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I. EDUCATION

Colorado State University
B.S., *Cum Laude*, Chemical Engineering, 1997
Chemistry Minor, Environmental Engineering Minor, Biotechnology Interdisciplinary Studies Program
Stanford University
M.S., Chemical Engineering, 1999
Ph.D., Chemical Engineering, 2002
Advisor: Chaitan Khosla
Thesis Title: Metabolic Engineering for Complex Natural Product Biosynthesis Utilizing *Escherichia coli*

II. APPOINTMENTS

1. Massachusetts Institute of Technology, Postdoctoral Fellow, Chemical Engineering, 2002-2004
   Advisor: Robert Langer
2. Assistant Professor, Tufts University, Chemical and Biological Engineering, 2004-11
3. Associate Professor, University at Buffalo, Chemical and Biological Engineering, 2011-17
4. Professor, University at Buffalo, Chemical and Biological Engineering, 2017-present
5. LVKA Guest Professor of the Ocean University of China (Qingdao, PRC), 2017-present

III. AWARDS/HONORS

Individual:

1. Teaching Assistant of the Year, Stanford University Department of Chemical Engineering, 2000
2. Achievement Rewards for College Scientists (ARCS) Graduate Fellowship, 2001
3. NIH National Research Service Award Postdoctoral Fellowship, 2003 (Declined)
4. American Cancer Society Postdoctoral Fellowship, 2003 (Accepted)

Students:

1. Brett Boghigian, Best Presentation Award, Tufts University Undergraduate Research Symposium, 2007
2. Brett Boghigian, 2nd Place, Tufts University Graduate Student Council 13th Annual Research Symposium, 2009
3. Daniel Salas, 2nd Place, AIChE Regional Meeting, Undergraduate Research Paper Competition, 2009
4. Haoran Zhang, Graduate Student Research Award, Tufts University School of Engineering, 2010
5. Melissa Myint, NSF Graduate Research Fellowship (to attend the University of Pennsylvania), 2012
6. Charles Jones, Best Student Poster, UB CBE Graduate Student Research Symposium, 2013
7. Charles Jones, Selected Student Speaker, UB CBE Graduate Research Symposium, 2014
8. Mahmoud Ahmadi, Winner ($8,000 seed funding and shared space in the UB Technology Incubator), UB Entrepreneurship Lab (eLab) in partnership with the UB School of Management and the Office of Science, Technology Transfer and Economic Outreach (STOR), 2015
9. Mahmoud Ahmadi, Selected Participant ($947 in preparation costs), New York State Pollution Prevention Institute (NYSP2I) Student Competition, 2015
10. Mahmoud Ahmadi, Semi-finalist, Henry A. Panasci Jr. Technology Entrepreneurship Competition, 2015
11. Mahmoud Ahmadi, Recipient, Travel Grant to Attend 227th Electrochemical Society (ECS) Meeting, 2015
12. Sharon Lin, Barry Goldwater Scholarship and Excellence in Education Program Awardee, 2015
13. Mahmoud Ahmadi, 1st Place, "Greenovate NYS" Jeffrey J. Sama Award, 2014-2015 R&D Graduate Student Competition, NYSP2I.
14. Charles Jones, Selected Participant, Buffalo Pre-Seed Workshop, 2015
15. Charles Jones, Selected Participate, Buffalo Bionetwork Meeting, 2015
16. Mahmoud Ahmadi, Selected Student Speaker, UB CBE Graduate Research Symposium, 2015
17. Charles Jones, Semi-finalist, 43North Business Competition, 2015
18. Mahmoud Ahmadi, Poster Award Winner, National AIChE Annual Meeting, Salt Lake City, UT, 2015
19. Sharon Lin, NSF Graduate Research Fellowship Honorable Mention (attending MIT), 2016
20. Mahmoud Ahmadi and Charles Jones, Second Place ($10,000), Henry A. Panasci Jr. Technology Entrepreneurship Competition, 2016
21. Charles Jones, Selected as SEAS Commencement Student Speaker, 2016
22. Yi Li, Selected as Chemical and Biological Engineering Departmental Student Seminar Speaker, 2016
23. Charles Jones and Marie Beitelshees, 1st Place Biotechnology/Healthcare ($10,000; 2nd Overall), New York Business Plan Competition, 2016

24. Mahmoud Ahmadi, Selected Participant, Buffalo Pre-Seed Workshop, 2016
25. Marie Beitelshees, Runner-up New YorkBio Annual Conference, 2016
26. Myles Tan, Tau Beta Pi Scholarship, 2016
27. Charles Jones and Marie Beitelshees, Grand Prize Winner ($20,000), Bright Buffalo Niagara, 2016
28. Guojian Zhang, 3rd Price, UB Postdoctoral Scholars Research Symposium poster contest, 2017

IV. PUBLICATIONS and PATENTS

Google Scholar Page: https://scholar.google.com/citations?user=dxmjkzYAAAAJ&hl=en

Refereed Journals:

Authorship List: In order of contribution; last author is corresponding (unless otherwise indicated)
Bolded Authors: Undergraduate students†, graduate students*, or postdoctoral/research scientists of Dr. Pfeifer
Citation Information: ISI Web of Knowledge; Google Scholar in parentheses
Impact Factor Information: 2015 ISI Web of Knowledge Journal Citation Reports

1. F. Lombo, B. Pfeifer, T. Leaf, S. Ou, Y.S. Kim, D.E. Cane, P. Licari, C. Khosla. 'Enhancing the Atom Economy of Polyketide Biosynthetic Processes' *Biotechnology Progress* **17**: 612-7 (2001) [Citations: 32 (36); Journal Impact Factor: 2.17 & 2.03 (5-year)]
2. B.A. Pfeifer, C. Khosla. 'Biosynthesis of Polyketides in Heterologous Hosts' *Microbiology and Molecular Biology Reviews* 65(1): 106-18 (2001) [Citations: 147 (231); Journal Impact Factor: 14.17 & 18.95 (5-year)]
3. B.A. Pfeifer, S.J. Admiraal, H. Gramajo, D.E. Cane, C. Khosla. 'Biosynthesis of Complex Polyketides in a Metabolically Engineered Strain of *E. coli*' *Science* 291: 1790-2 (2001) [Citations: 422 (551); Journal Impact Factor: 34.66 & 34.92 (5-year)]
4. L.C. Dayem, J.R. Carney, D.V. Santi, B.A. Pfeifer, C. Khosla, J.T. Kealey. 'Metabolic Engineering of a Methylmalonyl-CoA Mutase-Epimerase Pathway for Complex Polyketide Biosynthesis in *Escherichia coli*' *Biochemistry* 41(16): 5193-201 (2002) [Citations: 59 (80); Journal Impact Factor: 2.88 & 2.83 (5-year)]
5. B. Pfeifer, Z. Hu, P. Licari, C. Khosla. 'Process and Metabolic Strategies for Improved Production of *E. coli*-Derived 6-Deoxyerythronolide B' *Applied and Environmental Microbiology* 68(7): 3287-92 (2002) [Citations: 67 (83); Journal Impact Factor: 3.82 & 4.30 (5-year)]
6. Z. Hu, B.A. Pfeifer, E. Chao, S. Murli, J. Kennedy, J.R. Carney, G. Ashley, C. Khosla, C.R. Hutchinson. 'A Specific Role of the *Saccharopolyspora erythraea* Thioesterase II Gene in the Function of Modular Polyketide Synthases' *Microbiology* 149(8): 2213-25 (2003) [Citations: 37 (42); Journal Impact Factor: 2.27 & 2.88 (5-year)]
7. K. Kinoshita, B.A. Pfeifer, C. Khosla, D.E. Cane. 'Precursor-Directed Biosynthesis of Polyketides in *E. coli*' *Bioorganic & Medicinal Chemistry Letters* 13(21): 3701-4 (2003) [Citations: 18 (30); Journal Impact Factor: 2.49 & 2.30 (5-year)]
8. B.A. Pfeifer, C.C. Wang, C.T. Walsh, C. Khosla. 'Biosynthesis of Yersiniabactin, a Complex Polyketide/Nonribosomal Peptide, Using *Escherichia coli* as a Heterologous Host' *Applied and Environmental Microbiology* 69(11): 6698-702 (2003) [Citations: 67 (87); Journal Impact Factor: 3.82 & 4.30 (5-year)]
9. B.A. Pfeifer, J.A. Burdick, R. Langer. 'Formulation and Surface Modification of Poly(ester-anhydride) Micro- and Nanospheres' *Biomaterials* 26(2):117-24 (2005) [Citations: 56 (64); Journal Impact Factor: 8.38 & 8.98 (5-year)]
10. B.A. Pfeifer, J.A. Burdick, S.L. Little, R. Langer. 'Poly(ester-anhydride):Poly(β-amino ester) Micro- and Nanospheres: DNA Encapsulation and Cellular Transfection' *Int. J. Pharm.* 304(1-2): 210-9 (2005) [Citations: 22 (41); Journal Impact Factor: 3.06 & 3.43 (5-year)]
11. **Y. Wang**, **B. Boghigian***, B.A. Pfeifer. 'Improving Heterologous Polyketide Production in *Escherichia coli* by Overexpression of an *S*-adenosylmethionine Synthetase Gene' *Applied Microbiology & Biotechnology* 77(2):367-73 (2007) [Citations: 30 (35); Journal Impact Factor: 3.38 & 3.88 (5-year)]
12. **S. Parsa***, B.A. Pfeifer. 'Engineering Bacterial Vectors for Delivery of Genes and Proteins to Antigen-presenting Cells' *Molecular Pharmaceutics* 4(1):4-17 (2007) [Citations: 0 (17); Journal Impact Factor: 4.34 & 4.70 (5-year)]
13. **Y. Wang**, B.A. Pfeifer. '6-deoxyerythronolide B Production through Chromosomal Localization of the Deoxyerythronolide B Synthase Genes in *E. coli*' *Metabolic Engineering* 10(1):33-8 (2008) [Citations: 19 (33); Journal Impact Factor: 8.20 & 8.32 (5-year)]
14. **M. Pistorino***, B.A. Pfeifer. 'Polyketide Analysis Using Mass Spectrometry, Evaporative Light Scattering, and Charged Aerosol Detector Systems' *Analytical & Bioanalytical Chemistry* 390(4):1189-93 (2008) [Citations: 16 (19); Journal Impact Factor: 3.13 & 3.32 (5-year)]
15. **H. Zhang***, **Y. Wang**, B.A. Pfeifer. 'Bacterial Hosts for Natural Product Production' *Molecular Pharmaceutics* 5(2):212-25 (2008) [Citations: 59 (81); Journal Impact Factor: 4.34 & 4.70 (5-year)]

16. **S. Parsa**[*], **Y. Wang**, J. Fuller, R. Langer, B.A. Pfeifer. 'A Comparison between Polymeric Microsphere and Bacterial Vectors for Macrophage P388D1 Gene Delivery' *Pharmaceutical Research* 25(5):1202-8 (2008) [Citations: 13 (17); Journal Impact Factor: 3.26 & 3.99 (5-year)]
17. **S. Parsa**[*], **Y. Wang**, **K. Rines**[†], B.A. Pfeifer. 'A High-throughput Comparison of Recombinant Gene Expression Parameters for *E. coli*-mediated Gene Transfer to P388D1 Macrophage Cells' *Journal of Biotechnology*. 137(1-4): 59-64 (2008) [Citations: 9 (10); Journal Impact Factor: 2.67 & 3.11 (5-year)]
18. **B. Boghigian**[*], B.A. Pfeifer. 'Current Status, Strategies, and Potential for the Metabolic Engineering of Heterologous Polyketides in *Escherichia coli*' *Biotechnology Letters* 30(8):1323-30 (2008) [Citations: 21 (24); Journal Impact Factor: 1.64 & 1.81 (5-year)]
19. **H. Zhang**[*], **Y. Wang**, **B. Boghigian**[*], B.A. Pfeifer. 'Probing the Heterologous Metabolism Supporting 6-deoxyerythronolide B Biosynthesis in *E. coli*' *Microbial Biotechnology* 2(3): 390-4 (2009) [Citations: 8 (9); Journal Impact Factor: 3.99 & 3.93 (5-year)]
20. **M. Pistorino**[*], B.A. Pfeifer. 'Efficient Experimental Design and Micro-scale Medium Enhancement of 6-deoxyerythronolide B Production through *Escherichia coli*' *Biotechnology Progress* 25(5): 1364-71 (2009) [Citations: 9 (12); Journal Impact Factor: 2.17 & 2.03 (5-year)]
21. **B. Boghigian**[*], K. Lee, B.A. Pfeifer. 'Computationally Exploring Phenotypic Space in Heterologous Polyketide Biosynthesis – Applications to *Escherichia coli*, *Bacillus subtilis*, and *Saccharomyces cerevisiae*' *Journal of Theoretical Biology* 262(2):197-207 (2010) [Citations: 6 (10); Journal Impact Factor: 2.05 & 2.16 (5-year)]
22. **H. Zhang**[*], **B. Boghigian**[*], B.A. Pfeifer. 'Investigating the Role of Native Propionyl-CoA and Methylmalonyl-CoA Metabolism on Heterologous Polyketide Production in *Escherichia coli*' *Biotechnology and Bioengineering* 105(3):567-73 (2010) [Citations: 23 (33); Journal Impact Factor: 4.24 & 4.39 (5-year)]
23. **B. Boghigian**[*], H. Shi, K. Lee, B.A. Pfeifer. 'Utilizing Elementary Mode Analysis, Pathway Thermodynamics, and a Genetic Algorithm for Metabolic Flux Determination and Optimal Metabolic Network Design' *BMC Systems Biology* 4(1):49-66 (2010) [Citations: 19 (26); Journal Impact Factor: 2.21 & 2.90 (5-year)]
24. **B. Boghigian**[*], G. Seth, R. Kiss, B.A. Pfeifer. 'Metabolic Flux Analysis and Pharmaceutical Production' *Metabolic Engineering* 12(2):81-95 (2010) [Citations: 50 (77); Journal Impact Factor: 8.20 & 8.32 (5-year)]
25. **J. Wu**, **B. Boghigian**[*], **M. Myint**[†], **H. Zhang**[*], S. Zhang, B.A. Pfeifer. 'Construction and Performance of Heterologous Polyketide Producing K-12- and B-derived *Escherichia coli*' *Letters in Applied Microbiology* 51(2):196-20 (2010) [Citations: 4 (6); Journal Impact Factor: 1.58 & 1.82 (5-year)]
26. P.K. Ajikumar, W. Xiao, K.E.J. Tyo, **Y. Wang**, F. Simeon, E. Leonard, O. Mucha, T.H. Phon, B. Pfeifer[#], G. Stephanopoulos[#] ([#]co-corresponding authors). 'Isoprenoid Pathway Optimization for Taxol Precursor Overproduction in *Escherichia coli*' *Science* 330:70-74 (2010) [Citations: 524 (687); Journal Impact Factor: 34.66 & 34.92 (5-year)]
27. **H. Zhang**[*], **Y. Wang**, **J. Wu**, **K. Skalina**[†], B.A. Pfeifer. 'Complete Biosynthesis of Erythromycin A and Designed Analogs Using *E. coli* as a Heterologous Host' *Chemistry & Biology* 17(11):1232-40 (2010) [Citations: 40 (54); Journal Impact Factor: 5.77 & 6.48 (5-year)]
28. **H. Zhang**[*], **B.A. Boghigian**[*], **J. Armando**, B.A. Pfeifer. 'Methods and Options for the Heterologous Production of Complex Natural Products' *Natural Product Reports* 28(1):125-51 (2011) [Citations: 63 (84); Journal Impact Factor: 10.99 & 10.76 (5-year)]
29. **B.A. Boghigian**[*], **H. Zhang**[*], B.A. Pfeifer. 'Multi-factorial Engineering of Heterologous Polyketide Biosynthesis in *Escherichia coli* Reveals Complex Pathway Interactions' *Biotechnology and Bioengineering* 108(6):1360-71 (2011) [Citations: 16 (21); Journal Impact Factor: 4.24 & 4.39 (5-year)]
30. **B.A. Boghigian**[*], **M. Myint**[†], **J. Wu**, B.A. Pfeifer. 'Simultaneous Production and Partitioning of Heterologous Polyketide and Isoprenoid Natural Products by *Escherichia coli* in a Two-phase Bioprocess' *Journal of Industrial Microbiology and Biotechnology* 38(11):1809-20 (2011) [Citations: 7 (8); Journal Impact Factor: 2.75 & 2.73 (5-year)]
31. **B.A. Boghigian**[*], **D. Salas**[†], P.K. Ajikumar, G. Stephanopoulos, B.A. Pfeifer. 'Analysis of Heterologous Taxadiene Production in K- and B-derived *Escherichia coli*' *Applied Microbiology and Biotechnology* **93(4)**:1651-61 (2012) [Citations: 22 (32); Journal Impact Factor: 3.38 & 3.88 (5-year)]
32. **H. Zhang**[*], **K. Skalina**[†], **M. Jiang**, B. A. Pfeifer. 'Improved *E. coli* Erythromycin A Production Through the Application of Metabolic and Bio-process Engineering' *Biotechnology Progress* 28(1):292-6 (2012) [Citations: 8 (16); Journal Impact Factor: 2.17 & 2.03 (5-year)]
33. **B.A. Boghigian**[*], **J. Armando**[*], **D. Salas**, B.A. Pfeifer. 'Computational Identification of Gene Over-expression Targets for Metabolic Engineering of Taxadiene Production' *Applied Microbiology and Biotechnology* **93(5)**:2063-73 (2012) [Citations: 20 (25); Journal Impact Factor: 3.38 & 3.88 (5-year)]

34. **J.W. Armando**[*], **B.A. Boghigian**[*], B.A. Pfeifer. 'LC-MS/MS Quantification of Short-chain Acyl-CoA's in *Escherichia coli* Demonstrates Versatile Propionyl-CoA Synthetase Substrate Specificity' *Letters in Applied Microbiology* 54(2):140-8 (2012) [Citations: 14 (13); Journal Impact Factor: 1.58 & 1.82 (5-year)]
35. **M. Jiang**, G. Stephanopoulos, B.A. Pfeifer. 'Toward Biosynthetic Design and Implementation of *E. coli*-derived Paclitaxel and Other Heterologous Polyisoprene Compounds' *Applied and Environmental Microbiology* **78(8)**:2497-504 (2012) [Citations: 12 (12); Journal Impact Factor: 3.82 & 4.30 (5-year)]
36. **M. Jiang**, G. Stephanopoulos, B.A. Pfeifer. 'Downstream Reactions and Engineering in the Reconstituted Pathway for Taxol' *Applied Microbiology and Biotechnology* 94(4):841-9 (2012) [Citations: 16 (21); Journal Impact Factor: 3.38 & 3.88 (5-year)]
37. **C. Jones**[*], C.K. Chen, **M. Jiang**, **L. Fang**[*], C. Cheng[#], B.A. Pfeifer[#] ([#]co-corresponding authors). 'Synthesis of Cationic Polylactides with Tunable Charge Densities as Nanocarriers for Enhanced Gene Delivery' *Molecular Pharmaceutics* 10(3):1138-45 (2013) [Citations: 32 (34); Journal Impact Factor: 4.34 & 4.70 (5-year)]
38. **M. Jiang**, **H. Zhang**, B.A. Pfeifer. 'The Logic, Experimental Steps, and Potential of Heterologous Natural Product Biosynthesis Featuring the Complex Antibiotic Erythromycin A Produced through *E. coli*' *Journal of Visualized Experiments* (71):e4346 (2013) [Citations: 1 (4); Journal Impact Factor: 1.11 & NA (5-year)]
39. **J. Rucker**[*], **J. Paul**[*], B.A. Pfeifer[#], K. Lee[#] ([#]co-corresponding authors). 'Engineering *E. coli* for Triglyceride Accumulation through Native and Heterologous Metabolic Reactions' *Applied Microbiology and Biotechnology* 97(6):2753-9 (2013) [Citations: 9 (13); Journal Impact Factor: 3.38 & 3.88 (5-year)]
40. **M. Jiang**, **L. Fang**[*], B.A. Pfeifer. 'Improved Heterologous Erythromycin A Production through Expression Plasmid Redesign' *Biotechnology Progress* 29(4):862-9 (2013) [Citations: 3 (5); Journal Impact Factor: 2.17 & 2.03 (5-year)]
41. **M. Jiang**, B.A. Pfeifer. 'Metabolic and Pathway Engineering to Influence Native and Altered Erythromycin Production through *E. coli*' *Metabolic Engineering* 19:42-9 (2013) [Citations: 6 (11); Journal Impact Factor: 8.20 & 8.32 (5-year)]
42. **M. Jiang**, **H. Zhang**[*], **S. Park**, **Y. Li**[*], B.A. Pfeifer. 'Deoxysugar Pathway Interchange for Erythromycin Analogues Heterologously Produced through *E. coli*' *Metabolic Engineering* 20:92-100 (2013) [Citations: 4 (9); Journal Impact Factor: 8.20 & 8.32 (5-year)]
43. **C.H. Jones**[*], C.K. Chen, P. Mistriotis, Y. Yu, X. Ma, **A. Ravikrishnan**[*], **M. Jiang**, S. Andreadis, B.A. Pfeifer[#], C. Cheng[#] ([#]co-corresponding authors). 'Poly(ethylene glycol)-block-Cationic Polylactide Nanocomplexes of Differing Charge Density for Gene Delivery' *Biomaterials* 34(37):9688-99 (2013) [Citations: 19 (25); Journal Impact Factor: 8.39 & 8.98 (5-year)]
44. **C.H. Jones**[*], **S. Rane**[*], **E. Patt**[†], **A. Ravikrishnan**[*], C.K. Chen, C. Cheng, B.A. Pfeifer 'Polymyxin B Treatment Improves Bactofection Efficacy and Reduces Cytotoxicity' *Molecular Pharmaceutics* 10(11):4301-8 (2013) [Citations: 6 (8); Journal Impact Factor: 4.34 & 4.70 (5-year)]
45. **C.H. Jones**[*], C.K. Chen, **A. Ravikrishnan**[*], **S. Rane**[*], B.A. Pfeifer. 'Overcoming Nonviral Gene Delivery Barriers: Perspective and Future' *Molecular Pharmaceutics* 10(11):4082-98 (2013) [Citations: 73 (89); Journal Impact Factor: 4.34 & 4.70 (5-year)]
46. K. Carter, S. Shao, M. Hoopes, D. Luo, B. Ahsan, V. Grigoryants, W. Song, H. Huang, **G. Zhang**, R. Pandey, J. Geng, B.A. Pfeifer, C. Scholes, J. Ortega, M. Karttunen, and J. Lovell. 'Porphyrin-Phospholipid Liposomes Permeabilized by Near Infrared Light' *Nature Communications* 5:3546 (2014) [Citations: 39 (68); Journal Impact Factor: 11.33 & 12.00 (5-year)]
47. **Y. Li**[*], B.A. Pfeifer. 'Heterologous Production of Plant-derived Isoprenoid Products in Microbes and the Application of Metabolic Engineering and Synthetic Biology' *Current Opinion in Plant Biology* 19C:8-13 (2014) [Citations: 11 (14); Journal Impact Factor: 6.78 & 7.84 (5-year)]
48. C.K. Chen, Q. Wang, **C.H. Jones**[*], Y. Yu, H. Zhang, W.C. Law, C.K. Lai, Q. Zeng, P. Prasad, B.A. Pfeifer, C. Cheng. 'Synthesis of pH-Responsive Chitosan Nanocapsules for Controlled Delivery of Doxorubicin' *Langmuir* 30(14):4111-9 (2014) [Citations: 5 (7); Journal Impact Factor: 3.99 & 4.21 (5-year)]
49. **C.H. Jones**[*], **A. Ravikrishnan**[*], **M. Chen**[*], R. Reddinger, **M.K. Ahmadi**[*], **S. Rane**[*], A.P. Hakansson, B.A. Pfeifer. 'Hybrid Bio-synthetic Gene Therapy Vector Development and Dual Engineering Capacity' *Proc Natl Acad Sci USA* 111(34):12360-5 (2014) [Citations: 9 (11); Journal Impact Factor: 9.42 & 10.29 (5-year)]
50. **C.H. Jones**[*], **M. Chen**[*], **A. Ravikrishnan**[*], R. Reddinger, **G. Zhang**, A.P. Hakansson, B.A. Pfeifer. 'Mannosylated Poly(beta-amino esters) for Targeted Antigen Presenting Cell Immune Modulation' *Biomaterials* 37C:333-344 (2015) [Citations: 7 (8); Journal Impact Factor: 8.39 & 8.98 (5-year)]
51. **C.H. Jones**[*], A.P. Hakansson, B.A. Pfeifer. 'Biomaterials at the Interface of Nano- and Micro-scale Vector-cellular Interactions in Genetic Vaccine Design' *Journal of Materials Chemistry B* 2:8053-8068 (2014) [Citations: 5 (6); Journal Impact Factor: 4.87 & 4.88 (5-year)]

52. **Y. Li**[*], **G. Zhang**, B.A. Pfeifer. 'Current and Emerging Options for Taxol Production' *Advances in Biochemical Engineering-Biotechnology* 148:405-25 (2015) [Citations: 1 (2); Journal Impact Factor: 1.91 & 2.00 (5-year)]
53. **C.H. Jones**[*], **M. Chen**[*], C.K. Chen, **A. Ravikrishnan**[*], H. Zhang, **A. Gollakota**[*], **T. Chung**[*], C. Cheng, B.A. Pfeifer. 'PEGylated Cationic Polylactides for Hybrid Bio-synthetic Gene Delivery' *Molecular Pharmaceutics* 12(3):846-56 (2015) [Citations: 5 (6); Journal Impact Factor: 4.34 & 4.70 (5-year)]
54. **L. Fang**[*], H. Zhang, M. Osburne, B.A. Pfeifer. 'The Continuing Development of *E. coli* as a Heterologous Host for Complex Natural Product Biosynthesis' *Methods in Molecular Biology* 1401:121-34 (2016) [Citations: 0 (0)]
55. **C.H. Jones**[*], **M. Chen**[*], **A. Gollakota**[*], **A. Ravikrishnan**[*], **G. Zhang**, **S. Lin**[†], **M. Tan**[†], C. Cheng, H. Lin, B.A. Pfeifer. 'Structure-Function Assessment of Mannosylated Poly(β-amino esters) upon Targeted Antigen Presenting Cell Gene Delivery' *Biomacromolecules* 16(5):1534-41 (2015) [Citations: 2 (4); Journal Impact Factor: 5.58 & 6.07 (5-year)]
56. **T.C. Chung**[*], **C.H. Jones**[*], **A. Gollakota**[*], **M.K. Ahmadi**[*], **S. Rane**[*], **G. Zhang**, B.A. Pfeifer. 'Improved *Escherichia coli* Bactofection and Cytotoxicity by Heterologous Expression of Bacteriophage ΦX174 Lysis Gene E' *Molecular Pharmaceutics* 12(5):1691-700 (2015) [Citations: 1 (2); Journal Impact Factor: 4.34 & 4.70 (5-year)]
57. **C.H. Jones**[*], **A. Gollakota**[*], **M. Chen**[*], **T.C. Chung**[*], **A. Ravikrishnan**[*], **G. Zhang**, B.A. Pfeifer. 'Influence of molecular weight upon mannosylated bio-synthetic hybrids for targeted antigen presenting cell gene delivery' *Biomaterials* 58:103-11 (2015) [Citations: 1 (1); Journal Impact Factor: 8.39 & 8.98 (5-year)]
58. **M.K. Ahmadi**[*], **S. Fawaz**[*], **C.H. Jones**[*], **G. Zhang**, B.A. Pfeifer. 'Total Biosynthesis and Diverse Applications for the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin' *Applied and Environmental Microbiology* 81(16):5290-8 (2015) [Citations: 1 (4); Journal Impact Factor: 3.82 & 4.30 (5-year)]
59. **G. Zhang**, **Y. Li**[*], **L. Fang**[*], B.A. Pfeifer. 'Tailoring Pathway Modularity in the Biosynthesis of Erythromycin Analogs Heterologously Engineered in *E. coli*' *Science Advances* 1(4): e1500077 (2015) [Citations: NA (5); Journal Impact Factor: NA]
60. **M.K. Ahmadi**[*], **S. Fawaz**[*], B.A. Pfeifer. 'An Aqueous Two Phase System to Pre-Purify a Heterologously-Produced Siderophore' *Technology* 4(3):135-38 (2016) [Citations: NA (0); Journal Impact Factor: NA]
61. J. Kumpfmuller, K. Methling, B.A. Pfeifer, M. Lalk, **L. Fang**[*], T. Schweder. 'Production of the Polyketide 6-deoxyerythronolide B in the Heterologous Host *Bacillus subtilis*' *Applied Microbiology and Biotechnology* 100(3):1209-20 (2016) [Citations: 0 (1); Journal Impact Factor: 3.38 & 3.88 (5-year)]
62. **C.H. Jones**[*], A. Hill, **M. Chen**[*], B.A. Pfeifer. 'Contemporary Approaches for Nonviral Gene Therapy' *Discovery Medicine* 19(107):447-54 (2015) [Citations: 0 (0); Journal Impact Factor: 3.43 & 3.14 (5-year)]
63. A. Hill[#], **M. Chen**[*#], C.-K. Chen, B.A. Pfeifer[#], and **C.H. Jones**[*#] ([#]co-first or -corresponding authors). 'Overcoming Gene Delivery Hurdles: Physiological Considerations for Nonviral Vectors' *Trends in Biotechnology* 34(2):91-105 (2016) [Citations: 0 (3); Journal Impact Factor: 12.07 & 12.05 (5-year)]
64. **M.K. Ahmadi**[*], **S. Fawaz**[*], **L. Fang**[*], Z. Yu, B.A. Pfeifer. 'Molecular Variation of the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin through Biosynthetic and Metabolic Engineering' *Biotechnology & Bioengineering* 113(5):1067-74 (2016) [Citations: 0 (1); Journal Impact Factor: 4.24 & 4.39 (5-year)]
65. **M.K. Ahmadi**[*], B.A. Pfeifer. 'Recent Progress in Therapeutic Natural Product Biosynthesis using *Escherichia coli*' *Current Opinion in Biotechnology* 42:7-12 (2016) [Citations: 0 (0); Journal Impact Factor: 8.31 & 8.42 (5-year)]
66. **M. Beitelshees**[*], **Y. Li**[*], B.A. Pfeifer. 'Enhancing Vaccine Effectiveness with Delivery Technology' *Current Opinion in Biotechnology* 42:24-29 (2016) [Citations: 0 (0); Journal Impact Factor: 8.31 & 8.42 (5-year)]
67. **M.K. Ahmadi**[*], B.A. Pfeifer 'Rust Removal Experiments' *Bio-protocol* 6(7):e1776 (2016) [Citations: 0 (0); Journal Impact Factor: NA]
68. **Y. Li**[*#], A. Hill[#], **M. Beitelshees**[*], S. Shao, J.F. Lovell, B. Davidson, P. Knight III, A.P. Hakansson[#], B.A. Pfeifer[#], **C.H. Jones**[#] ([#]co-first or -corresponding authors). 'Directed Vaccination against Pneumococcal Disease' *Proc Natl Acad Sci USA* 113(25):6898-903 (2016) [Citations: 0 (0); Journal Impact Factor: 9.42 & 10.29 (5-year)]
69. **Y. Li**[*], **M. Beitelshees**[*], **L. Fang**[*], A. Hill, **M.K. Ahmadi**[*], **M. Chen**[*], B. Davidson, P. Knight III, R.J. Smith, S.T. Andreadis, A. Hakansson, **C.H. Jones**[#], B.A. Pfeifer[#] ([#]co-corresponding authors). 'In situ Pneumococcal Vaccine Production and Delivery through a Hybrid Vector' *Science Advances* 2(7):e1600264 (2016) [Citations: 0 (0); Journal Impact Factor: NA]
70. E.K. Matich, D. M. Butryn1, M. Ghafari, V. del Solar1, E. Camgoz, B.A. Pfeifer, D.S. Aga, B.Z. Haznedaroglu, G.E. Atilla-Gokcumen. 'Mass Spectrometry-based Metabolomics of Value-Added Biochemicals from *Ettlia oleoabundans*' *Algal Research* 19:146–54 (2016) [Citations: 0 (0); Journal Impact Factor: 4.69 & 5.30 (5-year)]

71. **M.K. Ahmadi**[*], M. Ghafari, J.D. Atkinson, B.A. Pfeifer. 'A Copper Removal Process for Water based upon Biosynthesis of Yersiniabactin, a Metal-binding Natural Product' *Chemical Engineering Journal* 306:772–76 (2016) [Citations: 0 (0); Journal Impact Factor: 5.31 & 5.44 (5-year)]
72. **M.K. Ahmadi**[*], B.A. Pfeifer. 'Improved Heterologous Production of the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin through Metabolic Engineering and Induction Optimization' *Biotechnol Prog.* 32(6):1412-1417 (2016) [Citations: 0 (0); Journal Impact Factor: 2.17 & 2.03 (5-year)]
73. **M.K. Ahmadi**[*], **L. Fang**[*], **N. Moscatello**[*], B.A. Pfeifer. '*E. coli* Metabolic Engineering for Gram Scale Production of a Plant-Based Anti-Inflammatory Agent' *Metab Eng.* 38:382-388 (2016) [Citations: 0 (0); Journal Impact Factor: 8.20 & 8.32 (5-year)]
74. U. Chitgupi, **Y. Li**[*], **M. Chen**[*], S. Shao, **M. Beitelshees**[*], **M.J. Tan**[†], S. Neelamegham, B.A. Pfeifer, **C. Jones**, J.F. Lovell. 'Bimodal Targeting Using Sulfonated, Mannosylated PEI for Combined Gene Delivery and Photodynamic Therapy' *Photochem Photobiol.* doi: 10.1111/php.12688 (2016) [Citations: 0 (0); Journal Impact Factor: 2.01 & 2.34 (5-year)]
75. **N.J. Moscatello**[*], **R. Qi**[*], **M.K. Ahmadi**[*], B.A. Pfeifer. 'Increased Production of Yersiniabactin and an Anthranilate Analog through Media Optimization' *Biotechnol Prog.* Aug 25. doi: 10.1002/btpr.2542 (2017) [Citations: 0 (0); Journal Impact Factor: 2.01 & 2.34 (5-year)]
76. **N.J. Moscatello**[*] and B.A. Pfeifer. 'Yersiniabactin Metal Binding Characterization and Removal of Nickel from Industrial Wastewater' *Biotechnol Prog.* May 25. doi: 10.1002/btpr.2496 (2017) [Citations: 0 (0); Journal Impact Factor: 2.01 & 2.34 (5-year)]
77. **L. Fang**[*], M. Guell, G.M. Church, and B.A. Pfeifer. 'Heterologous Erythromycin Production across Strain and Plasmid Construction' Accepted

Submitted or In Preparation:

78. **M. Beitelshees**[*], R.J. Smith, **Y. Li**[*], **M.K. Ahmadi**[*], **A. Gollakota**[*], **L. Fang**[*], **T.C. Chung**[*], S.T. Andreadis, **C.H. Jones**, B.A. Pfeifer. 'Immune Modulation Potential of a Hybrid Bio-synthetic Vector'
79. **C.H. Jones**[#], **G. Zhang**[#], **R. Nayerhoda**[*], **M. Beitelshees**[*], **A. Hill**[*], P. Rostami, **Y. Li**[*], B.A. Davidson, P. Knight, B.A. Pfeifer[#] ([#]co-first or -corresponding authors). 'Comprehensive Vaccine Design for Commensal Disease Progression'
80. **M. Beitelshees**[*], P. Rostami, A. Hill, B.A. Pfeifer[#], **C.H. Jones**[#] ([#]co-corresponding authors). 'Incorporating Insights in Pathogenesis and Biofilm Formation into Modern Drug Design'
81. X. Liu, D. Liu, L. Xu, M. Tao, L. Bai, Z. Deng, B.A. Pfeifer, M. Jiang. 'Biosynthetic Reconstitution of Kinamycin within the Heterologous Host *Streptomyces albus*'
82. E.K. Matich, M. Ghafari, E. Camgoz, E. Caliskan, B.A. Pfeifer, B.Z. Haznedaroglu, and G.E. Atilla-Gokcumen 'Time series lipidomics analysis of green microalgae under nutrient stress'

Book Chapters:

1. **M. Pistorino**[*], B.A. Pfeifer. 'Recombinant Production of Polyketides - a Significant Advance in Technology of Natural Products' (in Marine Anticancer Compounds in the Era of Targeted Therapies [International Oncology Updates (Editor-in-chief: Hernan Cortes-Funes)]). Editor: Bruce Chabner. Barcelona, Spain: Permanyer Publications. p. 117-37 (2009)
2. **G. Zhang**, B.A. Pfeifer. 'Production of Therapeutic Products' (in *Natural Products: Discourse, Diversity and Design*). Editors: Helen Ghirardello, Guy Carter, and Rebecca Gross. Wiley Blackwell p. 261-76 (2014)
3. **L. Fang**[*], **G. Zhang**, B.A. Pfeifer. 'Engineering of *E. coli* for Heterologous Expression of Secondary Metabolite Biosynthesis Pathways Recovered from Metagenomics Libraries' (in *Functional Metagenomics: Tools and Applications*). Editors: Mark Liles and Trevor Charles. Springer (2018)
4. **L. Fang**[*], B.A. Pfeifer. 'Antibiotics and Pharmacologically Active Compounds' (in *Industrial Microbiology*). Editors: David B. Wilson, Mattheos Koffas, Hermann Sahm, K.-Peter Stahmann. Wiley, submitted

Patents:

1. C. Khosla, B.A. Pfeifer. '*E. coli* and *Streptomyces* host cells that contain *MatBC* genes or *E. coli* host cells that contain *pcc* genes useful for enhanced polyketide production' U.S. Patent 6,939,691, filed October 13, 2000, and issued September 6, 2005 (Assignee: Board of Trustees of the Leland Stanford Junior University)

V. COLLABORATIVE PARTNERSHIPS

Previous:

1. Kyongbum Lee, Chemical and Biological Engineering, Tufts University
2. Linc Sonenshein, Molecular Biology and Microbiology, Tufts University
3. EarthGenes Pharmaceuticals, Lexington, MA
4. Greg Stephanopoulos, Chemical Engineering, MIT
5. Clay Wang, Pharmacology and Pharmaceutical Sciences, University of Southern California

6. Berl Oakley, Molecular Biosciences, University of Kansas
7. Kenneth Bruno, Senior Research Scientist, Pacific Northwest National Laboratory
8. Frank Koehn, Pfizer, Groton, CT
9. Christopher Nomura, Chemistry, SUNY-ESF
10. Nathaniel Cady, Nanobioscience, SUNY-Polytechnic

Current:

1. Ekin Atilla-Gokcumen, Dept. of Chemistry, UB
2. John Atkinson, Dept. of Environmental Engineering, UB
3. George Church, Dept. of Genetics, Harvard Medical School
4. Ning Dai, Dept. of Environmental Engineering, UB
5. Rico Del Sesto, Dept. of Chemistry, Dixie State College
6. Anders Hakansson, Lund University (formerly Microbiology and Immunology, UB)
7. Berat Haznedaroglu, Bogazici University (formerly Environmental Engineering, UB)
8. Andrew Koppisch, Chemistry, Northern Arizona University
9. Mark Liles, Biological Sciences, Auburn University
10. David Mead, Varigen BioSciences Corp., Middleton, WI
11. Lauren Sassoubre, Dept. of Environmental Engineering, UB
12. David Sherman, Dept. of Chemistry, University of Michigan

VI. INVITED PRESENTATIONS

1. *'Escherichia coli* as a Heterologous Host for Natural Product Biosynthesis' Colorado State University, Fort Collins, CO (4/2006)
2. *'Escherichia coli* as a Heterologous Host for Natural Product Biosynthesis' US-UK Biocatalysis Conference, Boston, MA (5/2006)
3. *'Escherichia coli* as a Heterologous Host for Complex Natural Product Biosynthesis: Past Success and Future Opportunities' Wyeth Research, Pearl River, NY (7/2006)
4. 'Engineering at the Cellular Scale' AIChE Boston, Boston, MA (11/2007)
5. 'Heterologous Complex Natural Product Biosynthesis: Past Success and Future Opportunities' East China University of Science and Technology, Shanghai, PRC (6/2008)
6. 'Multiple Approaches to Improving Heterologous Polyketide Production from *E. coli*' Metabolic Engineering VII, Puerto Vallarta, Mexico (9/2008)
7. 'Metabolic Engineering for Complex Natural Products' Infinity Pharmaceuticals, Cambridge, MA (3/2009)
8. 'Taking Advantage of the Molecular, Metabolic, and Process Engineering Properties of *E. coli* for Heterologous Natural Product Biosynthesis' Society for Industrial Microbiology, Toronto, Canada (7/2009)
9. 'Heterologous Production of Early Stage Taxol Intermediates through *E. coli*' Society for Industrial Microbiology, Toronto, Canada (7/2009)
10. 'Channeling Therapeutic Natural Product Biosynthesis through Heterologous Microbial Hosts' American Chemical Society National Meeting, Washington, D.C. (8/2009)
11. 'Metabolic Engineering towards Complex Natural Products' Merrimack Pharmaceuticals, Cambridge, MA (3/2010)
12. 'Meeting the Gene Expression Challenges Posed by Heterologous Polyketide Biosynthesis' Cambridge Healthtech Institute Protein Engineering Summit (PEGS), Boston, MA (5/2010)
13. 'Heterologous Biosynthesis and Metabolic Engineering of Polyketide and Terpenoid Natural Products' Los Alamos National Laboratory, NM (8/2010)
14. 'Heterologous Biosynthetic Engineering of Polyketide and Terpenoid Natural Products' Pfizer, Groton, CT (9/2010)
15. 'Production of the Complex Polyketide Antibiotic Erythromycin A Using *E. coli* as a Heterologous Host' Department of Chemical and Biological Engineering, University at Buffalo-SUNY (2/2011)
16. 'Therapeutics from Microbes: Pathways and Specific Examples' FMM Industry Day, DARPA, Arlington, VA (2/2011)
17. 'The Challenges and Opportunities for Heterologous Reconstitution of Polyketide and Isoprenoid Natural Product Pathways through *E. coli*' Cambridge Healthtech Institute Protein Engineering Summit (PEGS), Boston, MA (5/2011)
18. 'Production of the Complex Polyketide Antibiotic Erythromycin A Using *E. coli* as a Heterologous Host' Society for Industrial Microbiology, New Orleans, LA (7/2011)
19. 'Natural Product Access and Engineering through Heterologous Microbial Biosynthesis' Department of Microbiology and Immunology, University at Buffalo-SUNY (2/2012)

20. 'A Case (or Two) for the Heterologous Production of Complex Therapeutic Natural Products' College of Pharmacy, University of Kentucky, Lexington, KY (4/2012)
21. 'Natural Product Biosynthesis through the Use of Heterologous Microbial Hosts' Department of Chemistry, Organic Chemistry & Chemical Biology Seminar Series, University at Buffalo-SUNY (2/2013)
22. 'Engineered Biosynthesis of the Complex Antibiotic Natural Product Erythromycin' Department of Biomedical and Chemical Engineering, Syracuse University, Syracuse, NY (4/2013)
23. 'Heterologous Erythromycin Analog Production through Multiple Metabolic Support Routes' American Chemical Society National Meeting, New Orleans, LA (4/2013)
24. 'Challenges and Strategies in Streamlining the Heterologous Production of Complex Natural Products' Society for Industrial Microbiology and Biotechnology, San Diego, CA (8/2013)
25. 'New Options for Natural Product Engineering' University of California, Irvine (2/2014)
26. 'Precursor, Metabolic, and Tailoring Strategies to Enable Heterologous Polyketide Diversification' American Chemical Society National Meeting, Dallas, TX (3/2014)
27. 'Heterologous Cellular Design for Complex Natural Product Support' Society for Industrial Microbiology and Biotechnology, St. Louis, MO (7/2014)
28. 'Engineering Heterologous Natural Product Biosynthesis for Local and Global Antibacterial Discovery' Cambridge Healthtech Institute Re-Entering Antibacterial Drug Development Summit, Boston, MA (10/2014)
29. 'Hybrid Biological-Biomaterial Gene Delivery Vector Development and Dual Engineering Potential', IEEE EMBS Micro and Nanotechnology in Medicine Conference, Oahu, HI (12/2014)
30. 'Gene Delivery Vector Design and Natural Product Biosynthesis towards New Genetic Vaccines, Antibiotics, and Biofilm Mediation' Department of Oral Biology, University at Buffalo-SUNY (12/2014)
31. 'Computational Modeling of *Aspergillus* Metabolism for Metabolic Engineering Purposes' Fungal Genetics Conference, Asilomar, CA (3/2015)
32. 'Diverse Opportunities for Engineered Biosynthesis of Complex Natural Products' American Chemical Society National Meeting, Denver, CO (3/2015)
33. 'Disruptive Antigen Delivery Technology and Approaches to Meet Vaccine Development Challenges' Round Table Moderator, World Vaccine Congress, Washington D.C. (4/2015)
34. 'Biosynthetic Engineering and Green Manufacturing Applications for the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin' 2015 Metabolic Engineering and Green Manufacturing in Microorganisms, Beijing, PRC (7/2015)
35. 'Local and Global Antibiotic Discovery' World Anti-microbial Resistance Congress, Washington, D.C., (10/2015)
36. 'Engineered Biosynthesis of the Complex Natural Products Erythromycin and Yersiniabactin for Health and Environmental Opportunities' Department of Chemistry, N.C. State University (2/2016)
37. 'Hybrid Biological-Biomaterial Gene Delivery Vector Development and Directed Vaccination for Pneumococcal Disease' Golden LEAF Biomanufacturing Training and Education Center (BTEC), Department of Chemical and Biomolecular Engineering, N.C. State University (2/2016)
38. 'Engineered Biosynthesis of the Complex Natural Products Erythromycin and Yersiniabactin for Health and Environmental Opportunities' Biochemistry and Biomedical Sciences, McMaster University (2/2016)
39. 'A Transition to Targeted or "Smart" Vaccines: How Understanding Commensal Colonization Can Lead to Selective Vaccination' Round Table Moderator, World Vaccine Congress, Washington D.C. (3/2016)
40. 'Biosynthetic Engineering and Green Manufacturing Applications for the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin' Environmental and Water Resources Engineering Seminar Series, University at Buffalo (9/2016)
41. 'Diverse Applications for Bacterial-based Engineering' 13th International Symposium on the Genetics of Industrial Microorganisms (GIM2016), Wuhan, PRC (10/2016)
42. 'Vaccines, Commensals, and the Microbiome: Tailoring an Immune Response to Maintain a Beneficial Equilibrium' Round Table Moderator, World Vaccine Congress, Barcelona, Spain (10/2016)
43. 'Heterologous Cellular Design for Complex Natural Product Support and Discovery' Synthetic Biology for Natural Products, Cancun, Mexico (3/2017)
44. 'Engineered Biosynthesis of the Complex Natural Products Erythromycin and Yersiniabactin for Health and Environmental Opportunities' American Chemical Society National Meeting, San Francisco, CA (4/2017)
45. 'Challenges in Translating Heterologous Natural Product Biosynthesis' 18th International Symposium on the Biology of Actinomycetes, Jeju, Korea (5/2017)
46. 'Environmental Applications of Heterologous Natural Product Production' Fourth International Conference on Plant Metabolism, Dalian, PRC (7/2017)

47. 'Engineered Biosynthesis of the Complex Natural Products Erythromycin and Yersiniabactin for Health and Environmental Opportunities' East China University of Science and Technology, Shanghai, PRC (7/2017)
48. 'Diverse Applications across Natural Product Biosynthesis and Vaccine Design' Ocean University of China, Qingdao, PRC (7/2017)
49. 'Diverse Applications across Natural Product Biosynthesis and Vaccine Design' Shanghai Jiao Tong University, Shanghai, PRC (7/2017)
50. 'Diverse Applications across Natural Product Biosynthesis and Vaccine Design' Institute of Microbiology, Chinese Academy of Sciences, Beijing, PRC (7/2017)
51. 'Diverse Applications across Natural Product Biosynthesis and Vaccine Design' Qingdao Institute of Bioenergy and Bioprocess Technology, Qingdao, PRC (1/2018)

VII. CONTRIBUTED CONFERENCE PRESENTATIONS

Bolded Authors: Undergraduate students†, graduate students*, or postdoctoral associates of Dr. Pfeifer
Underlined Authors: Speaker or presenter

1. B.A. Pfeifer, 'Engineering Therapeutic Natural Products', Cambridge Healthtech Institute Drug Discovery Chemistry, San Diego, CA (4/2006) [Poster]
2. B.A. Pfeifer, **B.A. Boghigian***, 'A Closer Look at *E. coli*-derived 6-deoxyerythronolide B Biosynthesis', American Institute of Chemical Engineers National Meeting, San Francisco, CA (11/2006) [Oral; Refereed]
3. **Y. Wang**, **B.A. Boghigian***, **G. Shi***, **H. Zhang***, **J.R. Lavoie***, B.A. Pfeifer. 'Enhancing Polyketide Production in *E. coli* by Accumulating Intracellular *S*-adenosylmethionine', Boston Bacterial Meeting, Boston, MA (6/2007) [Poster]
4. **H. Zhang*** and B.A. Pfeifer. 'Gene Expression Analysis of Heterologous 6dEB Biosynthesis', American Institute of Chemical Engineers National Meeting, Salt Lake City, UT (11/2007) [Poster; Refereed]
5. **H. Zhang***, B.A. Pfeifer. 'Heterologous Perturbation of 6dEB Biosynthesis in *E. coli*', Boston Bacterial Meeting, Boston, MA (6/2008) [Poster]
6. **B.A. Boghigian***, **Y. Wang**, K. Lee, B.A. Pfeifer. Improving Heterologous Polyketide Production in *Escherichia coli* through Signal Pathway Engineering and Metabolic Modeling' Boston Bacterial Meeting, Boston, MA (6/2008) [Poster]
7. **B.A. Boghigian***, **Y. Wang**, **M. Pistorino***, B.A. Pfeifer. 'Multiple Approaches to Improving Heterologous Polyketide Production from *E. coli*' Metabolic Engineering VII, Puerto Vallarta, Mexico (9/2008) [Poster]
8. **H. Zhang***, **B.A. Boghigian***, B.A. Pfeifer. Engineering Propionyl-CoA and (2S)-methylmalonyl-CoA Synthesis in *E. coli* to Support Heterologous 6-deoxyerythronolide B Production' American Institute of Chemical Engineers National Meeting, Nashville, TN (11/2009) [Oral; Refereed]
9. **B.A. Boghigian***, **Y. Wang**, **D. Salas**†, G. Stephanopoulos, B.A. Pfeifer. 'Multi-scale Engineering of a Taxol Precursor in *Escherichia coli*' American Institute of Chemical Engineers National Meeting, Nashville, TN (11/2009) [Oral; Refereed]
10. **H. Zhang***, **Y. Wang**, **J. Wu**, B.A. Pfeifer. 'Heterologous Biosynthesis of Erythromycin A and its Analogs in *E. coli*' Society for Industrial Microbiology Annual Meeting, San Francisco, CA (8/2010) [Poster]
11. **B.A. Boghigian***, B.A. Pfeifer. 'Multi-scale Engineering of Heterologous Polyketide and Isoprenoid Natural Products in *Escherichia coli*' Society for Industrial Microbiology Annual Meeting, San Francisco, CA (8/2010) [Poster]
12. **J. Armando***, B.A. Pfeifer. 'LC-MS/MS Quantification of Short-chain Acyl-CoA's in *Escherichia coli* Demonstrates Versatile Propionyl-CoA Synthetase Substrate Specificity' American Institute of Chemical Engineers National Meeting, Minneapolis, MN (10/2011) [Poster; Refereed]
13. **M. Jiang**, B.A. Pfeifer. 'Heterologous Biosynthesis and Metabolic Engineering of Polyketide and Terpenoid Natural Products' New York Academy of Sciences 'Chemical Engineering Approaches to Challenges in Energy and Biomedicine' Conference, New York, NY (3/2012) [Poster]
14. B.A. Pfeifer. 'Heterologous Biosynthesis as a Route to Complex Polyketide and Isoprenoid Natural Products' International Congress on Natural Products Research, New York, NY (7/2012) [Oral; Refereed]
15. M. Ghafari, E. Matich, A. Beckinghausen, B.A Pfeifer, G. Ekin Atilla-Gokcumen, and B. Z. Haznedaroglu. 'Time-series Characterization of Non-model Microalgae at the Systems-level for Sustainable Biofuel Production' American Chemical Society, San Francisco, CA (8/2014) [Oral; Refereed]
15. **C. Jones***, B.A. Pfeifer. 'Hybrid bio-synthetic gene therapy vector development for next generation vaccines' IEEE EMBS Micro and Nanotechnology in Medicine Conference, Oahu, HI (12/2014) [Poster]
16. D. Mead, S. Monsma, X. Li, B.A. Pfeifer, J. Zhou, S. R. Santos and M. R. Liles. 'Functional Metagenomics of Soil Microbial Secondary Metabolite Pathways' Society for Industrial Microbiology and Biotechnology, Philadelphia, PA (8/2015) [Poster]

17. M. R. Liles, S. Monsma, J. Zhou, B.A. Pfeifer, and D. A. Mead. 'New drugs from soil metagenomes: Cloning and heterologous expression of intact polyketide synthase pathways' Microbial Eco-Genomics in Agriculture, Upper Galilee, Israel (5/2015) [Poster]
18. **M.K. Ahmadi***, B.A. Pfeifer. 'Metabolic Engineering to Create New Class of Nature-Inspired Corrosion Inhibitors. 227th Electrochemical Society Meeting, Chicago, IL (5/2015) [Oral; Refereed]
19. **M.K. Ahmadi***, B.A. Pfeifer. 'Biosynthetic Engineering and Green Manufacturing Applications for Siderophore Yersiniabactin' American Institute of Chemical Engineers National Meeting, Salt Lake City, UT (11/2015) [Oral; Refereed]
20. **Y. Li***, B.A. Pfeifer. 'Computational Modeling of *Aspergillus* Metabolism for Metabolic Engineering Purposes' American Institute of Chemical Engineers National Meeting, Salt Lake City, UT (11/2015) [Poster; Refereed]
21. J. Zhou, S. Monsma, A. Pereira, B.A. Pfeifer, S.R. Santos, M. Niebauer, E. Ferguson, R. Godiska, C. Wu, D. Mead, and M. Liles. 'Recovery and expression of intact secondary metabolite biosynthetic pathways from a large-insert soil metagenomic library' JGI User Meeting, Walnut Creek, CA (3/2016) [Poster]

VIII. COMMERCIAL VENTURES and CONSULTING

Start-up Ventures:

1. Abcombi Biosciences, Inc.
   History and Traction:
   1) Initiated 2/2015
   2) Formed 6/22/2015
   3) Focus: Vaccine Design, Development, and Distribution
   4) Team: Charles Jones (CEO, Founder, UB Ph.D. in Chemical and Biological Engineering); Christopher Kilgore (COO, Founder); Andrew Hill (CSO, Founder); Blaine Pfeifer (Founder); Margaret McGlynn (Board Chair; former Merck Vaccine Executive and CEO of the International AIDS Vaccine Initiative)
   5) Advisors and Consultants: Anders Hakansson, David Briles, Robert Langer, Florian Schodel, Hugues Boegart, Gerard Cunningham, David Robinson, John Hennessey, Paul Knight III, Elaine Tuomanen, Melinda Pettigrew
   6) Multiple disclosures with provisional patents and conversions ongoing; current applications include:
      a. B.A. Pfeifer, C.H. Jones. 'System and Method for Delivering Genetic Material or Protein to Cells' PCT/US2015/042868, filed July 30, 2015 (Assignee: The Research Foundation for The State University of New York)
      b. B.A. Pfeifer, C.H. Jones. 'Novel Pneumococcal Vaccine Formulation' 62/318,514, filed April 5, 2016 (Assignee: The Research Foundation for The State University of New York)
   7) 2015 43North Business Competition Semifinalist
   8) 12 SBIR/STTR applications submitted (two thus far awarded)
   9) NYSERDA Investment Loan
   10) Venture Capital Partner Discussions: Polaris Partners (Boston, MA), Buffalo Capital Partners
   11) Foundation Partner Discussions: Gates Foundation, PATH, Wellcome Trust Foundation (Abcombi was selected as a finalist for the Wellcome Trust Translation Award in 2016)
   12) Government Partner Discussions: The State of New York, NIH (NIAID)
   13) Industrial Partner Discussions: Merck, Pfizer, Animal Health Institute, Zoetis, Sanofi Pasteur
   14) Corporate Research Partner Discussions: Roswell Park Cancer Institute, Serum Institute of India
   15) Accepted to Johnson & Johnson Innovation JLABS Toronto
   16) 2016 New York Business Plan Competition 1st Place Biotechnology/Healthcare ($10,000; 2nd Overall)
   17) Runner-up New YorkBio Annual Conference, 2016
   18) Grand Prize Winner ($20,000), Bright Buffalo Niagara, 2016
   19) 2016 43North Business Competition Finalist
2. Shay Bioproducts
   History and Traction:
   1) Initiated 2/2015
   2) Focus: Environmental and Agricultural Applications
   3) Team: Mahmoud Kamal Ahmadi (Technical Lead, UB Ph.D. candidate in Chemical and Biological Engineering), Charles Jones (Business Consultant), Blaine Pfeifer (Technical Advisor)
   4) Advisors and Consultants: Robert Kosobucki, William Lekki
   5) Multiple disclosures with provisional patents and conversions ongoing; current applications include:
      a. B.A. Pfeifer, M.K. Ahmadi. 'Metal-Binding Compounds, Heterologous Production and Uses Thereof' 62/136,416, filed March 31, 2016 (Assignee: The Research Foundation for The State University of New York)

6) UB eLab and NYSP2I seed funding
7) 2015 Panasci Business Competition Semifinalist
8) NSF I-Corps selection and participant
9) 2016 Panasci Business Competition 2nd Place ($10,000)
10) NSF SBIR Phase I award (submitted through Abcombi Biosciences)

Consulting:

1. Solazyme Inc., South San Francisco, CA (4/2011)
2. TMC Therapeutics, Inc., Cambridge, MA (04/2014)

IX. RESEARCH ADVISING

Summary:

- Total number of former advisees: 37 (7 postdoctoral/visiting scientist/visiting student; 5 Ph.D.; 12 M.S.; 13 B.S.)
- Total number of current advisees: 12 (1 Research Scientist; 6 Ph.D.; 3 M.S./M.E.; 2 B.S.)
- Average number of publications per Ph.D. graduate: 12.6
- Average number of first-author publications per Ph.D. graduate: 7.4
- Number of M.S. graduates contributing to publications: 10 (out of 12)
- Number of B.S. graduates contributing to publications: 7 (out of 13)

Postdoctoral Associates/Visiting Scientists:

1. Dr. Yong Wang, Postdoctoral Associate, 2005-08
   Current Position: Professor/Principal Investigator, Key Laboratory of Synthetic Biology, Institutes for Biological Science, Chinese Academy of Sciences
2. Dr. Ashita Dhillon, Postdoctoral Associate, 2006-07; co-sponsored with Professor Linc Sonenshein (Molecular Microbiology, Tufts University)
   Current Position: Regulatory Affairs CMC, Genzyme
3. Dr. Ta Thi Thu Thuy, Visiting Scientist, 4/2009-7/2009
   Current Position: Lecturer and Researcher, Department of Biotechnology, Hanoi Open University
4. Dr. Sung-Hee Park, Postdoctoral Associate, 2009-10
   Current Position: Senior Researcher, CJ CheilJedang
5. Dr. Ming Jiang, Postdoctoral Associate, 2010-13
   Current Position: Assistant Professor, Shanghai Jiao Tong University
6. Dr. Guojian Zhang, Postdoctoral Associate & Research Scientist, 2011-14, 2016-present

Ph.D. Students:

1. Haoran Zhang, Chemical Engineering, 2005-10
   Thesis Title: Metabolic Engineering for the Heterologous Biosynthesis of Erythromycin A and Associated Polyketide Products in *Escherichia coli*
   Current Position: Assistant Professor, Chemical and Biological Engineering, Rutgers University
2. Brett Boghigian, Chemical Engineering, 2007-10
   Thesis Title: Multi-scale Engineering and Modeling of Heterologous Natural Product Biosynthesis in *E. coli*
   Current Position: Senior Manager & Head of Programs Management, Indigo Agriculture
3. Charles Jones, Chemical Engineering, 2011-15
   Thesis Title: The Development of Contemporary Antigen Presenting Cell-Targeting Gene Delivery Vectors for the Generation of a New Class of Vaccines
   Current Position: CEO, Abcombi Biosciences Inc.
4. Yi Li, Chemical Engineering, 2011-16
   Thesis Title: Directed Vaccination against Pneumococcal Disease
   Current Position: Analyst, M.S.Q. Ventures
5. Mahmoud Kamal Ahmadi, 2011-16
   Thesis Title: *E. coli* Metabolic Engineering and Green Applications of Natural Products
   Current Position: Postdoctoral Associate, Rockefeller University
6. Lei Fang, Chemical Engineering, 2012-present
7. Marie Beitelshees, Chemical Engineering, 2014-present
8. Riuquan Qi, Chemical Engineering, 2015-present
9. Roozbeh Nayerhoda, Biomedical Engineering, 2016-present
10. Dongwon Park, Chemical Engineering, 2016-present
11. Girish Swayambhu, Chemical Engineering, 2016-present
12. Nicholas Moscatello, Chemical Engineering, 2017-present

Visiting Ph.D. Students:

1. Jiequn Wu, East China University of Science and Technology, 2008-10
   Current Position: Associate Professor, Collaborative Innovation Center of Yangtze River Delta Region Green Pharmaceuticals, College of Pharmaceutical Sciences, Zhejiang University of Technology, Hangzhou

M.S./M.E. Students:

1. Janelle Lavoie, Chemical Engineering, 2004-06
   Thesis Title: New Approaches to Deoxyerythronolide B Synthase Gene Expression and Biosynthesis Using pET and pCold *Escherichia coli* Vectors
   Current Position: Senior Associate Scientist, Pfizer
2. Guangquan Shi, Biotechnology Engineering, 2004-07
   Thesis Title: Metabolic Engineering to Optimize Natural Production
   Current Position: Scientist II, Life Technologies
3. Saba Parsa, Chemical Engineering, 2006-07
   Thesis Title: *E. coli* as a Vector for Gene Delivery to Mammalian Macrophage Cells
   Current Position: Sr. Manager, Clinical Development, Illumina
4. Mike Pistorino, Chemical Engineering, 2006-08
   Thesis Title: Efficient Experimental Design and Micro-scale Medium Enhancement of 6-deoxyerythronolide B Production through *Escherichia coli*
   Current Position: Principal Scientist, Instrumentation Laboratory
5. John Armando, Chemical Engineering, 2010-11.
   Thesis Title: Acyl-CoA Quantification and the Effects upon *E. coli* Polyketide Substrates through Over-expression of Native and *Ralstonia solanacearum* Propionyl-CoA Synthetases
   Current Position: Engineer II, Process Biochemistry, Biogen Idec
6. Joanna Rucker, Chemical Engineering, 2010-12; co-advised with Professor Kyongbum Lee (Chemical and Biological Engineering, Tufts University)
   Thesis Title: *E. coli* Engineered for Triglyceride Production
   Current Position: Associate Scientist II, MedImmune
7. Anitha Ravikrishnan, Chemical Engineering, 2012-14
   Thesis Title: Functionalized Poly(beta-amino esters) for Development of Next Generation Gene Delivery Vectors
   Current Position: Ph.D. Candidate, Materials Science and Engineering, University of Delaware
8. Snehal Rane, Chemical Engineering, 2012-14
   Thesis Title: Chemical and Biological Attenuation Methods for Bacterial Mediated Gene Delivery
   Current Position: Quality Engineer, The Tech Group
9. Mingfu Chen, Chemical Engineering, 2013-15
   Thesis Title: Structure-Function Assessment of Mannosylated Poly(beta-amino esters) upon Targeted Antigen Presenting Cell Gene Delivery and Immune Modulation
   Current Position: Ph.D. Candidate, Biomedical Engineering, Boston University
10. Akhila Gollakota, Chemical Engineering, 2013-15
    Thesis Title: Mannosylated Bio-Synthetic Hybrids for Targeted Antigen Presenting Cell Gene Delivery
    Current Position: Ph.D. Candidate, Chemical Engineering, Penn State University
11. Tai Chun Chung, Chemical Engineering, 2013-15
    Thesis Title: Improved *Escherichia coli* Bactofection and Cytotoxicity by Heterologous Expression of Bacteriophage ΦX174 Lysis Gene E
    Current Position: Quality Engineer, Pegatron Corp.
12. Samar Fawaz, Chemical Engineering, 2013-15
    Thesis Title: Biosynthesis and Characterization of the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin for in vitro Trace-Metal Removal
    Current Position: Applications Engineer, R.E. Mason
13. Beixin Jiang, Chemical Engineering, 2015-present
    Thesis Title: Alternative Virulent-transition Bacteriocin Antigen Targets for Pneumococcal Disease Vaccination
    Current Position:
14. Nicholas Moscatello, Chemical Engineering, 2015-17
    Thesis Title: Increased Production of Yersiniabactin and the Anthranilate Analog through Media Optimization
    Current Position: Ph.D. Candidate, Chemical Engineering, UB
15. Kaiwen Bao, Chemical Engineering, 2015-present

Undergraduate Honors Theses:

1. Daniel Salas, Chemical Engineering, 2008-10
   Thesis Title: Quadratic Programming for Identifying Gene Over-expression Targets Which Improve Taxadiene Biosynthesis in *Escherichia coli*
   Graduate Education: Ph.D., Chemical and Biological Engineering, Princeton University
   Current Position: Data Scientist, Oscar Health
2. Melissa Myint, Chemical Engineering, 2009-2010
   Thesis Title: Simultaneous Production of Heterologous Polyketide and Isoprenoid Natural Products in Engineered *Escherichia coli*
   Graduate Education: Ph.D., Chemical and Biomolecular Engineering, University of Pennsylvania
   Current Position: Scientist, SQZ Biotech
3. Karin Skalina, Chemical Engineering, 2009-2011
   Thesis Title: Process Engineering for Heterologous Biosynthesis of the Complex Natural Product Erythromycin A
   Current Position: M.D./Ph.D. Candidate, Albert Einstein College of Medicine

Undergraduate Research:

1. Brett Boghigian, Chemical Engineering, 2005-2007
2. Katie Rines, Chemical Engineering, Summer 2007
3. Samina Hossain, Chemical Engineering, Summer 2007
4. Andre Loli, Chemical Engineering, Summer 2007
5. Sterling Wall, Chemical Engineering, Summer 2009
6. Jamie Thompson, Biochemistry and Engineering Science, 2010-11
7. Qianwen Liu, Chemical Engineering, 2010-11
8. Emily Patt, Chemical Engineering, 2012-14
9. Sharon Lin, Chemical Engineering, 2013-16
10. Max Simon, Biomedical Engineering, 2013-16
11. Myles Tan, Chemical Engineering, 2014-17
12. Xianshi Wei, Chemical Engineering, 2016-17

University Thesis Committee Member:

Ph.D. (13); M.S. (12); B.S. Honors Thesis (3) students within Chemical and Biological Engineering, Chemistry, Biology, and Biomedical Engineering

X. TEACHING and ACADEMIC ADVISING

Courses Taught:

Academic Year	**Course** (Please see Teaching Statement for descriptions)	**Student Level**	**Class Size**
2004-05*	F04: EN69-Introduction to Chemical and Biological Engineering F04**: ChBE10-Thermodynamics and Process Calculations I	Freshman Sophomore	20 22
2005-06	F05: ChBE10-Thermodynamics and Process Calculations I	Sophomore	23
	S06: ChBE193-Genetic, Cellular, and Metabolic Engineering	Graduate	11
2006-07	F06**: EN69-Introduction to Chemical and Biological Engineering F06: ChBE10-Thermodynamics and Process Calculations I	Freshman Sophomore	35 32
	S07**: EN69-Introduction to Chemical and Biological Engineering S07: ChBE193-Genetic, Cellular, and Metabolic Engineering	Freshman Graduate	12 3
2007-08	F07: ChBE10-Thermodynamics and Process Calculations I F07: ChBE50-Chemical & Biological Engineering Senior Laboratory	Sophomore Senior	39 21
	S08: ChBE193-Genetic, Cellular, and Metabolic Engineering S08: ChBE51-Chemical & Biological Engineering Senior Laboratory	Graduate Senior	4 21
2008-09*	S09: ChBE22: Heat and Mass Transfer	Junior	33
2009-10	F09: ChBE10-Thermodynamics and Process Calculations I F09: ChBE166-Cell and Microbe Cultivation	Sophomore Graduate	26 13
	S10: ChBE22: Heat and Mass Transfer	Junior	23
2010-11	F10: EN69-Introduction to Chemical and Biological Engineering F10: ChBE10-Thermodynamics and Process Calculations I F10: ChBE166-Cell and Microbe Cultivation	Freshman Sophomore Graduate	22 46 22
2011-12	F11: CE212-Fundamental Principles of Chemical Engineering F11: CE508-Metabolic Engineering	Sophomore Graduate	85 8

	S12: CE496-Internship/Practicum	Undergraduate	3
	Sum12: CE212- Fundamental Principles of Chemical Engineering	Sophomore	23
	Sum12: CE496-Internship/Practicum	Undergraduate	7
2012-13	F12: CE212-Fundamental Principles of Chemical Engineering	Sophomore	86
	F12: CE508-Metabolic Engineering	Graduate	10
	F12: CE496-Internship/Practicum	Undergraduate	3
	S13: CE496-Internship/Practicum	Undergraduate	3
	Sum13: CE212- Fundamental Principles of Chemical Engineering	Sophomore	19
	Sum13: CE496-Internship/Practicum	Undergraduate	4
	Sum13: CE499-Independent Study	Undergraduate	2
2013-14	F13: CE212-Fundamental Principles of Chemical Engineering	Sophomore	103
	F13: CE508-Metabolic Engineering	Graduate	17
	F13: CE496-Internship/Practicum	Undergraduate	2
	S14: CE496-Internship/Practicum	Undergraduate	2
	Sum14: CE212- Fundamental Principles of Chemical Engineering	Undergraduate	22
	Sum14: CE496-Internship/Practicum	Undergraduate	3
2014-15	F14: CE212-Fundamental Principles of Chemical Engineering	Sophomore	103
	F14: CE508-Metabolic Engineering	Graduate	10
	F14: CE496-Internship/Practicum	Undergraduate	1
	W15: CE496-Internship/Practicum	Undergraduate	2
	S15: CE496-Internship/Practicum	Undergraduate	5
	Sum15: CE212- Fundamental Principles of Chemical Engineering	Undergraduate	19
	Sum15: CE496-Internship/Practicum	Undergraduate	2
2015-16	F15: CE212-Fundamental Principles of Chemical Engineering	Sophomore	113
	F15: CE508-Metabolic Engineering	Graduate	11
	S16: CE496-Internship/Practicum	Undergraduate	5
	Sum16: CE212- Fundamental Principles of Chemical Engineering	Sophomore	21
	Sum16: CE496-Internship/Practicum	Undergraduate	1
2016-17	F16: CE212-Fundamental Principles of Chemical Engineering	Sophomore	103
	F16: CE508-Metabolic Engineering	Graduate	16
	F16: CE496-Internship/Practicum	Undergraduate	3
	S17: CE496-Internship/Practicum	Undergraduate	3
	Sum17: CE212- Fundamental Principles of Chemical Engineering	Sophomore	22

*-Academic leave S05 & F08; **-Co-taught

Academic Advising:
Primary Undergraduate Academic Advisor: 14 students (2005-09); 18 students (2009-10); 14 students (2013); 16 students (2014); 9 students (2015); 15 students (2016)

XI. DEPARTMENT, SCHOOL, and UNIVERSITY SERVICE

Department:

1. Updated and Helped Maintain Departmental Webpage (2004-10)
2. American Institute of Chemical Engineers Student Chapter Advisor (2004-10)
3. Tour Guide for Prospective Undergraduate Open Houses (2004-10)
4. Faculty Search Committee (2004-05)
5. Undergraduate Affairs Committee (2004-05)
6. Graduate Affairs Committee (2005-09)
7. Faculty Search Committee for Undergraduate Senior Laboratory Course (2007)
8. Professor Kenneth Van Wormer's Retirement Dinner Planning Committee (2007)
9. Undergraduate Affairs Committee (2011-present; Internship Coordinator)
10. External Affairs Committee (2013-present)
11. Faculty Search Committee (2013-14)
12. Faculty Search Committee (2014-15)
13. Faculty Search Committee (2015-16)
14. Departmental Mentor to an Assistant Professor (2016-present)

School:

15. Task Force for Undergraduate Curriculum Reform, Biology Sub-committee (2006-08)
16. Committee for Graduate Program in Biotechnology (2006-08)

17. Curriculum Task Force Committee (2009-10)
18. Outcomes & Objectives Assessment Committee (2009-10)
19. Tenure Committee (2013-17; Chair 2015-16; Department Alternate 2016-17)
20. Representative and Speaker for Joint SEAS and School of Management Bay Area Alumni Event: "An Evening with Entrepreneurs" (2017)

University:

21. University Summer Scholars Review Panel (2007)
22. Computer Science, Engineering, and Mathematics Scholars Program (Advisor, 2005-10; Co-PI, 2008-10)
23. Leonard Carmichael Society Faculty Advisor (2009-10)
24. UB IMPACT Drug and Device Development Panel Reviewer (2015)
25. Institutional Biosafety Committee (2016-present)
26. Office of Economic Development Strategic Planning Committee (2016)

XIII. PROFESSIONAL SERVICE ACTIVITIES

Reviewer:

Journals:

1. *Metabolic Engineering*
2. *Biomaterials*
3. *Journal of Biomedical Materials Research: Part A*
4. *Biomacromolecules*
5. *BMC Bioinformatics*
6. *Applied Biochemistry and Biotechnology*
7. *Molecular Pharmaceutics*
8. *Wiley Encyclopedia of Industrial Biotechnology*
9. *Molecular Nutrition and Food Research*
10. *Bioconjugate Chemistry*
11. *Applied Microbiology and Biotechnology*
12. *Current Opinion in Biotechnology*
13. *ACS Chemical Biology*
14. *AIChE Journal*
15. *Microbial Cell Factories*
16. *Biotechnology and Bioengineering*
17. *Biotechnology Journal*
18. *Biotechnology Progress*
19. *Biotechnology and Bioprocess Engineering*
20. *Bioinformatics*
21. *PLoS Computational Biology*
22. *Biotechnology Advances*
23. *Medicinal Chemistry Communications*
24. *Computational and Structural Biotechnology Journal*
25. *Chemical Biology & Drug Design*
26. *Annals of Microbiology*
27. *PLoS ONE*
28. *Annual Reviews of Biomolecular Engineering*
29. *ACS Synthetic Biology*
30. *Journal of the American Chemical Society*
31. *Science*
32. *Bioorganic & Medicinal Chemistry Letters*
33. *Natural Product Reports*
34. *ACS Nano*
35. *Acta Biomaterialia*
36. *Microbiology and Molecular Biology Reviews*
37. *Journal of Materials Chemistry B*
38. *Marine Drugs*
39. *Small*
40. *Viruses*
41. *Chemical Society Reviews*
42. *Transactions on Computational Biology and Bioinformatics*

43. *Biochemical Engineering Journal*
44. *Frontiers in Microbiology, Systems Microbiology*
45. *Journal of Drug Targeting*
46. *Current Topics in Medicinal Chemistry*
47. *Advanced Materials*
48. *Organic Letters*
49. *ACS Biomaterials Science & Engineering*
50. *Scientific Reports*
51. *RSC Advances*
52. *Nano Letters*
53. *Journal of Biotechnology Advances*
54. *Chemical Engineering Communications*
55. *Nucleic Acids Research*
56. *Advanced Drug Delivery Reviews*
57. *Applied and Environmental Microbiology*
58. *Environmental Science and Pollution Research*
59. *Colloids and Surfaces B: Biointerfaces*
60. *Therapeutic Advances in Vaccines*
61. *Scientific Reports*
62. *Journal of Visualized Experiments*
63. *Biotechnology for Biofuels*
64. *Nature Communications*
65. *BMC Biotechnology*
66. *ACS Applied Materials & Interfaces*
67. *ACS Journal of Agricultural and Food Chemistry*
68. *Journal of the Royal Society Interface*

Books and Book Chapters:

1. Engineering/Biotechnology Division, Cambridge University Press, Cambridge, UK
2. World Scientific Publishing, London, UK

Proposals:

1. Icelandic Centre of Research [2006]
2. National Science Foundation (CBET-BBBE) SBIR [2008]
3. National Science Foundation (CBET-BBBE) [2009]
4. National Science Foundation (CBET-BBBE) [2010]
5. National Science Foundation (CBET-BBBE) [2012]
6. NIH NIBIB MSM PAR-11-203 Special Emphasis Panel [2012]
7. NIH NIGMS P01 Special Emphasis Panel [2012]
8. DoE Office of Basic Energy Sciences (Division of Materials Sciences and Engineering) Ad hoc Reviewer [2013]
9. Review Panel for the DoE BioEnergy Recearch Center (located at Oak Ridge National Laboratory) [2013]
10. NIH International Cooperative Biodiversity Groups (ICBG; U19) 2014/05 ZRG1 BCMB-H (50) R Special Emphasis Panel [2014]
11. NIH Synthetic and Biological Chemistry B (SBCB) Panel, Ad hoc Reviewer [2015]
12. Bergen Research Foundation, University of Bergen Young Faculty Award Reviewer [2015]
13. NIH Gene and Drug Delivery Systems (GDD) Panel, Ad hoc Reviewer [2015]
14. NIH Biological Chemistry and Macromolecular Biophysics (BCMB) Panel, Ad hoc Reviewer [2015]
15. National Science Foundation (Ad hoc Reviewer, Systems and Synthetic Biology) [2016]
16. NIH Gene and Drug Delivery Systems (GDD) Panel, Ad hoc Reviewer [2016]
17. Christian Doppler Research Association [2016]
18. DoE Office of Biological and Environmental Research, Bioenergy Research Center Panel [2016 and 2017]
19. DoD Congressionally Directed Medical Research Programs, Peer Reviewed Cancer Research Program, Immunotherapy Panel, Ad hoc Reviewer [2016]
20. ETH Zurich Research Commission [2017]

Guest Editor:

1. Invited Special Issue Guest Editor, 'Antigen Delivery' *Molecular Pharmaceutics*, 2007
2. Invited Special Issue Guest Editor, 'Natural Products and Production Systems' *Molecular Pharmaceutics*, 2008

3. Invited Special Issue Guest Editor, 'Metabolic Flux Analysis and Pharmaceutical Production' *Metabolic Engineering*, 2009
4. Invited Guest Editor, 'Pharmaceutical Biotechnology 2016' *Current Opinion in Biotechnology*, 2016

Editorial Boards:

1. Editorial Advisory Board, *Molecular Pharmaceutics* (2015 ISI Impact Factor: 4.34), 2009-present
2. Editorial Board, *Metabolic Engineering* (2015 ISI Impact Factor: 8.20), 2011-present
3. Review Editorial Board, *Frontiers in Synthetic Biology*, 2013-present
4. Review Editorial Board, *Frontiers in Systems Microbiology*, 2013-present

Advisory Boards:

1. Professional Advisory Board, Department of Chemical and Biological Engineering, Colorado State University, 2005-present

Session Chair:

1. Optimizing Protein Expression, Cambridge Healthtech Institute Protein Engineering Summit (PEGS), Boston, MA (5/2011)
2. Drug Delivery, IEEE EMBS Micro and Nanotechnology in Medicine Conference, Oahu, HI (12/2014)

Member:

1. American Chemical Society
2. American Institute of Chemical Engineers