

Curriculum Vitae:**Huimin Zhao**

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I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE**A. Educational Background**

University of Science and Technology of China (USTC), B.S., Biology, June 1992
California Institute of Technology, Ph.D., Chemistry, June 1998

B. List of Academic Positions since Final Degree

Visiting Investigator, Agency for Science, Technology and Research (A*STAR), Singapore,
2012-date
Visiting Professor, Nanyang Technological University, 2011-date
Centennial Endowed Chair of Chemical and Biomolecular Engineering, UIUC, 2008-date
Professor, Chemical and Biomolecular Engineering, UIUC, August 2008-date
Associate Professor, Chemical and Biomolecular Engineering, UIUC, August 2006-date
Assistant Professor, Chemical and Biomolecular Engineering, UIUC, July 2000-August 2006
Faculty, Institute for Genomic Biology, UIUC, March 2004-date
Affiliate, Chemistry, UIUC, January 2004-date
Affiliate, Center for Biophysics and Computational Biology, UIUC, December 2000-date
Affiliate, Bioengineering, UIUC, December 2000-date
Affiliate, Biotechnology Center, UIUC, December 2000-date
Affiliate, Biochemistry, UIUC, August 2007-date

C. Other Professional Employment

Project Leader, Industrial Biotechnology, The Dow Chemical Company, San Diego, CA, April
1998 - May 2000

D. Honors, Recognitions, and Outstanding Achievements

Elmer Gaden Award, John Wiley & Sons and American Chemical Society Division of Biochemical
Technology, 2014
Program Chair, ECI Biochemical Engineering Conference XVIV, 2013
Visiting Investigator, Agency for Science, Technology and Research (A*STAR), Singapore,
2012-date
John Simon Guggenheim Fellowship, 2012
Session Chair, NAE's Indo-American Frontiers of Engineering Symposium, 2012
National Academies Keck Futures Initiative Award, 2010
Merck Lecture, Department of Chemical Engineering, University of Virginia, 2010
Fellow of the American Association for the Advancement of Science, 2009

AIChE Food, Pharmaceutical, and Bioengineering Division Plenary Award Lecturer,
Biochemical Engineering (Area 15c), 2009
Invited Participant of 7th Annual National Academies Keck Futures Initiative (NAKFI)
Conference, 2009
Invited Participant of 15th U.S. Frontiers of Engineering Symposium, National Academy of
Engineering, 2009
Fellow of the American Institute for Medical and Biological Engineering (AIMBE), 2008
Centennial Endowed Chair of Chemical and Biomolecular Engineering, UIUC, 2008-date
Engineering Council Award for Excellence in Advising, UIUC College of Engineering, 2008
Young Investigator Award, American Chemical Society (ACS) Division of Biochemical
Technology, 2008
University Scholar, UIUC, 2007
Outstanding Overseas Young Chinese Scholars Award, Chinese National Science Foundation,
2007
Helen Corley Petit Scholar, UIUC College of Liberal Arts and Sciences, 2006
DuPont Young Professor Award, 2005
Xerox Award for Faculty Research, UIUC College of Engineering, 2005
W. H. Peterson Award for Best Poster Presentation, ACS Division of Biochemical Technology
(to R. Woodyer), 2005
Beckman Fellow, UIUC Center for Advanced Study, 2005
NSF CAREER Award, 2004
Excellence in Teaching Award, UIUC School of Chemical Sciences, 2004
Collins Scholar, UIUC College of Engineering, 2001
Dow Chemical Company Special Recognition Award, 1999 and 2000

E. Invited Lectures and Invited Conference Presentations

1. "Directed Evolution of Biocatalysts." The Dow Chemical Company, Midland, MI, October 20, 1997.
2. "Directed Molecular Evolution." Shanghai Institute of Biochemistry, Chinese Academy of Science, Shanghai, China, May 20, 2000.
3. "Directed Molecular Evolution." Institute of Life Sciences, Fudan University, Shanghai, China, May 22, 2000.
4. "A Dehalogenase Based Process for Epichlorohydrin Production." IBC Sixth Annual World Congress on Enzyme Technologies, San Diego, CA, February 28, 2001.
5. "Directed Evolution of Enzymes and Pathways for Bioprocess Development." Bristol-Myers Squibb, New Brunswick, NJ, March 12, 2001.
6. "Directed Molecular Evolution: Technology and Applications." Department of Pharmacology, University of Florida, Gainesville, FL, February 5, 2002.
7. "Directed Molecular Evolution." Cabot Corporation, Boston, February 26, 2002.
8. "Outrunning Nature: *in vitro* Evolution of Enzymes." Biotechnology Research Institute, Canadian National Research Council, Montreal, Canada, March 28, 2002.
9. "Directed Evolution of Enzymes and Industrial Biocatalysis." Green Chemistry Workshop, University of Illinois, Urbana, IL, April 19, 2002.
10. "Directed Evolution of Superior Biocatalysts." Maxygen, Redwood City, CA, May 6, 2002.

11. "Directed Evolution and Biocatalysis." Department of Energy (DOE) Workshop on Catalysis, Gaithersburg, Maryland, May 14, 2002.
12. "Directed Evolution of Enzymes, Pathways and Genomes." U.S. Army Research Office (ARO) Workshop on Bio-Fuel Cells, Washington, DC, July 1, 2002.
13. "Directed Evolution of Human Manganese Superoxide Dismutase." ACS Annual Meeting, Boston, MA, August 21, 2002.
14. "Biomolecular Engineering in the Post-genomic Era." Molecular and Chemical Biology Symposium, University of Illinois, Urbana, IL, January 17, 2003.
15. "Directed Evolution of Enzymes and Multi-enzyme Complexes." Strategic Research Institute's First Annual Meeting on "Enzymes and Biocatalysis for Drug Discovery and Development." San Diego, CA, January 30, 2003.
16. "Biosynthesis of Thermally Stable Energetic Compounds through Rational Design and Directed Evolution." Office of Naval Research's Coolfont V meeting, Coolfont, West Virginia, April 13, 2003.
17. "Biocatalysts Engineering Through Rational Design and Directed Evolution." Schering-Plough, Union, NJ, August 5, 2003.
18. "Biocatalysts Engineering Through Rational Design and Directed Evolution." Cargill, Minneapolis, MN, September 9, 2003.
19. "Biomolecular Engineering in the Post-Genomic Era." Department of Food Science and Human Nutrition, University of Illinois, Urbana, IL, September 25, 2003.
20. "Protein Engineering of Phosphate Dehydrogenase for the Development of a Novel NAD(P)H Regeneration System." ACS Annual Meeting, Anaheim, CA, March 28, 2004.
21. "Biomolecular Engineering for Biomedical Applications." Department of Biomedical Engineering, University of Irvine, Irvine, CA, April 1, 2004.
22. "Protein Engineering of Nanomachines." Beckman Institute, University of Illinois, Urbana, IL, April 14, 2004.
23. "Directed Evolution of Human Estrogen Receptors for Fun and Profits." Symposium on the Evolution of Biomolecular Structure, Michigan State University, East Lansing, MI, June 4, 2004.
24. "Directed Molecular Evolution for Fun and Profit." Monsanto, St. Louis, MO, July 7, 2004.
25. "Biocatalyst Development through Rational Design and Directed Evolution." Roquette, Lestrem, France, November 15, 2004.
26. "Protein Stabilization by Directed Evolution." DARPA/HHS Protein Preservation Workshop, Fairfax, VA, January 12, 2005.
27. "Biocatalyst and Bioprocess Development via Biomolecular Engineering." Kraft, Glenview, IL, January 31, 2005.
28. "Directed Evolution: Technology and Applications." Dow AgroSciences, Indianapolis, IN, February 7, 2005.
29. "Biomolecular Engineering for Fun and Profit." Department of Chemical and Biological Engineering, University of Wisconsin, Madison, WI, February 8, 2005.
30. "Directed Molecular Evolution for Fun and Profit." Argonne National Laboratories, Argonne, IL, February 17, 2005.
31. "Biomolecular Engineering of Genetic Switches and Biological Catalysts." Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, February 24, 2005.

32. "Biomolecular Engineering of Genetic Switches and Biological Catalysts." Department of Chemical and Environmental Engineering, University of California, Riverside, CA, February 25, 2005.
33. "Development of a Novel Enzymatic NAD(P)H Regeneration System." The Tenth Institute of Biological Engineering, University of Georgia, Athens, GA, March 4-6, 2005.
34. "Biomolecular Engineering for Biocatalyst and Bioprocess Development." Symposium on Biocatalysis, ACS Annual Meeting, San Diego, CA, March 13, 2005.
35. "Biomolecular Engineering of Genetic Switches and Biological Catalysts." Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL, April 14, 2005.
36. "Development of a Novel Enzymatic NAD(P)H Regeneration System for Industrial Biocatalysis." Biochemical Engineering XIV, Harrison Hot Springs, BC, Canada, July 14, 2005.
37. "Directed Evolution of Proteins and Pathways." U.S. Government's Science and Technical Expert Partnership (STEP) Program Workshop on Synthetic Biology, McLean, VA, July 27, 2005.
38. "Biomolecular Engineering for Fun and Profit." Department of Chemical and Biomolecular Engineering, University of Illinois, Urbana, IL, September 13, 2005.
39. "Directed Evolution: Technology and Applications." Air Force Office of Science and Research Cell-Like Entity (CLE) workshop, Fairborn, OH, September 14, 2005.
40. "Development of a Novel Enzymatic NAD(P)H Regeneration System for Industrial Biocatalysis." Biotechnology Research and Development Consortium (BRDC) workshop, Chicago, IL, September 15, 2005.
41. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, University of Massachusetts, Amherst, MA, September 22, 2005.
42. "Development of a Novel Enzymatic NAD(P)H Regeneration System for Industrial Biocatalysis." ECI Enzyme Engineering XVIII, Gyeong-Ju, Korea, October 13, 2005.
43. "Biocatalyst and Bioprocess Development via Biomolecular Engineering." International Symposium on Biocatalysis and Bioprocess Engineering II, Shanghai, China, October 17, 2005 (keynote lecture).
44. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, Tsinghua University, Beijing, China, October 18, 2005.
45. "Biomolecular Engineering for Fun and Profit." Institute of Biophysics, Chinese Academy of Science, China, October 19, 2005.
46. "Biomolecular Engineering for Fun and Profit." College of Life Sciences, University of Science and Technology of China, Hefei, Anhui, China, October 20, 2005.
47. "Biomolecular Engineering for Fun and Profit." Department of Biochemistry, Nanjing University, Nanjing, China, October 21, 2005.
48. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, Purdue University, West Lafayette, IN, October 25, 2005.
49. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, University of California, Los Angeles, CA, January 13, 2006.
50. "Biomolecular Engineering of Proteins and Pathways." School of Molecular and Cell Biology, University of Illinois, Urbana, IL, January 21, 2006.

51. "Biomolecular Engineering of Proteins and Pathways." Department of Chemical Engineering, University of Delaware, Newark, DE, February 10, 2006.
52. "Biomolecular Engineering of Genetic Switches and Biological Catalysts." Department of Chemistry, Emory University, Atlanta, GA, February 13, 2006.
53. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, University of Southern California, Los Angeles, CA, February 23, 2006.
54. "Bioinformatics Tools for Biomolecular Engineering." The First UIUC Bioinformatics Summit, University of Illinois, Urbana, IL, March 9, 2006.
55. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering, Rensselaer Polytechnic Institute, Troy, NY, March 27, 2006.
56. "Biomass Conversion through Biomolecular Engineering." Symposium on Sustainable Bioenergy: Focus on the Future of Biofuels and Chemicals, Urbana, IL, April 13-14, 2006.
57. "Biocatalyst Development through Biomolecular Engineering." Society for Industrial Microbiology Annual Meeting, Baltimore, MD, August 2, 2006.
58. "Directed Evolution of Genetic Switches and Circuits." Nano-Bio Group, Urbana, IL November 3, 2006.
59. "Biomolecular Engineering for Fun and Profit." Department of Chemical Engineering and Materials Science, University of Minnesota, Twin Cities, MN, November 21, 2006.
60. "Biomolecular Engineering of Genetic Switches and Biological Catalysts." Department of Physics, University of Illinois, Urbana, IL, March 9, 2007.
61. "Directed Evolution of Gene Switches and Enzyme Biocatalysts." Northern Illinois University, April 27, 2007.
62. "Directed Evolution of Gene Switches and Enzyme Biocatalysts." Shanghai Institute of Plant Physiology, Chinese Academy of Science, Shanghai, China, May 11, 2007.
63. "Biomolecular Engineering for Fun and Profit." School of Chemical Engineering and Technology, Tianjin University, May 15, 2007.
64. "Directed Biomolecular Engineering for Fun and Profit." School of Biochemical Engineering, East China University of Science and Technology, May 22, 2007.
65. "Industrial Biotechnology: Surfing the Third Wave of Biotechnology." Department of Chemical Engineering and Materials Science, University of Minnesota, Twin Cities, MN, June 7, 2007.
66. "Biosynthesis of Xylitol from Renewable Biomass." ECI Biochemical Engineering XV, Quebec City, PQ, Canada, July 16, 2007.
67. "Evolution in Reverse: Engineering a Xylose-Specific Xylose Reductase." Society for Industrial Microbiology Annual Meeting, Denver, CO, August 1, 2007.
68. "Biomolecular Engineering for Industrial Biotechnology and Bioenergy." Biotechnology Institute, University of Minnesota, Twin Cities, MN, August 23, 2007.
69. "Discovery, Characterization, and Engineering of Phosphonic Acids." Department of Chemistry, Vanderbilt University, Nashville, TN, September 10, 2007.
70. "Surfing the Third Wave of Biotechnology." Department of Chemical Engineering, University of Colorado, Denver, CO, October 30, 2007.
71. "Surfing the Third Wave of Biotechnology." Department of Chemical Engineering, Princeton University, Princeton, NJ, December 12, 2007.
72. "Biomolecular Engineering for Fun and Profit." Department of Biomedical and Chemical Engineering, Syracuse University, Syracuse, NY, February 29, 2008.

73. "Synthetic Biology for Fun and Profit." 2nd Annual IGB Fellows Symposium, University of Illinois, Urbana, IL, April 4, 2008.
74. "Development of New Biocatalysts for Pharmaceutical Applications." Pfizer Global R & D, Groton, CT, April 7, 2008.
75. "Microbial Synthesis of Phloroglucinol and Xylitol." Fifth World Congress on Industrial Biotechnology and Bioprocessing, Chicago, IL, April 30, 2008.
76. "Production of fine chemical phloroglucinol and antimalarial drug FR900098 in *E. coli*." ECI Natural Products II, Whistler, Canada, June 24, 2008.
77. "Microbial Synthesis of Phloroglucinol and Xylitol." The 2008 Korean Society of Microbiology and Biotechnology (KMB) International Symposium and Annual Meeting, Seoul, Korea, June 26, 2008.
78. "Industrial Biotechnology: Surfing the Third Wave of Biotechnology." Kongkuk University, Seoul, Korea, June 27, 2008.
79. "Enzymatic and Microbial Synthesis of Xylitol from Renewable Biomass." Gordon Research Conference on Biocatalysis, Smithfield, RI, July 6-11, 2008.
80. "Metalloenzymes: Mechanisms, Structures, and Applications." NSF CENTC Summer School, University of Washington, Seattle, WA, July 24, 2008.
81. "Discovery, Characterization, and Engineering of Novel *N*-Oxygenases." Society for Industrial Microbiology Annual Meeting, San Diego, CA, August 12, 2008.
82. "Directed Evolution for Fun and Profit." American Chemical Society Annual Meeting, Philadelphia, PA, August 20, 2008.
83. "New Tools for Pathway Engineering." Gevo, Inc., Denver, CO, August 25, 2008.
84. "Development of New Tools for Gene Therapy." Cystic Fibrosis Focus Group, University of Illinois, Urbana, September 11, 2008.
85. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." University of California, Berkeley, CA, September 29, 2008.
86. "Microbial Synthesis of Phloroglucinol and Xylitol." The Thirteenth International Biotechnology Symposium and Exhibition, Dalian, China, October 15, 2008.
87. "Industrial Biotechnology: Surfing the Third Wave of Biotechnology." Jiangnan University, Wuxi, China, October 17, 2008.
88. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China, October 20, 2008.
89. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Beijing University of Chemical Technology, Beijing, China, October 21, 2008.
90. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Genencor Shanghai R&D Center, Shanghai, China, October 23, 2008.
91. "Harnessing the Power of Synthetic Biology and Chemical Biology." Shanghai Jiaotong University, Shanghai, China, October 24, 2008.
92. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Novozymes, Davis, CA, November 3, 2008.
93. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Rice University, Houston, TX, January 8, 2009.
94. "New Tools for Pathway Engineering and Microbial Synthesis of Antimalarial Drug FR900098." International Conference on Biomolecular Engineering II, Santa Barbara, CA, January 20, 2009.

95. "Engineering a Recombinant Yeast Strain that Efficiently Utilizes C5/C6 Sugars." EBI Program Leaders Symposium, January 31, 2009.
96. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Department of Statistics, University of Illinois, Urbana, IL, March 5, 2009.
97. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Bioenergy International, Woburn, MA, March 11, 2009.
98. "Harnessing the Power of Synthetic Biology to Address Challenges on Health Care and Energy." University of Massachusetts, Amherst, MA, March 12, 2009.
99. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." SUNY at Buffalo, Buffalo, NY, April 8, 2009.
100. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Institute of Chemical Engineering and Sciences, Singapore, May 27, 2009.
101. "Biocatalysis for Bioenergy." Workshop on Catalysis for Sustainable Energy, National University of Singapore, Singapore, May 28, 2009.
102. "Engineering of a C5/C6 Utilizing *S. cerevisiae* strain for Biofuel Production." Energy Biosciences Institute Annual Retreat, Urbana, IL, June 19, 2009.
103. "Harnessing the Power of Synthetic Biology and Chemical Biology." University of Cambridge, London, England, June 26, 2009.
104. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Max-Planck-Institut für Kohlenforschung, Mülheim, Germany, June 29, 2009.
105. "Discovery and Engineering of Novel Enzymes and Pathways using DNA Assembler." Society for Industrial Microbiology Annual Meeting, Toronto, Canada, July 27, 2009.
106. "Engineering of a C5/C6 Utilizing *S. cerevisiae* strain for Biofuel Production." Society for Industrial Microbiology Annual Meeting, Toronto, Canada, July 28, 2009.
107. "Towards Cost-effective Production of an Antimalarial Drug and Butanol." Foundations of Systems Biology in Engineering (FOSBE), Denver, CO, August 7, 2009.
108. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." National Renewable Energy Laboratory, Golden, CO, August 11, 2009.
109. "Synthetic Biology for Fun and Profit." Keynote lecture in the Chinese American Chemical Society's Annual Dinner Party, Washington, DC, August 17, 2009.
110. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, University of Texas, Austin, TX, October 13, 2009.
111. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Department of Bioengineering, University of Illinois, Urbana, IL, October 15, 2009.
112. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." AIChE FP&B Division Plenary Award Lecture, Nashville, TN, November 9, 2009.
113. "Harnessing Synthetic Biology for Translational Biomedical Research." Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, IL, December 9, 2009.
114. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, University of Virginia, Charlottesville, VA, February 18, 2010.
115. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, April 9, 2010.

116. "Harnessing the Power of Synthetic Biology to Address Challenges on Health Care and Energy." Department of Chemical Engineering, Pennsylvania State University, College Station, PA, April 20, 2010.
117. "Harnessing Synthetic Biology for Translational Biomedical Research." International AIDS Vaccine Initiative (IAVI)'s Frontiers in AIDS Vaccine Development Seminar Series, New York City, NY, July 14, 2010.
118. "New Strategies to Overcome Glucose Repression in Mixed Sugar Fermentation in *Saccharomyces cerevisiae*." Society for Industrial Microbiology Annual Meeting, San Francisco, CA, August 4, 2010.
119. "Engineering a Microbial Factory for Synthesis of Value-added Products." Society for Industrial Microbiology Annual Meeting, San Francisco, CA, August 5, 2010.
120. "Designing Microbial Factories for Synthesis of Fuels and Chemicals." International Conference on Biomass and Energy Technologies, Beijing, China, August 22, 2010 (keynote lecture).
121. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences, Tianjin, China, August 23, 2010.
122. "Harnessing the Power of Synthetic Biology to Address Challenges on Health Care and Energy." The First Annual Industrial Biotech Meeting, Xiamen, Guangzhou, China, August 24, 2010 (keynote lecture).
123. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Tsinghua University, Beijing, China, August 25, 2010.
124. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Institute of Microbiology, Chinese Academy of Sciences, Beijing, China, August 26, 2010.
125. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, Washington University at St. Louis, MO, September 10, 2010.
126. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, North Carolina State University, Raleigh, NC, October 4, 2010.
127. "East Meets West or West Meets East: A Personal Experience with Transnational Research Collaboration." Conference on East Asian Biosciences: Transnational Competition and Collaboration, Urbana, October 8, 2010.
128. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." School of Chemical Engineering, East China University of Science and Technology, Shanghai, China, October 18, 2010.
129. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Key Laboratory of Synthetic Biology, Chinese Academy of Sciences' Institute of Plant Physiology, Shanghai, China, October 18, 2010.
130. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, University of Houston, Houston, TX, October 29, 2010.
131. "Protein Engineering by Directed Evolution and Rational Design." Chinese Academy of Sciences and Max Planck Gesellschaft's Exploratory Round Table Conference, Shanghai, China, October 20, 2010.
132. "Engineering a Microbial Factory for Synthesis of Value-added Products." PacifiChem 2010, Honolulu, HI, December 18, 2010
133. "Engineering Cytochrome P450 Enzymes for Biocatalysis." PacifiChem 2010, Honolulu, HI, December 19, 2010

134. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Institute of Chemical Engineering and Sciences, Singapore, January 10, 2011.
135. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." International Conference on "Big Ideas in Molecular Materials," Singapore, January 11, 2011.
136. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore, January 12, 2011.
137. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical and Biomolecular Engineering, Nanyang Technical University, Singapore, January 13, 2011.
138. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, University of Washington at Seattle, Seattle, WA, February 14, 2011.
139. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, Arizona State University, Tempe, AZ, April 15, 2011.
140. "Synthetic Biology: Putting Synthesis into Biology." School of Chemical Engineering, Tianjin University, Tianjin, China, June 27, 2011.
141. "Synthetic Biology: Putting Synthesis into Biology." Department of Chemical and Biomolecular Engineering, Nanyang Technical University, Singapore, June 29, 2011.
142. "Microbial Synthesis of Sustainable Chemicals and Materials." Institute of Chemical Engineering and Sciences, Singapore, June 30, 2011.
143. "Synthetic Biology: Putting Synthesis into Biology." School of Life Sciences, University of Science and Technology of China, July 4, 2011.
144. "Engineering Cytochrome P450 Enzymes for Biocatalysis." Society for Industrial Microbiology Annual Meeting, New Orleans, LA, July 25, 2011.
145. "Discovery, Design, and Development of Novel Natural Products via Synthetic Biology." Society for Industrial Microbiology Annual Meeting, New Orleans, LA, July 26, 2011.
146. "Development of Novel Tools for Gene Therapy via Protein Engineering." The 11th Emerging Information and Technology Conference, Chicago, IL, July 28, 2011.
147. "Biocatalyst by Design: Challenges and Opportunities." NSF Workshop on Catalysis, Denver, CO, August 27, 2011.
148. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, Iowa State University, Ames, IA, September 8, 2011.
149. "Microbial Synthesis of Drugs and Fuels via Synthetic Biology." Department of Chemical Engineering, Northwestern University, Evanston, IL, October 6, 2011.
150. "Design and Evolution of Biological Pathways and Networks." Six-Academy's Symposium on Synthetic Biology, Shanghai, China, October 12, 2011.
151. "Synthetic Biology: Putting Synthesis into Biology." First Annual Biomass Conversion Symposium, Urbana, IL, Oct. 31, 2011.
152. "Engineering Microbial Factories for Sustainable Synthesis of Value-added Products." 2nd International Conference on Green and Sustainable Chemistry, Singapore, November 14, 2011 (opening plenary lecture).
153. "Engineering a Yeast Strain that Efficiently Utilizes C5/C6 Sugars." EBI Annual Fall Review, Berkeley, CA, November 17, 2011.
154. "Synthetic Biology: Putting Synthesis into Biology." Brookhaven National Laboratory, Upton, NY, Jan. 13, 2012.

155. "New Strategies to Engineer Yeast Strains for Biofuels Production." BP Global Technology Center, San Diego, CA, April 6, 2012.
156. "Engineering a Yeast Strain that Efficiently Utilizes C5/C6 Sugars." EBI Annual Spring Review, Berkeley, CA, April 10, 2012.
157. "Synthetic Biology: Putting Synthesis into Biology." 2012 Hougén Symposium, Madison, WA, May 1, 2012.
158. "Pathway Engineering via Synthetic Biology." ECI Metabolic Engineering Conference IX, Biarritz, France, June 5, 2012.
159. "Surfing the Third Wave of Biotechnology: Turning Trash into Cash." Institute of Catalysis, Spanish Council for Scientific Research (CSIC), Madrid, Spain, June 8, 2012.
160. "Synthetic Biology: Putting Synthesis into Biology." Department of Chemistry, National University of Singapore, July 25, 2012
161. "Synthetic Biology: Putting Synthesis into Biology." China Pharmaceutical University, Nanjing, China, July 31, 2012.
162. "Synthetic Biology: Putting Synthesis into Biology." 2012 Sino-USA Chinese Collaborative Workshop--Opportunities and Challenges in Synthetic Biology, Tianjin, China, August 2, 2012.
163. "Pathway Engineering via Synthetic Biology." Society for Industrial Microbiology and Biotechnology Annual Meeting, Washington DC, August 13, 2012.
164. "Discovery of Novel Natural Products by Refactoring Cryptic Pathways." Society for Industrial Microbiology and Biotechnology Annual Meeting, Washington DC, August 14, 2012.
165. "Novel Tools for Genome Engineering." Society for Industrial Microbiology and Biotechnology Annual Meeting, Washington DC, August 15, 2012.
166. "Synthetic Biology: Putting Synthesis into Biology." University of California, Riverside, October 12, 2012.
167. "Challenges and Opportunities in Synthetic Biology." DOE's Biological and Environmental Research Advisory Committee Meeting, Washington DC, October 15, 2012
168. "Challenges and Opportunities in Synthetic Biology." A*STAR Scientific Conference 2012, Singapore, October 18, 2012 (Keynote lecture)
169. "Directed Evolution 20 Years on." New England Biolabs, Ipswich, Massachusetts, October 23, 2012.
170. "Synthetic Biology: Putting Synthesis into Biology." Cold Spring Harbor Symposium, Suzhou, China, November 26, 2012.
171. "Synthesis of Bio-based Chemicals Using Cell Factories." A*STAR Workshop on Bio-Based Chemicals, Singapore, December 3, 2012.
172. "Challenges and Opportunities in Synthetic Biology." International Conference on Cellular & Molecular Bioengineering III (ICCMB3), Singapore, December 8-10, 2012 (Keynote lecture)
173. "Novel Tools for Mammalian Genome Engineering." Department of Chemical and Biomolecular Engineering, National University of Singapore, December 11, 2012.
174. "Synthetic Biology: Putting Synthesis into Biology." Argonne National Laboratory, Chicago, IL, January 17, 2013.

175. "Engineering Microbial Cell Factories for Production of Chemicals and Fuels." The 4th International Symposium of Innovative BioProduction Kobe (iBioK), Kobe University, Japan, January 31, 2013.
176. "Challenges and Opportunities in Synthetic Biology." Department of Bioengineering, University of Illinois at Urbana-Champaign, IL, February 14, 2013.
177. "Synthetic Biology: Putting Synthesis into Biology." Pohang University of Science and Technology, Korea, March 22, 2013.
178. "Challenges and Opportunities in Synthetic Biology." Korean Society of Biotechnology and Bioengineering regional meeting, Busan, Korea, March 23, 2013.
179. "Discovery of Novel Natural Products by Refactoring Cryptic Pathways." American Chemical Society Annual Spring Meeting, New Orleans, April 7, 2013.
180. "Green Chemistry Enabled by Synthetic Biology." McGill University, Montreal, Canada, May 2, 2013.
181. "Building a Biochemical Engineering Community in Singapore." Monthly Seminar Series in Biochemical Engineering, Biopolis, Singapore, May 21, 2013.
182. "Discovery of Novel Natural Products by Refactoring Cryptic Pathways." ECI Biochemical and Molecular Engineering XVIII, Beijing, China, June 17, 2013.
183. "Synthetic Biology: Putting Synthesis into Biology." Mini-Symposium on Synthetic Biology, Tsinghua University, Beijing, China, June 20, 2013.
184. "Genome Engineering: A New Frontier in Synthetic Biology." 2013 Sino-USA Chinese Collaborative Workshop--Opportunities and Challenges in Synthetic Biology, Tianjin, China, June 21, 2013.
185. "Discovery of Novel Natural Products by Refactoring Cryptic Pathways." 12th International Symposium on the Genetics of Industrial Microorganisms, Cancun, Mexico, June 24, 2013.
186. "Biocatalysis: To Be or Not to Be?" BIOTRANS 2013, Manchester, UK, July 25, 2013.
187. "Synthetic Biology: Putting Synthesis into Biology." Stockholm University, Stockholm, Sweden, August 7, 2013.
188. "Synthetic Biology: Putting Synthesis into Biology." Department of Cellular and Molecular Medicine, University of California, San Diego, August 13, 2013.
189. "Expanding the Boundaries of Biocatalysis." Society for Industrial Microbiology and Biotechnology Annual Meeting, San Diego, August 15, 2013.
190. "Discovery of Novel Natural Products via Synthetic Biology." Society for Industrial Microbiology and Biotechnology Annual Meeting, San Diego, August 15, 2013.
191. "Synthetic Biology: Putting Synthesis into Biology." Department of Biomedical Engineering, Duke University, September 5, 2013.
192. "Expanding the Boundaries of Synthetic Biology." Department of Chemical and Biomolecular Engineering, National University of Singapore, September 17, 2013.
193. "Protein Engineering as an Enabling Synthetic Biology Tool." ECI Enzyme Engineering Conference, Japan, September 24, 2013.
194. "Expanding the Boundaries of Synthetic Biology." Department of Chemistry, University of Chicago, September 30, 2013.
195. "Expanding the Boundaries of Synthetic Biology." International Symposium of Korean Society of Biotechnology and Bioengineering, October 18, 2013 (Keynote lecture)
196. "Discovery of Novel Natural Products via Synthetic Biology." University of Illinois at Chicago, November 8, 2013.

197. "Expanding the Boundaries of Biomolecular Engineering through Synthetic Biology." Case Western University, Cleveland, Ohio, November 14, 2013.
198. "Synthetic Biology: Putting Synthesis into Biology." National University of Singapore, Singapore, November 27, 2013.
199. "Expanding the Boundaries of Synthetic Biology: An American Perspective." Chinese Academy of Sciences Forum on Frontiers of Science and Technology (FFST) — Synthetic Biology, Beijing, China, December 26, 2013.
200. "Synthetic Biology: Opportunities and Challenges." Tsinghua University, Beijing, China, December 27, 2013.
201. "Expanding the Boundaries of Synthetic Biology." Shanghai JiaoTong University, Shanghai, China, December 31, 2013.
202. "Expanding the Boundaries of Synthetic Biology." Shanghai Chinese Academy of Sciences Institute of Plant Physiology and Ecology, Shanghai, China, January 2, 2014.
203. "Synthetic Biology: A New Research Frontier for Chemical Engineers." Clemson University, South Carolina, January 16, 2014.
204. "Design and Engineering of Microbial Cell Factories for Biofuels Production." Center for Advanced BioEnergy Research, University of Illinois, Urbana, IL, February 24, 2014.
205. "Expanding the Boundaries of Synthetic Biology." Elmer Gaden Award lecture, American Chemical Society Annual Meeting, Dallas, March 18, 2014.
206. "Enabling Multistep Enzyme Processes via Synthetic Biology." 3rd Congress on Multistep Enzyme Catalyzed Processes (MECP14), Madrid, Spain, April 7, 2014 (Opening Keynote).
207. "Challenges and Opportunities in Synthetic Biology." 36th Symposium on Biotechnology for Fuels and Chemicals, Clearwater, Florida, April 30, 2014.
208. "Synthetic Biology and Biosystems Design." Institute for Genomic Biology Fellows Symposium, University of Illinois, Urbana, May 8, 2014.
209. "Natural Product Discovery and Development via Synthetic Biology." Workshop on Pharmaceutical Synthetic Biology, China Pharmaceutical University, May 19, 2014 (keynote lecture).
210. "Challenges and Opportunities in Synthetic Biology." Chinese Academy of Sciences Guangzhou Institute of Advanced Technologies, Guangzhou, May 26, 2014.
211. "Metabolic Engineering via RNAi-Assisted Genome Evolution (RAGE)." Society for Biological Engineering's Metabolic Engineering Conference X, Vancouver, Canada, June 16, 2014.
212. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." LanzaTech, Chicago, IL, June 23, 2014
213. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." ADM, Decatur, IL, June 25, 2014
214. "Discovery and Characterization of Novel Natural Products via Synthetic Biology." Synthetic Biology: Engineering, Evolution & Design Conference (SEED2014), Manhattan Beach, CA, July 17, 2014.
215. "Discovery and Characterization of Novel Natural Products via Synthetic Biology." ESF-EMBO Conference on Synthetic Biology of Antibiotic Production II, Sant Feliu de Guixols, Spain, September 1, 2014.

216. "Synthetic Biology: A New Frontier in Bioengineering and Biotechnology." *Frontiers in Bioengineering*, University of Illinois at Urbana-Champaign, Urbana, IL, September 9, 2014.
217. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." Technical University of Hamburg, Hamburg, Germany, September 15, 2014.
218. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." *Innovation Connecting Show*, Toulouse, France, September 17, 2014 (Keynote lecture).
219. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." Institute of Microbiology, Chinese Academy of Sciences, Beijing, November 1, 2014.
220. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." Tsinghua University, Beijing, China, November 2, 2014.
221. "Challenges and Opportunities in Synthetic Biology." Indo-US Workshop on Synthetic and Systems Biology, New Delhi, India, November 9, 2014.
222. "Challenges and Opportunities in Synthetic Biology." AIChE Annual Meeting, Atlanta, GA, November 17, 2014.
223. "Synthetic Biology: Challenges and Opportunities." School of Chemical Engineering, Zhejiang University, Hangzhou, China, December 1, 2014.
224. "Expanding the Boundaries of Synthetic Biology." 3rd Cold Spring Harbor Asia Conference on Synthetic Biology, Suzhou, China, December 4, 2014.
225. "Genome-scale Engineering by RNAi-Assisted Genome Evolution (RAGE)." 2014 Sino-USA Chinese Collaborative Workshop--Opportunities and Challenges in Synthetic Biology, Tianjin, China, December 6, 2014.
226. "Cellular Engineering by RNAi Assisted Genome Evolution (RAGE)." Korea University, Seoul, February 6, 2015.
227. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." *Biosystems Design 1.0*, Singapore, February 9, 2015.
228. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." Department of Electrical Engineering, University of Iowa, Iowa City, March 12, 2015.
229. "Challenges and Opportunities in Synthetic Biology." University of Manchester, UK, March 23, 2015.
230. "Discovery of Natural Products via Synthetic Biology." *Directing Biosynthesis IV*, The John Innes Centre, Norwich, UK. March 27, 2015.
231. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." University of Edinburg, Scotland, March 30, 2015.
232. "Challenges and Opportunities in Synthetic Biology." Indiana University School of Medicine, Indianapolis, April 14, 2015.
233. "Synthetic Biology: Putting Synthesis into Biology." College of Pharmacy, University of North Carolina, Chapel Hill, April 16, 2015.
234. "Exploring the Synergy between Chemical Catalysis and Biological Catalysis." Scholl of Chemical Engineering, Tianjin University, May 5, 2015.
235. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." CAS Tianjin Institute of Industrial Biotechnology, Tianjin, China, May 6, 2015 (Inaugural TIB Distinguished Lecturer)
236. "Challenges and Opportunities in Synthetic Biology." CAS Institute of Biophysics, Beijing, China, May 7, 2015.

237. "Exploring the Synergy between Chemical Catalysis and Biological Catalysis." Southeast Asia Catalysis Conference 2015, Singapore, May 14, 2015 (plenary lecture).
238. "Challenges and Opportunities in Synthetic Biology." Shanghai Jiao-Tong University, Shanghai, China, June 10, 2015.
239. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." Wuhan University, Wuhan, China, June 12, 2015.
240. "Building a Biological Foundry for Next-generation Synthetic Biology." A*STAR Visiting Investigator Program meeting, Singapore, June 17, 2015.
241. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." Temasek Lifesciences Laboratory, Singapore, June 18, 2015.
242. "Challenges and Opportunities in Synthetic Biology." Beijing Institute of Technology, China, July 23, 2015.
243. "An Automated Cellular Engineering (ACE) Platform for Metabolic Engineering." Bioeconomy Conference, Tianjin, July 24, 2015.
244. "Discovery and Engineering of Novel Natural Products via Synthetic Biology." Society for Industrial Microbiology and Biotechnology annual meeting, Philadelphia, August 4, 2015
245. "Pathway Engineering via Synthetic Biology." Society for Industrial Microbiology and Biotechnology annual meeting, Philadelphia, August 4, 2015
246. "Synthetic Biology: A New Engine for the Third Wave of Biotechnology." Center for Biosustainability, Denmark, August 11, 2015.
247. "Enabling Multistep Enzyme Catalyzed Processes via Synthetic Biology." ECI Enzyme Engineering XXIII, St. Petersburg, FL, September 8, 2015.
248. "Building a Biological Foundry for Next-generation Synthetic Biology." Shenzhen Biotechnology Conference, Shenzhen, September 23, 2015.
249. "Synthetic Biology 2.0." National University of Singapore, Singapore, October 1, 2015.
250. "Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB)." Toulouse White Biotechnology, Toulouse, France, October 7, 2015.
251. "Building a Biological Foundry for Next-generation Synthetic Biology." Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO, November 3, 2015.
252. "Discovery and Engineering of Novel Natural Products via Synthetic Biology." Eli Lilly Research Symposium, San Diego, CA, November 16, 2015.
253. "Discovery and Engineering of Novel Natural Products via Synthetic Biology." Metabolic Engineering Summit, December 2, 2015, Beijing, China.
254. "Enzyme Engineering as an Enabling Tool for Synthetic Biology/Chemistry." Pacifichem, Honolulu, HI, December 16, 2015.
255. "Discovery of Novel Natural Products via Synthetic Biology." Pacifichem, Honolulu, HI, December 18, 2015.

F. Offices Held in Professional Societies

Conference Chair (2014-2017), Biosystems Design Annual Symposium, Singapore
 Program co-Chair (2013), ECI's Biochemical and Molecular Engineering XVIII
 Member of Scientific Committee (2012), 15th International Biotechnology Symposium and Exhibition
 Organizing Committee (2012), NAE's Indo-American Frontiers of Engineering

Program co-Chair (2011-2013), Natural Products, Society for Industrial Microbiology
Member of Organizing Committee (2011), Asian Congress of Biotechnology
Program Chair (2009), Division of Biochemical Technology, American Chemical Society
Program Chair (2009), Biocatalysis, Society for Industrial Microbiology
Program co-Chair (2007-2008), Biocatalysis, Society for Industrial Microbiology

G. Editorships of Journals or Other Learned Publications

Associate Editor, *ACS Catalysis*, 2010-date
Editorial Board Member, *Journal of Industrial Microbiology and Biotechnology*, 2010-date
Editorial Board Member, *ACS Synthetic Biology*, 2012-date
Editorial Board Member, *Scientific Reports*, 2012-date
Editorial Board Member, *Biotechnology and Applied Biochemistry (BAB)*, 2012-date
Editorial Board Member, *Biocatalysis*, 2014-date
Editorial Board Member, *Applied Biochemistry and Biotechnology*, 2004-2008
Editorial Board Member, *Engineering in Life Sciences*, 2014-date
Section Editor, *Current Opinion in Biotechnology*, 2008
Section Editor, *Manual of Industrial Microbiology and Biotechnology*, ASM Press, 2008-2009
Section Editor, *Current Opinion in Chemical Biology*, 2014

H. Grants Received (approximately \$16M)

I. Review Panels

NSF SBIR/STTR Phase I, Sensors III, Bio-based Sensors Review Panel, Washington, DC, March 24-25, 2003.
NIH *ad hoc* Biochemistry Study Section, Washington, DC, November 13-14, 2003.
NSF SBIR/STTR Phase I, Bio-based Sensors Review Panel, Washington, DC, April 5-6, 2004.
NSF Metabolic Engineering Review Panel, Washington, DC, April 27-28, 2005.
NSF SBIR/STTR Phase I, Industrial Bioproducts Review Panel, Washington, DC, March 14-15, 2006.
NSF BES Biochemical Engineering/Biotechnology Review Panel, Washington, DC, April 20-21, 2006.
NSF BES CAREER Review Panel, Washington, DC, November 8-9, 2006.
NSF CBET Review Panel, Washington, DC, December 3-4, 2007.
NSF BES Biochemical Engineering/Biotechnology Review Panel, Washington, DC, December 10-11, 2008.
DOE Site Review Panel for Joint BioEnergy Institute (JBEI), Emeryville, CA, September 30 to October 1, 2009
DOE Year Three Review Panel of DOE's Three Bioenergy Research Centers, September 26-30, 2010
NIH Interdisciplinary Molecular Sciences and Training Integrated Review Group (IRG), Washington, DC, March 10-11, 2011.
NSF SBIR/STTR Review Panel, Washington, DC, August 18, 2011.
NIH SBCB Study Section, Baltimore, MD, October 4-5, 2011.
NSF CBET/MCB CAREER Review Panel, Washington, DC, November 3-4, 2011
NSF SBIR/STTR Review Panel, Washington, DC, January 31 and February 1, 2012.

NIH Ad Hoc Study Section for P01 Project Proposal, Online, November 20, 2012.
NIH U41 mail review, November 17, 2014
NSF CBET Review Panel, Washington, DC, January 19-20, 2015

II. PUBLICATIONS AND CREATIVE WORKS

A. Doctoral Thesis Title

Enzyme Design by Directed Evolution, 1998.

B. Books Authored or Co-Authored (in print or accepted)

not applicable

C. Books Edited or Co-Edited (in print or accepted)

H. Zhao (ed), *Synthetic Biology: Tools and Applications*. Academic Press-Elsevier, Amsterdam, 2013.

D. Chapters in Books (in print or accepted)

1. H. Zhao, J. C. Moore, A. A. Volkov and F. H. Arnold. "Methods for Optimizing Industrial Enzymes by Directed Evolution." In *Manual of Industrial Microbiology and Biotechnology*, 2nd Ed. (A. L. Demain and J. E. Davies, Eds.) pp. 597-604, ASM Press, Washington, DC, 1999.
2. H. Zhao and W. Zha. "Evolutionary Methods for Protein Engineering." In *Enzyme Functionality: Design, Engineering and Screening*, (A. Svendsen Ed.) pp. 353-373, Marcel Dekker, Inc., New York, NY, 2003.
3. W. Zha, T. Zhu, and H. Zhao. "Family Shuffling with Single-stranded DNA." In *Methods in Molecular Biology*, Volume 231, pp. 93-99: Directed Evolution Library Creation: Methods and Protocols, (F.H. Arnold and G. Georgiou, Eds.), Humana Press Inc., Totowa, NJ, 2003.
4. O. Esteban, R. D. Woodyer, and H. Zhao. "*In vitro* DNA recombination by Random Priming." In *Methods in Molecular Biology*, Volume 231, pp. 101-106: Directed Evolution Library Creation: Methods and Protocols, (F.H. Arnold and G. Georgiou, Eds.), Humana Press Inc., Totowa, NJ, 2003.
5. H. Zhao. "A pH Indicator Based Screening Method for Hydrolytic Haloalkane Dehalogenase." In *Methods in Molecular Biology*, Volume 230, pp. 213-221: Directed Enzyme Evolution: Screening and Selection Methods (F.H. Arnold and G. Georgiou, Eds.), Humana Press Inc., Totowa, NJ, 2003.
6. R. D. Woodyer, T. Johannes, and H. Zhao. "Cofactor Regeneration for Biocatalytic Applications." In *Enzyme Technology*, (A. Pandey, C. Webb, C. S. Soccol, and C. Larroche, Eds.) pp. 83-101, Asiatech Publishers, Inc., New Delhi, India, 2004.
7. T. Johannes, M. Simurdiak and H. Zhao. "Biocatalysis." In *Encyclopedia of Chemical Processing*, (S. Lee, Ed.) pp. 101-110, Marcel Dekker, Inc., New York, NY, 2006.
8. Z. Chen and H. Zhao. "Protein Design." In *Encyclopedia of Chemical Processing*, (S. Lee, Ed.) pp. 2467-2477, Marcel Dekker, Inc., New York, NY, 2006.

9. Shao, Z., Ang, E. and H. Zhao. "Biomolecular Engineering." In *Encyclopedia of Chemical Processing*, (S. Lee, Ed.) pp. 171-182, Marcel Dekker, Inc., New York, NY, 2006.
10. T. Johannes, R. Woodyer, and H. Zhao. "High Throughput Screening Methods Developed for Oxidoreductases." In *Enzyme Assays: High-throughput Screening, Genetic Selection and Fingerprinting*, (J.L. Reymond, Ed.) pp. 77-93, Wiley VCH-Verlag GmbH, Weinheim, Germany, 2006.
11. S. Rubin-Pitel, C. M.-H. Cho, W. Chen, and H. Zhao. "Directed Evolution Tools in Bioproduct and Bioprocess Development." In *Bioprocessing for Value-Added Products from Renewable Resources: New Technologies and Applications*, (S.-T. Yang, Ed.) pp. 49-72, Elsevier Science, New York, NY, 2006.
12. F. Wen, M. McLachlan, and H. Zhao. "Novel and Improved Enzymes through Directed Evolution." In *Wiley Encyclopedia of Chemical Biology*, John Wiley & Sons, Hoboken, NJ, 2008, DOI: 10.1002/9780470048672.weceb125.
13. M. DeSieno, J. Du, and H. Zhao. "Altering Enzyme Substrate and Cofactor Specificity via Protein Engineering." In *Protein Engineering Handbook*, (S. Lutz, U. Bornscheuer, Eds.), pp 777-796, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2009.
14. N. U. Nair and H. Zhao. "Improving Proteins by Directed Evolution." In *Handbooks for Metabolic Engineering*, (C. Smolke, Ed.) pp. 2.1-2.37, CRC Press, Taylor and Francis Group, Boca Raton, FL, 2009.
15. M. McLachlan, R.P. Sullivan, and H. Zhao. "Directed Enzyme Evolution and High Throughput Screening." In *Biocatalysis for the Pharmaceutical Industry-Discovery, Development, and Manufacturing*, (J. Tao, G., Lin, and A. Liese, Eds.) pp. 45-64, John Wiley and Sons (Asia) Pte Ltd, Singapore, 2009.
16. H. Zhao and S. K. Nair. "*p*-Aminobenzoate *N*-Oxygenase." *Handbook of Metalloproteins*. John Wiley & Sons, Inc. 2009, DOI: 10.1002/0470028637.met257.
17. F. Wen, S. Rubin-Pitel, and H. Zhao. "Engineering of Therapeutic Proteins." In *Protein Engineering and Design*, (J. Cochran and S. Park, Eds.), pp153-177, CRC Press, Taylor & Francis Group, Boca Raton, FL, 2010.
18. M. DeSieno, C. Denard, and H. Zhao. "Combinatorial Biosynthesis for Drug Discovery and Development." In *Chemical Biology of Enzymes in Biotech and Pharmaceutical Applications*, (W.K. Yeh, H.C. Yang, and J. R. McCarthy, Eds.), pp253-283, John Wiley & Sons, Inc., Hoboken, NJ, 2010.
19. N. U. Nair, W. Tang, D. Eriksen, and H. Zhao. "Industrial Applications of Enzymes as Catalysts." In *Manual of Industrial Microbiology and Biotechnology*, 3rd Ed. (A. L. Demain, R. Baltz, and J. E. Davies, Eds.), pp480-494, ASM Press, Washington, DC, 2010.
20. B. Kim, J. Du, and H. Zhao. "Strain Improvement via Evolutionary Engineering." In *Engineering Complex Phenotypes in Industrial Strains* (R. Patnaik, Ed.), pp. 111-131, John Wiley & Sons, Inc., 2012.
21. Z. Shao, Y. Luo, and H. Zhao. "DNA Assembler Method for Construction of Zeaxanthin-producing *Saccharomyces cerevisiae* Strains." In *Methods in Molecular Biology* (J.L. Barredo Fuente, Ed.), Volume 898, pp. 251-262, Humana Press Inc., Totowa, NJ, 2012.
22. N. U. Nair and H. Zhao. "Mutagenic Inverted Repeat Assisted Genome Engineering (MIRAGE) in *Saccharomyces cerevisiae*: Deletion of *gal7*." In *Methods in Molecular Biology*, Volume 834, pp. 63-73 (Q. Chen, Ed.), Humana Press Inc., Totowa, NJ, 2012.

23. Z. Shao and H. Zhao. "Construction and Engineering of Large Biochemical Pathways via DNA Assembler." In *Synthetic Biology, Methods in Molecular Biology*, Volume 1073, pp. 85-106 (K.M. Polizzi, C. Kontoravdi, Eds.), Humana Press Inc., Totowa, NJ, 2013.
24. Y. Yuan, J. Du, and H. Zhao. "Customized Optimization of Metabolic Pathways by Combinatorial Transcriptional Engineering (COMPACTER)." In *Methods in Molecular Biology*, Volume 985, pp. 177-209 (H. Alper Ed.), Humana Press Inc., Totowa, NJ, 2013.
25. F. Wen and H. Zhao. "Construction and screening of an antigen-derived peptide library displayed on yeast cell surface for CD4+ T cell epitope identification." In *Immunoproteomics: Methods and Protocols*, Methods in Molecular Biology, Volume 1061, pp. 245-264 (S. Twine and K. Fulton, Eds.), Humana Press Inc., Totowa, NJ, 2013.
26. H. Zhao. "Introduction." In *Synthetic Biology: Tools and Applications*, (H. Zhao, Ed.), pp. xiii, Elsevier, San Diego, CA, 2013.
27. D. Eriksen, S. Li, and H. Zhao. "Pathway Engineering as an Enabling Synthetic Biology Tool." In *Synthetic Biology: Tools and Applications*, (H. Zhao, Ed.), pp. 43-62, Elsevier, San Diego, CA, 2013.
28. R. E. Cobb, Y. Luo, T. Freestone, and H. Zhao. "Drug Discovery and Development via Synthetic Biology." In *Synthetic Biology: Tools and Applications*, (H. Zhao, Ed.), pp. 183-206, Elsevier, San Diego, CA, 2013.
29. N. Sun and H. Zhao. "A Two-plasmid Bacterial Selection System for Characterization and Engineering of Homing Endonucleases." In *Methods in Molecular Biology*, Volume 1123, pp. 87-96 (D. Edgell, Ed.), Humana Press Inc., Totowa, NJ, 2014.
30. Y. Liang, E.L. Ang, and H. Zhao. "Directed Evolution of Enzymes for Industrial Biocatalysis." In *Industrial Biocatalysis*, (P. Grunwald, Ed.), pp. 73-110, Pan Stanford Publishing, Singapore, 2014.
31. Z. Shao and H. Zhao. "Manipulating Natural Product Biosynthetic Pathways via DNA Assembler." In *Current Protocols in Chemical Biology*, 6, 65-100 (2014).
32. Y. Liang, M. Zhang, E. Ang, and H. Zhao. "Biocatalysis for Drug Discovery and Development." In *Biocatalysis-Green Technology*, (R. Patel, Ed.) pp. xxx, John Wiley & Sons, Hoboken, New Jersey, 2014.
33. S. Shi, H. Zhang, E. Ang, and H. Zhao. "High Throughput Screening or Selection Methods for Evolutionary Enzyme Engineering." In *Understanding Enzymes: Function, Design, Engineering and Analysis*, (A. Svendsen, Ed.) pp. xxx, Pan Stanford Publishing, Singapore, submitted on 4/14/2014.
34. D. Eriksen, R. Chao, and H. Zhao. "Applying Advanced DNA Assembly Methods to Generate Pathway Libraries." In *Wiley Biotech Series - Synthetic Biology*, (C. Smolke and S. Panke, Eds.), pp. xxx, in press.
35. C. Denard, H. Huang, M. J. Bartlett, L. Lu, Y. Tan, H. Zhao and J. F. Hartwig. "Cooperative Tandem Catalysis Using a Ruthenium Metathesis Catalyst and a P450 Enzyme." In *Practical Methods in Biocatalysis and Biotransformations*, (P. Sutton, J. Whittall, W. Kroutil, Eds.) pp. xxx, John Wiley and Sons, submitted.
36. M. Wang and H. Zhao. "Combined and Iterative Use of Computational Design and Directed Evolution for Protein-Ligand Binding Design." In *Synthetic Biology, Methods in Molecular Biology*, Volume xxx, pp. xxx (B. Stoddard, Ed.), Humana Press Inc., Totowa, NJ, 2015, submitted 6/28/2015.

37. T. Si and H. Zhao. "RNAi-assisted Genome Evolution in *Saccharomyces cerevisiae*." In *Methods in Molecular Biology*, (D. Azorsa and S. Arora Eds.), Humana Press Inc., Totowa, NJ, 2015, submitted 6/28/2015.
38. Y. Liang, E. Ang, and H. Zhao. "Engineered Minicellulosomes for Consolidated Bioprocessing." In *Handbook of Carbohydrate-Modifying Biocatalysts*, (P. Grunwald, Ed.), xxx, Pan Stanford Publishing, Singapore, submitted on 7-30-2015.

E. Monographs (in print or accepted)

not applicable

F. Articles in Journals (in print or accepted)

1. Y. Shi, H. Zhao and C. Wang. "Relative Binding Free Energy Calculations of DNA to Daunomycin and its 13-Dihydro Analogue." *International Journal of Biological Macromolecules*, 15, 247-251 (1993).
2. H. Zhao and F. H. Arnold. "Optimization of DNA Shuffling of High Fidelity Recombination." *Nucleic Acids Research*, 25, 1307-1308 (1997).
3. H. Zhao and F. H. Arnold. "Functional and Non-functional Mutations Distinguished by Random Recombination of Homologous Genes." *Proceedings of National Academy of Sciences of the United States of America*, 94, 7997-8000 (1997). PMC21544
4. H. Zhao and F. H. Arnold. "Combinatorial Protein Design: Strategies for Screening Protein Libraries." *Current Opinion in Structural Biology*, 7, 480-485 (1997).
5. Z. Shao, H. Zhao, L. Giver and F. H. Arnold. "Random-Priming *in vitro* Recombination: An Effective Tool for Directed Evolution." *Nucleic Acids Research*, 26, 681-683 (1998).
6. H. Zhao, L. Giver, Z. Shao, J. A. Affholter and F. H. Arnold. "Molecular Evolution by Staggered Extension Process (StEP) *in vitro* Recombination." *Nature Biotechnology*, 16, 258-261 (1998).
7. H. Zhao and F. H. Arnold. "Directed Evolution Converts Subtilisin E into a Functional Equivalent of Thermitase." *Protein Engineering*, 12, 47-53 (1999).
8. H. Zhao, K. Chockalingam and Z. Chen. "Directed Evolution of Enzymes and Pathways for Industrial Biocatalysis." *Current Opinion in Biotechnology*, 13, 104-110 (2002).
9. Z. Chen and H. Zhao. "A Highly Efficient and Sensitive Screening Method for Trans-activation Activity of Estrogen Receptors." *Gene*, 306, 127-134 (2003).
10. J. Sun, J. A. Katzenellenbogen, H. Zhao, and B.S. Katzenellenbogen. "DNA Shuffling Method for Generating Estrogen Receptor α and β Chimeras in a Yeast System." *Biotechniques*, 34, 278-288 (2003).
11. W. A. van der Donk and H. Zhao. "Recent Developments in Pyridine Nucleotide Regeneration." *Current Opinion in Biotechnology*, 14, 421-426 (2003).
12. H. Zhao and W. A. van der Donk. "Cofactor Regeneration for Use in Biocatalysis." *Current Opinion in Biotechnology*, 14, 583-589 (2003).
13. R.D. Woodyer, W. A. van der Donk and H. Zhao. "Relaxing the Nicotinamide Cofactor Specificity of Phosphite Dehydrogenase by Rational Design." *Biochemistry*, 42, 11604-11614 (2003).
14. R. D. Woodyer, W. Chen and H. Zhao. "Outrunning Nature: Directed Evolution of Superior Biocatalysts." *Journal of Chemical Education*, 81, 126-133 (2004).

15. H. Zhao. "Staggered Extension Process (StEP) *in vitro* DNA Recombination." *Methods in Enzymology*, 388, 42-49 (2004).
16. W. Zha, Z. Shao, J. W. Frost, and H. Zhao. "Rational Pathway Engineering of Type I Fatty Acid Synthase Allows Biosynthesis of Triacetic Acid Lactone from D-Glucose *in vivo*." *Journal of the American Chemical Society*, 126, 4534-4535 (2004).
17. O. Esteban, and H. Zhao. "Directed Evolution of Soluble Single-chain Human Class II MHC Molecules on the Yeast Cell Surface." *Journal of Molecular Biology*, 340, 81-95 (2004).
18. Z. Chen, B. S. Katzenellenbogen, J. A. Katzenellenbogen, and H. Zhao. "Directed Evolution of Human Estrogen Receptor Variants with Significantly Enhanced Androgen Specificity and Affinity." *Journal of Biological Chemistry*, 279, 33855-33864 (2004).
19. R. Woodyer, M. Simurdiak, W. A. van der Donk, and H. Zhao. "Heterologous Expression, Purification and Characterization of a Highly Active Xylose Reductase from *Neurospora crassa*." *Applied and Environmental Microbiology*, 71, 1642-1647 (2005). PMC1065158
20. Z. Chen and H. Zhao. "Rapid Creation of a Novel Protein Function by *in vitro* Co-evolution." *Journal of Molecular Biology*, 348, 1273-1282 (2005).
21. K. Chockalingam, Z. Chen, J. A. Katzenellenbogen, and H. Zhao. "Directed Evolution of Specific Receptor-Ligand Pairs for Use in the Creation of Gene Switches." *Proceedings of National Academy of Sciences of the United States of America*, 102, 5691-5696 (2005). PMC556283
22. J. Achkar, M. Xian, H. Zhao, and J. W. Frost. "Biosynthesis of Phloroglucinol." *Journal of the American Chemical Society*, 127, 5332-5333 (2005).
23. K. Chockalingam and H. Zhao. "Creating New Specific Ligand-Receptor Pairs for Transgene Regulation." *Trends in Biotechnology*, 23, 333-335 (2005).
24. E. Ang, H. Zhao, and J. P. Obbard. "Bioremediation of Persistent Organic Pollutants via Biomolecular Engineering." *Enzyme and Microbial Technology*, 37, 487-496 (2005).
25. R. Woodyer, H. Zhao, and W. A. van der Donk. "Mechanistic Investigation of a Highly Active Phosphite Dehydrogenase Mutant and its Application for NADPH Regeneration." *FEBS Journal*, 272, 3816-3827 (2005).
26. T. Johannes, R. Woodyer, and H. Zhao. "Directed Evolution of a Thermostable Phosphite Dehydrogenase for NAD(P)H Regeneration." *Applied and Environmental Microbiology*, 71, 5728-5734 (2005). PMC1265921
27. J. Lee, M. Simurdiak, and H. Zhao. "Reconstitution and Characterization of Aminopyrrolnitrin Oxidase that Catalyzes Unusual Arylamine Oxidation." *Journal of Biological Chemistry*, 280, 36719-36728 (2005).
28. Z. Chen and H. Zhao. "A Highly Sensitive Selection Method for Directed Evolution of Homing Endonucleases." *Nucleic Acids Research*, 33, e154 (2005). PMC1253837
29. J. Lee and H. Zhao. "Mechanistic Studies on the Conversion of Arylamines into Arylnitro Compounds by Arylaminopyrrolnitrin Oxygenase: Identification of Intermediates and Kinetic Studies." *Angewandte Chemie International Edition*, 45, 622-625 (2006).
30. D. Xie, Z. Shao, J. Achkar, W. Zha, J. W. Frost, and H. Zhao. "Microbial Synthesis of Triacetic Acid Lactone." *Biotechnology and Bioengineering*, 93, 727-736 (2006).
31. R. Woodyer, W. A. van der Donk, and H. Zhao. "Optimizing a Biocatalyst for Improved NAD(P)H Regeneration: Directed Evolution of Phosphite Dehydrogenase." *Combinatorial Chemistry and High Throughput Screening*, 9, 237-245 (2006).

32. S. Rubin-Pitel and H. Zhao. "Recent Advances in Biocatalysis by Directed Enzyme Evolution." *Combinatorial Chemistry and High Throughput Screening*, 9, 247-257 (2006).
33. T. Johannes and H. Zhao. "Directed Evolution of Enzymes and Biosynthetic Pathways." *Current Opinion in Microbiology*, 9, 261-267 (2006).
34. M. Simurdiak, J. Lee, and H. Zhao. "A New Class of Arylamine Oxygenases: Evidence that *p*-Aminobenzoate *N*-Oxygenase (AurF) is a Diiron Enzyme and Further Mechanistic Studies." *ChemBioChem*, 7, 1169-1172 (2006).
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163. D. Eriksen, M. Hamedirad, Y. Yuan, and H. Zhao. "Orthogonal Fatty Acid Biosynthetic Pathway Improves Fatty Acid Ethyl Ester Production in *Saccharomyces cerevisiae*." *ACS Synthetic Biology*, 4, 808 – 814 (2015).
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166. R. Chao, Y. Yuan, and H. Zhao. "Building Biological Foundries for Next Generation Synthetic Biology." *Science China-Life Sciences*, 58, 658–665 (2015).
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168. Y. Luo, B. Li, D. Liu, L. Zhang, Y. Chen, B. Ji, B.-X. Zeng, H. Zhao, and Y. Yuan. "Engineered Biosynthesis of Natural Products in Heterologous Hosts." *Chemical Society Review*, 44, 5265 – 5290 (2015).
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173. Z. Abil and H. Zhao. "Engineering Reprogrammable RNA-Binding Proteins for Study and Manipulation of the Transcriptome." *Molecular Biosystems*, 11, 2658 – 2665 (2015).

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175. T. Freestone and H. Zhao. "Combinatorial Pathway Engineering for Optimized Production of the Anti-malarial FR900098." *Biotechnology and Bioengineering*, DOI:10.1002/bit.25719.
176. M. Wang, C. Yu and H. Zhao. "Directed Evolution of Xylose Specific Transporters to Facilitate Glucose-Xylose Co-utilization." *Biotechnology and Bioengineering*, DOI: 10.1002/bit.25724.
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183. K. Nguyen, M. A. DeSieno, B. Bae, T. W. Johannes, R. E. Cobb, H. Zhao, and S. Nair. "Structure and Function of the Novel Flavin Monooxygenase FrbG Involved in Biosynthesis of the Antimalarial FR-900098." *Chemical Communications*, submitted.
184. J. Quarterman, J. M. Skerker, X. Feng, I. Y. Liu, H. Zhao, A. P. Arkin, and Y. S. Jin. "Beyond Death Valley of Metabolic Landscape: Rapid and Efficient Galactose Fermentation by Engineered *Saccharomyces cerevisiae*." *Biotechnology and Bioengineering*, submitted on 7/8/2015.
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187. W. Guo, J. Sheng, H. Zhao, X. Feng. "Metabolic Engineering of *Saccharomyces cerevisiae* to Produce 1-Hexadecanol from Xylose." *Microbial Cell Factories*, submitted on 9/8/2015.
188. Y. Luo, B. Enghiad, and H. Zhao. "New Tools for Reconstruction and Heterologous Expression of Biosynthetic Gene Clusters." *Natural Products Research*, submitted on 8/1/2015
189. S. Shi, Y. Liang, M. Zhang, E. Ang, and H. Zhao. "A Highly Efficient Single-step, Markerless, and Multi-copy Strategy for Chromosomal Integration of Full Biochemical Pathways in *Saccharomyces cerevisiae*." *Metabolic Engineering*, submitted on 8/10/2015

190. M. Wang, C. Yu, and H. Zhao. "Identification of an Important Motif that Controls the Activity and Specificity of Sugar Transporters in *Saccharomyces cerevisiae*." *Biotechnology and Bioengineering*, submitted on 9/25/2015.
191. S. Shi, T. Si, Z. Liu, H. Zhang, E. Ang, and H. Zhao. "Metabolic Engineering of an Endogenous Pathway for n-Butanol Production in *Saccharomyces cerevisiae*." *Metabolic Engineering*, submitted on 10/1/2015.
192. H. Zhang, X. Li, X. Su, E. Ang, Y. Zhang, and H. Zhao. "Production of Adipic Acid from Sugar Beet Residue by Combined Biological and Chemical Catalysis." *Angewandte Chemie International Edition*, submitted on 10/14/2015.
193. L. Cuculis, Z. Abil, H. Zhao, and C. Schroeder. "TALE Proteins Search DNA Using a Helical Zip-line Mechanism." *Science*, submitted on 10/19/2015.

G. Creative Works

not applicable

H. Bulletins, Reports, or Conference Proceedings (in print or accepted)

1. # H. Zhao, L. You, and F. H. Arnold. "Strategy for the Directed Evolution of a Peptide Ligase." *Proceedings of the 13th Enzyme Engineering Conference, Annals of the New York Academy of Sciences*, 799, 1-6 (1996).
2. # F. H. Arnold, L. Giver, A. Gershenson, H. Zhao, and K. Miyazaki. "Directed Evolution of Mesophilic Enzymes into Their Thermophilic Counterparts." *Annals of the New York Academy of Sciences*, 870, 400-403 (1999).
3. #N. U. Nair, Z. Shao, M. DeSieno, T. Johannes, H. Zhao, T. Lee, R.P. Sullivan, M. McLachlan, and H. Zhao. "Towards the Cost-effective Production of Antimalarial Drug FR900098 and Butanol." *Proceeding of Foundations of Systems Biology and Engineering (FOSBE)*, Denver, CO, 2009.

I. Abstracts (in print or accepted)

1. H. Zhao, R. Woodyer, T. Johannes. "Protein engineering of phosphite dehydrogenase for the development of a novel NAD(P)H regeneration system." *Abstracts of Papers of the American Chemical Society* 227, 130 (2004).
2. E. Ang, J. Obbard, and H. Zhao. "Engineering an Enzymatic Carbazole Denitrogenation Pathway." *Abstracts of Papers of the American Chemical Society* 229, 223 (2005).
3. E. Ang, Z. Chen, and H. Zhao. "Towards Engineering of an Androgen Receptor Equivalent from the Human Estrogen Receptor α ." *Abstracts of Papers of the American Chemical Society* 229, 242 (2005).
4. R. Woodyer, T. Johannes, W. A. van der Donk, and H. Zhao. "Protein Engineering of Phosphite Dehydrogenase for NAD(P)H Regeneration." *Abstracts of Papers of the American Chemical Society* 229, 229 (2005).
5. H. Zhao, R. Woodyer, T. Johannes, and M. McLachlan. "Development of a novel phosphite dehydrogenase based NAD(P)H regeneration system for industrial biocatalysis." *Abstracts of Papers of the American Chemical Society*, 230, (2006).
6. H. Zhao, K. Chockalingam, M. McLachlan, and K. Lai. "Protein engineering of gene switches." *Abstracts of Papers of the American Chemical Society*, 230, (2006).

7. H. Zhao, Z. Chen, Y. Choi, and S. Rubin-Pitel. "Directed evolution of homing endonuclease for gene targeting." *Abstracts of Papers of the American Chemical Society*, 230, (2006).
8. H. Zhao and N. Nair. "Evolution in reverse: engineering a xylose-specific xylose reductase." *Abstracts of Papers of the American Chemical Society*, 231, (2007).
9. H. Zhao, Z. Shao, and R. Woodyer. "Biosynthesis of fosfomycin." *Abstracts of Papers of the American Chemical Society*, 231, (2007).

J. Book Reviews (in print or accepted)

not applicable

K. Other

(1). Patents Issued and Pending (*: from UIUC)

1. F. H. Arnold, Z. Shao, J. A. Affholter, H. Zhao, and L. Giver. Recombination of Polynucleotide Sequences Using Random or Defined Primers. US 6,153,410 (2000).
2. F. H. Arnold, Z. Shao, H. Zhao, and L. Giver. ECB Deacylase Mutants. US 6,361,988 (2002).
- *3. H. Zhao and O. Esteban, Biological Scaffold Comprising Src, Major Histocompatibility and/or PDZ Domains for use as Diagnostic Tool in Detection of Metabolic Disorders. US 7,442,773 (2008).
- *4. H. Zhao, W. A. van der Donk, W. Metcalf, T. Johannes, and R. D. Woodyer. Phosphite Dehydrogenase Mutants for Nicotinamide Cofactor Regeneration. US 7,402,419 (2008).
- *5. H. Zhao, R. D. Woodyer, M. Simurdiak, and W. A. van der Donk. Highly Active Xylose Reductase from *Neurospora crassa*. US7381553 B2 (2008).
- *6. H. Zhao and Z. Chen. Method for Engineering a Protein by *in vitro* Coevolution. US20060183159 A1 (2006).
- *7. H. Zhao and K. Chockalingam. Method for Generating a Mutant Protein which Efficiently Binds a Target Molecule. US20060199250 A1 (2006).
- *8. H. Zhao and Z. Chen. Compositions and Method for Detecting Endonuclease Activity. US 2007/0042404 A1 (2007).
- *9. H. Zhao, J. Katzenellenbogen, P. Chambon, and D. Metzger. Method for Temporally Controlling the Biological Activity of Proteins in Vertebrates, and Applications thereof. CA2749789 A1 (2010).
- *10. H. Zhao and R.P. Sullivan. Arabinitol Dehydrogenases from *Neurospora Crassa*. US8114638 B2 (2012).
- *11. H. Zhao and N. Nair. Xylose Reductase Mutants and Uses Thereof. US 8,822,661 (2014).
- *12. N. L. Glass, C. Tian, W. T. Beeson IV, H. Zhao, J. Du, J. Choi, J. H. D. Cate, J. Galazka, S. Ha, S. Kim, S. Li, and X. Yang. Methods and Compositions for Improving Sugar Transport, Mixed Sugar Fermentation, and Production of Biofuels. 8,431,360 (2013).
- *13. H. Zhao, R. Sullivan, B. Bae, and S. Nair. Mutants of L-Arabinitol 4-dehydrogenase from *Neurospora crassa*. WO2011130509 A1 (2011).
- *14. H. Zhao, J. Du, B. Kim, D. Eriksen, T. Si, and Y. Yuan. Combinatorial Design of Highly Efficient Heterologous Pathways. WO2012045088 A3 (2012).
- *15. J. H. D. Cate, W. T. Beeson IV, J. Galazka, H. Zhao, S. Li, Y. Jin, and S. Ha. Enhanced Fermentation of Cellodextrins and β -D-Glucose. CA2824520 A1 (2012).

(2). Zhao Group in the News

1. "Prospecting for Proteins." Elizabeth K. Wilson, *Chemical and Engineering News*, pp. 38-43, April 12, 2002.
2. "Molecular sex for fun and profit." Ken Garber, *Latin Trade*, pp. 57-59, May 2001.
3. "Fatty acid pathway, glucose produce triacetic acid lactone" Jim Barlow, News Bureau, UIUC, April 1, 2004.
4. "[Sweeter way to make drug precursor.](#)" In-Pharma Technologist.com, June 4, 2004.
5. "[Researchers improve design of genetic on-off switches.](#)" Jim Barlow, News Bureau, UIUC, April 7, 2005. Also in Medical News Today (United Kingdom, April 8, 2005), Innovations Report (Germany, April 8, 2005), Technocrat.net (April 8, 2005), and Bio.com Weekly Newsletter (April 13, 2005), LincolnDailynews.com (June 8, 2005).
6. "[By creating molecular bridge, scientists change function of a protein.](#)" Jim Barlow, News Bureau, UIUC, May 5, 2005. Also in Biocompare (May 6, 2005), Medical News Today (United Kingdom, May 6, 2005), Innovations Report (Germany, May 9, 2005), Bio.com Weekly Newsletter (May 11, 2005), and Science Daily (May 17, 2005).
7. "[Scientists use 'bridge' to change protein function.](#)" BioScience World (Canada, May 10, 2005).
8. "[Researchers develop new way to make proteins.](#)" Greg Kline, The News-Gazette, June 6, 2005.
9. "[Cloning techniques produce FDA-approved Antibiotic.](#)" Kristen Aramthanapon, News Bureau, UIUC, November 27, 2006. Also in Unite Press International (November 28, 2006), Biology News Net (Canada, November 28, 2006), Innovation Report (Germany, November 28, 2006), PhysOrg.com (November 28, 2006), and Daily India (November 28, 2006).
10. "[UI researchers using faster-growing bacteria for antibiotics.](#)" Greg Kline, The News-Gazette, December 10, 2006.
11. "[Scientists use cloning to create antibiotic.](#)" LAS News, College of Liberal Arts and Sciences, UIUC, January 3, 2007.
12. "New way to make malaria medicine also first step in finding new antibiotics." Melissa Edwards, News Bureau, UIUC, September 26, 2008. Also in EurekAlert (September 26, 2008), Science Daily (September 26, 2008), ZAMP Bionews (September 29, 2008), UPI.com (October 1, 2008), Pharmaceutical Formulation and Quality (October/November 2008)
13. "Huimin Zhao: Taking Nature's evolution, and improving upon it." EBInsider, November 08, 2008.
14. "[Research Team Uncovers New Antibiotics in Unexplored Class of Compounds.](#)" LAS News, College of Liberal Arts and Sciences, UIUC, May 14, 2009.
15. "Sweet Yeast." The Scientist, page 59, July 2010.
16. "Finding Sweet Spot of Yeast is Synthetic Biologist Zhao's Quest." EBI Bulletin, Volume 5, Issue 1, Spring 2011.
17. "[New sensors streamline detection of estrogenic compounds.](#)" UI News, UIUC, August 25, 2011.
18. "[Illinois Engineering Professor Awarded Guggenheim Fellowship.](#)" UI News, UIUC, April 12, 2012
19. "The Tale of the TALEs." *Science*, News Focus, December 14, 2013.

20. ["New method of DNA editing allows synthetic biologists to unlock secrets of a bacterial genome."](#) Institute for Genomic Biology, UIUC, December 15, 2013.

(3) Awards and Honors by Students

1. Zhilei Chen
 - Best Oral Presentation, The 17th CMG/MBTG Research Symposium, Urbana, IL, 2004
 - Eugene Rabinowitch Graduate Fellowship, Center for Biophysics and Computational Biology, 2006
2. Karuppiah Chockalingam
 - Best Oral Presentation, The 18th CMG/MB Research Symposium, Urbana, IL, 2005
 - Second Best Poster Award, GSAC Research Symposium, Urbana, IL, 2005
 - Best Poster Award, UIUC Biotechnology Job Fair, Urbana, IL, 2005
3. Jung-Kul Lee
 - Shen Postdoc Fellowship, 2004-2005
4. Ryan Woodyer
 - W. H. Peterson Award for Best Student Poster Presentation, ACS Biochemical Technology Division, 2005
 - Henry Drickamer Graduate Fellowship, Department of Chemistry, UIUC, 2004-2005
5. Sheryl Rubin-Pitel
 - NSF Graduate Research Fellowship, 2005-2007
 - Second Place Award for Poster Presentation, 7th GSAC Research Symposium, Urbana, IL, 2008
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2008
6. Tyler Johannes
 - Best Poster Award, 4th GSAC Research Symposium, Urbana, IL, 2005
 - Mavis Memorial Scholarship Fellowship, College of Engineering, UIUC, 2006-2007
 - First Place Award for Poster Presentation, 6th GSAC Research Symposium, Urbana, IL, 2007
7. Fei Wen
 - Second Place Award for Poster Presentation, GSAC Research Symposium, Urbana, IL, 2006
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2009
8. Matthew DeSieno
 - NIH Chemistry and Biology Interface Trainee, 2007-2009
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2009
9. Victor Gonzalez
 - NIH Chemistry and Biology Interface Trainee, 2005-2007
10. Nikhil Nair
 - Mavis Memorial Scholarship, College of Engineering, UIUC, 2008-2009
 - Henry Drickamer Graduate Fellowship, Department of Chemical and Biomolecular Engineering, UIUC, 2008-2009

- Third Place Award for Oral Presentation, 7th GSAC Research Symposium, Urbana, IL, 2008
 - Best Oral Presentation, The 21st CMG/MBTG Research Symposium, Urbana, IL, 2008
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2008
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2009
 - Third Place Award for Oral Presentation, 8th GSAC Research Symposium, Urbana, IL, 2009
 - Graduate College Travel Award, UIUC, Urbana, IL 2009
11. Ryan Sullivan
- First Place Award for Oral Presentation, 7th GSAC Research Symposium, Urbana, IL, 2008
12. Ryan Cobb
- NIH Chemistry and Biology Interface Trainee, 2008-2010
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2011
 - First Place Award for Oral Presentation, 10th GSAC Research Symposium, Urbana, IL, 2011
 - Henry Drickamer Graduate Fellowship, Department of Chemical and Biomolecular Engineering, UIUC, 2012-2013
13. Dawn Eriksen
- NSF Graduate Research Fellowship, 2008-2011
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2009
 - Outstanding Poster Presentation, The 22nd CMG/MBTG Research Symposium, Urbana, IL, 2009
 - Excellence in Bioengineering Award, Bioengineering @ Illinois Day Graduate Student Poster Competition, Urbana, IL, 2010
 - Best Poster Award, Society for Industrial Microbiology and Biotechnology Annual Meeting, 2013
14. Vincent Ip
- Donald B. Keyes Award, Chemical and Biomolecular Engineering, UIUC, 2008
15. Luigi Chanco
- NIH Molecular Biophysics Training Grant, 2009-2011
16. Jing Du
- Chia-Chen Chu Graduate Fellowship, School of Chemical Sciences, UIUC 2009-2010
 - Henry Drickamer Graduate Fellowship, Department of Chemical and Biomolecular Engineering, UIUC, 2010-2011
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2010
17. Yunzi Luo
- Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2010

- First Place Award for Oral Presentation, 11th GSAC Research Symposium, Urbana, IL, 2012
 - Widiger Graduate Fellowship, 2013
 - Chia-Chen Chu Graduate Fellowship, School of Chemical Sciences, UIUC 2013-2014
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2014
18. Sijin Li
- Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2011
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2010
 - First Place Award for Oral Presentation, 9th GSAC Research Symposium, Urbana, IL, 2010
19. Jing Liang
- Singapore ASTAR Fellowship, 2008-2013
20. Ning Sun
- Merck Poster Award (first place), ECI Enzyme Engineering Conference XXI, 2011
 - Richard Gumport Travel Award, 2011
 - Baxter International Young Investigator Award, 2013
 - Department of Biochemistry Trust of Urbana Award for Best Ph.D. Thesis, 2014
21. Carl Denard
- Dow Graduate Fellow, 2012
22. Jiazhang Lian
- 3M Graduate Fellow, 2012-2013
 - Best Poster Award, IGB Fellows Symposium, UIUC, 2014
 - Henry Drickamer Graduate Fellowship, Department of Chemical and Biomolecular Engineering, UIUC, 2014-2015
 - Harantty Travel Award, Department of Chemical and Biomolecular Engineering, UIUC, 2014
 - Travel Award to attend the 2015 Global Young Scientists Summit in Singapore
 - Energy Biosciences Institute Conference Travel Award, 2014
23. Xueyang Feng
- Shen Postdoc Fellowship, 2012-2013
24. Tong Si
- Third Place Poster Award, ECI Biochemical and Molecular Engineering Conference XVIII, 2013
 - Mavis Future Faculty Fellow, 2013
 - Graduate College Travel Award, 2013
 - Henry Drickamer Graduate Fellowship, Department of Chemical and Biomolecular Engineering, UIUC, 2013-2014
 - Travel Award to attend the 2014 Global Young Scientists Summit in Singapore
 - Best Poster Award, IGB Fellows Symposium, UIUC, 2014
 - First Place Award for Oral Presentation, 13th GSAC Research Symposium, Urbana, IL, 2014

- Chinese Government Award for Outstanding Self-Financed Students Abroad, 2014
25. Sherrie Lu
 - Glenn E. and Barbara Ullyot Award, 2013
 26. Zachary Dookeran
 - Dr. Joseph and Donna Glas in Memory of Professor James Westwater Award, 2013
 27. Todd Freestone
 - First Place Award for Poster Presentation, 12th GSAC Research Symposium, Urbana, IL, 2013
 28. Kate Burton
 - Peter and Gretchen Markunas Memorial Scholarship, 2014
 29. Robert Pipal
 - MCB Summer Research Fellowship, 2014
 30. Stella Wu
 - MCB Summer Research Fellowship, 2014
 - Highest Distinction for Senior Thesis, 2014
 31. Run Jin
 - Bronze Tablet, UIUC, 2014
 32. Ran Chao
 - 3M Graduate Fellowship, 2014-2015
 33. Zhanar Abil
 - Graduate College Travel Award, UIUC, 2014
 - AIChE FPBE Division Student Poster Award, 2014
 34. Zehua Bao
 - CMB Travel Award, UIUC, 2015
 35. Yuhao Min
 - John E. Giesecking Scholarship, 2015
 36. Yajie Wang
 - Dow Chemical Fellowship, 2015
 37. Behnam Engniad
 - 3M Graduate Fellowship, 2015

(4) Unpublished Conference Paper Presentations (presenting author underlined)

1. H. Zhao, Y. Li, and F.H. Arnold. "Strategies for Directed Evolution of a Peptide Ligase." XIII International Enzyme Engineering Conference, San Diego, CA, October 15-20, 1995.
2. H. Zhao and F.H. Arnold. "Functional and Non-functional Mutations Distinguished by Random Recombination of Homologous Genes." Proteins Gordon Research Conference, Holderness, New Hampshire, June 15-20, 1997.
3. H. Zhao and F.H. Arnold. "Directed Evolution of New Biocatalysts: Subtilisin E as a Test Case." AIChE Annual Meeting, Los Angeles, CA, November 12, 1997.
4. H. Zhao. "The Development of a Dehalogenase-based Process for the Production of Commodity Chemicals." AIChE Annual Meeting, Dallas, TX, November 18, 1999.
5. H. Zhao. "Directed Evolution of Highly Active Antifreeze Proteins." AIChE Annual Meeting, Reno, NV, November 5, 2001.

6. Z. Chen and H. Zhao. "Functional Studies of Human Estrogen Receptor via Directed Evolution." AIChE Annual Meeting, Indianapolis, IN, November 5, 2002.
7. K. Chockalingam and H. Zhao. "Directed Evolution of Human Manganese Superoxide Dismutase." AIChE Annual Meeting, Indianapolis, IN, November 7, 2002.
8. Z. Chen and H. Zhao. "Functional Studies of Human Estrogen Receptor via Directed Evolution." Illinois Biophysics Society Student Symposium, Urbana, IL, March 12, 2003.
9. R. Woodyer, W. A. van der Donk, and H. Zhao. "Relaxing the Nicotinamide Cofactor Specificity of Phosphate Dehydrogenase by Rational Design." ACS PRF Chemical Biology Symposium. Ithaca, NY, July 7, 2003.
10. O. Esteban and H. Zhao. "Directed Evolution of Functional Single-Chain HLA-DR1 Molecules." The Protein Society 17th Annual Symposium, Boston, MA, July 27, 2003.
11. R. Woodyer, W. A. van der Donk, and H. Zhao. "Relaxing the Nicotinamide Cofactor Specificity of Phosphite Dehydrogenase by Rational Design: Development of a NAD(P)H Regeneration Catalyst." UIUC Biochemistry Fall Research Conference, Urbana, IL, September 19, 2003.
12. Z. Chen, K. Chockalingam, and H. Zhao. "Directed Evolution of Human Estrogen Receptor for Fun and Profits." AIChE Annual Meeting, San Francisco, CA, November 20, 2003.
13. W. Zha and H. Zhao. "Rational Pathway Engineering of Type I Fatty Acid Synthase Allows Biosynthesis of Triacetic Acid Lactone from D-Glucose *in vivo*." ACS Annual Meeting, Anaheim, CA. April 1, 2004.
14. O. Esteban and H. Zhao. "Directed Evolution of Soluble Single-chain Human Class II MHC Molecules." Symposium on the Evolution of Biomolecular Structure, Michigan State University, East Lansing, MI, June 4, 2004.
15. W. Zha, Z. Shao, Z. Simurdiak, J. Lee, and H. Zhao. "Biosynthesis of Thermally Stable Energetic Compounds via Pathway Engineering." Metabolic Engineering V, Lake Tahoe, CA, September 19-23, 2004.
16. K. Chockalingam and H. Zhao. "Engineering Genetic Switches for Biomedical Applications." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 7, 2004.
17. W. Zha and H. Zhao. "Rational Pathway Engineering of a Type I Fatty Acid Synthase for Biosynthesis of TAL *in vivo*." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 7, 2004.
18. Z. Chen and H. Zhao. "Rapid Creation of Novel Protein Function by *in vitro* Coevolution." The Seventeenth Annual CMB/MB Research Symposium, Urbana, IL, November 4, 2004.
19. T.W. Johannes, R. Woodyer, and H. Zhao. "Directed Evolution of a Thermostable Phosphite Dehydrogenase." The Seventeenth Annual CMB/MB Research Symposium, Urbana, IL, November 4, 2004.
20. Z. Shao and H. Zhao. "*In vivo* Biosynthesis of Triacetic Acid Lactone from D-Glucose by Rational Design and Directed Evolution." AIChE Annual Meeting, Austin, TX, November 10, 2004.
21. O. Esteban and H. Zhao. "Engineering Soluble Single-chain Human Class II MHC Molecules." AIChE Annual Meeting, Austin, TX, November 12, 2004.
22. E. Ang, J. Obbard, and H. Zhao. "Engineering an Enzymatic Carbazole Denitrogenation Pathway." ACS Annual Meeting, San Diego, March 13, 2005.

23. E. Ang, Z. Chen, and H. Zhao. "Towards Engineering of an Androgen Receptor Equivalent from the Human Estrogen Receptor α ." ACS Annual Meeting, San Diego, March 17, 2005.
24. R. Woodyer, T.W. Johannes, W.A. van der Donk, and H. Zhao. "Protein Engineering of Phosphite Dehydrogenase for NAD(P)H Regeneration." ACS Annual Meeting, San Diego, March 16, 2005.
25. K. Chockalingam, Z. Chen, and H. Zhao. "Directed Evolution of Human Estrogen Receptor." Biochemical Engineering XIV, Harrison Hot Springs, British Columbia, Canada, July 10, 2005 (poster).
26. R. Woodyer, W. A. van der Donk, and H. Zhao. "Directed Evolution and Application of Phosphite Dehydrogenase." 1st Annual Chemistry-Biology Interface Training Program Symposium, University of Illinois, Urbana, August 26, 2005.
27. T.W. Johannes, R. Woodyer, and H. Zhao. "Development of Phosphite Dehydrogenase-based NAD(P)H Regeneration System." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 6, 2005.
28. K. Chockalingam, Z. Chen, and H. Zhao. "Systematic Approaches to the Protein Engineering of Highly Specific Receptor-Ligand Pairs." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 6, 2005 (poster presentation).
29. Z. Shao, T. Johannes, H. Zhao. "Biosynthesis of Phosphonic Acid Antibiotics in *E. coli*." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 6, 2005 (poster presentation).
30. W. Zha and H. Zhao. "Biosynthesis of Phloroglucinol." UIUC ChBE Graduate Student Symposium, Urbana, IL, October 6, 2005 (poster presentation).
31. T. Johannes and H. Zhao. "Development of a Phosphite Dehydrogenase-Based Nicotinamide Cofactor Regeneration System." The Eighteenth Annual CMB/MB Research Symposium, Urbana, IL, October 14, 2005 (poster presentation).
32. Z. Chen, Z. and H. Zhao. "Directed Evolution of Homing Endonuclease with Novel DNA Sequence Specificity." The Eighteenth Annual CMB/MB Research Symposium, Urbana, IL, October 14, 2005 (poster presentation).
33. K. Chockalingam, Z. Chen, and H. Zhao. "Systematic Approaches to the Protein Engineering of Highly Specific Receptor-Ligand Pairs." The Eighteenth Annual CMB/MB Research Symposium, Urbana, IL, October 14, 2005.
34. Z. Chen and H. Zhao. "Directed Evolution of Proteins for Biomedical Application." AIChE Annual Meeting, Cincinnati, OH, October 30, 2005 (poster presentation).
35. K. Chockalingam and H. Zhao. "Systematic Approaches to the Protein Engineering of Highly Specific Receptor-Ligand Pairs." AIChE Annual Meeting, Cincinnati, OH, October 30, 2005.
36. Z. Chen and H. Zhao. "Directed Evolution of Homing Endonuclease with Altered DNA Sequence Specificity." AIChE Annual Meeting, Cincinnati, OH, October 31, 2005.
37. Z. Chen and H. Zhao. "Directed Evolution of Homing Endonuclease with Novel DNA Sequence Specificity." AIChE Annual Meeting, Cincinnati, OH, November 2, 2005 (poster presentation).
38. T.W. Johannes and H. Zhao. "Development of a Phosphite Dehydrogenase-Based Nicotinamide Cofactor Regeneration System." AIChE Annual Meeting, Cincinnati, OH, November 3, 2005.

39. K. Chockalingam, Chen, Z. and H. Zhao. "Directed Evolution of Specific Receptor-Ligand Pairs for Use in the Creation of Gene Switches." AIChE Annual Meeting, Cincinnati, OH, November 3, 2005.
40. T. Johannes and H. Zhao, "Development of a Novel Phosphite Dehydrogenase-Based NAD(P)H Regeneration System for Industrial Biocatalysis." Graduate Seminar in the Applied Chemical Sciences, Urbana, IL, May 2006.
41. H. Zhao, R. Woodyer, T.W. Johannes, and M.J. Mclachlan. "Development of a novel phosphite dehydrogenase based NAD(P)H regeneration system for industrial biocatalysis." ACS Annual Meeting, San Francisco, CA, September 10, 2006.
42. H. Zhao, K. Chockalingam, M. Mclachlan, and K. Lai. "Protein engineering of gene switches." ACS Annual Meeting, San Francisco, CA, September 13, 2006.
43. H. Zhao, Z. Chen, Y. Choi, and S. Rubin-Pitel. "Directed evolution of homing endonuclease for gene targeting." ACS Annual Meeting, San Francisco, CA, September 14, 2006.
44. E. Ang, J. Obbard, and H. Zhao. "Engineering of a Carbazole Denitrogenation Pathway through Directed Evolution." AIChE Annual Meeting, San Francisco, CA, November 14, 2006.
45. F. Wen and H. Zhao. "CD4⁺ T-Cell Epitope Identification Using Yeast Displaying Single Chain Class II MHC Molecules as Artificial APCs." The 5th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2006 (poster presentation).
46. W. Zha and H. Zhao. "Biosynthesis of Phloroglucinol via Metabolic Pathway Engineering." The 5th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2006.
47. T.W. Johannes and H. Zhao. "Development of a Phosphite Dehydrogenase-Based Nicotinamide Cofactor Regeneration System." The 5th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2006.
48. F. Wen and H. Zhao. "CD4⁺ T-Cell Epitope Identification Using Yeast Displaying Single Chain Class II MHC Molecules as Artificial APCs." AIChE Annual Meeting, San Francisco, CA, November 14, 2006.
49. Z. Shao, R. Woodyer, and H. Zhao. "Biosynthesis of Fosfomycin." AIChE Annual Meeting, San Francisco, CA, November 16, 2006.
50. N.U. Nair and H. Zhao. "Evolution in Reverse: Engineering a Xylose-Specific Xylose Reductase." AIChE Annual Meeting, San Francisco, CA, November 17, 2006.
51. N. Nair and H. Zhao. "Evolution in Reverse: Engineering a Xylose-Specific Xylose Reductase." ACS Annual Meeting, Boston, MA, August 19, 2007.
52. Z. Shao, R. Woodyer, and H. Zhao. "Biosynthesis of Fosfomycin." The 6th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2007.
53. N. Nair and H. Zhao. "Evolution in Reverse: Engineering a Xylose-Specific Xylose Reductase." The 6th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2007 (poster presentation).
54. S. Rubin-Pitel, W. Zha, and H. Zhao. "Protein and Metabolic Engineering to Enhance Phloroglucinol Biosynthesis." The Tenth Annual CMB/MB Research Symposium, Urbana, IL, October, 2007.
55. T.W. Johannes and H. Zhao. "Heterologous Production of the Antimalarial Drug FR-900098 in *E. coli*." AIChE Annual Meeting, Salt Lake City, UT, November, 2007.

56. M.J. McLachlan and H. Zhao. "Development of Gene Switches by Protein Engineering." AICHE Annual Meeting, Salt Lake City, UT, November, 2007.
57. M.J. McLachlan and H. Zhao. "Directed Evolution of Orthogonal Ligand Specificity in a Single Scaffold." The 6th Annual Biophysics and Computational Biology Symposium, Urbana, IL, June 6, 2008.
58. Z. Shao, H. Zhao, and H. Zhao. "DNA Assembler, a Highly Efficient Approach for Rapid Construction of Large Recombinant DNA for Metabolic Pathway Engineering and Synthetic Biology." ACS Annual Meeting, Philadelphia, PA, August 19, 2008.
59. R.P. Sullivan and H. Zhao. "Engineering a Fungal L-Arabinose Pathway towards the Utilization of Pentose Sugars for Production of Xylitol and Ethanol." The 7th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2008.
60. S.B. Rubin-Pitel, H. Zhang, J. Brunzelle, T. Vu, H. Zhao and S. Nair. "Structure-function Analysis of a Type III Polyketide Synthase from *Neurospora crassa*." The 7th Annual UIUC ChBE Graduate Research Symposium, Urbana, Illinois, October, 2008 (poster).
61. N.U. Nair, Z. Shao, H. Zhao, T.H. Lee, R.P. Sullivan, M.J. McLachlan, T.W. Johannes, and H. Zhao. "Biobutanol from Yeast. A Synergistic Genome and Protein Engineering Approach." The 7th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2008.
62. F. Wen and H. Zhao. "Rapid Identification of CD4+ T cell Epitopes Using Yeast Displaying Pathogen-derived Peptide Libraries." The 7th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2008.
63. Z. Shao, H. Zhao, and H. Zhao. "DNA Assembler, an in vivo Genetic Method for Rapid Construction of Large Recombinant DNA." The 7th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2008 (poster).
64. S.B. Rubin-Pitel, W. Zha, and H. Zhao. "Structure-function Analysis of a Type III Polyketide Synthase from *Neurospora crassa*." The Eleventh Annual CMB/MB Research Symposium, Urbana, IL, November, 2008 (poster).
65. N.U. Nair, Z. Shao, H. Zhao, T.H. Lee R.P. Sullivan, M.J. McLachlan, T.W. Johannes, and H. Zhao. "Biobutanol from yeast. A Synergistic Genome and Protein Engineering Approach." The Eleventh Annual CMB/MB Research Symposium, Urbana, IL, November, 2008.
66. F. Wen and H. Zhao. "Rapid Identification of CD4+ T cell Epitopes Using Yeast Displaying pathogen-derived peptide libraries." The Eleventh Annual CMB/MB Research Symposium, Urbana, IL, November, 2008 (poster).
67. R.P. Sullivan, N.U. Nair, and H. Zhao. "Engineering a fungal L-arabinose pathway towards the utilization of pentose sugars for production of xylitol and ethanol." AICHE Annual Meeting, Philadelphia, DE, November, 2008.
68. N.U. Nair, Z. Shao, H. Zhao, R. P. Sullivan, M. McLachlan, T.W. Johannes, and H. Zhao. "Biobutanol from yeast. A synergistic genome and protein engineering approach." AICHE Annual Meeting, Philadelphia, DE, November, 2008.
69. S.B. Rubin-Pitel, W. Zha, and H. Zhao. "Directed evolution of a phloroglucinol producing Type III polyketide synthase." AICHE Annual Meeting, Philadelphia, DE, November, 2008.
70. M.A. DeSieno, T.W. Johannes, and H. Zhao. "Deciphering the late steps in FR900098 biosynthesis." AICHE Annual Meeting, Philadelphia, DE, November, 2008.

71. J. Du, S. Li, and H. Zhao. "Cloning and characterization of novel pentose-specific transporters." ACS Annual Meeting, Washington DC, August, 2009
72. D. Eriksen, R. Sullivan, and H. Zhao. "Toward the development of a cost-effective process for xylitol production." ACS Annual Meeting, Washington DC, August, 2009 (poster)
73. W. Tang, Z. Li, and H. Zhao. "Directed evolution of an enantioselective P450_{pyr} for the preparation of chiral pharmaceutical intermediates." ACS Annual Meeting, Washington DC, August, 2009
74. N. Nair and H. Zhao. "Selective production of xylitol from hemicellulosic sugars using a combined protein and metabolic engineering approach." ACS Annual Meeting, Washington DC, August, 2009
75. R. Cobb, M. A. DeSieno, and H. Zhao. "Directed evolution of the biosynthetic enzyme FrbF for combinatorial biosynthesis of FR-900098." ACS Annual Meeting, Washington DC, August, 2009 (poster)
76. N. Sun and H. Zhao. "Directed evolution of homing endonucleases for gene targeting." UIUC Biochemistry Fall Research Conference, Urbana, IL, September, 2009.
77. R. P. Sullivan and H. Zhao. "Microbial synthesis of xylitol from hemicellulosic sugars." Regional AIChE meeting, Chicago, IL, October, 2009.
78. T. H. Lee, R. P. Sullivan, J. Du, and H. Zhao. "Engineering an L-arabinose/xylose co-utilizing *S. cerevisiae* for biofuels production." Regional AIChE meeting, Chicago, IL, October, 2009.
79. F. Wen, J. Sun, and H. Zhao. "Recombinant yeast strains towards consolidated bioprocessing: surface display of functional mini-cellulosomes for direct conversion of cellulose to ethanol." Regional AIChE meeting, Chicago, IL, October, 2009.
80. N. Nair and H. Zhao. "Production of xylitol from hemicellulosic sugars using a combined protein and metabolic engineering approach." The 8th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2009.
81. F. Wen, Jie Sun, and H. Zhao. "Development of recombinant yeast strains displaying minicellulosomes for synergistic saccharification and direct fermentation of cellulose to ethanol." The 8th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2009.
82. C. Denard, J. F. Hartwig, and H. Zhao. "Directed evolution of metalloenzymes for selective catalysis: Tandem isomerization and epoxidation of alkene mixtures from alkane dehydrogenation." The 8th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2009 (poster).
83. D. Eriksen, R. Sullivan, and H. Zhao. "Toward the development of a cost-effective process for xylitol production." The 12th Annual CMB/MB Research Symposium, Urbana, IL, October, 2009 (poster).
84. R. Cobb, M. A. DeSieno, and H. Zhao. "Directed evolution of the biosynthetic enzyme FrbF for combinatorial biosynthesis of FR-900098." The 12th Annual CMB/MB Research Symposium, Urbana, IL, October, 2009 (poster).
85. J. Liang, M. McLachlan, and H. Zhao. "Engineering a novel orthogonal gene switch for human therapeutics." The 12th Annual CMB/MB Research Symposium, Urbana, IL, October, 2009 (poster).

86. F. Wen, J. Sun, and H. Zhao. "Yeast surface display of trifunctional minicellulosomes for simultaneous saccharification and fermentation of cellulose to ethanol ." The 12th Annual CMB/MB Research Symposium, Urbana, IL, October, 2009 (poster).
87. Y. Luo, Z. Shao, and H. Zhao. "Uncovering cryptic biosynthetic pathways using synthetic biology." The 12th Annual CMB/MB Research Symposium, Urbana, IL, October, 2009.
88. N.U. Nair, T. Lee, Z. Shao, H. Zhao, R. P. Sullivan, M. McLachlan, T.W. Johannes, and H. Zhao. "Biobutanol from yeast. A synergistic genome and protein engineering approach." AIChE Annual Meeting, Nashville, TN, November, 2009.
89. A. Ghosh, J. Du, B. Kim, R. P. Sullivan, H. Zhao, and N. D. Price. "*In silico* and experimental studies of cofactor balance in the engineered pentose sugar utilization pathways in *Saccharomyces cerevisiae*." AIChE Annual Meeting, Nashville, TN, November, 2009.
90. Z. Shao, Y. Luo, and H. Zhao. "Applying the "DNA Assembler" approach to study natural product biosynthetic gene clusters." AIChE Annual Meeting, Nashville, TN, November, 2009.
91. F. Wen, O. Esteban, and H. Zhao. "Direct epitope mapping of T cells from influenza A virus genome using yeasts displaying MHC-peptide complexes as artificial antigen presenting cells." AIChE Annual Meeting, Nashville, TN, November, 2009.
92. F. Wen, J. Sun, and H. Zhao. "Recombinant yeast strains towards consolidated bioprocessing: surface display of functional mini-cellulosomes for direct conversion of cellulose to ethanol." AIChE Annual Meeting, Nashville, TN, November, 2009.
93. N.U. Nair and H. Zhao. "Selective production of xylitol from hemicellulosic sugars - using a combined protein and metabolic engineering approach." AIChE Annual Meeting, Nashville, TN, November, 2009.
94. M. McLachlan and H. Zhao. "Development of a mammalian cell-based high throughput screening method for the directed evolution of genetic switches." AIChE Annual Meeting, Nashville, TN, November, 2009.
95. M. A. DeSieno and H. Zhao. "Biosynthesis of the antimalarial drug FR-900098 in *E. coli*." AIChE Annual Meeting, Nashville, TN, November, 2009.
96. D. Eriksen, R. Sullivan, and H. Zhao. "Toward the development of a cost-effective process for xylitol production." Bioengineering @ Illinois Day Graduate Student Poster Competition, Urbana, IL, April 2010 (poster).
97. R. Cobb, M. A. DeSieno, and H. Zhao. "Directed evolution of the biosynthetic enzyme FrbF for combinatorial biosynthesis of FR-900098." Bioengineering @ Illinois Day Graduate Student Poster Competition, Urbana, IL, April 2010 (poster).
98. Y. Luo, Z. Shao, and H. Zhao. "Uncovering cryptic biosynthetic pathways using synthetic biology." Bioengineering @ Illinois Day Graduate Student Poster Competition, Urbana, IL, April 2010 (poster).
99. J. Liang, M. McLachlan, and H. Zhao. "Engineering a novel orthogonal gene switch for human therapeutics." Bioengineering @ Illinois Day Graduate Student Poster Competition, Urbana, IL, April 2010 (poster).
100. Y. Luo, Z. Shao, and H. Zhao. "Uncovering cryptic biosynthetic pathways using synthetic biology." The 9th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2010 (poster).

101. Z. Shao, Y. Luo, and H. Zhao. "Rapid characterization and engineering of natural product biosynthetic pathways via DNA assembler." The 13th Annual CMB/MB Research Symposium, Urbana, IL, October, 2010.
102. M.A. DeSieno, H. Zhao. "Biosynthesis of Phosphonates for the Treatment of Malaria." The 9th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2010 (poster).
103. C. Denard, J. F. Hartwig, and H. Zhao. "Marrying organometallic catalysts with metalloenzymes: tandem isomerization and epoxidation of olefins with ruthenium catalysts and P450 enzymes." The 13th Annual CMB/MB Research Symposium, Urbana, IL, October, 2010 (poster).
104. R. Cobb, M.A. DeSieno, H. Zhao. "Characterization and directed evolution of FrbF for combinatorial biosynthesis of FR-900098." The 13th Annual CMB/MB Research Symposium, Urbana, IL, October, 2010 (poster).
105. J. Du and H. Zhao. "Metabolic engineering of *Saccharomyces cerevisiae* towards efficient ethanol production from pentose sugars." The 9th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2010.
106. S. Li, J. Du, and H. Zhao. "Overcoming glucose repression in mixed sugar fermentation by co-expressing a cellobiose transporter and a β -glucosidase in *Saccharomyces cerevisiae*." The 9th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2010.
107. C. Denard, R. Giri, M. Jarenmark, J. F. Hartwig & H. Zhao. "Biphasic Tandem Catalysis: Isomerization and Epoxidation of Olefins with Ruthenium Catalysts and P450 Enzymes." NSF CENTC annual meeting, Seattle, Washington, September 13, 2010.
108. J. Du and H. Zhao. "Directed Evolution of a Highly Efficient Arabinose/Xylose Utilization Pathway in *Saccharomyces cerevisiae*." AIChE Annual Meeting, Salt Lake City, UT, November, 2010.
109. M. A. DeSieno and H. Zhao. "Biosynthesis of Phosphonates for the Treatment of Malaria." AIChE Annual Meeting, Salt Lake City, UT, November, 2010.
110. A. Ghosh, H. Zhao, and N. Price. "Integrated Probabilistic Regulatory and Metabolic Network Analysis of *Saccharomyces cerevisiae* for Biochemical Production." AIChE Annual Meeting, Salt Lake City, UT, November, 2010.
111. S. Li, J. Du, J. Sun, J. M. Galazka, N. L. Glass, J. H. D. Cate, X. Yang, and H. Zhao. "Overcoming Glucose Repression in Mixed Sugar Fermentation by Co-expressing a Cellobiose Transporter and a β -glucosidase in *Saccharomyces cerevisiae*." AIChE Annual Meeting, Salt Lake City, UT, November, 2010.
112. R. E. Cobb, M. A. DeSieno, and H. Zhao. "Characterization and Directed Evolution of FrbF for Combinatorial Biosynthesis of FR-900098." ACS Annual Meeting, Anaheim, CA, March, 2011.
113. Z. Shao, Y. Luo, and H. Zhao. "Rapid Characterization and Engineering of Natural Product Biosynthetic Pathways via DNA Assembler." ACS Annual Meeting, Anaheim, CA, March, 2011.
114. S. Li and H. Zhao. "New Strategies to Overcome Glucose Repression in Mixed Sugar Fermentation in *Saccharomyces cerevisiae*" 33rd Symposium on Biotechnology for Fuels and Chemicals, Seattle, WA, May, 2011.
115. R. E. Cobb, M. A. DeSieno, and H. Zhao. "Characterization and Directed Evolution of FrbF for Combinatorial Biosynthesis of Novel FR-900098 Derivatives." Society for Industrial Microbiology Annual Meeting, New Orleans, LA, July, 2011.

116. N. Sun, J. Liang, Z. Abil, and H. Zhao. "Protein Design of TAL Effector Nucleases (TALENs) as a New Genome Engineering Tool." Enzyme Engineering XXI (An ECI Conference Series), Vail, CO, September, 2011.
117. J. Du, B. Kim, and H. Zhao. "Customized Optimization of Metabolic Pathways by Combinatorial Transcriptional Engineering (COMPACTER)." AIChE Annual meeting, Minneapolis, MN, October, 2011.
118. J. Du and H. Zhao. "Engineering *Saccharomyces cerevisiae* for Biofuel Production from Lignocellulosic Biomass." AIChE Annual meeting, Minneapolis, MN, October, 2011.
119. B. Kim and H. Zhao. "Metabolic Flux Analysis of the Central Metabolism of Laboratory and Industrial *Saccharomyces cerevisiae* Strains Using ¹³C-Labeling Experiments." AIChE Annual Meeting, Minneapolis, MN, October, 2011.
120. J. Liang, M. J. McLachlan, and H. Zhao. "Using an Orthogonal Ligand-receptor Pair to Control Endogenous Gene Expression in Mammalian Cell." AIChE Annual Meeting, Minneapolis, MN, October, 2011
121. Y. Luo, Z. Shao, and H. Zhao. "Uncovering Cryptic Biosynthetic Pathways Using Synthetic Biology". AIChE Annual Meeting, Minneapolis City, MN, October, 2011.
122. Z. Shao and H. Zhao. "Refactoring Biosynthetic Pathways *via* Synthetic Biology." AIChE Annual Meeting, Minneapolis, MN, October, 2011.
123. Z. Shao, Z. Abil, C. Li, Y. Luo, T. Freestone, and H. Zhao. "Refactoring Biosynthetic Pathways: Delineating Pathway Expression from Sophisticated Regulation Cascades *via* Synthetic Biology." AIChE Annual Meeting, Minneapolis, MN, October, 2011.
124. Z. Shao, Y. Luo, and H. Zhao. "Rapid Characterization and Engineering of Natural Product Biosynthetic Pathways *via* DNA Assembler." AIChE Annual Meeting, Minneapolis, MN, October, 2011.
125. R. E. Cobb, M. A. DeSieno, and H. Zhao. "Characterization and Directed Evolution of FrbF for the Biosynthesis of Novel Antimalarial Compounds." The 10th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2011.
126. N. Sun, J. Liang, Z. Abil, and H. Zhao. "Engineered TAL Effector Nucleases (TALENs) for Use in Treatment of Sickle Cell Disease." The 24th Annual CMB-MB Research Symposium, Urbana, IL, October, 2011.
127. N. Sun, J. Liang, Z. Abil, and H. Zhao. "Optimized TAL Effector Nucleases (TALENs) for Use in Treatment of Genetic Disease". The 10th Annual UIUC ChBE Graduate Student Symposium, Urbana, IL, October, 2011.
128. Z. Abil, N. Sun, J. Liang, and H. Zhao. "Engineering TAL Effector Nucleases for Targeting the ΔF508 Mutation in CFTR." The 10th ChBE Graduate Research Symposium, Urbana, IL, October, 2011.
129. J. Liang, M. J. McLachlan, and H. Zhao. "Using an Orthogonal Ligand-receptor Pair to Control Endogenous Gene Expression in Mammalian Cell." Cell and Molecular Biology & Molecular Biophysics Training Grants 24th Annual Research Symposium, Urbana, IL, October, 2011.
130. Y. Luo, Z. Shao, and H. Zhao. "Uncovering Cryptic Biosynthetic Pathways Using Synthetic Biology." The 24nd Cell and Molecular Biology & Molecular Biophysics Training Grants (CMB/MBTG) Annual Symposium, Urbana, IL, October, 2011.
131. E. Chanco, M. Simurdiak, Y. Choi, N. Sun, and H. Zhao. "Characterization of the N-Oxygenase AurF from *Streptomyces thioletus*." Molecular and Cell Biology & Molecular

- Biophysics Training Grant Symposium, Urbana, IL, October, 2011.
132. Z. Abil, N. Sun, J. Liang, and H. Zhao. "Engineering TAL Effector Nucleases for Targeting the $\Delta F508$ Mutation in CFTR." The 24th Annual CMBTG Research Symposium, Urbana, IL, October, 2011.
 133. S. Li and H. Zhao. "New Strategies to Overcome Glucose Repression in Mixed Sugar Fermentation in *Saccharomyces cerevisiae*" 3rd Pan American Congress on Plants and Bioenergy, Urbana, IL, July 16, 2012 (poster).
 134. D. T. Eriksen, B. Kim, Y. Yuan, J. Du, H. Zhao. "Pathway Engineering for Efficient C5/C6 Utilization via Combinatorial and Evolutionary Strategies." 3rd Pan American Congress on Plants and Bioenergy. Urbana, IL. July, 2012 (poster)
 135. D.T. Eriksen, D. Coursolle, S. Li, J. Lian, X. Feng, R. Chao, M. Wang. H. Zhao. "Engineering Efficient C5/C6 Sugar Utilization into Advanced Biofuels via *Saccharomyces cerevisiae*." 3rd Pan American Congress on Plants and Bioenergy, Urbana, IL, July, 2012 (poster)
 136. C. Denard, H. Huang, L. Lu, Y. Tan, J. F. Hartwig and H. Zhao. "Engineering Novel Tandem Catalytic Reactions Using Organometallic Catalysts and Metalloenzymes". CENTC annual meeting, Seattle, WA, September, 2012 (poster)
 137. H. Huang, C. Denard, L. Lu, A. Crisci, S. Scott, J.A. Dumesic, H. Zhao. "Engineering of Xylose Isomerase for HMF Production." 2012 CENTC Annual Meeting, Seattle, Washington, September, 2012 (poster)
 138. L. Lu, C. Denard, H. Huang, and H. Zhao. "Engineering Regenerative Systems for Metathesis-Oxidation Tandem Reactions." 2012 CENTC Annual Meeting, Seattle, Washington. September, 2012 (poster)
 139. N. Sun, J. Liang, Z. Abil, and H. Zhao. "Engineering TAL Effector Nucleases (TALENs) for Targeted Genome Editing." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.
 140. N. Sun and H. Zhao. "Targeted Genome Editing by TAL Effector Nucleases in Human Stem Cells." The 11th Annual UIUC ChBE Graduate Research Symposium, Urbana, IL, October, 2012.
 141. N. Sun, J. Liang, Z. Abil, and, H. Zhao. "Engineering TAL Effector Nucleases (TALENs) for Targeted Genome Editing." The 25th MBTG Annual Research Symposium, Urban, IL, October, 2012.
 142. R. E. Cobb and H. Zhao. "Biosynthesis and Discovery of Novel Phosphonic Acid Compounds." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.
 143. M. Wang, and H. Zhao. "Aryl-aldehydes in fungal polyketides: Discovery and characterization of novel biosynthesis pathways." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.
 144. Y. Luo, and H. Zhao. "Apply a Synthetic Biology Approach to Demystify the Target Cryptic Pathway for Novel Natural Product Discovery." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.
 145. Y. Luo and H. Zhao. "Apply a Synthetic Biology Approach to Demystify the Target Cryptic Pathway for Novel Natural Product Discovery." The 11th Annual UIUC ChBE Graduate Research Symposium, Urbana, IL, October, 2012.
 146. J. Liang, J. C. Ning, and H. Zhao. "Coordinated Induction of Multi-gene Pathways in *Saccharomyces cerevisiae*." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.

147. D.T. Eriksen, H. Zhao. "Directed Evolution of a Cellobiose Utilization Pathway in *Saccharomyces cerevisiae* through Simultaneous Engineering of Multiple Proteins." AIChE Annual Meeting, Pittsburgh, PA, October, 2012.
148. C. Denard, H. Huang, L. Lu, Y. Tan, J.F. Hartwig and H. Zhao. "Engineering Novel Tandem Catalytic Reactions Using Organometallic Catalysts and Metalloenzymes". AIChE annual meeting, Pittsburgh, PA, October, 2012.
149. D.T. Eriksen, P.C.H. Hsieh, P. Lynn, H. Zhao, H. "Simultaneously Engineering Multiple Proteins for Pathway-Scale Protein Engineering." EBI Internal Seminar. Urbana, IL. February, 2013.
150. D.T. Eriksen, P.C.H. Hsieh, P. Lynn, H. Zhao, H. "Pathway Engineering through Simultaneous Directed Evolution of Multiple Biosynthetic Pathway Proteins." IGB Fellows Symposium. Urbana, IL. May, 2013.
151. T. Si, H. Zhao, "Eukaryotic Reprogramming by Directed Genome Evolution." Engineering Conference International, Biochemical and Molecular Engineering XVIII, Beijing, China, June, 2013 (poster).
152. T. Si, H. Zhao, "Tools and Applications for Metabolic Engineering in *Saccharomyces cerevisiae*." Beijing Institute of Technology, Beijing, China, June, 2013.
153. Yunzi Luo, Carl Denard, Hua Huang, Zengyi Shao, John Hartwig, Huimin Zhao. "Synthetic biology: Putting Synthesis into Biology." IBC Applications for Enzyme Technologies conference, San Francisco, CA, June 2013.
154. T. Si, H. Zhao, "Eukaryotic Reprogramming by RNAi-assisted Genome Evolution." Institute of Plant Physiology & Ecology, Shanghai Institute for Biology Sciences, Chinese Academy of Sciences, Shanghai, China, July, 2013.
155. D.T. Eriksen, P.C.H. Hsieh, P. Lynn, H. Zhao, H. "Pathway Engineering through Simultaneous Directed Evolution of Multiple Biosynthetic Pathway Proteins." SIMB Annual Meeting. San Diego, CA. August 2013.
156. D.T. Eriksen, P.C.H. Hsieh, P. Lynn, H. Zhao, H. "Optimizing a Cellobiose Utilization Pathway by Simultaneously Engineering Multiple Proteins." Chemical Engineering Research Symposium. Urbana, IL. October 2013.
157. H. Huang, C. Denard, A. Crisci, R. Alamillo, S. Scott, J. A. Dumesic and H. Zhao. "One-pot Enzyme and Solid Acid Catalysis to Convert Glucose to 5-Hydroxymethylfurfural." CENTC annual meeting, Seattle, WA, October, 2013.
158. T. Si, H. Zhao, "Turn on an endogenous pathway for 1-butanol production in *Saccharomyces cerevisiae*." 12th Annual ChBE Graduate Symposium, Urbana, IL, October, 2013.
159. T. Si, H. Zhao, "Eukaryotic Reprogramming by RNAi-Assisted Genome Evolution." 12th Annual ChBE Graduate Symposium, Urbana, IL, USA, October, 2013.
160. T. Si, H. Zhao, "Fine-Tuning of Gene Expression in *Saccharomyces cerevisiae* Through RNA Interference." 2013 AIChE Annual Meeting, San Francisco, CA, USA, November, 2013.
161. T. Si, H. Zhao, "Eukaryotic Reprogramming by RNAi-assisted Genome Evolution." 2013 AIChE Annual Meeting, San Francisco, CA, USA, November, 2013.

162. H. Xiao, Z. Shao, Y. Jiang, S. Dole and H. Zhao. "Exploiting *Issatchenkia orientalis* SD108 as a new platform organism for organic acids production." AICHE annual meeting, San Francisco, CA, November, 2013.
163. X Feng, H Zhao. "Investigating Host Dependence of Xylose Utilization in Recombinant *Saccharomyces cerevisiae* Strains Using RNA-Seq Analysis." AICHe annual meeting, San Francisco, CA, November, 2013.
164. X Feng, H Zhao. "¹³C Metabolic Flux Analysis of Xylose Metabolism in *Saccharomyces cerevisiae*." AICHe annual meeting, San Francisco, CA, November, 2013.
165. J. Liang, R. Chao, Z. Abil, Z. Bao and H. Zhao. "Fairytale: A High-Throughput TAL Effector Synthesis Platform." AICHe annual meeting, San Francisco, CA, November, 2013.
166. Sujit Jagtap, Jung-Kul Lee and Huimin Zhao. "Characterization and Engineering of a Novel Functional Algal Polysaccharide Degrading Enzymatic Machinery for Biofuels Production." AICHe annual meeting, San Francisco, CA, November, 2013.
167. Z. Abil and H. Zhao. "Engineering PUF Proteins for Specific Recognition of Endogenous RNA Sequences." AICHE annual meeting, Pittsburgh, PA, November, 2013.
168. T Si, H Zhao, "RNAi-assisted Genome Evolution in *Saccharomyces cerevisiae*." Metabolic Engineering Research Laboratory, Agency for Science, Technology and Research, Singapore, January, 2014.
169. T Si, H Zhao, "Eukaryotic Reprogramming by RNAi-assisted Genome Evolution." 2014 IGB Fellows Symposium, Urbana, IL, USA, May, 2014
170. J Lian, Si T, NU Nair, H Zhao. "Design and Construction of Acetyl-CoA Overproducing *Saccharomyces cerevisiae* Strains." 2014 IGB Fellows Symposium, Urbana, IL, May, 2014 (poster)
171. J Lian, R Chao, H Zhao. "Simultaneous Utilization of Glucose and Galactose to Produce Enantiopure (2*R*, 3*R*)-Butanediol by an Engineered *Saccharomyces cerevisiae* Strain." Society for Industrial Microbiology and Biotechnology Annual Meeting, St. Louis, MO, July, 2014 (poster)
172. J Lian, R Chao, H Zhao. "Metabolic Engineering of a *Saccharomyces cerevisiae* Strain Capable of Simultaneously Utilizing Glucose and Galactose to Produce Enantiopure (2*R*,3*R*)-Butanediol." First Joint Symposium on Systems and Synthetic Biotechnology, Urbana, IL, August, 2014.
173. Y Luo, H Zhao. "Activation and characterization of cryptic natural products biosynthetic pathways via synthetic biology." Synthetic Biology of Antibiotic Production II, Sant Feliu, Spain, August 30 - September 4, 2014.
174. Z Bao, H Xiao, H Zhao. "Homology-Integrated CRISPR-Cas (HI-CRISPR) System for One-Step Multigene Disruption in *Saccharomyces cerevisiae*." The 13th Annual Chemical and Biomolecular Engineering Graduate Research Symposium, Urbana, IL, October, 2014 (poster)
175. M HamediRad, D Eriksen, Y Yuan, H Zhao. "Improving Fatty Acid Ethyl Ester Production by Heterologous Expression of Fatty Acid Synthase in *Saccharomyces cerevisiae*." 2014 CHBE Graduate Research Symposium, Urbana, IL, October, 2014 (poster)

176. Z Bao, H Xiao, H Zhao. “Customized CRISPR-Cas System for Multiple Simultaneous Gene Disruptions in *Saccharomyces cerevisiae*.” AICHE Annual Meeting, Atlanta, GA, November, 2014.
177. H Xiao, H Zhao. “Genome-wide RNAi screen reveals the E3 SUMO-protein ligase gene *SIZ1* as a novel determinant of furfural tolerance in *S. cerevisiae*.” AICHE annual meeting, Atlanta, GA, November, 2014.
178. T Si, H Zhao, “Enabling Multiplex Genome Engineering in Yeast By RNAi and CRISPR.” 2014 ChBE Graduate Symposium, Urbana, IL, USA, October 24, 2014.
179. T Si, L Zhang, R Chao, H Zhao, “Enabling Multiplex Genome Engineering in Yeast By RNAi and CRISPR.” AICHE Annual Meeting, Atlanta, GA, November, 2014.
180. T Si, Y Luo, H Xiao, H Zhao, “Utilizing an Endogenous Pathway for 1-Butanol Production in *Saccharomyces cerevisiae*.” AICHE Annual Meeting, Atlanta, GA, November, 2014.
181. M Wang, H Zhao. “Design and Engineering of a Xylose Sensing-Regulation Gene Circuit in *Saccharomyces Cerevisiae*: A Potential “Master Switch” for Efficient Xylose Utilization.” AICHE Annual Meeting, Atlanta, GA, November, 2014.
182. T Freestone, H Zhao. “Combinatorial pathway optimization and metabolic engineering for increased production of the anti-malarial FR900098.” AICHE annual meeting, Atlanta, GA, November, 2014.
183. Z Abil, L Cuculis, CM Schroeder, C Hoogenraad, H Zhao. “A Synthetic Device for Intracellular mRNA Transport and Local Protein Translation in Eukaryotes.” AICHE annual meeting, Atlanta, GA, November, 2014.
184. J Lian, H Zhao. “Precursor Metabolite Pool Engineering for Efficient Production of Fuels and Chemicals in *Saccharomyces cerevisiae*.” Energy Biosciences Institute Internal Seminar, Urbana, IL, November, 2014.
185. J Lian, T Si, NU Nair, H Zhao. “Design and Construction of Acetyl-CoA Overproducing *Saccharomyces cerevisiae* Strains.” AICHE annual meeting, Atlanta, GA, November, 2014.
186. Y Luo, H Zhao. “Activation and characterization of cryptic natural products biosynthetic pathways via synthetic biology.” AICHE Annual Meeting, Atlanta, GA, November, 2014.
187. Z Abil, C Hoogenraad, H Zhao. “Engineering Chimeric RNA-Binding Proteins: Modular Design, Novel Function.” AICHE annual meeting, Atlanta, GA, November, 2014 (poster)

III. RESIDENT INSTRUCTION

A. Supervision of Graduate Students

M.S. Thesis Students:

Former: 22

Current: 7

1. Karu Chockalingam, M.S., 2003, “Engineering a Gene Switch for Biomedical Applications.”
2. Wenjuan Zha, M.S., 2004, “Pathway Engineering for Biosynthesis of Aromatic Compounds *in vivo*.”
3. Tyler Johannes, M.S., 2005, “Development of a Phosphite Dehydrogenase Based Nicotinamide Cofactor Regeneration System.”

4. Zengyi Shao, M.S., 2005, "Pathway Engineering of Triacetic Acid Lactone Biosynthesis and Fosfomycin Biosynthesis."
5. Michael Simurdiak, M.S., 2005, "Cloning, Expression, Partial Characterization, and Engineering of a Novel *N*-oxidase involved in Aureothin Biosynthesis."
6. Sheryl Rubin-Pitel, M.S. 2006, "Investigation of an in vitro Enzymatic Method for the Biosynthesis of Phloroglucinol."
7. Ryan Sullivan, M.S. 2006, "Toward the Development of a Multi-Enzymatic Process for Xylitol Synthesis from Biomass."
8. Fei Wen, M.S. 2006, "Engineering of Yeast Displaying Single-chain MHC-Peptide Complexes for Biomedical Applications."
9. Nikhil Nair, M.S. 2006, "Investigation of Enzymatic Methods for Partially Purified Hemicellulose Hydrolysate for Biosynthesis of Xylitol."
10. Victor Gonzalez, M.S. 2008, "Directed Evolution of Novel Gene Switches." joint student with John Katzenellenbogen
11. Matt DeSieno, M.S. 2009, "Biosynthesis of the Antimalarial Drug FR-900098."
12. Jing Du, M.S. 2010, "Discovery and Characterization of Pentose Specific Transporters in *Saccharomyces cerevisiae*."
13. Ryan Cobb, M.S. 2011, "Toward the Synthesis and Evaluation of Novel N-acylated FR-900098 Analogs"
14. Yunzi Luo, M.S. 2011, "Discovering Novel Natural Products from Bioactive Plants and Bacteria."
15. Sijin Li, M.S. 2011, "Design of a *Saccharomyces cerevisiae* Strain Capable of Simultaneously Utilizing Cellobiose and Xylose."
16. Guodong Rao, M.S. 2012, "Directed Evolution of a Type III Polyketide Synthase and Activation of Cryptic Phosphonic Acid Biosynthetic Pathways."
17. Emmanuel Chanco, M.S., 2012. "Characterization and Reconstitution of Enzymes and Pathways in Biosynthetic Production of Nitroaromatic Compounds."
18. Dawn Eriksen, M.S. 2012. "Pathway Optimization and Engineering for Biofuel Production."
19. Carl Denard, M.S. 2012. "Engineering Novel Tandem Reactions Using Organometallic Catalysts and Metalloenzymes."
20. Jing Liang, M.S. 2013. "Gene Switches and Their Applications in Eukaryotic Systems."
21. Tong Si, M.S. 2013. "An RNA Interference Based Platform for Genome Analysis and Engineering in *Saccharomyces cerevisiae*."
22. Jiazhang Lian, M.S. 2013. "Improving Advanced Biofuels Production in *Saccharomyces cerevisiae* via Protein Engineering and Synthetic Biology Approaches."
23. Todd Freestone, M.S. anticipated 2014
24. Jonathan Ning, M.S. anticipated 2014
25. Ran Chao, M.S. anticipated 2014
26. Xiong Xiong, M.S. anticipated 2015
27. Sam Hamed, M.S. anticipated 2015
28. Yajie Wang, M.S. anticipated 2016
29. Hengqian Ren, M.S. anticipated 2016

Ph.D. Thesis Students

Former: 25

1. Ryan Woodyer, Ph.D., August, 2005, "*Understanding, Optimization, and Application of Phosphite Dehydrogenase: Advancing NAD(P)H Regeneration.*" Now research scientist at Tate & Lyle, Decatur, IL.
2. Karu Chockalingam, Ph.D., May, 2006, "*Engineering Estrogen Receptor-based Gene Switches and a Superoxide Dismutase for Therapeutic Applications.*" Now process development engineer at Kalon Biotherapeutics, College Station, TX.
3. Zhilei Chen, Ph.D., May, 2006, "*Protein Engineering via in vitro Coevolution.*" Now assistant professor of chemical engineering at the Texas A & M University, College Station, TX.
4. Ee-Lui Ang, Ph.D., May, 2007, "*Engineering of Aniline Dioxygenase for Bioremediation and Industrial Applications.*" Now principle investigator at the Institute for Chemical Engineering and Science (ICES), Singapore.
5. Wenjuan Zha, Ph.D., September, 2007, "*Protein and Metabolic Engineering for Biosynthesis of Aromatic Compounds.*" Now research scientist at Codexis @ Singapore, Singapore.
6. Tyler Johannes, Ph.D., April, 2008, "*Directed Evolution of Phosphite Dehydrogenase and Engineered Biosynthesis of FR-900098.*" Now assistant professor of chemical engineering department at the University of Tulsa, Tulsa, OK.
7. Zengyi Shao, Ph.D., February 2009, "*Enabling Natural Product Biosynthesis with Novel Synthetic Biology Tools.*" Now visiting research assistant professor at the University of Illinois at Urbana-Champaign
8. Ryan Sullivan, Ph.D., November 2009, "*Engineering a Fungal L-Arabinose Pathway Towards the Co-utilization of Hemicellulosic Sugars for Production of Xylitol.*" Now research scientist at the National Renewable Energy Laboratory, Golden, CO.
9. Sheryl Rubin, Ph.D., November 2009, "*Type III Polyketide Synthases: Discovery, Characterization, and Engineering.*" Now research scientist at ExxonMobil, NJ.
10. Fei Wen, Ph.D., April 2010, "*Cell Surface Display in Biomedical Applications and Biofuels Production.*" Now assistant professor at the chemical engineering department at the University of Michigan.
11. Nikhil Nair, Ph.D., April 2010, "*Synergy of Protein and Genome Engineering for Fuels and Chemicals Production.*" Now postdoc at Harvard University.
12. Michael Mclachlan, Ph.D., August 2010, "*Transcription Factor Engineering: Tools and Applications.*" Now research scientist at the Cellular Dynamics International, Inc., Madison, Wisconsin.
13. Weng Lin Tang, Ph.D., August 2010, "*Engineering of an Efficient and Enantioselective Biocatalyst for the Preparation of Chiral Pharmaceutical Intermediates.*" Now a research scientist at Codexis @ Singapore, Singapore.
14. Matt DeSieno, Ph.D., August 2011, "*Microbial Synthesis of Antimalarial Compound FR-900098: Pathway Characterization and Engineering.*"
15. Jing Du, Ph.D., August 2011, "*Metabolic Engineering of Saccharomyces Cerevisiae for Efficient Ethanol Production from Pentose Sugars.*" Now research scientist at Novozymes.

16. Ning Sun, Ph.D. June 2013, “Engineering of Transcriptional Activator-like Effector Nucleases (TALENs) for Targeted Genome Editing.” Now postdoc with David Liu at Harvard University.
17. Jing Liang, Ph.D. March 2014, “Cellular Reprogramming in Eukaryotes.” Now Research Scientist at Institute of Chemical Engineering and Science, Singapore.
18. Carl Denard, Ph.D. April 2014, “Engineering Novel Tandem Reactions Using Organometallic Catalysts and (Metallo)Enzymes.”
19. Yunzi Luo, Ph.D. April 2014, “Natural Products Discovery and Characterization via Synthetic Biology.”
20. Dawn Eriksen, Ph.D. May 2014, “Combinatorial Biosynthetic Pathway Engineering for Microbial Production of Biofuels.”
21. Sijin Li, Ph.D. June 2014, “Strain Engineering and Biosensor Development for Efficient Biofuel Production by *Saccharomyces cerevisiae*.”
22. Tong Si, Ph.D. August 2014, “Genome Scale Engineering in *Saccharomyces cerevisiae*.”
23. Ryan Cobb, Ph.D. December 2014, “Natural Product Discovery and Engineering at the Protein, Pathway and Genome Scales.”
24. Zhanar Abil, Ph.D. April 2015, “Study and Engineering of Nucleic Acid-Binding Repeats Proteins.”
25. Jiazhang Lian, Ph.D. May 2015,

Visiting Ph.D. Thesis Students

1. Jie Sun, Ph.D. East China University of Science and Technology, June 2012, “Consolidated Bioprocessing of Hemicellulose.” Now postdoc at University of Texas at Austin
2. Sai Wen, Ph.D. Beijing University of Chemical Technology, December 2012, Now assistant professor at
3. Jinglin Li, Ph.D. Konkuk University,
4. Lu Zhang, Ph.D. Tianjin University
5. Sujit Jagtag, Ph.D., Konkuk University,

Current: 12

1. Todd Freestone, Ph.D., anticipated 2015
2. Jonathan Ning, Ph.D., anticipated 2016
3. Ran Cao, Ph.D., anticipated 2016
4. Zehua Bao, Ph.D., anticipated 2016
5. Lu Zhang, Ph.D., Tianjin University, anticipated 2015
6. Xiong Xiong, Ph.D. anticipated 2017
7. Sam Hamed, Ph.D. anticipated 2017
8. Hengqian Ren, Ph.D., anticipated 2018
9. Yajie Wang, Ph.D., anticipated 2018
10. Ipek Tasan, Ph.D., anticipated 2017
11. Behnam Enghiad, Ph.D., anticipated 2019
12. Surbhi Jain, Ph.D. anticipated 2019

B. Supervision of Postdocs/Research Associates

Former: 21

1. Tongbo Zhu, 2002-2003, unknown
2. Olga Esteban, 2002-2004, unknown
3. Jung-kul Lee, 2004-2006, now professor of chemical engineering at the Konkuk University, Seoul, South Korea
4. Ryan Woodyer, 2005-2006, now research scientist at Tate & Lyle, Decatur, IL
5. Hua Zhao, 2006-2007, now a research scientist at the Institute of Chemical Engineering and Science (ICES), Singapore
6. Yoo Seong Choi, 2006-2008, now assistant professor of chemical engineering at the Chungnam University, South Korea
7. Haige Lu, 10/2007-10/2008, now a postdoc researcher at the Memorial Sloan-Kettering Cancer Center, New York
8. Yuichi Nakagawa, 1/2008-10/2008, unknown
9. Michael Vu, 5/2008-5/2009, now a postdoc researcher at Rice University, Houston, TX
10. Tae Hee Lee, 6/2008-6/2010, now research scientist at the CJ Bio R&D Center, South Korea
11. Won-seok Jung, 3/2009-7/2010, now research scientist at the Samsung Biotech, South Korea
12. Amit Ghosh, 1/2009-5/2011 (joint supervised with Nathan Price), now research scientist at the Joint Bioenergy Institute, Emerville, CA
13. Byoungjin Kim, 1/2009-12/2011, now postdoc at KAIST, Korea.
14. Levi Stanley, 1/2011-12/2011 (jointly supervised with John Hartwig), now assistant professor of chemistry at the Iowa State University
15. Yunfeng Hu, 1/2011-1/2012, now postdoc at Polytechnic University of New York
16. Yongbo Yuan, 11/2010-3/2012, now postdoc at the University of Delaware
17. Zengyi Shao, 4/2009-12/2012, now assistant professor of chemistry at the Iowa State University
18. Dan Coursole, 11/2011-4/2013, now research scientist at Cargill, Iowa
19. Refaat Hamed, 6/2013-3/2014
20. Xueyang Feng, 3/2012-5/2014, now assistant professor at Virginia Tech, Blacksburg, VA
21. Hua Huang, 5/2012-8/2014, now postdoc with John Gerlt, UIUC
22. Han Xiao, 8/2012-2/2015, now associate professor at Shanghai Jiaotong University, China
23. Yunzi Luo, 5/2014-5/2015, now associate professor at Sichuan University, China
24. Meng Wang, 1/2010-6/2015, now professor at Chinese Academy of Sciences Tianjin Institute of Industrial Biotechnology, China
25. Sijin Li, 8/2014-7/2015, now postdoc at Christina Smolke's lab at Stanford University

Current: 4

1. Eva Garcia Ruiz, 7/2013-date
2. Tong Si, 8/2014-date
3. Shangwen Luo, 6/2015-date
4. Jiazhang Lian, 8/2015-date

C. Supervision of Visiting Professors

Former: 4

1. Whankoo Kang, Professor of Chemical Engineering, Hannam University, Korea, 2001.
2. Chun Li, Professor of Chemical Engineering, Beijing Institute of Technology, 2011-2012.
3. Yu Jiang, Associate Professor of Center for Industrial Biotechnology, Chinese Academy of Sciences, Shanghai, China, 2011-2012.
4. Qianfu Wang, Associate Professor, Shanghai Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, 5/2012-11/2012.

Current: 1

1. Zhen Kang, Associate Professor, Jiangnan University, China, 3/2015-date

D. Supervision of Undergraduate Students

Former: 35

Current: 8

1. Trang Vu, 2005-2007
2. Frank Qin, 2005-2006
3. Mark Laurenz, 2005-2006
4. Ka-chun Lai, 2004-2006
5. Chae Young Han, 2005
6. Junaid Begawala, 2004
7. Kathleen Sese, 2004
8. Kyle Kloepper, 2004
9. Samir Shah, 2001
10. Anna Kornafel, 2001-2002
11. Peter Meis, 2001-2002
12. Edgar Goluch, 2001-2003
13. Yen Sia Low, 2002-2003
14. Andrew Miller, 2002-2003
15. Thuytram Dang, 2004
16. Saroj Baha, 2006-2007
17. Anu Biswas, 2006-2008
18. Jenna Wozniak, 2006-2008
19. Kyle Fritschle, 2007-2008
20. Vincent Ip, 2008-2010
21. Erik Anderson, 2009
22. Tanush Sahay, 2009-2010
23. Helen Pei Chiun Hsieh, 2010-2011
24. Daniel Lee, 2010
25. Danish Haider, 2010-2012
26. Braden Christian, 2010-2011
27. Lu Lu, 2011-2012
28. Patrick Lynn, 2011-2012
29. Amy Oreskovic, 2012-2013
30. Wei Yang, 2012-2013

31. Zachary Dookeran, 2012-2013
32. Lily Chen, 2012-2013
33. Sherrie Lim Xuan Lu, 2013
34. Stella Wu, 2013-date
35. Justin Chacko, 2013
36. Run Jin, 2013-2014
37. Aaron Chen, 2013-2014
38. Kate Barton, 2013-2014
39. Hejun Li, 2013-2014
40. Robert Pipal, 2014
41. Valerie Jaroenpuntaruk, 2014-date
42. Chenzhao Yu, 2014-date
43. Xinyue Qi, 2014-date
44. Yuhao Min, 2015-date
45. Yuying Wu, 2015-date
46. Wen Ren, 2015-date
47. Ke Zhang, 2015-date
48. Yiran Xu, 2015-date

E. Supervision of Rotation Students and Biophysics Tutorial Students

Rotation Students: 48

1. Zhilei Chen (Biophysics), 2001
2. Haili Pin (Biophysics), 2001
3. Fenglin Yin (Biophysics), 2002
4. Marina Barakova (Biophysics), 2002
5. Shu Dong (CSB), 2002
6. Sheryl Rubin-Pitel (ChBE), 2003
7. Michael McLachlan (Biophysics), 2004
8. Hua Zhou (Biochemistry), 2005
9. Meng Chen (CSB), 2005
10. Nell Keith (BioE), 2005
11. Kara Smith (ChBE), 2005
12. Alex Parent (Chem), 2005
13. Victor Gonzalez (Chem), 2005
14. Quin Christensen (Micro), 2005
15. Brad Evans (Biochemistry), 2005
16. Po-chao Wen (Biophysics), 2005
17. Yanni Lin (MCB), 2007
18. Hui Liu (Biophysics), 2007
19. Xiaoyi Cao (Biophysics), 2007
20. Ning Sun (Biochemistry), 2007
21. Cancan Huang (Biophysics), 2007
22. Jesse Grenz (MCB), 2008
23. Abhinav Luthra (MCB), 2008
24. Neha Garg (MCB), 2008

25. Salehe Ghasempur (MCB), 2008
26. Ryan Cobb (ChBE), 2008
27. Zhanar Abil (MCB), 2009
28. Emilia Calvaresi (MCB), 2009
29. Tao Jiang (Biophysics), 2009
30. Kyle Dunbar (Chemistry), 2009
31. Chang Sun (Biochemistry), 2010
32. Takanori Miyairi (Biophysics), 2010
33. Yue Hao (Biochemistry), 2010
34. Manuel Ortega (Biochemistry), 2010
35. Seyfullah Kotil (Biophysics), 2010
36. Kevin Whitley (Biophysics), 2010
37. Xinyu Cao (Biochemistry), 2011
38. Zehua Bao (Biochemistry), 2011
39. Zhe Shen (Biochemistry), 2011
40. Mahdyie Jadaliha (Biochemistry), 2011
41. Maryam Kh (Biochemistry), 2012
42. Ipek Tasan (Biochemistry), 2012
43. Xiaobin Zheng (Biochemistry), 2012
44. Tas Hussein (Biophysics), 2012
45. Bhoomika Mathur (Biochemistry), 2013
46. Yuanyuan Hu (Microbiology), 2013
47. Erik Andersen (MCB), 2014
48. Soumitra Athavale (MCB), 2014
49. Surbhi Jain (MCB), 2014
50. ShengShee "Seth" Thor (Biophysics), 2014

Tutorial Students (6):

1. Rong Cao, 2005
2. Qian Bian, 2005
3. Ayano Sakai, 2007
4. Xiaowen Hou, 2010
5. Yang Yu, 2013
6. Alex Moffett, 2015

F. Supervision of Visiting Students

1. Kazi Islam, Georg-August-University Goettingen (Germany), 2006
2. Jie Sun, East China University of Science and Technology (China), 2008-2010
3. Guiomar Sanchez Carron, University of Murcia (Spain), 2010
4. Jinglin Li, Konkuk University, 2010-2011
5. Sai Wen, Beijing University of Chemical Technology (China), 2010-2011
6. Mirko Beissner, Technical University of Munich, Spring, 2012
7. Sujit Jagtag, Konkuk University, 2012-date
8. Lu Zhang, Tianjin University, 2012-date

G. Service on Ph.D. Examination Committees

Preliminary Examination Committees (72)

2001, Zheng-guang Wang, Chemical Engineering
2002, Josh Ackerman, Chemical Engineering
2002, M. Larid Forrest, Chemical Engineering
2002, Qingjun Wang, Biophysics
2003, John Comninos, Chemistry
2003, Eric Olsen, Chemistry
2003, Su Ha, Chemical Engineering
2003, Halong Vu, Chemical Engineering
2003, Ryan Woodyer, Chemistry, Chair
2004, Karu Chockalingam, Chemical Engineering, Chair
2004, Zhilei Chen, Biophysics, Chair
2004, Emily J. Pollauf, Chemical Engineering
2004, Dan Ryan, Chemistry
2004, Chandrashekar Raman, Chemical Engineering
2005, Ee-Lui Ang, Chemical Engineering, Chair
2005, Michael Toepke, Chemical Engineering
2005, Edgar Goluch, Bioengineering
2005, Matt Levengood, Chemistry
2005, YoungJung Chang, Chemical Engineering
2005, Josh Ramsey, Chemical Engineering
2006, Wei Xie, Chemical Engineering
2006, Wenjuan Zha, Chemical Engineering, Chair
2006, Tyler Johannes, Chemical Engineering, Chair
2006, Paul Barone, Chemical Engineering
2006, Fenglin Yin, Biophysics
2007, Keng Jin Lee, Chemical Engineering
2007, Nathan Gabrielson, Chemical Engineering
2007, Zengyi Shao, Chemical Engineering, Chair
2007, David Drake, Chemical Engineering
2007, Quanming Shi, Chemical Engineering
2007, Tasha Desai, Chemical Engineering
2008, Sheryl Rubin-Pitel, Chemical Engineering
2008, Fei Wen, Chemical Engineering
2008, Ryan Sullivan, Chemical Engineering
2008, Lily Wong, Chemical Engineering
2008, Quinn Peterson, Biochemistry
2008, Yan Fan, Chemistry
2008, Sharon Hyonju Choi, Biochemistry
2008, Jung-un Baek, Chemistry
2009, Kang Wu, Chemical Engineering
2009, Divina Anunciado, Chemistry
2009, Benjamin Schudel, Chemical Engineering
2009, Matt DeSieno, Chemical Engineering

2010, Jung-un Baek, Chemistry
2010, Khushnuma Koita, Chemical Engineering
2010, Chieh Chun Chen, Bioengineering
2010, Daniel Ong, Chemical Engineering
2010, Vinayak Agarwal, Biophysics
2010, Devine Whipple, Chemical Engineering
2010, Noel Xu, Chemical Engineering
2010, John Schmidt, Chemical Engineering
2011, Rahul K. Keswani, Chemical Engineering
2011, Neha Garg, Biochemistry
2011, Carolyn Milne, Chemical Engineering
2011, Francisco Guerra, Biophysics
2011, Ismaeel Muhamed, Biochemistry
2011, Mark Hwang, Medical Scholar Program
2011, Guodong Rao, Chemistry
2011, Weixin Tang, Chemistry
2011, Soo Rin Kim, Food Sciences
2012, Kyong Wook Noh, Chemical Engineering
2012, Timothy Turner, Food Sciences
2012, Yuliang Wang, Chemical Engineering
2012, Mathew Benedict, Chemical Engineering
2012, Yujie Xia, Chemical Engineering
2012, Subha Mukherjee, Chemistry
2012, Ryan Cobb, Chemical Engineering
2012, Yunzi Luo, Chemical Engineering
2012, Sijin Li, Chemical Engineering
2012, Caitlin Deane, Chemistry
2013, Mei-Hsiu Lai, Chemical Engineering
2013, Shuyi Ma, Chemical Engineering
2013, Binhui Zhao, Molecular and Cell Biology
2013, Yue Hao, Biochemistry
2013, Shannon Walsh, Biochemistry
2013, David Parker, Biochemistry
2013, Mathew Richards, Chemical Engineering
2013, Jiazhang Lian, Chemical Engineering
2014, Nektaria Petronikolou, Biochemistry
2014, Suyan Zhang, Chemical Engineering
2014, Ahmet Badur, Chemical Engineering
2015

Final Thesis Examination Committees (73):

2002, Qingjun Wang, Biophysics
2003, Zheng-guang Wang, Chemical Engineering
2003, Josh Ackerman, Chemical Engineering
2003, M. Larid Forrest, Chemical Engineering

2003, Yu-wen Huang, Chemical Engineering
2004, Emily J. Pollauf, Chemical Engineering
2005, Anil Prakasam, Chemical Engineering
2005, Chandrashekar Raman, Chemical Engineering
2005, Ryan Woodyer, Chemistry, Chair
2005, Bridget Trogden, Chemistry
2006, Karu Chockalingam, Chemical Engineering, Chair
2006, Zhilei Chen, Biophysics, Chair
2006, Michael Toepke, Chemical Engineering
2006, Heather Relyea, Chemistry
2006, Josh Ramsey, Chemical Engineering
2006, YoungJung Chang, Chemical Engineering
2007, Edgar Goluch, Bioengineering
2007, Wei Xie, Chemical Engineering
2007, Ee Lui Ang, Chemical Engineering, Chair
2007, Wenjuan Zha, Chemical Engineering, Chair
2007, Edgar Goluch, Bioengineering
2008, Tyler Johannes, Chemical Engineering, Chair
2008, Fenglin Yin, Biophysics
2008, Monica Usrey, Chemical Engineering
2008, Keng Jin Lee, Chemical Engineering
2008, Paul Barone, Chemical Engineering
2008, Matt Levengood, Chemistry
2009, Nathan Gabrielson, Chemical Engineering
2009, Zengyi Shao, Chemical Engineering, Chair
2009, David Drake, Chemical Engineering
2009, Daniel Ryan, Chemistry
2009, Lily Wong, Chemical Engineering
2009, Tasha Desai, Chemical Engineering
2009, Yan Fan, Chemistry
2009, Quanming Shi, Chemical Engineering
2009, Sheryl Rubin-Pitel, Chemical Engineering, Chair
2009, Ryan Sullivan, Chemical Engineering, Chair
2010, Benjamin Schudel, Chemical Engineering
2010, Fei Wen, Chemical Engineering, Chair
2010, Nikhil Nair, Chemical Engineering, Chair
2010, Divina Anunciado, Chemistry
2010, Michael McLachlan, Biophysics, Chair
2011, Kevin Lin, Chemical Engineering
2011, Robert Morgan, Chemical Engineering
2011, Devin Whipple, Chemical Engineering
2011, Matthew DeSieno, Chemical Engineering
2011, Jing Du, Chemical Engineering
2011, John Comminos, Chemistry
2012, Rahul Keswani, Chemical Engineering

2012, Mark Hwang, MD/PhD Program
2012, Jung-un Baek, Chemistry
2012, Soo-Rin Kim, Food Sciences
2012, Vinayak Agarwal, Biochemistry
2012, Chieh-Chun Chen, Bioengineering
2013, Sze Wei Daniel Ong, Chemical Engineering
2013, Caroline Milner, Chemical Engineering
2013, Ning Sun, Biochemistry
2013, Neha Garg, Biochemistry
2013, Kyong Wook Noh, Chemical Engineering
2014, Matthew Benedict, Chemical Engineering
2014, Arnab Mukherjee, Chemical Engineering
2014, Carl Denard, Chemical Engineering
2014, Yunzi Luo, Chemical Engineering
2014, Jing Liang, Chemical Engineering
2014, Dawn Eriksen, Chemical Engineering
2014, Sijin Li, Chemical Engineering
2014, Tong Si, Chemical Engineering
2014, Mei-Hsiu Lai, Chemical Engineering
2014, Josh Quarterman, Food Science and Human Nutrition
2014, Ryan Cobb, Chemical Engineering
2015, Pei Wang, Biochemistry
2015, Weixin Tang, Chemistry
2015, Zhanar Abil, Biochemistry
2015, Jiazhang Lian, Chemical Engineering
2015, Rich Harrison, Chemical Engineering
2015, Subha Mukherjee, Chemistry
2015, Parisa Hosseinzadeh, Biochemistry

IV. SERVICE (PUBLIC, PROFESSIONAL/DISCIPLINARY, AND UNIVERSITY)

A. Public Service

Consulting Service

Member of Scientific Advisory Board, Gevo, Denver, CO, 2006-2010
Member of Scientific Advisory Board, Myriant, Woburn, MA, 2009-present
OMT, Inc., Palo Alto, CA, 2008-2009
zuChem, Peoria, IL, 2007-2010
Maxygen, Redwood City, CA, 2005-2010
British Petroleum (BP), Naperville, IL, 2007-2008
Pfizer, Groton, CT, 2008
Cabot Corporation, Boston, MA, 2002
Fox/Atkins Development, Urbana, IL, 2002
The Dow Chemical Company, Midland, MI, 1997
Diversa, Inc., San Diego, CA, 1996

Service to Government Agencies

Advisors:

DOE Biological and Environmental Research Program, 2012-date

Review Panels:

NSF SBIR/STTR Phase I, Bio-based Sensors, Washington, DC, March 24-25, 2003

NIH Biochemistry Study Section, Washington, DC, November 13-14, 2003

NSF SBIR/STTR Phase I, Bio-based Sensors, Washington, DC, April 5-6, 2004

NSF Metabolic Engineering, Washington, DC, April 27-28, 2005

NSF SBIR/STTR Phase I, Industrial Bioproducts, Washington, DC, March 14-15, 2006.

NSF BES Biochemical Engineering/Biotechnology, Washington, DC, April 20-21, 2006.

NSF BES CAREER review panel, Washington, DC, November 8-9, 2006.

NSF CBET Biochemical Engineering/Biotechnology, Washington, DC, December 3-4, 2007.

NSF BES Biochemical Engineering/Biotechnology Review Panel, Washington, DC,
December 10-11, 2008.

DOE Site Review Panel for Joint BioEnergy Institute (JBEI), Emeryville, CA, September 30
to October 1, 2009

DOE Year Three Review Panel of DOE's Three Bioenergy Research Centers, September 26-
30, 2010

NIH Interdisciplinary Molecular Sciences and Training Integrated Review Group (IRG),
Washington, DC, March 10-11, 2011

NSF Review Panel on Synthetic Biology & Metabolic Engineering, Washington, DC, Jan.
20-21, 2015

Reviewer for Grant Proposals:

National Institutes of Health (NIH)

National Science Foundation (NSF)

Army Research Office (ARO)

ARO Institute for Collaborative Biotechnologies

Department of Energy (DOE)

US Department of Agriculture (USDA)

ACS Petroleum Research Fund

Research Corporation

North Dakota State Government

Chinese National Science Foundation

Stanford University

Workshops:

ARO's Workshop for Bio-Fuel Cells, Washington, DC, June 30-July 2, 2002

DOE's Workshop on Catalysis, Gaithersburg, Maryland, May 14-16, 2002

U.S. Government's Science and Technical Expert Partnership (STEP) Program Workshop on
Synthetic Biology, McLean, VA, July 27, 2005.

ARO's Workshop on Cell-Like Entities (CLE), Fairborn, OH, September 13-14, 2005.

Chinese Academy of Sciences-Max Planck- Gesellschaft Exploratory Round Table
Conferences on Synthetic Biology, Shanghai, October 19-21, 2010.

Search Committees:

Argonne National Laboratories Biosciences Division Director Search Committee, 2007-2008

B. Service to Disciplinary and Professional Societies and Associations

National Academy of Engineering (NAE)

Co-organizer, NAE's Indo-American Frontiers of Engineering Symposium, March, 2012

American Institute of Chemical Engineers (AIChE)

Co-chair, Advances in Biocatalysis and Protein Engineering, AIChE Annual Meeting, Reno, CA, November 5, 2001.

Chair, Combinatorial/Directed Evolution Approaches in Bioengineering, AIChE Annual Meeting, San Francisco, CA, November 20, 2003.

Chair, Advances in Metabolic Engineering, AIChE Annual Meeting, Austin, TX, November 5-12, 2004.

Chair, Advances in Metabolic Engineering, AIChE Annual Meeting, Cincinnati, OH, October 30 - November 4, 2005.

American Chemical Society

Co-chair, High throughput Screening/Genomics and Proteomics, ACS Annual Spring Meeting, Anaheim, CA, March 28-April 1, 2004.

Co-chair, Protein Expression, ACS Annual Spring Meeting, San Diego, CA, March 13-17, 2005.

Co-chair, Protein Expression, ACS Annual Fall Meeting, San Francisco, CA, September 10-14, 2006.

Symposium Chair, Emerging Technologies, ACS Annual Fall Meeting, Boston, MA, August 19-23, 2007.

Co-chair, Advances in Biocatalysis, ACS Annual Fall Meeting, Philadelphia, CA, August 17-21, 2008.

Programming Chair, BIOT Division, ACS Annual Fall Meeting, Washington DC, August 16-20, 2009.

Institute of Electrical and Electronic Engineers (IEEE)

Theme chair, Molecular, Cellular and Tissue Engineering and Biomechanics, 26th Annual International Conferences of the IEEE Engineering in Medicine and Biology Society, San Francisco, CA, September 1-4, 2004.

Member of Program Committee, 4th IEEE International Symposium on Bioinformatics and Bio Engineering, Taichung, Taiwan, May 19-21, 2004.

Society for Industrial Microbiology (SIM)

Session chair, Recent Advances in Biocatalyst Development, Annual SIM Meeting, Denver, CO, July 29 - August 2, 2007.

Program co-chair, Biocatalysis, Annual SIM Meeting, Denver, CO, July 29-August 2, 2007.

Program co-chair, Biocatalysis, Annual SIM Meeting, San Diego, CA, August 10-14, 2008.

Program Chair, Biocatalysis, Annual SIM Meeting, Toronto, Canada, July 26-30, 2009.

Program co-Chair, Natural Products, Annual SIM Meeting, New Orleans, LA, July 24-28, 2011

Program Chair, Natural Products, Annual SIM Meeting, Washington DC, August 12-16, 2012

Program Chair, Natural Products, Annual SIM Meeting, St. Louis, MO, July 20-24, 2014

Session Chair, Overproduction of Natural Products, Annual SIM Meeting, Philadelphia, PA, August 3-7, 2015

Engineering Conference International (ECI)

Session chair, Evolutionary Approaches in Metabolic Engineering, Metabolic Engineering V International Conference, Lake Tahoe, CA, September 19-23, 2004.

Session chair, Biomolecular Evolutions and Revolutions: DNA, RNA, and Proteins, Biochemical Engineering XV International Conference, Quebec City, Canada, July 15-19, 2007

Program Co-chair, Biochemical and Molecular Engineering XVIII International Conference, Beijing, June 16-21, 2013

Advisory Committee Member, ECI's Biochemical and Molecular Engineering XIV, Mexico, 2014-2015

Reviewer for:

Science

Nature

PNAS

Angewandte Chemie

Journal of the American Chemical Society (JACS)

Nature Chemical Biology

Nature Communications

Nature Protocols

Nucleic Acids Research

Journal of Biological Chemistry

Journal of Molecular Biology

ACS Chemical Biology

Chemistry and Biology

Molecular Microbiology

Biochemistry

Analytical Chemistry

Applied and Environmental Microbiology

Journal of Immunological Methods

Biotechnology and Bioengineering

Biotechnology Progress

Biotechnology Journal

Biotechniques

Bioinformatics Journal

Biochimica et Biophysica Acta (BBA)

FEBS Letters

FEMS Microbiology Letters

Metabolic Engineering

Trends in Biotechnology

Trends in Microbiology

Extremophiles

Molecular Biology and Evolution

Microbial Cell Factories

Biotechnology for Biofuels

Current Opinion in Biotechnology
 ACS Synthetic Biology
 Chemical Communications
 Cell Research
 Cellular and Molecular Life Sciences
 Tetrahedron
 Expert Opinion in Biological Therapy
 Journal of Molecular Catalysis B: Enzymatic
 Journal of Bioscience and Bioengineering
 Systems and Synthetic Biology
 Organic Letters

C. University/Campus Service

UIUC Campus

Office of Technology Management (OTM) Board of Advisors	2003-2013
Roy J. Carver Biotechnology Center Advisory Committee	2009-2014
Chancellor/Provost Faculty Consultation Group	2014-present
Campus Selection Panel for the Global Young Scientists Summit in Singapore	2015-present

College of Engineering

<i>Ad Hoc</i> Subcommittee to Review a Proposal to Revise Bioengineering Minor	2006
Executive Committee	2007-2010

College of Liberal Arts and Science

100th Anniversary Planning Committee	2012-2013
LAS Nominations Committee	2015-2017

School of Chemical Sciences

ChBE Department Head Search Committee	2002-2003
Executive Committee	2007-2010
Faculty Advisor for Chemical Storeroom	2008-date
Search Committee for SCS Associate Director	2008
Search Committee for SCS Business and Finance Specialist	2009
Search Committee for SCS Storeroom Coordinator	2009
Search Committee for SCS Director	2012

Department of Chemical and Biomolecular Engineering

Academic Advisor for Undergraduate Students in Chemical Engineering	2000-date
Administrative Committee	2000-date
Graduate Admission Committee	2000-2007
Systems Bioinformatics Committee	2001-2003
Graduate Fellowship Coordinator	2003-2007
Undergraduate Curriculum Committee	2004-2006
Shen Postdoctoral Fellowship	2005
Chair, Departmental Seminar Committee	2004-2007
Faculty Search Committee	2005-2007
Chair, Biomolecular Engineering Minor Committee	2006
Chair, Undergraduate Curriculum Committee	2010
Chair, Awards Committee	2010-2013

Awards Committee	2013-date
Faculty Search Committee	2010-date
Faculty Search Committee on Computational Systems Biology	2013-2014
<u>Department of Biochemistry</u>	
Graduate Admission Committee	2008-2010
<u>Department of Bioengineering</u>	
Co-chair, Departmental Seminar Committee	2003-2004
<u>Department of Food Science and Human Nutrition</u>	
Faculty Search Committee for Position in Microbial Genomics	2005-2007
<u>Department of Microbiology</u>	
Faculty Search Committee for Position in Bioinformatics	2005-2006
Faculty Search Committee for Position in Natural Products	2006-2007
<u>Center for Biophysics and Computational Biology</u>	
Graduate Admission Committee	2005-2007
Graduate Admission Committee	2011-2012
<u>School of Molecular and Cell Biology</u>	
NIH Cellular and Molecular Biology Training Grant Minority Committee	2003
Molecular Biophysics Training Grant Executive Committee	2008-date
D. Service to Other Universities/National Laboratories	
<u>Argonne National Laboratories</u>	
Search Committee for Director of the Division of Biosciences	2007-2008

Zhao group members in Academia

Graduate Students

1. Zhilei Chen (2000-2006): Assistant Professor, Department of Chemical Engineering, Texas A&M University, Station College, TX
2. Tyler Johannes (2002-2008): Associate Professor, Department of Chemical Engineering, University of Tulsa, Tulsa, OK
3. Fei Wen (2003-2010): Assistant Professor, Department of Chemical Engineering, University of Michigan, Ann Arbor, MI
4. Nikhil Nair (2004-2010): Assistant Professor, Department of Chemical Engineering, Tufts University, Boston, MA
5. Zengyi Shao (2002-2008): Assistant Professor, Department of Chemical Engineering, Iowa State University, Ames, IA
6. Yunzi Luo (2008-2014): Associate Professor, Sichuan University, China

Postdoctoral Associates

1. Jung-kul Lee (2004-2006): Professor, Department of Chemical Engineering, Konkuk University, Seoul, South Korea
2. Yoo Seong Choi (2006-2008): Assistant Professor, Department of Chemical Engineering, Chungnam University, Seoul, South Korea
3. Levi Stanley (2010-2011): Assistant Professor, Department of Chemistry, Iowa State University, Ames, IA
4. Xueyang Feng (2012-2014): Assistant Professor, Department of Biological Systems Engineering, Virginia Tech, Blacksburg, VA
5. Han Xiao (2012-2015): Associate Professor, School of Life Sciences and Biotechnology, Shanghai JiaoTong University, China
6. Meng Wang (2010-2015): Professor, Tianjin Institute of Industrial Biotechnology, Tianjin, China
7. Xiaoyun Su (2012-2014): Associate Professor, Feed Research Institute Chinese Academy of Agricultural Sciences, Beijing, China
8. Refaat Refaat Hamed (2013-2014): Assistant Professor, Faculty of Pharmacy, Assiut University, Egypt

Visiting Professors

1. Chun Li (2011): Professor, Department of Chemical Engineering, Beijing Institute of Technology, Beijing, China
2. Yingxiao (Peter) Wang (2011-2012): Associate Professor, Department of Bioengineering, University of Illinois at Urbana-Champaign, Urbana, IL
3. Yu Jiang (2011-2012): Associate Professor of Center for Industrial Biotechnology, Chinese Academy of Sciences, Shanghai, China

Undergraduate Students

1. Edgar Goluch (2000-2003): Assistant Professor, Department of Chemical Engineering, Northeastern University, Boston, MA