Blaine A. Pfeifer, Ph.D.
Department of Chemical and Biological Engineering
University at Buffalo (UB), The State University of New York (SUNY)
904 Furnas Hall, Buffalo, NY 14260
Phone: 716-645-1198; Fax: 716-645-3822
Email: blainepf@buffalo.edu
Website: www.cbe.buffalo.edu/pfeifer

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, The Ocean University of China (Qingdao, PRC), Medicine & Pharmacy, 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)
5. University at Buffalo Exceptional Scholar Award for Sustained Achievement, 2017
6. American Institute for Medical and Biological Engineering (AIMBE), 2018
7. CAPES/PRINT Visiting Professor, Federal University of Minas Gerais (UFMG; Belo Horizonte, Brazil), 2020

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 Place, UB Postdoctoral Scholars Research Symposium poster contest, 2017
29. Nicholas Moscatello, Dean's Graduate Achievement Award, 2018

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

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)
2. B.A. Pfeifer, C. Khosla. 'Biosynthesis of Polyketides in Heterologous Hosts' *Microbiology and Molecular Biology Reviews* 65(1): 106-18 (2001)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
15. **H. Zhang***, **Y. Wang**, B.A. Pfeifer. 'Bacterial Hosts for Natural Product Production' *Molecular Pharmaceutics* 5(2):212-25 (2008)
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)
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)
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)

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)
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)
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)
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)
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)
24. **B. Boghigian**[*], G. Seth, R. Kiss, B.A. Pfeifer. 'Metabolic Flux Analysis and Pharmaceutical Production' *Metabolic Engineering* 12(2):81-95 (2010)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)

40. **M. Jiang**, **L. Fang**[*], B.A. Pfeifer. 'Improved Heterologous Erythromycin A Production through Expression Plasmid Redesign' *Biotechnology Progress* 29(4):862-9 (2013)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
52. **Y. Li**[*], **G. Zhang**, B.A. Pfeifer. 'Current and Emerging Options for Taxol Production' *Advances in Biochemical Engineering-Biotechnology* 148:405-25 (2015)
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)
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)
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)
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)
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)
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)
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)
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)
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)

62. **C.H. Jones**[*], A. Hill, **M. Chen**[*], B.A. Pfeifer. 'Contemporary Approaches for Nonviral Gene Therapy' *Discovery Medicine* 19(107):447-54 (2015)
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)
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)
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)
66. **M. Beitelshees**[*], **Y. Li**[*], B.A. Pfeifer. 'Enhancing Vaccine Effectiveness with Delivery Technology' *Current Opinion in Biotechnology* 42:24-29 (2016)
67. **M.K. Ahmadi**[*], B.A. Pfeifer 'Rust Removal Experiments' *Bio-protocol* 6(7):e1776 (2016)
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)
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)
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)
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)
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)
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)
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.* 93(2):600-608 (2017)
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.* 33(5):1193-1200 (2017)
76. **N.J. Moscatello**[*] and B.A. Pfeifer. 'Yersiniabactin Metal Binding Characterization and Removal of Nickel from Industrial Wastewater' *Biotechnol Prog.* 33(6):1548-1554 (2017)
77. **L. Fang**[*], M. Guell, G.M. Church, and B.A. Pfeifer. 'Heterologous Erythromycin Production across Strain and Plasmid Construction' *Biotechnol Prog.* 34(1):271-276 (2018)
78. **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' *Science Advances* 3(10):e1701797 (2017)
79. 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' *Biotechnology for Biofuels*11:29 (2018)
80. X. Liu, D. Liu, L. Xu, M. Tao, L. Bai, Z. Deng, B.A. Pfeifer, M. Jiang. 'Reconstitution of Kinamycin Biosynthesis within the Heterologous Host *Streptomyces albus* J1074' *J. of Nat. Prod.* 81(1):72-77 (2018)
81. **M. Beitelshees**[*], **A. Hill**[*], P. Rostami, C.H. Jones[#], B.A. Pfeifer[#] ([#]co-corresponding authors). 'A Transition to Targeted or 'Smart' Vaccines: How Understanding Commensal Colonization Can Lead to Selective Vaccination' *Pharmaceutical Medicine* 32(2):95–102 (2018)
82. **M. Beitelshees**[*], **A. Hill**[*], P. Rostami, C.H. Jones[#], B.A. Pfeifer[#] ([#]co-corresponding authors). 'Pressing Diseases that Represent Promising Targets for Gene Therapy' *Discovery Medicine* 24(134):313-322 (2017)
83. **M. Beitelshees**[*], P. Rostami, A. Hill, B.A. Pfeifer[#], **C.H. Jones**[#] ([#]co-corresponding authors). 'Phenotypic Variation during Biofilm Formation: Implications for Anti-Biofilm Therapeutic Design' *Materials*, 11(7): E1086 (2018)

84. **N. Moscatello**[*], **G. Swayambhu**[*], C.H. Jones, B.A. Pfeifer 'Continuous Removal of Copper, Magnesium, and Nickel from Industrial Wastewater Utilizing the Natural Product Yersiniabactin Immobilized within a Packed-bed Column' *Chemical Engineering Journal*, 343:173-179 (2018)
85. **L. Fang**[*], **G. Zhang**, O. El-Halfawy, **M. Simon**[†], E.D. Brown, B.A. Pfeifer BA 'Broadened Glycosylation Patterning of Heterologously Produced Erythromycin' *Biotechnology and Bioengineering*, 115(11):2771-2777 (2018)
86. **N. Moscatello**[*], B.A. Pfeifer 'Constraint-based Metabolic Targets for the Improved Production of Heterologous Compounds across Molecular Classification' *AIChE Journal*, 64(12):4208-4217 (2018)
87. **A.B. Hill**[*], **M. Beitelshees**[*], B.A. Pfeifer[#], C.H. Jones[#] ([#]co-corresponding authors). 'Standardizing Pneumococcal Biofilm Release to PncO Expression, a Predictive Measurement of Virulence' *Infection and Immunity*, 86(9): e00494-18 (2018)
88. **R. Qi**[*], B.A. Pfeifer[#], G. Zhang[#] ([#]co-corresponding authors). 'Engineering Heterologous Production of Salicylate Glucoside and Glycosylated Variants' *Frontiers in Microbiology*, 9:2241 (2018)
89. **A.B. Hill**[*], **M. Beitelshees**[*], **R. Nayerhoda**[*], B.A. Pfeifer[#], C.H. Jones[#] ([#]co-corresponding authors). 'Engineering a Next-generation Glycoconjugate-like *Streptococcus pneumoniae* Vaccine' *ACS Infectious Diseases*, 4(11):1553-1563 (2018)
90. S. Ghosh, **R. Qi**[*], K. Carter, **G. Zhang**, B.A. Pfeifer, J. Lovell. 'Loading and Releasing Ciprofloxacin in Photoactivatable Liposomes' *Biochemical Engineering Journal*, 141:43-48 (2019)
91. **M. Beitelshees**[*], **A.B. Hill**[*], **Y. Li**[*], **M. Chen**[*], **M.K. Ahmadi**[*], R.J. Smith, S.T. Andreadis, P. Rostami, C.H. Jones, B.A. Pfeifer. 'Immune Modulation Potential of a Hybrid Bio-synthetic Vector' *Vaccine: X*, 1: 100012 (2019)
92. A. Jafari, **G. Zhang**, N. Rajabian, M.A. Mohamed, P. Lei, S.T. Andreadis, B.A. Pfeifer[#], and C. Cheng[#] ([#]co-corresponding authors). 'Poly(ethylene glycol)-*block*-poly(α-(propylthio-*N*,*N*-diethylethanamine hydrochloride)-ε-caprolactone) for the Delivery of Plasmid DNA' *Materials*, 13(4): 898 (2020).
93. **R. Nayerhoda**[*], **A. Hill**[*], **M. Beitelshees**[*], C.H. Jones, B.A. Pfeifer. 'Design Variation of a Dual Antigen Liposomal Vaccine Carrier System' *Materials*, 12(17): 2809 (2019).
94. X. Liu, K. Hua, D. Liu, Z. Wu, Y. Wang, H. Zhang, Z. Deng, B.A. Pfeifer[#], Ming Jiang[#] [#](co-corresponding authors). 'Heterologous Biosynthesis of Type II Polyketide Products Using *E. coli*' *ACS Chem Biol.*, 15(5): 1177-1183 (2020)
95. **D. Park**[*], **A. Hill**[*], B.A. Pfeifer. **'**Improving *E. coli* Bactofection by Expression of Bacteriophage ΦX174 Gene E' *Methods in Molecular Biology*, 2211: 3-14 (2021).
96. **R. Qi**[*], **A. Hill**[*], B.A. Pfeifer. 'A Hybrid Biological-Biomaterial Vector for Antigen Delivery' *Methods in Molecular Biology*, 2183: 461-475 (2021).
97. **R. Nayerhoda**[*], **A. Hill**[*], B.A. Pfeifer. 'Liposomal Dual Delivery of Both Polysaccharide and Protein Antigens' *Methods in Molecular Biology*, 2183: 477-487 (2021).
98. **A. Hill**[*], **M. Beitelshees**[*], B.A. Pfeifer. 'Vaccine Delivery and Immune Response Basics' *Methods in Molecular Biology*, 2183: 1-8 (2021).
99. **G. Swayambhu**[*], **N. Moscatello**[*], G.E. Attila-Gokcumen, and B.A. Pfeifer. 'Flux Balance Analysis to Identify Media Optimization and Genetic Manipulation Parameters for Improved Heterologous Siderophore Production' *iScience*, 23(4): 101016 (2020).
100. **R. Qi**[*], **G. Swayambhu**[*], **M. Bruno**[*], G. Zhang, B.A. Pfeifer. 'Consolidated Plasmid Design for Stabilized Heterologous Production of the Complex Natural Product Siderophore Yersiniabactin' *Biotechnology Progress*, 37(2): e3103 (2021).
101. **R. Nayerhoda**[*], **D. Park**[*],** C.H. Jones, E.N. Bou Ghanem, B.A. Pfeifer. 'Extended Polysaccharide Analysis within the Liposomal Encapsulation of Polysaccharides System' *Materials*, 13(15): 3320 (2020).
102. **D. Park**[*], **G. Swayambhu**[*], B.A. Pfeifer. 'Heterologous Biosynthesis as a Platform for Producing New Generation Natural Products' *Current Opinion in Biotechnology*, 66: 123-130 (2020).
103. X. Chen, E. Deng, **D. Park**[*], B.A. Pfeifer, N. Dai, H. Lin. 'Grafting Activated Graphene Oxide Nanosheets onto UF Membranes Using Polydopamine to Enhance Antifouling Properties" *ACS Appl Mater Interfaces*, 12(42):48179-48187 (2020).
104. **G. Swayambhu**[*], **M. Bruno**[*], A. Gulick, B.A. Pfeifer. 'Siderophore Natural Products Used in Pharmaceutical Applications' *Current Opinion in Biotechnology*, 69:242-251 (2021).
105. **G. Swayambhu** [*], Z. Wang, B.A. Pfeifer. 'Plant-based Assessment of the Bio-product Salicylate Glycoside', submitted.
106. **R. Qi**[*], J. Chow, J. Muhitch, B.A. Pfeifer. 'Human Dendritic Cell Activation and Gene Delivery Facilitated by a Hybrid Biological-Synthetic Vector', in preparation.

107. **G. Swayambhu**[*], X. Liu, J. Atkinson, M. Dupuis, B.A. Pfeifer. 'Molecular Modeling of Siderophore-Metal Interaction', in preparation.
108. **G. Swayambhu**[*], M. Dupuis, J. Atkinson, B.A. Pfeifer. 'Extended Resin and Metal Analysis of an Immobilized Siderophore-based Aqueous Metal Removal Process', in preparation.
109. **D. Park**[*], **G. Swayambhu**[*], **T. Lyga**[*], B.A. Pfeifer. 'Complex Natural Product Production Methods and Options', *Synthetic and Systems Biotechnology*, 6(1):1-11 (2021).
110. Y. Chang, L. Xing, C. Sun, X. Zhang, G. Zhang, T. Zhu, B.A. Pfeifer, Q. Che, D. Li. 'Monacycliones G-K and ent-Gephyromycin A, Angucycline Derivatives from the Marine-Derived *Streptomyces* sp. HDN15129', *J Nat Prod.*, 83(9): 2749-2755 (2020).
111. C.D. Bohannon, Z. Ende, W. Cao, W.P. Mboko, P. Ranjan, A. Kumar, M. Mishina, S. Amoah, S. Gangappa, S.K. Mittal, J.F. Lovell, A. Garcia-Sastre, B.A. Pfeifer, B.A. Davidson, P. Knight, and S. Sambhara. 'Influenza virus infects and depletes activated adaptive immune responders', accepted.

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 (2018)
5. **R. Qi**[*], **G. Zhang**, B.A. Pfeifer. 'Engineering *Escherichia coli* for bacterial natural product production' (in Comprehensive Natural Products III: Chemistry and Biology). Editors: Chaitan Khosla, Sean Brady, Jay Keasling. Elsevier (2019)

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. 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. 'Engineering Natural Product Biosynthesis for Health and Environmental Applications' Qingdao Institute of Bioenergy and Bioprocess Technology, Qingdao, PRC (1/2018)
52. 'Bio-engineering Application Spanning Health and Environment' Wuhan University, Wuhan, PRC (1/2018)
53. 'Bio-engineering Applications Spanning Health and Environment' Shandong University, Qingdao, PRC (1/2018)
54. 'Bio-engineering Applications Spanning Health and Environment' Jagiellonian University, Krakow, Poland (4/2018)
55. 'Heterologous Biosynthesis and Diverse Applications of the Nonribosomal Peptide-Polyketide Siderophore Yersiniabactin' 2018 Biocatalysis, Bioconversion and Green Manufacturing US-China Bilateral Symposium, Beijing, PRC (7/2018)
56. 'Heterologous Biosynthesis as a Platform for Local and Global Antibiotic Discovery' Industrial Synthetic Biology Congress, Munich, Germany (10/2018)
57. 'Challenges in Translating Heterologous Natural Product Biosynthesis' Canadian Chemistry Conference, Quebec, Canada (06/2019)
58. 'Heterologous Cellular Design for Complex Natural Product Support and Discovery' New Frontiers in Natural Products Discovery, Corteva Agriscience, Indianapolis, Indiana (8/2019)

VI. COMMERCIAL VENTURES and CONSULTING

Student Entrepreneurial 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); Andrew Hill (CSO, Founder, UB Ph.D. in Chemical and Biological Engineering); 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
   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) Three awarded SBIR Phase I grants; one awarded SBIR Phase II grant

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, GSK, Adimmune
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
20) High-impact publications in *The Proceedings of the National Academy of Sciences* (2016) and *Science Advances* (2016, 2017)

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. 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 (4/2014)

VII. RESEARCH ADVISING

Postdoctoral Associates/Visiting Scientists:

1. Dr. Yong Wang, Postdoctoral Associate, 2005-08
   Current Position: Professor, Shanghai Institutes for Biological Science, Institute of Plant Physiology and Ecology, 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, 2016-18
   Current Position: Associate Professor, School of Medicine and Pharmacy, Ocean University of China

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 and 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. & Senior Manager, Strategy and Consulting, Pfizer
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: Strain Engineer, BASF
6. Lei Fang, Chemical Engineering, 2012-17
   Thesis Title: The Metabolic Engineering of *E. coli* for the Enhanced Heterologous Biosynthesis and Discovery of Complex Natural Products
   Current Position: Synthetic Biology Scientist, Archer Daniels Midland
7. Marie Beitelshees, Chemical Engineering, 2014-18
   Thesis Title: Rational Antigen Selection and Delivery Technology for Development of Next Generation Pneumococcal Vaccines
   Current Position: Engineer, Athenex
8. Nicholas Moscatello, Chemical Engineering, 2017-18
   Thesis Title: Metabolic and Process Engineering of the Siderophore Yersiniabactin for Advanced Characterization and Application
   Current Position: Associate Scientist, Fresenius Kabi
9. Andrew Hill, Chemical Engineering, 2017-2019
   Thesis Title : Advancement of a Liposome-based Vaccine Against *Streptococcus pneumoniae*
   Current Position : CSO, Abcombi Biosciences
10. Ruiquan Qi, Chemical Engineering, 2015-2020
11. Roozbeh Nayerhoda, Biomedical Engineering, 2016-2021
12. Dongwon Park, Chemical Engineering, 2016-2021
13. Girish Swayambhu, Chemical Engineering, 2016-2021

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
   Next Academic Position: Ph.D., Materials Science and Engineering, University of Delaware
   Current Position: Scientist, Finless Food
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, 2015-17
    Project Title: Alternative Virulent-transition Bacteriocin Antigen Targets for Pneumococcal Disease Vaccination
    Current Position: Intern, Frontage Lab
14. Nicholas Moscatello, Chemical Engineering, 2015-17
    Thesis Title: Increased Production of Yersiniabactin and the Anthranilate Analog through Media Optimization
    Follow-up Position: Ph.D. Candidate, Chemical Engineering, UB
15. Kaiwen Bao, Chemical Engineering, 2015-17
    Project Title: Natural Product Biosynthesis with New Strains of the Heterologous Host *E. coli*
16. Thomas Lyga, Chemical Engineering, 2019-2020
17. Michael Bruno, Chemical Engineering, 2020-2020
18. Justin Bassett, Chemical Engineering, 2020-present
19. William Walkowski, Chemical Engineering, 2020-present
20. Vaishnavi Hatrote, Chemical Engineering, 2021-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
13. William Erdman, Chemical Engineering, 2018
14. Melanie Ragonese, Chemical Engineering, 2019
15. Andrew Thompson, Chemical Engineering, 2021

VIII. 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	Freshman	20
	F04**: ChBE10-Thermodynamics and Process Calculations I	Sophomore	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	Freshman	35
	F06: ChBE10-Thermodynamics and Process Calculations I	Sophomore	32
	S07**: EN69-Introduction to Chemical and Biological Engineering	Freshman	12
	S07: ChBE193-Genetic, Cellular, and Metabolic Engineering	Graduate	3
2007-08	F07: ChBE10-Thermodynamics and Process Calculations I	Sophomore	39
	F07: ChBE50-Chemical & Biological Engineering Senior Laboratory	Senior	21
	S08: ChBE193-Genetic, Cellular, and Metabolic Engineering	Graduate	4
	S08: ChBE51-Chemical & Biological Engineering Senior Laboratory	Senior	21
2008-09*	S09: ChBE22: Heat and Mass Transfer	Junior	33
2009-10	F09: ChBE10-Thermodynamics and Process Calculations I	Sophomore	26
	F09: ChBE166-Cell and Microbe Cultivation	Graduate	13
	S10: ChBE22: Heat and Mass Transfer	Junior	23
2010-11	F10: EN69-Introduction to Chemical and Biological Engineering	Freshman	22
	F10: ChBE10-Thermodynamics and Process Calculations I	Sophomore	46
	F10: ChBE166-Cell and Microbe Cultivation	Graduate	22
2011-12	F11: CE212-Fundamental Principles of Chemical Engineering	Sophomore	85
	F11: CE508-Metabolic Engineering	Graduate	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
2017-18***	Sum18: CE212- Fundamental Principles of Chemical Engineering	Sophomore	18
2018-19	F18: CE212-Fund. Principles of Chemical Engineering (Section 1)	Sophomore	39
	F18: CE508-Metabolic Engineering	Graduate	7
	Sum19: CE212- Fundamental Principles of Chemical Engineering	Sophomore	17
2019-20	F19: CE212-Fund. Principles of Chemical Engineering (Section 1)	Sophomore	45
	F19: CE508-Metabolic Engineering	Graduate	10
	Sum20: CE212- Fundamental Principles of Chemical Engineering	Sophomore	8
2020-21	F19: CE212-Fund. Principles of Chemical Engineering (Section 1)	Sophomore	62
	F19: CE508-Metabolic Engineering	Graduate	14
	Sum20: CE212- Fundamental Principles of Chemical Engineering	Sophomore	6

*Academic leave S05 & F08; **Co-taught; ***Sabbatical F17 & S18

IX. 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 (2011-18; Internship Coordinator 2011-17)
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 (2016-18)
15. Graduate Affairs Committee (2018-present)
16. Faculty Search Committee (2019-20)
17. Department Community Committee (2020-present)

School:

1. Task Force for Undergraduate Curriculum Reform, Biology Sub-committee (2006-08)
2. Committee for Graduate Program in Biotechnology (2006-08)
3. Curriculum Task Force Committee (2009-10)
4. Outcomes & Objectives Assessment Committee (2009-10)
5. Tenure Committee (2013-16; Chair 2015-16; Department Alternate 2016-19)
6. Representative and Speaker for Joint SEAS and School of Management Bay Area Alumni Event: "An Evening with Entrepreneurs" (2017)

University:

1. University Summer Scholars Review Panel (2007)
2. Computer Science, Engineering, and Mathematics Scholars Program (Advisor, 2005-10; Co-PI, 2008-10)
3. Leonard Carmichael Society Faculty Advisor (2009-10)
4. UB IMPACT Drug and Device Development Panel Reviewer (2015)

5. Institutional Biosafety Committee (2016-present)
6. Office of Economic Development Strategic Planning Committee (2016)
7. UB NSF I-Corps Program, Executive Committee (2017-present; Academic PI, 2020-present)
8. UB Clinical Research Office/Clinical and Translational Science Institute Scientific Review Committee Chair Back-up (2019-present)

X. 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. *Journal of Visualized Experiments*
62. *Biotechnology for Biofuels*
63. *Nature Communications*
64. *BMC Biotechnology*
65. *ACS Applied Materials & Interfaces*
66. *ACS Journal of Agricultural and Food Chemistry*
67. *Journal of the Royal Society Interface*
68. *Infection and Drug Resistance*
69. *Vaccine*
70. *Proceedings of the National Academy of Sciences*

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 Research 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]
21. NIH Small Business: Drug Discovery and Development Panel, Ad hoc Reviewer [2017]
22. DoD Congressionally Directed Medical Research Programs, Peer Reviewed Cancer Research Program, Immunotherapy Panel, Ad hoc Reviewer [2017]
23. NIH Synthetic and Biological Chemistry B (SBCB) Panel, Ad hoc Reviewer [2018]
24. NIH Small Business: Drug Discovery and Development Panel, Ad hoc Reviewer [2019]
25. Review Panel for the DoE Center for Bioenergy Innovation (located at Oak Ridge National Laboratory) [2019]
26. NIH Small Business: Drug Discovery and Development Panel, Ad hoc Reviewer [2020]

Guest Editor:

1. Special Issue, 'Antigen Delivery' *Molecular Pharmaceutics*, 2007
2. Special Issue, 'Natural Products and Production Systems' *Molecular Pharmaceutics*, 2008
3. Special Issue, 'Metabolic Flux Analysis and Pharmaceutical Production' *Metabolic Engineering*, 2009
4. 'Pharmaceutical Biotechnology 2016' *Current Opinion in Biotechnology*, 2016
5. 'Vaccine Delivery Technology: Methods and Protocols' *Methods in Molecular Biology*, 2020
6. Special Issue, 'Biomaterial Design for Disease Applications' *Materials*, 2020
7. 'Pharmaceutical Biotechnology 2021' *Current Opinion in Biotechnology*, 2021

Editorial Boards:

1. Editorial Advisory Board, *Molecular Pharmaceutics* (2018 Impact Factor: 4.40), 2009-present
2. Editorial Board, *Metabolic Engineering* (2018 Impact Factor: 7.81), 2011-present
3. Review Editorial Board, *Frontiers in Bioengineering and Biotechnology (Synthetic Biology)* (2018 Impact Factor: 5.12), 2013-present
4. Review Editorial Board, *Frontiers in Systems Microbiology*, 2013-present
5. Editorial Advisory Board, *Marine Life Science & Technology*, 2018-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)