

Cooperating Faculty Member (CFM) outside CNAS

DEPARTMENT OF BOTANY & PLANT SCIENCES (requesting department)

Cooperating Faculty Appointment/Reappointment

Instructions: Please complete the following.


1. Attach a current CV of potential CFM.
2. Statement of Anticipated or Past Involvement in the department referenced above.

Please provide or attach a statement that describes your anticipated or past involvement as a CFM in the department referenced above.

Anticipated or Past Involvement in BPSC:

As a co-PI of the NSF-funded Plants3D program, I have had the opportunity to interact with a number of BPSC graduate students. In these interactions I have identified a number of areas of overlap in research between my group and the graduate students in BPSC. Given this, I am interested in recruiting PhD students from the department. I anticipate recruiting 1-2 students in the next year, and on average 1 student every two years from BPSC. I am also willing to serve on candidacy exam committees and on thesis committees for BPSC students; I have served in these roles in the past as an outside member.

3. My signature below (or attached emailed approval) indicates my willingness to accept an appointment as a CFM in the department referenced above.

Printed Name: Ian Wheeldon Signature:  Date: 4/25/2023

4. Approval by Cooperating Faculty Member's Home Department Chair

As Chair of the Department of Chemical and Environmental Engineering, my signature below (or attached emailed approval) indicates my approval of Ian Wheeldon participating as a CFM in the department referenced above.

Printed Name: David Cocker Signature: Date:

HOST DEPARTMENT VOTE: FOR, AGAINST, UNAVAILABLE

DATES OF APPOINTMENT: TO

5. Approval by CFM's Host Department Chair

As Chair of the Department referenced above, my signature below (or attached emailed approval) indicates my approval of Ian Wheeldon participating in the department referenced above.

Printed Name: Patricia Springer Signature: Date:

CNAS DEAN'S APPROVAL:

Date:

Cooperating Faculty Member (CFM) outside CNAS

BCOE DEAN'S APPROVAL:

Printed Name: Christopher S. Lynch Signature:

Date:

Appointments/reappointments are for 2 years for Asst. and Assoc. Professors, and 3 years for full Professors

- To add electronic signatures, unprotect the document.
- Once approved, please send a copy of the host department's appointment letter to the appropriate analyst in the CNAS Dean's office, to the other College's analyst and to Amanda Wong in the Graduate Division.

Ian Wheeldon

Department of Chemical and Environmental Engineering

B319 Bourns Hall^[1]_[SEP]

Bourns College of Engineering^[1]_[SEP]

University of California Riverside^[1]_[SEP]

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EDUCATION

Doctor of Philosophy

Department of Chemical Engineering, Columbia University in the City of New York, May 2009

Master's of Applied Science

Department of Chemistry and Chemical Engineering, The Royal Military College of Canada, Nov. 2003

Bachelor's of Applied Science

Department of Chemical Engineering, Queens' University at Kingston (Canada), May. 1999

APPOINTMENTS

Professor, *The Department of Chemical and Environmental Engineering (CEE), The University of California Riverside (UCR).* July 2022 – present

Director, *The Center for Industrial Biotechnology, Bourns College of Engineering, UCR.* July 2018-present

Cooperating Faculty, *Biochemistry Department, UCR.* Feb. 2012 – present

Cooperating Faculty, *Microbiology Graduate Program, UCR.* Feb. 2017 – present

Associate Professor, *CEE, UCR.* July 2017 – June 2022

Assistant Professor, *CEE, UCR.* July 2011 – June 2017

Postdoctoral Researcher, *The Wyss Institute of Biologically Inspired Engineering and The Center for Biomedical Engineering, Brigham and Women's Hospital, The Department of Medicine, Harvard Medical School.* Apr. 2009–June 2011

AWARDS, HONORS, ELECTED POSITIONS

AICHE Division 15 past-chair 2023 - present

AICHE Division 15 chair 2021-2022

AICHE Division 15 vice-chair 2020

AICHE Division 15c Program Chair 2018

UC Riverside Academic Senate Regents Faculty Development Award 2016

Air Force Office of Scientific Research Young Investigator 2013

UC Riverside Academic Senate Regents Fellowship 2012

Doctor of Philosophy awarded with Distinction, Graduate School of Arts and Sciences, Columbia University in the City of New York, 2009

New York Academy of Sciences, 2nd Annual Advances in Biomolecular Engineering: Protein Design Symposium, Jun. 30th 2008: Poster Award

Electrochemical Society Travel Award: 213th ECS, Phoenix AZ, May 18-23, 2008

SEAS, Columbia University, Outstanding Teaching Assistant Award: Department of Chemical Engineering, Columbia University, spring semester 2005

National Science and Engineering Research Council of Canada (NSERC) Doctoral Scholarship, Mar. 2004 (not accepted)

Pan-American Advanced Studies Institute Travel Scholarship. Bariloche, Argentina, Jun. 20-30, 2004. *Micro Electro Mechanical Systems (MEMS)*

CURRENT BIBLIOGRAPHY of PUBLICATIONS

reverse chronological order; * denotes corresponding author

Preprints

1. Ramesh A[#], Trivedi V[#], Schwartz C, Tafrishi A, Mohseni A, Li M, Lonardi S, **Wheeldon I***. acCRISPR: An activity-correction method for improving the accuracy of CRISPR screens. bioRxiv 2022.0712. 499789; DOI: 10.1101/2022.07.12.499789
2. Thorwall S[#], Trivedi V[#], **Wheeldon I***. Population genomics-guided engineering of phenazine biosynthesis in *Pseudomonas chlororaphis*. bioRxiv 2023.0216; DOI: 10.1101/2023.02.16.528854

Published papers

1. Trivedi V, Ramesh A, **Wheeldon I***. Analyzing CRISPR screens in non-conventional microbes. *Journal of Industrial Microbiology*, 2023 (in press)
2. Sengupta P, Mohan R, **Wheeldon I**, Kisailus D, Wyman CE, Cai CM. Prospects of thermotolerant *Kluyveromyces marxianus* for high solids ethanol fermentation of lignocellulosic biomass. *Biotechnology for Biofuels & Bioproducts*, accepted 10/22/2022. Preprint DOI: 10.21203/rs.3.rs-1578331/v1
3. Hong X[#], Cholko T[#], Chang CA*, **Wheeldon I***. Multiscale simulation-guided design of enzyme bioconjugates with enhanced catalysis. *Chem Catalysis*, 2022;2:2691-2703. DOI: 10.1016/j.checat.2022.09.018.
4. Iddya A, Zarzycki P, Kingsbury R, Chia Miang Khor CM, Ma S, Wang J, **Wheeldon I**, Ren ZJ, Hoek EMV, Jassby D*. A reverse-selective ion exchange membrane for the selective transport of phosphates via an outer-sphere complexation–diffusion pathway. *Nature Nanotechnology*, 2022;17: 1222–1228. DOI: 10.1038/s41565-022-01209-x
5. Bever D, **Wheeldon I**, Da Silva N. RNA polymerase II-driven CRISPR-Cas9 system for efficient non-growth-biased metabolic engineering of *Kluyveromyces marxianus*. *Metabolic Engineering Communications*, 2022;15: e00208. DOI:10.1016/j.mec.2022.e00208
6. Lupish B, Hall J, Schwartz C, Ramesh A, Morrison C, **Wheeldon I***. Genome-wide CRISPR-Cas9 screen reveals a persistent null-hyphal phenotype that maintains high carotenoid production in *Yarrowia lipolytica*. *Biotechnology & Bioengineering*, 2022;119:3623-3631. DOI:10.1002/bit.28219
7. Steiner PJ, Swift SD, Bedewitz M, **Wheeldon I**, Cutler SR, Nusinow DA, and Whitehead TA. A Closed Form Model for Molecular Ratchet-Type Chemically Induced Dimerization Modules. *Biochemistry*, 2022 (Article ASAP). DOI: 10.1021/acs.biochem.2c00172
8. Beltrán J[#], Steiner PJ[#], Bedewitz M[#], Wei S[#], Peterson FC, Li Z, Hughes BE, Hartley Z, Robertson NR, Medina-Cucurella AV, Baumer ZT, Leonard AC, Park S-Y, Volkman BF, Nusinow DA, Zhong W, **Wheeldon I***, Cutler SR*, Whitehead TA*. Rapid biosensor development using plant hormone receptors as reprogrammable scaffolds. *Nature Biotechnology*, 2022 (published June 2022). DOI: 10.1038/s41587-022-01364-5
9. Baisya D, Ramesh A, Schwartz C, Lonardi S*, **Wheeldon I***. Genome-wide functional screens enable the prediction of high activity CRISPR-Cas9 and-Cas12a guides in *Yarrowia lipolytica*. *Nature Communications*, 2022;13(1):1-10. DOI: 10.1038/s41467-022-28540-0
10. Wang W, Xu H, Ye A, Tao F, **Wheeldon I**, Yuan A, Hu Y, Wu J*. Systemic immune responses to irradiated tumours via the transport of antigens to the tumour periphery by injected flagellate bacteria. *Nature Biomedical Engineering*, 2022;6:44-53. DOI: 10.1038/s41551-021-00834-6
11. Abdallah W, Hong X, Banta S, **Wheeldon I***. Microenvironmental effects can masquerade as substrate channelling in cascade biocatalysis. *Current Opinion in Biotechnology*, 2022;73:233-239. DOI:10.1016/j.copbio.2021.08.014
12. Li M, Lang X, Moran Cabrera M, De Keyser S, Sun X, Da Silva NA, **Wheeldon I***. CRISPR-mediated multigene integration enables Shikimate pathway refactoring in *Kluyveromyces marxianus*. *Biotechnology for Biofuels*, 2021;14:3. DOI 10.1186/s13068-020-01852-3
13. Hillman ET, Li M, Hooker CA, Englander JA, **Wheeldon I**, Solomon KV. Hydrolysis of lignocellulose by anaerobic fungi produces free sugars and organic acids for two-stage fine chemical production with *Kluyveromyces marxianus*. *Biotechnology Progress*, 2021 e3172. DOI: 10.1002/btpr.3172

14. Lang X, Besada-Lombana PB, Li M, Da Silva NA, **Wheeldon I***. Developing a broad-range promoter set for metabolic engineering in the thermotolerant yeast *Kluyveromyces marxianus*. *Metabolic Engineering Communications*, 2020;11:e00145. DOI: 10.1016/j.mec.2020.e00145
15. Whitehead TA, Banta S, Bentley WE, Betenbaugh MJ, Chan C, Clark DS, Hoesli CA, Jewett MC, Junker B, Koffas M, Kshirsagar R, Lewis A, Li CT, Maranas C, Papoutsakis ET, Prather KLJ, Schaffer S, Segatori L, **Wheeldon I**. The importance and future of biochemical engineering. *Biotechnology and Bioengineering*. 2020;117: 2305–2318. DOI: 10.1002/bit.27364
16. Lang X, Hong X, Baker CA, Otto TC, **Wheeldon I***. Molecular binding scaffolds increase local substrate concentration enhancing the enzymatic hydrolysis of VX nerve agent. *Biotechnology & Bioengineering*. 2020;117:1970–1978. DOI: 10.1002/bit.27346
17. Ramesh A, Ong T, Garcia JA, Adams J, **Wheeldon I***. Guide RNA engineering enable dual purpose CRISPR-Cpf1 for simultaneous gene editing and gene regulation in *Yarrowia lipolytica*. *ACS Synthetic Biology*, 2020;9(4):967–971. DOI: 10.1021/acssynbio.9b00498
18. Thorwall, Schwartz C, Chartron JW, **Wheeldon I***. Stress-tolerant non-conventional microbes enable next-generation chemical biosynthesis. *Nature Chemical Biology*, 2020;16(2):113-121. DOI: 10.1038/s41589-019-0452-x
19. Banta S, **Wheeldon I**. Theory-Based Development of Performance Metrics for Comparing Multi-Reactant Enzymes. *ACS Catalysis*, 2020;10(2):1123-1132. DOI: 10.1021/acscatal.9b03491
20. Schwartz C, Cheng J-F, Evans R, Schwartz C, Wagner JM, Anglin S, Beitz A, Pan A, Lonardi S, Blenner M, Alper H, Yoshikuni Y, **Wheeldon I***. Validating genome-wide CRISPR-Cas9 function improves screening in the oleaginous yeast *Yarrowia lipolytica*. *Metabolic Engineering*, 2019;55:102-110. DOI: 10.1016/j.ymben.2019.06.007
21. Zhu J, Schwartz C, and **Wheeldon I***. Controlled intracellular trafficking alleviates an expression bottleneck in *S. cerevisiae* ester biosynthesis. *Metabolic Engineering Communications*, 2019;8:e00085. DOI: 10.1016/j.mec.2018.e00085
22. Adballah W, Chirino V, **Wheeldon I**, and Banta S. Engineering the Microenvironment of a Catalysis of Thermostable Alcohol Dehydrogenase Improved by Engineering the Microenvironment through Fusion with Supercharged Proteins. *ChemBioChem*, 2019;20:1827-1837. DOI: 10.1002/cbic.201900066
23. Löbs AK, Schwartz C, Thorwall S, and **Wheeldon I***. Highly multiplexed CRISPRi repression of respiratory functions enhances mitochondrial localized ethyl acetate biosynthesis in *Kluyveromyces marxianus*. *ACS Synthetic Biology*, 2018;7:2647–2655. DOI: 10.1021/acssynbio.8b00331
24. Lancaster L, Banta S*, **Wheeldon I***. Engineering enzyme microenvironments for enhanced biocatalysis. *RSC Chemical Society Reviews*, 2018;47:5177-5186. DOI: 10.1039/C8CS00085A
25. Schwartz C, Curtis N, Löbs AK, **Wheeldon I***. Multiplexed CRISPR activation of cryptic sugar metabolism enables *Yarrowia lipolytica* growth on cellobiose. *Biotechnology Journal*, 2018;13: 1700584. DOI: 10.1002/biot.201700584
26. Misa J, Schwartz C, **Wheeldon I***. Design of Hybrid RNA Polymerase III Promoters for Efficiency CRIPR-Cas9 Function. *Bio-protocol*, 2018;8(6): e2779. DOI: 10.21769/BioProtoc.2779
27. Lancaster L, Sigman M, Minter S, **Wheeldon I***. Bioinspired design of a hybrid bifunctional enzymatic/organic electrocatalyst for site selective alcohol oxidation. *ChemComm*, 2018;54:491-494. DOI: 10.1039/C7CC08548F
28. Schwartz C, Frogue K, Misa J, **Wheeldon I***. Host and Pathway Engineering for Enhanced Lycopene Biosynthesis in *Yarrowia lipolytica*. *Frontiers in Microbiology*, 2017;8:2233. DOI: 10.3389/fmicb.2017.02233
29. Schwartz C, Frogue K, **Wheeldon I***. CRISPRi modulation of non-homologous end-joining enhances homologous recombination in the yeast *Yarrowia lipolytica*. *Biotechnology & Bioengineering*, 2017;114:2896-2906. DOI: <https://doi.org/10.1002/bit.26404>
30. Hussain MS, **Wheeldon I**, Blenner M*. A fatty acid transcriptional sensor built from *Yarrowia lipolytica* upstream activating sequences. *Biotechnology Journal*, 2017;12(10):1700248. DOI: 10.1002/biot.201700248
31. Whitehead T, Cutler S, **Wheeldon I**. Plant metabolic engineering for chemicals, fuels, and precursors. *Chemical Engineering Progress (CEP)*, 2017;113(10):58-62.
32. Lang X, Zhu L, Gao Y, **Wheeldon I***. Enhancing enzyme activity and uptake in nanostructured inorganic-protein enzyme aggregates. *Langmuir*, 2017;33(36):9073-9080. DOI: 10.1021/acs.langmuir.7b02004

33. Löbs AK, Schwartz C, **Wheeldon I***. Genome and metabolic engineering in non-conventional yeasts: current advances and applications. *Synthetic and Systems Biotechnology*, 2017;2(3):198-207. DOI: 10.1016/j.synbio.2017.08.002
34. Löbs AK, Engel R, Schwartz C, Flores A, **Wheeldon I***. CRISPR-Cas9 enabled disruption library reveals the roles of alcohol dehydrogenases and alcohol-O-acetyltransferase in the production of ethanol and ethyl acetate in thermotolerant *Kluyveromyces marxianus*. *Biotechnology for Biofuels*, 2017;10:164. DOI: 10.1186/s13068-017-0854-5
35. Lin JL, Zhu J, **Wheeldon I***. Synthetic Protein Scaffolds for Biosynthetic Pathway Co-Localization on Lipid Droplet Membranes. *ACS Synthetic Biology*, 2017;6(8):1534-1544. DOI: 10.1021/acssynbio.7b00041
36. **Wheeldon I***, Christopher P, Blanch H. Integration of heterogeneous and biochemical catalysis for production of fuels and chemicals from biomass. *Current Opinion in Biotechnology* 2017;45:127-135. DOI: 10.1016/j.copbio.2017.02.019
37. Gao Y, Or S, Toop A, **Wheeldon I***. DNA nanostructure sequence-dependent binding of organophosphates. *Langmuir* 2017;33(8):2033-2040. DOI: 10.1021/acs.langmuir.6b03131
38. Schwartz C, Hussain MS, Frogue K, Blenner M, **Wheeldon I***. Standardized, markerless gene integration for pathway engineering in *Yarrowia lipolytica*. *ACS Synthetic Biology* 2017;6(3):402-409. DOI: 10.1021/acssynbio.6b00285
39. Löbs AK, Lin JL, Cook M, **Wheeldon I***. High throughput, colorimetric screening of microbial ester biosynthesis reveals high ethyl acetate production from *Kluyveromyces marxianus* on C5, C6, and C12 carbon sources. *Biotechnology Journal* 2016;11(10):1274-1281. DOI: 10.1002/biot.201600060
40. Gao Y, Roberts C, Toop A, Chang C, **Wheeldon I***. Mechanisms of enhanced catalysis in enzyme-DNA nanostructures revealed through molecular simulations and experimental analysis. *ChemBioChem* 2016; 17(15):1430-1436. DOI: 10.1002/cbic.201600224
41. **Wheeldon I***, Minter S, Banta S, Calabrese Barton S, Atanassov P, and Sigman M. Substrate channelling as an approach to cascade reactions. *Nature Chemistry* 2016;8:299-309. DOI: 10.1038/nchem.2459
42. Lin JL, Zhu J, **Wheeldon I***. Rapid ester biosynthesis screening reveals a high activity alcohol-O-acyltransferase (AATase) from tomato fruit. *Biotechnology Journal* 2016;11:700-707. DOI: 10.1002/biot.201500406
43. Schwartz C, Hussain MS, Blenner M, **Wheeldon I***. Synthetic RNA Polymerase III Promoters Facilitate High-Efficiency CRISPR-Cas9-Mediated Genome Editing in *Yarrowia lipolytica*. *ACS Synthetic Biology* 2016;5:356-359. DOI: 10.1021/acssynbio.5b00162
44. Ronen A, Duan W, **Wheeldon I**, Walker S, Jassby D. Microbial Attachment Inhibition through Low-Voltage Electrochemical Reactions on Electrically Conducting Membranes. *Environmental Science & Technology* 2015;49(21):12741-12750. DOI: 10.1021/acs.est.5b01281
45. Zhu J, Lin JL, **Wheeldon I***. Microbial host selection affects intracellular localization and activity of alcohol-O-acetyltransferase. *Microbial Cell Factories* 2015;14(35). DOI: 10.1186/s12934-015-0221-9
46. Gao Y, Roberts RC, Zhu J, Lin JL, Chang CA, **Wheeldon I***. Tuning Enzyme Kinetics through Designed Intermolecular Interactions Far from the Active Site. *ACS Catalysis* 2015;5(4):2149-2153. DOI: 10.1021/acscatal.5b00130
47. Lin JL, **Wheeldon I***. Dual N- and C-Terminal Helices Are Required for Endoplasmic Reticulum and Lipid Droplet Association of Alcohol Acetyltransferases in *Saccharomyces cerevisiae*. *PLoS ONE* 2014;9(8):e104141. DOI: 10.1371/journal.pone.0104141
48. Lin JL, Palomec L, **Wheeldon I***. Design and Analysis of Enhanced Catalysis in Scaffolded Multienzyme Cascade Reactions. *ACS Catalysis* 2014;4(2):505-511. DOI: 10.1021/cs401009z
49. **Wheeldon I***. The potential of multi-enzyme pathways to create novel anodes for enzymatic biofuel cells. *Biofuels* 2013;4(5):463-465. DOI: 10.4155/bfs.13.33
50. Lin JL, **Wheeldon I***. Kinetic enhancements in DNA-enzyme nanostructures mimic the Sabatier principle. *ACS Catalysis* 2013;3(4):560-564. DOI: 10.1021/cs300766d
51. Hatton BD, **Wheeldon I**, Hancock MJ, Kolle M, Aizenberg J, Ingber DE. An artificial vasculature for adaptive thermal control of windows. *Solar Energy Material & Solar Cells* 2013;117:429-436. DOI: 10.1016/j.solmat.2013.06.027
52. Bauer M, Kim KY, Qiu Y, Calpe B, Khademhosseini A, Liao R, **Wheeldon I***. Spot identification and quality control in cell-base microarrays. *ACS Combinatorial Science* 2012;12(8):471-477. DOI: 10.1021/co300039w

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54. **Wheeldon I**, Farhadi A, Bick A, Jabbari E, Khademhosseini A. Nanoscale tissue engineering: Spatial control over cell-materials interactions. *Nanotechnology* 2011;22(21):212001. DOI: 10.1088/0957-4484/22/21/212001
55. Wu J, **Wheeldon I**, Guo Y, Lu T, Du T, Wang B, He J, Hu Y, Khademhosseini. A sandwiched microarray platform for benchtop cell-based high throughput screening. *Biomaterials* 2011;32(3):841-848. DOI: 10.1016/j.biomaterials.2010.09.026
56. **Wheeldon I**, Ahari A, Khademhosseini A. Microengineering hydrogels for stem cell bioengineering and tissue regeneration. *Journal of the Association for Laboratory Automation* 2010;15(6):440-448. DOI: 10.1016/j.jala.2010.05.003
57. Banta S, **Wheeldon I**, Blenner M. Protein engineering in functional protein-based hydrogels. *Annual Reviews of Biomedical Engineering* 2010;(12):167-186. DOI: 10.1007/978-3-319-39196-0_8
58. Campbell EC, **Wheeldon I**, Banta S. Broadening the cofactor specificity of a thermostable alcohol dehydrogenase using rational protein design introduces novel kinetic transient behavior. *Biotechnology and Bioengineering*, 2010;107(5):763-774. DOI: 10.1002/bit.22869
59. Lu HD, **Wheeldon I**, Banta S. Catalytic Biomaterials: Engineering organophosphate hydrolase to form self-assembling enzymatic hydrogels. *Protein Engineering Design and Selection* 2010;23(7):559-566. DOI: 10.1093/protein/gzq026
60. **Wheeldon I**, Campbell EC, Banta S. A Chimeric Fusion Protein Engineered With Disparate Functionalities— Enzymatic Activity and Self Assembly. *Journal of Molecular Biology* 2009;392(1):129-142. DOI: 10.1016/j.jmb.2009.06.075
61. **Wheeldon I**, Gallaway JW, Calabrese Barton S, Banta S. Bioelectrocatalytic hydrogels from electron-conducting metallo-polypeptides co-assembled with bifunctional enzymatic building blocks. *Proceedings of the National Academy of Sciences of the United States of America* 2008;105(40):15275-15280. DOI: 10.1073/pnas.0805249105
62. Gallaway JW, **Wheeldon I**, Rincon R, Atanassov P, Banta S, Calabrese Barton S. Oxygen-reducing enzyme cathodes produced from SLAC, a small laccase from *Streptomyces coelicolor*. *Biosensors and Bioelectronics* 2008;23:1229-1235. DOI: 10.1016/j.bios.2007.11.004
63. **Wheeldon I**, Calabrese Barton S, Banta S. Bioactive Proteinaceous Hydrogels from Designed Bifunctional Building Blocks. *Biomacromolecules* 2007;8:2990-2994. DOI: 10.1021/bm700858p
64. **Wheeldon I**, Caners C, Karan K, Peppley B. Utilization of biogas generated from Ontario wastewater treatment plants in solid oxide fuel cell systems: A process modeling study. *International Journal of Green Energy* 2007;4(2):221-231. DOI: 10.1080/15435070601015585
65. Calvo EJ, Rothacher MS, Bonazzola C, **Wheeldon I**, Salvarezza RC, Vela MV, Benitez G. Biomimetics with a self-assembled monolayer of catalytically active tether isoalloxazine on Au. *Langmuir* 2005; 21(17):7907-7911. DOI: 10.1021/la050695n

Edited Books

66. **Wheeldon I**, Blenner M. *Yarrowia Lipolytica: Methods and Protocols*. Methods in Molecular Biology, 2021; 2307. Humana Press

Book Chapters

67. Ramesh A, **Wheeldon I***. Western Blotting of Membrane-Bound Proteins in *Yarrowia lipolytica*, in Methods in Molecular Biology v 2307, Spring Protocols. Humana Press, Ed: Wheeldon I, Blenner M. 2021;Ch.16:233-247
68. Ramesh A, **Wheeldon I***. Guide RNA Design for Genome-Wide CRISPR Screens in *Yarrowia lipolytica* in Methods in Molecular Biology v 2307, Spring Protocols. Humana Press, Ed: Wheeldon I, Blenner M. 2021;Ch.16:123-137
69. Lancaster L, Bulutoglu B, Banta S*, **Wheeldon I***. Enzyme colocalization in protein-based hydrogels. Metabolons and Supramolecular Enzyme Assemblies, in Methods in Enzymology, Elsevier. Ed: Claudia Schmidt-Dannert. 2019;617:265-285.
70. Lang X, Gao Y, **Wheeldon I***. The methods of studying DNA nanostructure binding affinity to organophosphates (OP). Nanoscale Imaging, in Methods in Molecular Biology Series, Springer Protocols. Humana Press, Ed: Yuri Lyubchenko. 2018;Ch.9:145-155.

71. Schwartz C, **Wheeldon I***. CRISPR-Cas9 mediated genome editing and transcriptional control in *Yarrowia lipolytica*. Synthetic Biology, in Methods in Molecular Biology Series, Springer Protocols. Humana Press, Ed: Jeff Braman. 2018;Ch.18:327-345.
72. **Wheeldon I***. Protein engineering strategies for modular, stimuli responsive, and spatially organized biomaterials. Tissue and Organ Regeneration: Advances in Micro and Nanotechnology. Pan Stanford Publishing Pte Ltd. Eds: Zhang LG, Khademhosseini A. 2014;Ch.8:265-291.
73. **Wheeldon I**, Fernandez J, Bae H, Kaji H, Khademhosseini A, Microscale Biomaterials for Tissue Engineering. Materials in Tissue Engineering: A Review of the Past and Future Trends, Springer Publishing, Eds: Burdick J, Mauck R. 2011;Ch.5:119-38.
74. Folwer MW, Mann RF, Amphlett JC, Kundu S, **Wheeldon I**, Peppley BA. Materials Issues as Applied to PEMFC Modelling. Fuel Cells for Automotive Applications, Professional Engineering Publishing, Eds: Thring R. 2004;Ch.9:135-156.

Patents

1. Cutler S, Wheeldon I, Beltran J, Wei S, Whitehead T. "Reagents and systems for generating biosensors", provisional application 63/301,402, file 01/20/2022
2. Banta S, Blenner M, **Wheeldon I**, Dooley K. "Leucine beta roll domains and uses thereof" US 9127267 B2 publication date Sep. 8, 2015.
3. Ingber D, Hatton B, **Wheeldon I**, Aizenberg J. "Thermal management of transparent media" US20140123578 publication date May 8, 2014
4. Banta S, Calabrese Barton S, **Wheeldon I**. "Self-assembling hydrogel with bioactive protein" US8415290 B2 publication data Mar. 19, 2009.
5. **Wheeldon I**, Peppley B, Wieland H. "A compact steam-methanol reformer with integrated hydrogen purifier" US7115148 publication data Oct. 3, 2006.

INVITED PRESENTATIONS

1. Wheeldon I, "A data-driven approach to optimizing CRISPR screens in non-conventional yeasts", **44th Symposium on Biomaterials, Fuels and Chemicals**, 2022. Society for Industrial Microbiology. 05/03/2022.
2. Wheeldon I, "Engineering the thermotolerant yeast *K. marxianus* for the conversions of biomass-derived sugars into valuable fuels and chemicals", **43rd Symposium on Biomaterials, Fuels and Chemicals**, 2021. Society for Industrial Microbiology. 04/17/2021.
3. Wheeldon I, "CRISPR-Enabled Functional Genomics in the Oleaginous Yeast *Yarrowia Lipolytica*", in Metabolic Engineering Platform Development – Non-conventional Eukaryotes. **Division 15c, AIChE Annual Meeting**, 2020. 11/16/2020.
4. Wheeldon I, "Exploiting and engineering industrial relevant phenotypes for next generation chemical biosynthesis", **University of California Irvine, Chemical Engineering, Departmental Seminar**. Irvine, CA 10/11/2019.
5. Wheeldon I, "Engineering the local environment for enhanced enzyme and pathway catalysis", **U.S. Naval Research Laboratory**. Washington D.C. 06/06/2019.
6. Wheeldon I, "Exploiting and engineering industrial relevant phenotypes for next generation chemical biosynthesis", **Case Western Reserve University, Chemical Engineering, Departmental Seminar**. Cleveland, OH 04/18/2019.
7. Wheeldon I, "Engineering the local environment for enhanced enzyme and pathway catalysis", **Tsinghua University, Industrial Biocatalysis Forum**. Beijing, China 03/29/2019.
8. Wheeldon I, "Exploiting and engineering industrial relevant phenotypes for next generation chemical biosynthesis", **Washington University in Saint Louis, Energy, Environment and Chemical Engineering, Departmental Seminar**. St Louis MO 10/19/2018.
9. Wheeldon I, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a host for ester biosynthesis", **2018 Biocatalysis, Bioconversion and Green Manufacturing US-China bilateral Symposium**. Beijing China 7/9/2018.
10. Wheeldon I, "CRISPR-Cas9 genome editing and CRISPRa/i tools for engineering the oleaginous yeast *Yarrowia lipolytica*", **Department of Energy Joint Genome Institute, 2018 User's Meeting**. San Francisco CA 3/16/2018.
11. Wheeldon I, "Engineering the local environment for enhanced biocatalysis", **UCR, Biochemistry, Departmental Seminar**. Riverside CA 5/15/2018.

12. Wheeldon I, "Engineering the local environment for enhanced biocatalysis", **Rensselaer Polytechnic Institute, Chemical and Biological Engineering, Departmental Seminar**. Troy NY 2/7/2018.
13. Wheeldon I, "Engineering biomolecular nanostructures for enhanced enzyme catalysis: the need for quantitative substrate binding measurements", **Harvard Medical School and Beth Israel Deaconess Medical Center, Bioanalytics Workshop**. Boston MA 4/6/2017.
14. Wheeldon I, "Exploiting native high flux metabolic pathways for chemical biosynthesis", **Renewable Energy Group (REG) Life Sciences**. San Francisco CA 4/4/2017.
15. Wheeldon I, "Exploiting native high flux metabolic pathways for chemical biosynthesis", **Princeton University, Chemical and Biological Engineering, Departmental Seminar**. Princeton NJ 12/7/2016.
16. Wheeldon I, "Engineering intracellular enzyme localization and pathway biocatalysis", **University of California Santa Barbara, Centre for Bioengineering, Seminar Series**. Santa Barbara CA 1/19/2016.
17. Wheeldon I, "Controlling and Understanding Enzyme Catalysis in DNA Nanostructures", **Pacificchem 2015**, Invited Presentation in ANYL: Direct and Mediated Bioelectrocatalysis for Biosensors and Energy Conversion Applications. Honolulu HI 12/18/2015.
18. Wheeldon I, "Engineering intracellular enzyme localization and pathway biocatalysis", **Michigan State University, Department of Chemical Engineering and Materials Science, Departmental Seminar**. East Lansing MI 10/29/2016.
19. Wheeldon I, "Engineering intracellular enzyme localization and pathway biocatalysis", **Brigham Young University, Department of Chemical Engineering, Departmental Seminar**. Provo UT 10/15/2016.
20. Wheeldon I, "Microbial Consortium Biosynthesis of Optically Active Chiral Nanostructures", **US Department of Defense, Synthetic Biology for Materials Technical Interchange Meeting**. Arlington VA 4/20/2015.
21. Wheeldon I, "Engineering Biology for Chemical Synthesis", **Mount San Jacinto College, STEM Lecture Series**, Hemet CA 2/12/2015.
22. Wheeldon I, "Engineering intracellular enzyme localization and pathway biocatalysis", **NYU Polytechnic School of Engineering, Department of Chemical and Biomolecular Engineering, Departmental Seminar**. Brooklyn NY 12/9/2014.
23. Wheeldon I, "Engineering intracellular enzyme localization and pathway biocatalysis", **Columbia University, Chemical Engineering, Departmental Seminar**. New York NY 9/23/2014.
24. Lin JL, Zhu J, Palomec L, Wheeldon I, "Biosynthetic production of esters: Fundamental studies of the key pathway enzyme, alcohol acetyltransferase", **Society of Industrial Microbiology, Invited Presentation**. St Louis MI 7/24/2014.
25. Gao Y, Lin JL, Wheeldon I, "Controlling local substrate concentrations in multi-enzyme complexes", **Electrochemical Society, 225th Annual Meeting, Invited Presentation in Biofuel Cell VI**. Orlando FL 5/11/2014.
26. Wheeldon I, "Engineering and Understanding Enhanced Catalysis in Multienzyme Structures", **University of California Irvine, Department of Chemical Engineering and Materials Science, Departmental Seminar**. Irvine CA 2/28/2014.
27. Wheeldon I, "From Biochemical Engineering to Synthetic Biology: strategies for engineering metabolic pathways", **Mount San Jacinto College, STEM Lecture Series**, Hemet CA 2/13/2014.
28. Wheeldon I, "Engineering and understanding scaffolds for spatially organized biocatalysis", **University of California Riverside, Biochemistry, Departmental Seminar**. Riverside CA 4/22/2013.
29. Wheeldon I, "Enhancing enzyme and reaction cascade kinetics through enzyme co-localization", **University of New Mexico, Santa Fe Workshop on Materials for Energy Conversion, Invited Presentation** in 'Bio-Nano Interfaces and Architectures for Energy Conversion'. Santa Fe NM 11/2012.
30. Wheeldon I, "Proteins as functional materials: engineering multi-functional and biologically active hydrogels", **University of Maryland College Park, Chemical and Biomolecular Engineering, Departmental Seminar**. College Park MD 3/8/2011.
31. Wheeldon I, "Proteins as functional materials: engineering multi-functional and biologically active hydrogels", **Brown School of Engineering, Departmental Seminar**. Providence RI 2/18/2011.
32. Wheeldon I, "Proteins as functional materials: engineering multi-functional and biologically active hydrogels", **University of Alabama Tuscaloosa, Departmental Seminar**. Tuscaloosa AL 2/15/2011.
33. Wheeldon I, "Proteins as functional materials: engineering multi-functional and biologically active hydrogels", **The Ohio State University, Departmental Seminar**. Columbus OH 1/13/2011.

CONTRIBUTED CONFERENCE PRESENTATIONS (last 5 years)

1. Li M, Bever-Sneary D, Baisya D, Hillman E, Ramesh A, Trivedi V, Lang X, Solomon K, Lonardi S, Da Silva N, Wheeldon I, "CRISPR-enabled metabolic engineering to enhance 2-phenylethanol biosynthesis in the thermotolerant yeast *Kluyveromyces marxianus*", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/21/2022. Oral presentation by Li M.
2. Chang C-E, Wheeldon I, Cholko T, Hong X, "Multiscale simulation-guided enzyme nanostructure design for catalysis enhancement: effective substrate concentration, scaffolds, and spatial organization", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/21/2022. Oral presentation by Chang C-E.
3. Bever-Sneary D, Wheeldon I, Da Silva N, "Metabolic engineering of the thermotolerant yeast *Kluyveromyces marxianus* for high yield biosynthesis of polyketides", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/22/2022. Oral presentation by Bever-Sneary D.
4. Wei S, Qiu J, Cutler S, Wheeldon I, "Designing novel transcription factors for inducible gene expression in yeast", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/22/2022. Poster presentation by Wei S.
5. Thorwall S, Trivedi V, Wheeldon I, "Engineering high phenazine production in *Pseudomonas chlororaphis*: A genomic science approach", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/23/2022. Oral presentation by Thorwall S.
6. Ramesh A, Baisya D, Trivedi V, Wheeldon I, Lonardi S, "Genome-wide cutting scores enable machine learning predictions of sgRNA activity and definition of essential genes in the yeast *Yarrowia lipolytica*", ACS 2022 Annual Spring Meeting, San Diego, CA, 3/24/2022. Oral presentation by Ramesh A.
7. Ramesh A, Baisya D, Trivedi V, Lonardi S, Wheeldon I, "Genome-wide cutting scores enable sgRNA activity predictions and definition of essential genes in the yeast *Yarrowia lipolytica*", 71st Annual Meeting of the Society of Industrial Microbiology, Austin, TX, 08/09/2021. Oral presentation by Ramesh A.
8. Wheeldon I, Li M, Wei S, Lang X, Baisya D, Lonardi S, Bever-Sneary D, DaSilva NA, "CRISPR-enabled metabolic engineering of the thermotolerance yeast *Kluyveromyces marxianus*", 71st Annual Meeting of the Society of Industrial Microbiology, Austin, TX, 08/11/2021. Oral presentation by Li M.
9. Li M, Lang X, DaSilva NA, Besada-Lombana PB, Wheeldon I, "Shikimate Pathway Refactoring in the Non-Conventional Yeast *Kluyveromyces Marxianus* Enables High Titer Production of 2-Phenylethanol", 2020 Virtual Meeting of the American Institute of Chemical Engineers, 11/2020. Oral presentation by Li M.
10. Löbs AK, Schwartz C, and Wheeldon I, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a microbial host for volatile ester biosynthesis", ACS 2019 Annual Spring Meeting, Orlando, FL, 4/2/2019. Oral presentation.
11. Wheeldon I, McTaggart T, Bever D, Bassett S, Sun X, Lonardi S, and Da Silva NA, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a host for next generation bioprocessing", DOE Genomic Sciences Program Meeting, Tyson's Corner, VA, 2/26/2019. Oral Presentation.
12. Wheeldon I, "Engineering the local environment for enhanced enzyme biocatalysis", 8th International Conference on Biomolecular Engineering (IBCE), Newport Beach CA 1/7/2019. Oral presentation.
13. Schwartz C and Wheeldon I, "Application and validation of a genome-wide CRISPR-Cas9 library for the oleaginous yeast *Yarrowia lipolytica*", AIChE Annual Meeting, Pittsburg, PA, 10/31/2018. Oral presentation.
14. Löbs AK, Schwartz C, Thorwall S, and Wheeldon I, "Metabolic engineering of the high native capacity of *Kluyveromyces marxianus* to synthesize ethyl acetate", AIChE Annual Meeting, Pittsburg, PA, 10/30/2018. Oral presentation.
15. Wheeldon I, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a microbial host for volatile ester biosynthesis", SIMB Annual Meeting, Chicago, IL, 8/13/2018. Oral presentation.
16. Löbs AK, Schwartz C, and Wheeldon I, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a microbial host for volatile ester biosynthesis", ACS 2018 Annual Spring Meeting, New Orleans, LA 3/22/2018. Oral presentation.
17. Wheeldon I, Schwartz C, and Löbs AK, "Leveraging CRISPR-Cas9 genome editing tools engineer non-traditional yeasts for chemical biosynthesis", 4th Synthetic Biology and Gene Editing Congress, London England, 12/5/2017.
18. Schwartz C, Hussain MS, Frogue K, Blenner M, Wheeldon I, "CRISPR-Cas9 genome editing and gene regulation tools for rapid engineering of *Yarrowia lipolytica*", Symposium on Biotechnology for Fuels and Chemicals, SIMB, San Francisco, CA 05/2017. Oral Presentation by Schwartz C.

18. Wheeldon I, "Post translational strategies for enhancing biosynthetic pathway expression and activity". Biochemical and Molecular Engineering XX, Huntington Beach, CA 07/2017. Oral Presentation.
19. Löbs AK, Engel R, Schwartz C, Wheeldon I, "Developing the thermotolerant yeast *Kluyveromyces marxianus* as a microbial host for volatile ester biosynthesis", ACS 2017 Annual Spring Meeting, San Francisco, CA 4/4/2017. Oral presentation.
20. Schwartz C, Hussain MS, Frogue K, Blenner M, Wheeldon I, "CRISPR-Cas9 Genome Editing and Gene Regulation Tools for Rapid Engineering of *Yarrowia lipolytica*", DOE Joint Genome Institute Users Meeting, Walnut Creek, CA 3/22/2017. Poster presentation.
21. Wheeldon I, Gao Y, Zhu J, Lin A, "Enhancing enzyme catalysis with rationally-designed enzyme-DNA nanostructures", 7th International Conference on Bioengineering and Nanotechnology (ICBN), Chicago IL, 3/20/2017. Oral presentation
22. Wheeldon I, Löbs AK, Schwartz C, "Leveraging new genome editing tools to engineer non-traditional yeasts for chemical biosynthesis", 7th International Conference on Biomolecular Engineering (IBCE), San Diego CA 1/9/2017. Oral presentation

STUDENT and POST DOCTORAL MENTORING

Student Awards

Eva Ottum: NSF Plants3D Fellowship, 2022; EBRC Internship 2023

Nicholas Delbert-Robertson: NSF Plants3D Fellowship, 2021

Sarah Thorwall: GAANN Fellowship, 2019, 2020; NSF Plants3D Fellowship, 2021

Jordan Hall: GAANN Fellowship, 2019

Cory Schwartz: SIMB Best Student Oral Presentation, 2018; UCR's Dissertation Year Program Award, 2018; Graduate Student Research Mentorship Program Award, 2017; GAANN Fellowship, 2016

Joshua Misa: UCR Chancellor's Undergraduate Research Fellowship, 2016/17; HSI Undergraduate Research Award, 2017

Keith Frogue: UCR Chancellor's Undergraduate Research Fellowship, 2016/17; HSI Undergraduate Research Award, 2016

Louis Lancaster: GAANN Fellowship, 2015/16

Aaron Toop: GAANN Fellowship, 2015; CEE symposium best 3rd year talk, 2015

Sergei Hanukovich: GAANN Fellowship, 2015

Jie Zhu: Randolph T. & Mary K. Wedding Prize 2015, awarded to the graduate student who has made the most significant contribution to the peer reviewed scientific literature in biochemistry and molecular biology.

Jyun-Liang Lin: Dissertation Year Award, UCR Graduate Division, 2014; CEE symposium best 3rd year talk, 2013

Peter Van: HSI Undergraduate Research Award, 2015

Andrew Flores: HSI Undergraduate Research Award, 2015

Stephanie Eatingers: HSI Undergraduate Research Award, 2014

Scott Sanchez: HSI Undergraduate Research Award, 2013

Georgina Flores: HSI Undergraduate Research Award, 2013

Rene Henderson: HSI Undergraduate Research Award, 2013

Current students and researchers

PhD - 9: Dominic Biondo (Bioengineering, UCR), Nicholas Delbert-Robertson (Bioengineering, UCR), Reyhane Ghorbani (CEE, UCR), Mario León López (Bioengineering, UCR), Sangcheong Lee (CEE, UCR), Brian Lupish (Bioengineering, UCR), Eva Ottum (CEE, UCR), Aida Tafirishi (CEE, UCE), Varun Trivedi (CEE, UCE).

MS - 1: Jordan Dagan (Microbiology, UCR).

Post Doc - 1: Clifford Morrison (CEE, UCR).

Past students

PhD - 12: Drs. Troy Alva, Xiao Hong, Mengwan Li, Jyun-Liang Lin, Ann-Kathrin Löbs, Cory Schwartz, Jie Zhu, Sergei Hanukovich (co-advised), Louis Lancaster (ABD), Adithya Ramesh, Sarah Thorwall, Shuang Wei

MS - 11: Marcos Leonardo Ballesteros, Moran Cabrera, Bryce Dayap, Ronja Engel (U Mannheim, Germany),

Sawyer De Keyser, Valeria Gomez, Christopher Morrison, Samson Or, Liedy Palomec, Brandon Simmons-Rawls, Cyrus Remmell

UG - 32: Jessica Adams*, Michael Amendola*, Grady Brill, Megan Cook*, Miranda Diaz*, Stephanie Eater, Reginald Evans*, Andrew Flores*, Gina Flores, Keith Frogue*, Amanda Gage, Alejandro Garcia*, Victor Gomez*, Javier Hernandez*, Rene Henderson*, Jourdan Joyner, Jenn Kafas*, Ana-Paola Laveaga, Matthew Lofgren, Darian McMillan, Joshua Misa, Dayana Elizalde Nava*, Maria Jose Novelo*, Thomas Ong, Hector Otero, Daniel Ramirez*, Joshua Recinos, Beverly Ru, Scott Sanchez*, Jan Schlemmer, Chhay Sun, Peter Van.*indicates participation in UG summer research program.

Post Docs - 2: Yingning Gao, Xuye Lang.

Visiting Scholars - 2: Xiyun Sun, Wenguang Wang

PROFESSIONAL SERVICE

University Service

- Graduate Advisor, Chemical and Environmental Engineering, 2022-present
- BCOE faculty trainee, NSF ADVANCE, 2021-present
- Associate Director, Plants3D; NSF NRT training program, 2019-present
- UCR Strategic Planning Committee on Research and Scholarly Distinction, 2019-2020
- UCR Senate Committee on Research, Member, 2018-2019
- UCR CEE Graduate Student Advisor 2017-2019.
- Faculty Search Committee – Environmental Engineering 2017-2018
- UCR Senate Committee on Academic Conduct and Integrity, Member, 2012-2018
- UCR Senate Committee on Charges, Member, 2015-2018
- Translation Plant Sciences UCR Cluster Hire Committee, Member, 2015-2016
- Centre for Childhood Development, Faculty/Parent Task Force, Member, 2016-2017
- UCR CEE Graduate Committee, Member 2011-2013 and 2016/17.
- AIChE UCR Student Chapter, Faculty Advisor, 2013-2017
- Undergraduate Faculty Advisor, Chemical and Environmental Engineering UCR, 2015/16
- Systems Engineering/Advanced Manufacturing CEE/ME Faculty Recruitment Committee, Member, 2014/15
- UCR Senate Committee on Undergraduate Scholarship and Honors, Member, 2013-2015
- Chancellor's Scholarship Celebration and Discover Day, CEE Representative, 2012-2018
- CEE Senior Design Faculty Advisor, 2011-2014
- BCOE Breadth Course Committee, Member, 2011

Conference Organizing

- Session Chair, 2022 Annual Meeting of the Society for Industrial Microbiology
- Session Chair, 11th International Conference on Biomolecular Engineering, Society for Biological Engineering, AIChE, 2021
- Area Coordinator, BIOT: Upstream Processing, ACS BIOT 2017
- Organizer and Faculty Advisor, AIChE Western Regional Meeting, 2016
- Area Coordinator, BIOT: Emerging Technologies, ACS BIOT 2016
- Session Chair, Biocatalysis and Biosynthesis, AIChE Annual meeting 2011, 2012, 2015
- Session Chair, Biophysical Models of Biological Processes, 5th International Conference on Biomolecular Engineering (ICBE) 2015
- Session Chair, BIOT: High-Throughput Biomolecular Engineering and Characterization, ACS Spring meeting 2015
- Session Chair, BIOT: Biocatalysis, ACS Spring meeting 2014 and 2015
- Session Chair, CATAL: Advances in Biocatalysis, ACS Fall meeting 2013
- Session Chair, Protein Structure, Function and Stability, AIChE Annual meeting 2013, 2014
- Session Chair, Bioengineering Poster Session, AIChE Annual meeting 2013
- Session Chair, Protein Engineering, AIChE Annual meeting 2012, 2013
- Session Chair, Self-Assembling Nanomaterials, AIChE Annual meeting 2012

Peer Review

- Associate Editor: *Biotechnology for Biofuels*, 2019 – present.
- Editorial Board Member: *Biochemical Engineering Journal* 2017 – present.
- Reviewer: *Science*, *Nature Chemistry*, *Nature Chemical Biology*, *Nature Communications*, *Nature Physics*, *Journal of the American Chemical Society*, *ACS Biomacromolecules*, *ACS Catalysis*, *ACS Synthetic Biology*, *Advanced Materials*, *AIChE Journal*, *Applied Biochemistry and Biotechnology*, *Applied Microbiology and Biotechnology*, *Biochemistry*, *Biotechnology Advances*, *Biofuels*, *Biotechnology for Biofuels*, *Biotechnology & Bioengineering*, *Biochemical Engineering Journal*, *Environmental Science & Technology*, *ES&T Letters*, *FEMS Microbiology Letters*, *Journal of the Electrochemical Society*, *Microbial Cell Factories*, *Organic Letters*, *PLOS ONE*, *Scientific Reports*, *Yeast*.
- Grant Panels and Reviews: AFOSR, ARPA-E, DOE-BES, DTRA, Natural Sciences and Engineering Research Council of Canada, Natural and Environmental Sciences FCT-Portugal, NSF CAREER, NSF-CBET (Biotechnology and Biochemical Engineering), NSF-CBET (Energy for Sustainability), NSF-CBET (Environmental Engineering), NSF-SBIR/STTR (Biotechnology), NSF-DMR (Biomaterials), NSF-ERC.
- Journal Editor: Associate Guest Editor, Special Issue in *Advanced Science*, Engineering and Medicine Vol. 7, No. 12 (Dec 2015) pp. 1007-1139.

Society Membership

- American Institute of Chemical Engineers (AIChE), 2006–present
- Society for Biological Engineers, AIChE, 2008–present
- American Chemical Society (ACS), Biochemical Technology Division (BIOT), 2008–present
- Society of Industrial Microbiology (SIMB), 2014-present

Current Funding

1. NSF - Collaborative Research: Data-driven engineering of the thermotolerant yeast *Kluyveromyces marxianus*. 10/2022 – 09/2025. \$777,157; PI
2. NSF - Synthetic Cells: Harnessing plant hormone receptors for the rapid design of genetic circuits controlled by user-specified ligands. 09/2022 – 08/2025. \$921,054; co-PI
3. NSF - Collaborative Research: MFB: Ultra-fast development of portable small molecule sensor-actuators. 01/2022 – 12/2024. \$651,630; PI
4. NSF - NRT: Plants-3D. 2019/09 - 2024/08. \$3,000,000, co-PI
5. DARPA - SENTIEL: SENSing Threats in Natural Environments using ligand-receptor modules. 09/2018 – 03/2023. \$1,826,278; co-PI
6. NSF - Collaborative Research: SusChem: Engineering the thermotolerant yeast *Kluyveromyces marxianus* for the synthesis of biobased chemicals. 07/2018 – 12/2023. \$375,286; PI
7. NSF1 - CBET-EPSRC: Grown Engineered Materials: Synthetic Consortia for Biomufacturing Tunable Composites. 2020/01 - 2022/12. \$350,000; PI