*; Prather, K.L.J.* "Development of a vanillate biosensor for the vanillin biosynthesis pathway in *E. coli*." *ACS Synth. Biol*. 2019 8 (9), 1958-1967. DOI: 10.1021/acssynbio.9b00071. **IF = 5.6**
13. Strauss, S.K.; Schirman, D.; Jona, G.; Brooks, A.N.; Kunjapur, A.M.; et al. "EVOLTHON: A community endeavor to evolve lab evolution." *PLoS Biol*. 2019 17 (3): e3000182. DOI: 10.1371/journal.pbio.3000182. **IF = 8.4**
12. Kunjapur, A.M.†*; Pfungstag, P.†; Thompson, N.C.* "Gene synthesis allows biologists to source genes from farther away in the tree of life." *Nat. Commun*. 2018 9, 4425. DOI: 10.1038/s41467-018-06798-7. **IF = 11.9**
11. Wannier, T.M.†*; Kunjapur, A.M.†*; Rice, D.P.; McDonald, M.J.; Desai, M.M.; Church, G.M. "Adaptive evolution of genomically recoded *Escherichia coli*." *Proc. Natl. Acad. Sci. U.S.A.* 2018 115 (12), 3090-3095. DOI: 10.1073/pnas.1715530115. **Highlighted by HMS News and by PNAS IF = 9.6**
10. Kohman, R.†; Kunjapur, A.M.†; Hysolli, E.†; Wang, Y.†; Church, G.M. "From designing the molecules of life to designing life: future applications derived from advances in DNA technologies." *Angew. Chem. Int. Ed.* 2018 57 (16), 4313-4328. DOI: 10.1002/anie.201707976. **IF = 12.3**
09. Kunjapur, A.M.*; Stork, D.A.; Kuru, E.; Vargas-Rodriguez, O.; Landon, M.M.; Söll, D*.; Church, G.M.* "Engineering post-translational proofreading to discriminate non-standard amino acids." *Proc. Natl. Acad. Sci. U.S.A.* 2018 115 (3) 619-624. DOI: 10.1073/pnas.1715137115. **Highlighted by HMS News IF = 9.6**
08. Khlystov, N.A.†; Chan, W.Y.†; Kunjapur, A.M.; Shi, W.; Prather, K.L.J.; Olsen, B.D. "Material properties of the cyanobacterial reserve polymer multi-L-arginyl-poly-L-aspartate (cyanophycin)." *Polymer*. 2017 109 (1), 238-245. DOI: 10.1016/j.polymer.2016.11.058. **IF = 3.8**
07. Kunjapur, A.M.; Hyun, J.C.; Prather, K.L.J. "Deregulation of S-adenosylmethionine biosynthesis and regeneration improves methylation in *E. coli de novo* vanillin biosynthesis pathway." *Microb. Cell Fact.* 2016 15 (1), 1. DOI: 10.1186/s12934-016-0459-x. **IF = 4.4**

06. [Kunjapur, A.M.](#); Cervantes, B.; Prather, K.L.J. “Coupling carboxylic acid reductase to inorganic pyrophosphatase enhances cell-free *in vitro* aldehyde biosynthesis.” *Biochem. Eng. J.* **2016** *109* (5), 19-27. DOI: 10.1016/j.bej.2015.12.018. **IF = 3.4**
05. Sheppard, M.J.[†]; [Kunjapur, A.M.](#)[†]; Prather, K.L.J. “Modular and selective biosynthesis of gasoline-range alkanes.” *Metab. Eng.* **2016** *33*, 28-40. DOI: 10.1016/j.ymben.2015.10.010. **IF = 7.8**
04. [Kunjapur, A.M.](#); Prather, K.L.J. “Microbial engineering for aldehyde synthesis.” *Appl. Environ. Microbiol.* **2015** *81* (6), 1892-1901. DOI: 10.1128/AEM.03319-14. **IF = 4.1**
03. Sheppard, M.J.; [Kunjapur, A.M.](#); Wenck, S.J.; Prather, K.L.J. “Retrobiosynthetic modular approach to pathway design achieves selective pathway for microbial synthesis of the gasoline substitute 4-methyl-pentanol.” *Nat. Commun.* **2014** *5*, 5031. DOI: 10.1038/ncomms6031. **IF = 11.9**
02. [Kunjapur, A.M.](#); Tarasova, Y.; Prather, K.L.J. “Synthesis and accumulation of aromatic aldehydes in an engineered strain of *E. coli*.” *J. Am. Chem. Soc.* **2014** *136* (33), 11644-11654. DOI: 10.1021/ja506664a. **Highlighted by C&EN IF = 14.7**
01. [Kunjapur, A.M.*](#); Eldridge, R.B. “Photobioreactor design for commercial biofuel production from microalgae.” *Ind. Eng. Chem. Res.* **2010** *49* (8), 3516-3526. DOI: 10.1021/ie901459u. **IF = 3.1**

Patent Filings

04. [Kunjapur, A.M.](#); Butler, N.D. “Biosynthesis of para-nitro-L-phenylalanine.” PCT Application US20/59094. Filed: Nov. 5, 2020.

Before Delaware:

03. [Kunjapur, A.M.](#); Stork, D.A.; Kuru, E.; Church, G.M. “Synthetase variants for incorporation of biphenylalanine into a peptide.” U.S. Provisional Application No. 62/527,115. Filed: Jun. 30, 2017.
02. [Kunjapur, A.M.](#); Church, G.M. “Method of making proteins with non-standard amino acids.” U.S. Provisional Application No. 62/526,671. Filed: Jun. 29, 2017.
01. Sheppard, M.J.; [Kunjapur, A.M.](#); Prather, K.L.J. “Microbial production of branched medium chain alcohols, such as 4-methylpentanol.” US Patent No. 101000335. Issued: Oct. 16, 2018.

Conference Presentations

25. Kunjapur, A.M. “*De novo* biosynthesis of an immunogenic amino acid.” Society for Industrial Microbiology and Biotechnology, New to Nature Chemistry Session. Aug. 10, 2022.
24. Kunjapur, A.M. “*De novo* biosynthesis of an immunogenic amino acid.” Engineering Biology Research Consortium Annual Meeting. May 20, 2022.
23. Kunjapur, A.M. “Towards biological containment by synthetic auxotrophy in new contexts and new microbes.” 5th International Conference on Plant Synthetic Biology, Bioengineering, & Biotechnology. Nov. 15, 2021. (Poster)
22. Kunjapur, A.M. “Towards biological containment by synthetic auxotrophy in new contexts and new microbes.” Mid-Atlantic Synthetic Biology Symposium. Nov. 9, 2021.
21. Kunjapur, A.M. “Towards biological containment by synthetic auxotrophy in new contexts and new microbes.” AIChE Annual Meeting. Nov. 7, 2021.
20. Kunjapur, A.M. “Towards biological containment by synthetic auxotrophy in new contexts and new microbes.” American Chemical Society BIOT Division. Aug. 25, 2021.
19. Kunjapur, A.M. “Advancing biological containment by synthetic auxotrophy in new contexts and new microbes.” Metabolic Engineering 14 Conference. Jul. 12, 2021. (Poster)
18. Kunjapur, A.M. “Towards improved safety and efficacy of live bacterial vaccines using an expanded genetic code.” 11th International Conference on Biomolecular Engineering. Jan. 9, 2021.
17. Kunjapur, A.M. “Synthetic auxotrophy remains stable after continuous evolution and in co-culture with mammalian cells.” Synthetic Biology Approaches to Improve Human and Environmental Health. New York Academy of Sciences. Nov. 18, 2020.
16. Kunjapur, A.M. “Expanding the N-degron pathway in *E. coli*.” 1st Annual Protein Termini Meeting, Seoul. Oct. 4, 2019.
15. Kunjapur, A.M. “Engineering microbial biosynthesis of non-standard amino acids.” Emerging Leaders in Biosecurity Initiative (ELBI) Annual Research and Policy Symposium. Jul. 24, 2019.

Before Delaware:

14. Kunjapur, A.M. “Continuous evolution of engineering synthetic auxotrophs for industrial application.” AIChE Annual Meeting. Oct. 31, 2018.
13. Kunjapur, A.M. “Engineering post-translational proofreading to discriminate non-standard amino acids.” Synthetic Biology Engineering, Evolution & Design. Jun. 4, 2018.
12. Kunjapur, A.M.; Stork, D.A.; Kuru, E.; Vargas-Rodriguez, O.; Landon, M.M.; Söll, D.; Church, G.M. “Engineering post-translational proofreading to discriminate non-standard amino acids.” Protein Engineering Global Summit. May 2, 2018. (Poster)
11. Kunjapur, A.M.[†]; Wannier, T.M.[†]; Rice, D.P.; McDonald, M.J.; Desai, M.M.; Church, G.M. “Adaptive evolution of genomically recoded *Escherichia coli*.” AIChE Annual Meeting. Nov. 2, 2017. (Poster)
10. Kunjapur, A.M.; Stork, D.A.; Kuru, E.; Vargas-Rodriguez, O.; Landon, M.M.; Söll, D.; Church, G.M. “Engineering post-translational proofreading to discriminate non-standard amino acids.” AIChE Annual Meeting. Oct. 30, 2017.
09. Kunjapur, A.M.; Kuru, E.; Stork, D.A.; Narasimhan, K.; Huang, P.; Mandell, D.J.; Aach, J.; Church, G.M. “Non-standard amino acid incorporation in the new era of recoded genomes.” DOE Genomic Sciences PI Meeting. Feb. 06, 2017. (Poster)
08. Kunjapur, A.M.[†]; Wannier, T.M.[†]; Rice, D.P.; McDonald, M.J.; Desai, M.M.; Church, G.M. “Long-term adaptive evolution of genomically recoded *Escherichia coli*.” Synthetic Biology Engineering Evolution and Design (SEED). Jul. 20, 2016. (Poster)
07. Kunjapur, A.M.[†]; Sheppard, M.J.[†]; Prather, K.L.J. “Biosynthesis of key gasoline-range alkanes using engineered *E. coli*.” 249th American Chemical Society Meeting. Mar. 25, 2015.
06. Kunjapur, A.M.; Tarasova, Y.; Prather, K.L.J. “Synthesis and accumulation of aromatic aldehydes using engineered *Escherichia coli*.” Keystone Symposia on Genome Engineering. Jan. 11, 2015. Travel supported by NSF/Keystone. (Poster)
05. Kunjapur, A.M.; Tarasova, Y.; Prather, K.L.J. “Synthesis and accumulation of aromatic aldehydes using engineered *Escherichia coli*.” AIChE Annual Meeting. Nov. 19, 2014. Travel supported by MIT Graduate Student Council.

04. Kunjapur, A.M.; Tarasova, Y.; Prather, K.L.J. “Synthesis and accumulation of aromatic aldehydes using engineered *Escherichia coli*.” Synberc Fall Retreat. Sept. 27, 2014.
03. Olsen, B.; Khlystov, N.; Prather, K.; Kunjapur, A. “Materials properties of cyanophycin, a non-ribosomally synthesized polypeptide.” 248th American Chemical Society Meeting. Aug. 10, 2014. (Poster)
02. Kunjapur, A.M.; Tarasova, Y.; Prather, K.L.J. “Engineering *E. coli* for synthesis of aromatic aldehydes as products or intermediates under aerobic growth.” 247th American Chemical Society Meeting. Mar. 19, 2014. Travel supported by Dow Chemical.
01. Dueber, J.; Connell, K.; Wu, G.; Kunjapur, A.; Prather, K. “Synthetic co-assembly of metabolic enzymes for improved flux.” Protein Science. Aug. 01, 2012. (Poster)

Invited Lectures

24. “Seven suggestions for grantsmanship.” Delaware CTR-ACCEL Junior Investigators Network. Aug. 18, 2022.
23. “Expanded building block chemistry for synthetic biology.” Novome Biotechnologies, South San Francisco. May 20, 2022.
22. “How expanded building block chemistry can enable new frontiers for synthetic biology.” Tau Bate Talks Series. May 15, 2022.
21. “Teaching an old bug new tricks: Engineering microbes to expand building block chemistries.” Synthetic Biology Young Speaker Series (SynBYSS). Feb. 3, 2022.
20. “Teaching an old bug new tricks: Biosynthesis of uncommon functional groups in cellular environments.” Department of Biology and Biotechnology, Worcester Polytechnic Institute. Jan. 25, 2022.
19. “Teaching an old bug new tricks: Biosynthesis of uncommon functional groups in cellular environments.” Department of Chemical, Biological and Materials Engineering, University of South Florida. Nov. 24, 2021.
18. “Adding valuable functional groups to building blocks using new synthetic biology tools.” Invited session keynote for Synthetic Biology: Tool and Method Development. AIChE Annual Meeting. Nov. 11, 2021.
17. “Initial adventures in chemical engineering research and entrepreneurship.” Award talk for the 2021 Langer Prize in Innovation and Entrepreneurial Excellence. AIChE Annual Meeting. Nov. 8, 2021.
16. “Risk assessment for a microbial biocontainment technology with unprecedented effectiveness: synthetic auxotrophy.” Environmental Protection Agency Biotechnology Workshop. Jul. 28, 2021.
15. “Engineering biosynthetic pathways to non-standard amino acids.” Delaware Biotechnology Institute Bioinformatics Seminar Series, University of Delaware. Dec. 2, 2019.
14. “Engineering biosynthetic pathways to non-standard amino acids.” Chemistry-Biology Interface Seminar Series, University of Delaware. Nov. 6, 2019.
13. “Expanding the microbial chemistry repertoire.” Microbial Systems Symposium, University of Delaware. Feb. 6, 2019.
12. “Policy approaches to synthetic biology and do-it-yourself (DIY) biology.” (Panelist) American Society for Microbiology (ASM) Biothreats Conference. Jan. 29, 2019.

Before Delaware:

11. “Expanding the microbial chemistry repertoire by engineering selective processes.” Institute for Bioscience and Biotechnology Research, National Institute of Standards and Technology (NIST) / University of Maryland. Apr. 12, 2018.
10. “Gene synthesis allows biologists to source genes from farther away in the tree of life.” Addgene (non-profit plasmid repository). Mar. 06, 2018.
09. “Expanding the microbial chemistry repertoire by engineering selective processes.” Biomedical Engineering, Boston University. Mar. 01, 2018.
08. “Expanding the microbial chemistry repertoire by engineering selective processes.” Chemical Engineering, University of Maryland – College Park. Feb. 15, 2018.
07. “Expanding the microbial chemistry repertoire by engineering selective processes.” Chemical Engineering, Columbia University. Jan. 26, 2018.

06. “Expanding the microbial chemistry repertoire by engineering selective processes.” Chemical Engineering, Texas A&M University. Jan. 22, 2018.
05. “Expanding the microbial chemistry repertoire by engineering selective processes.” Chemical and Biomolecular Engineering, University of Delaware. Jan. 05, 2018.
04. “Engineering post-translational proofreading to discriminate non-standard amino acids.” First Annual N-term Workshop, Leibniz Institute of Plant Biochemistry. Sep. 13, 2017.
03. “Engineering post-translational proofreading to discriminate non-standard amino acids.” Chemical Engineering, Rose-Hulman Institute of Technology. Apr. 21, 2017.
02. “Engineering post-translational proofreading to discriminate non-standard amino acids.” Dieter Söll Lab, Molecular Biophysics and Biochemistry, Yale University. Mar. 31, 2017.
01. “Engineering post-translational proofreading to discriminate non-standard amino acids.” Jeff Gray Lab, Chemical and Biomolecular Engineering, Johns Hopkins University. Feb. 14, 2017.

Professional Service

Digital outreach:

Created the “Kunjapur Lab Academy” YouTube channel in Apr. 2020 for educational outreach in the areas of synthetic biology and chemical engineering to a global audience. 70+ videos, 513 subscribers, and 29,709 views as of Aug. 20, 2022.

National studies / roadmapping:

Roadmap for Materials from Engineering Biology, Engineering Biology Research Consortium, Mar. 19-20, 2020.
Biological security study, Johns Hopkins Center for Health Security. Jan. 9, 2018.

Conference service:

Conference Co-Chair:

13th International Conference on Biomolecular Engineering (ICBE) 2023

Area Coordinator:

Society for Industrial Microbiology and Biotechnology (SIMB) Annual Meeting 2022 – Biocatalysis Committee

ACS BIOT Spring 2022 – Upstream Processes

Theme Leader:

AIChE Annual 2022 – Synthetic Biology and Applications

AIChE Annual 2020 – Synthetic Biology Applications

Session Chair:

ACS BIOT Spring 2023 - New Technologies in Biomolecule Design & Engineering

SIMB Annual Meeting 2022 – New to Nature Chemistry

AIChE Annual 2021 – Advances in Metabolic Engineering – Eukaryotic Organisms

ACS BIOT Fall 2021 – Microbial Metabolic Engineering

ACS BIOT Fall 2021 – Advances in Protein Engineering 2

AIChE Annual 2020 – Novel Applications in Synthetic Biology

ACS BIOT Spring 2020 (was postponed to Fall 2020) – Protein Engineering, Drug Conjugates, and Bispecifics

AIChE Annual 2019 – Protein Engineering: High Throughput Screening and Characterization

Poster Judge:

SIMB Biotechnology for Fuels/Chemicals 2021

AIChE Annual 2019 - Bioengineering

Abstract Reviewer:

Synthetic Biology Engineering Evolution and Design (SEED) 2017

Proposal reviewer:

DOE EERE BETO 2022

NSF Designer Cells 2022 – Ad Hoc Reviewer

DOE BER SBIR/STTR 2021

NIH Cellular and Molecular Technologies Study Section – Ad Hoc Reviewer, Jun. 2021

NSF URoL:EN 2021

NIH Early Career Reviewer Program Participant – Accepted in 2021

DOE ARPA-E EcoSynBio 2021

NSF URoL:MTM 2020

Manuscript reviewer:

3Biotech
ACS Catalysis
ACS Sustainable Chemistry and Engineering
ACS Synthetic Biology
Biochemical Engineering Journal
Biotechnology Advances
Biotechnology Journal
ChemBioChem
Current Opinion in Biotechnology
Fermentation
iScience
Journal of Agricultural and Food Chemistry

Journal of Industrial Microbiology and Biotechnology
Journal of the American Chemical Society
Journal of Biotechnology
Metabolic Engineering Communications
Microbial Cell Factories
Nature Catalysis
Nature Chemical Biology
Nature Communications
Nature Methods
PLOS One
Science Advances

Editorial board member:

Review Editor, Editorial Board of Fungal Biotechnology, Specialty Section of Frontiers in Fungal Biology
Editorial Board, Synthetic Biology Special Category, Experimental Biology and Medicine Journal

Scientific advisory board member:

Wild Microbes, Inc.

Principal investigator training:

Stage 1 – Lab Animal Research (CITI Program) 2022 (*in progress*)
Responsible Conduct of Research 2021, 2022
Culturally Aware Mentoring – UW-Madison ICEP 2021
Delivering Learning Experiences Online – UD Center for Teaching and Assessment of Learning 2020

Organizational service:

4S Committee (Safety, Security, Sustainability, and Social Responsibility), 2021- , BioMADE Manufacturing Institute
Education Working Group, 2020- , Engineering Biology Research Consortium
Co-Advisor, 2019-2022, International Genetically Engineered Machines (iGEM) Team, University of Delaware
Future Faculty Mentor, 2018-2021, AIChE Educational Division
Before Delaware:
MIT Energy Club, 2013-2014 Co-President
SynBERC Students and Postdoc Association, 2014 Co-President
Omega Chi Epsilon Honor Society, Epsilon Chapter, 2010 Co-President

Departmental service:

Chair Search Committee, 2022
Colloquia Chair, 2020
Faculty Search Committee, 2019-2020

University service:

Member of the Board of Senior Thesis Readers, 2021-
Steering Committee Member, Chemistry-Biology Interface Program, 2020-
Thrust Co-Director and Executive Committee Member, Center for Plastics Innovation, 2020-

Thesis committee member:

Stephanie Tsang, Chemistry & Biochemistry, 2022-
Alex Mitkas, Chemical & Biomolecular Engineering, 2021
Nathaniel Hamaker, Chemical & Biomolecular Engineering, 2020-2021
Kamil Charubin, Chemical & Biomolecular Engineering, 2020-2021
Ha Thi Thu Le, Chemistry & Biochemistry, 2020-
Patrick Beardslee, Biology, 2019-
Jie Ren (Gerald) Har, Chemical & Biomolecular Engineering, 2019-2022
Michael Dahle, Chemical & Biomolecular Engineering, 2019-2022
Andrew Urmeý, Chemistry & Biochemistry, 2018-2019

Undergraduate thesis third reader:

Tohn Borjigin, Chemical & Biomolecular Engineering, 2021-2022

Lexi Anderson, Biomedical Engineering, 2021-2022

Katherine Wagner, Biology, 2021-2022

Metehan Cebeci, Biology, 2021-2022

Mentorship**Post-Doctoral trainees:**

1. Priyanka Nain, Ph.D. in Chemical Engineering from IIT-Delhi, 2021-
2. Surendar Reddy Jakka, Ph.D. in Chemical Biology from Indian Institute of Science, 2022-
3. Amanda Rosier, Ph.D. in Plant and Soil Sciences from UD, 2022-

Doctoral trainees:

1. Neil Butler, Chemical & Biomolecular Engineering, 2019-
NSF GRFP Honorable Mention, UD Coursework Commendation, Outstanding TA Award
2. Sabyasachi (Sunny) Sen, Chemical & Biomolecular Engineering, 2019-
Departmental Student Organization (Colburn Club) President, 2020-2021
3. Michaela Jones, Chemical & Biomolecular Engineering, 2019-
NSF GRFP Honorable Mention, Chemistry-Biology Interface CBI (T32) Fellow, Fraser Russell Teaching Fellow
4. Roman Dickey, Chemical & Biomolecular Engineering, 2021-
5. Amanda Forti, Chemical & Biomolecular Engineering, 2021-
NSF Graduate Research Fellow, Mort Collins Fellow
6. Madan Gopal (Co-advised by Wilfred Chen), Chemical & Biomolecular Engineering, 2021-
7. Christopher Mayhugh, Chemical & Biomolecular Engineering, 2021-
CBI Fellow
8. Shelby Anderson, Chemical & Biomolecular Engineering, 2021-
CBI Fellow
9. D'Jana Wyllis, Chemical & Biomolecular Engineering, 2022-
Mort Collins Fellow, CBI G2 Fellow
10. Avaniek Cabales, Chemical & Biomolecular Engineering, 2022-

Master's trainees:

1. Soumili Chattopadhyay, Chemical & Biomolecular Engineering, 2020-2021
2. Morgan Sulzbach, Chemical & Biomolecular Engineering, 2019-
NSF GRFP Honorable Mention, Outstanding TA Award

Undergraduate trainees:

1. Ryan Buchser, Chemical & Biomolecular Engineering, 2019-2021
2. Natalie Fuhr, Chemical & Biomolecular Engineering, 2019
3. Sean Wirt, Chemical & Biomolecular Engineering, 2019-2022
NSF Graduate Research Fellow, Tau Beta Pi Scholar, AIChE Outstanding Freshman/Sophomore Awardee, Distinguished Telkes Scholar
4. Vicky Lin, Chemical & Biomolecular Engineering, 2019
5. Nathan Edwards, Chemical & Biomolecular Engineering, 2020-2021
6. Khai Khee Kho, Chemical & Biomolecular Engineering, 2020-2022
7. Ishika Govil, Chemical & Biomolecular Engineering, 2020-
Goldwater Scholar, McNair Scholar, Distinguished Telkes Scholar
8. Shalom Fadullon, Chemical & Biomolecular Engineering, 2021
Center for Plastics Innovation REU Scholar
9. Miyu Mudalamane, Chemical & Biomolecular Engineering, 2022-
Distinguished Telkes Scholar
10. Alexander Tiso, Chemical & Biomolecular Engineering, 2022-

Grantsmanship Summary

Successful Submissions: **13**

- As Lead or Sole PI: 8
- As Sole PI: 5
- Share of Funds Awarded for My Lab (Direct + Indirect): **\$3.65M**
- Agencies: ONR, NIH, FFAR, USDA, DOE, NSF-BIO, NSF-ENG, UDRF

Pending Submissions: **2**

- As Lead PI: 2
- As Sole PI: 2
- Share of Funds Requested for My Lab (Direct + Indirect): **\$3.65M**
- Agencies: NIH, NSF-BIO

Declined Submissions: **27**