



## HONORS

Biotechnology Progress Award for Excellence in Biological Engineering Publication, 2012

Fellows, American Institute for Medical and Biological Engineering (AIMBE), 2011

Gore Professor of Chemical Engineering, January 2011-Present

AIChE Food, Pharmaceutical, and Bioengineering Division Plenary Session, Biochemical Engineering (Area 15c) Award, 2008

Fellows, American Association for the Advancement of Science, 2006

UC Presidential Chair, July 2006-June 2010

Invited Participant of the Fifth Annual U.S./Japan Frontiers of Engineering Symposium, 2005

Invited Participant of the National Academy of Engineering's Fourth Annual Symposium on Frontiers of Engineering, 1998

NSF Faculty Early Career Development Award, 1997

Regents Faculty Fellowship, UCR, 1997

Associate Editor, Applied Biochemistry and Biotechnology, July 03-Dec 2010

Associate Editor, Biochemical Engineering Journal, 3/08-Present

Editorial Board, Biotechnology and Bioengineering, 2/03-Present

Editorial Board, Applied and Environmental Microbiology, 1/04-Present

Editorial Board, Microbial Cell Factories, 6/04-7/14

Editorial Board, Journal of Biological Engineering, 1/07-Present

Editorial Board, The Open Biotechnology Journal, 1/08-Present

Editorial Board, Bioengineered Bugs, 9/09-Present

NASA Certificate of Recognition, 1995

National Institutes of Health Predoctoral Traineeship, Caltech, 1990-1992

Corning Graduate Fellowship, Caltech, 1988

Chervon Outstanding Senior Award in Chemical Engineering, UCLA, 1988

Outstanding Junior Award in Chemical Engineering, UCLA, 1987

Munson Memorial Scholarship, UCLA, 1987

Norman Chemistry Award, Los Angeles Valley College, 1985

Mathematical Department Award, Los Angeles Valley College, 1985

## RESEARCH INTERESTS

Current research efforts are focused on the development of biomolecular tools that can be used for biofuel production, disease diagnostic, drug discovery and the environmentally-friendly synthesis of nanomaterials. Another area of interest is the application of these biological materials for biosensor development.

## PUBLICATIONS

228. Qi Chen, Qing Sun, Nicholas M. Molino, Szu-Wen Wang, Eric T. Boder and **Wilfred Chen**, Thermally-responsive biocatalytic protein nanocages by sortase-mediated stepwise modular display, *Angewandte Chemie International Edition*, Submitted.
227. Alan G. Fast, Eleftherios T. Papoutsakis, and **Wilfred Chen**, Anaerobic methane- and methanol-utilization based synthetic methylotrophy, *Curr. Opin. Biotechnol.*, Submitted.
226. Daniel Blackstock and **Wilfred Chen**, Halo-tag mediated self-labeling of fluorescent proteins to molecular beacons for nucleic acid detection, *Chem. Comm.*, **50**, 13735-13738, 2014.
225. Rahul D Sheth, Bharat Bhut, Mi Jin, Zhengjian Li, **Wilfred Chen**, and Steven M. Cramer, Development of an ELP-Z Based mAb Affinity Precipitation Process Using Scaled-Down Filtration Techniques, *J. Biotechnol.*, **192**, 11-19, 2014.
224. Daniel Blackstock, Qing Sun, and **Wilfred Chen**, Fluorescent protein-based molecular beacons by zinc finger protein-guided assembly, *Biotechnol. Bioeng.*, **112**, 236-241, 2015.
223. Kishore K. Krishnani, **Wilfred Chen**, and Ashok Mulchandani, Bactericidal activity of elastin-like polypeptide biopolymer with polyhistidine domain and silver, *Colloids and Surfaces B: Biointerfaces*, **119**, 66-70, 2014.
222. Rahul D. Sheth, Mi Jin, Bharat V. Bhut, Jia Liu, Jongchan Lee, Rieble Siegfried, Zhengjian Li, **Wilfred Chen**, Steven M. Cramer, Affinity precipitation of monoclonal antibody from industrial harvest feedstock using ELP-Z stimuli responsive biopolymers, *Biotechnol. Bioeng.*, **111**, 1595-1603, 2014.
221. Rebecca Chen, Qi Chen, Heejae Kim, Ka-Hei Siu, Qing Sun, Shen-Long Tsai and **Wilfred Chen**, Biomolecular Scaffolds for Enhanced Signaling and Catalytic Efficiency, *Curr. Opin. Biotechnol.*, **28**, 59-68, 2014.
220. Qing Sun, Bhawna Madan, Shen-Long Tsai, Matthew P. DeLisa, and **Wilfred Chen**, Creation of artificial cellulosomes on DNA scaffolds by zinc finger protein-guided assembly for efficient cellulose hydrolysis, *Chem. Comm.*, **50**, 1423-1425, 2014.
219. Miso Park, Qing Sun, Fang Liu, Matthew P. DeLisa, and **Wilfred Chen**, Positional assembly of enzymes on bacterial outer membrane vesicles for cascade reactions, *PLOS one*, **9**, e97103, 2014.

218. Lakshmi N Cella, Payal Biswas, Marylynn V. Yates, Ashok Mulchandani, **Wilfred Chen**, Quantitative assessment of *in vivo* HIV protease activity using genetically engineered QD-based FRET probes, *Biotechnol. Bioeng.*, **111**, 1082–1087, 2014.
217. Daniel Blackstock, Miso Park, Qing Sun, Shen-Long Tsai, and **Wilfred Chen**, Engineering protein modules for diagnostic applications, *Curr. Opin. Chem. Eng.*, **2**, 416–424, 2013.
216. Miso Park, Shen-Long Tsai, and **Wilfred Chen**, Microbial biosensors: Engineered microorganisms as the sensing machinery, *Sensors*, **13**, 5777-5795, 2013.
215. Lakshmi N Cella, Daniel Blackstock, Marylynn A. Yates, Ashok Mulchandani, **Wilfred Chen**, Detection of RNA Viruses: Current technologies and Future perspectives, *Critical Reviews in Eukaryotic Gene Expression*, **23**, 125-137, 2013.
214. Fang Liu, Scott Banta, and **Wilfred Chen**, Functional assembly of a multi-enzyme methanol oxidation cascade on a surface-displayed trifunctional scaffold for enhanced NADH production, *Chem. Comm.*, **49**, 3766-3768, 2013.
213. Rahul D. Sheth, Bhawna Madan, **Wilfred Chen**, Steven M. Cramer, High throughput screening for the development of a monoclonal antibody affinity precipitation step using ELP-Z stimuli responsive biopolymers, *Biotechnol. Bioeng.*, **110**, 2664-2676, 2013.
212. Fang Liu and **Wilfred Chen**, Engineering a recyclable ELP capturing scaffold for non-chromatographic protein purification, *Biotechnol Prog.*, **29**, 968-971, 2013.
211. Nicha Chartuprayoon, Youngwoo Rheem, James C. K. Ng, Jin Nam, **Wilfred Chen**, and Nosang V. Myung, Polypyrrole nanoribbon based chemiresistive immunosensor for viral plant pathogen detection, *Anal. Methods*, **5**, 3497-3502, 2013.
210. Divya Sivaraman, Hsiao-Yun Yeh, Ashok Mulchandani, Marylynn V. Yates and **Wilfred Chen**, Use of flow cytometry for the rapid and quantitative detection of poliovirus-infected cells via TAT peptide-delivered molecular beacons, *Appl. Environ. Microbiol.*, **79**, 696-700, 2013.
209. Shen-Long Tsai, Miso Park, **Wilfred Chen**, Size-modulated synergy of cellulase clustering for enhanced cellulose hydrolysis, *Biotechnol. J.*, **8**, 257–261, 2013.
208. Heejae Kim, Qing Sun, Fang Liu, Shen-Long Tsai, and **Wilfred Chen**, Biologically assembled nanobiocatalysts, *Topics in Catalysis*, **55**, 1138-1145, 2012.
207. Shen-Long Tsai, Nancy A. DaSilva, and **Wilfred Chen**, Functional display of complex cellulosomes on the yeast surface via adaptive assembly, *ACS Synthetic Biology*, **2**, 14-21, 2013.
206. Sneha Srikrishnan, **Wilfred Chen**, and Nancy A. Da Silva, Functional assembly and characterization of a modular xylanosome for hemicellulose hydrolysis in yeast, *Biotechnol. Bioeng.*, **110**, 275–285, 2013.

205. Bhawna Madan, Garima Chaudhary, Steven M. Cramer, and **Wilfred Chen**, ELP-z and ELP-zz capturing scaffolds for the purification of immunoglobulins by affinity precipitation, *J. Biotechnol.*, **163**, 10-16, 2013.
204. Fang Liu, Shen-Long Tsai, Bhawna Madan, and **Wilfred Chen**, Engineering a high-affinity scaffold for non-chromatographic protein purification via intein-mediated cleavage, *Biotechnol. Bioeng.*, **109**, 2829–2835, 2012.
203. Maxwell C. Kum, Hyunsung Jung, Nicha Chartuprayoon, **Wilfred Chen**, Ashok Mulchandani, and Nosang V. Myung, Tuning electrical and optoelectronic properties of single cadmium telluride nanoribbon, *J. Phys. Chem.*, **116**, 9202-9208, 2012.
202. Michael W.Y. Shen, Dhawal Shah, **Wilfred Chen**, Nancy Da Silva, Enhanced arsenate uptake in yeast engineered for overexpression of the pho84 phosphate transporter, *Biotechnol. Prog.*, **28**, 654–661, 2012.
201. Rajwant S. Bedi, Rui Cai, Cory O’Neill, Derek E. Beving, Stephen Foster, Sean Guthrie, **Wilfred Chen**, and Yushan Yan, Hydrophilic and antimicrobial Ag-exchanged zeolite A coatings: A year-long durability study and preliminary evidence for their general microbiocidal efficacy to bacteria, fungus and yeast, *Microporous and Mesoporous Materials*, **151**, 352-357, 2012.
200. Garima Goyal, Shen Long Tsai, Bhawna Madan, Nancy A. DaSilva, and **Wilfred Chen**, Simultaneous cell growth and ethanol production from cellulose by an engineered yeast consortium displaying a functional mini-cellulosome, *Microb. Cell Factories*, **10**, 89, 2011.
199. Xiaojian Chen, **Wilfred Chen**, Ashok Mulchandani and Umar Mohideen, Application of displacement principle for detecting heavy metal ions and EDTA using microcantilevers, *Sensors & Actuators: B. Chemical*, **161**, 203-208, 2012.
198. Daniela Dunams, Payal Sarkar, **Wilfred Chen**, and Marylynn Yates , Simultaneous detection of infectious human echoviruses and adenoviruses by an in situ nuclease-resistant molecular beacon-based assay, *Appl. Environ. Microbiol.*, **78**, 1548-1588, 2012.
197. Shen-Long Tsai, Shailendra Singh, Nancy A. DaSilva, and **Wilfred Chen**, Co-expression of *Arabidopsis thaliana* phytochelatin synthase and *Treponema denticola* cysteine desulphydrase for enhanced arsenic accumulation, *Biotechnol. Bioeng.*, **109**, 605–608, 2012.
196. Joun S. Lee, Syed Mubeen, Carlos M. Hangarter, Ashok Mulchandani, **Wilfred Chen**, and Nosang V. Myung, Selective and rapid room temperature detection of H<sub>2</sub>S using gold nanoparticle chain arrays, *Electroanalysis*, **23**, 2623-2628, 2011.
195. Shenghua Jiang, Fang Liu, Min-Gyu Kim, Jae-Hong Lim, Kun-Jae Lee, Yong-Ho Choa, Kyung Song, Michael J. Sadowsky, **Wilfred Chen**, Nosang V. Myung, and Hor-Gil Hur,

Synthesis of chalcogenide ternary and quaternary nanotubes through directed compositional alterations of bacterial As-S nanotubes, *J. of Materials Chemistry*, **21**, 10277-10279, 2011.

194. Payal Ganguli, **Wilfred Chen**, and Marylynn V. Yates, Detection of Murine Norovirus-1 using TAT peptide delivered molecular beacon, *Appl. Environ. Microbiol.*, **77**, 5517-5520, 2011.

193. Payal Biswas, Lakshmi N Cella, Seung Hyun Kang, Ashok Mulchandani, Marylynn V. Yates, and **Wilfred Chen**, A quantum-dot based protein module for *in vivo* monitoring of protease activity through fluorescence resonance energy transfer, *Chem. Comm.*, **47**, 5259-5261, 2011.

192. Divya Sivaraman, Payal Biswas, Lakshmi N Cella, Marylynn V. Yates and **Wilfred Chen**, Detecting RNA viruses in living mammalian cells by fluorescence microscopy, *Trends in Biotechnol.*, **29**, 307-313, 2011.

191. Basanta K. Das, Chaker Tlili, Sushmee Badhulika, Lakshmi N. Cella, **Wilfred Chen**, and Ashok Mulchandani, Single-walled carbon nanotubes chemiresistor aptasensors for small molecules: picomolar level detection of adenosine triphosphate, *Chem. Comm.*, **47**, 3793–3795, 2011.

190. Shen-Long Tsai, Garima Goyal, and **Wilfred Chen**, Surface display of a functional minicellulosome by intracellular complementation using a synthetic yeast consortium and its application to cellulose hydrolysis and ethanol production, *Appl. Environ. Microbiol.*, **76**, 7514-7520, 2010.

189. Manngesh A. Banger, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Conducting polymer 1-dimensional nanostructures for FET sensors, *Thin Solid Films*, **519**, 964-973, 2010.

188. Fang Liu, Seung Hyun Kang, Young-In Lee, Yong-ho Choa, Ashok Mulchandani, Nosang V. Myung, and **Wilfred Chen**, Enzyme mediated synthesis of phytochelatin-capped CdS nanocrystals, *Appl. Phys. Letts.*, **97**, 123703, 2010.

187. Miso Park, Lakshmi N Cella, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Carbon nanotubes-based chemiresistive immunosensor for small molecules: Detection of nitroaromatic explosives, *Biosensors and Bioelectronics*, **26**, 1297-1301, 2010.

186. Dhammanand J. Shirale, Mangesh A. Bangar, **Wilfred Chen**, Nosang V. Myung and Ashok Mulchandani, Effect of Aspect Ratio (Length:Diameter) on a Single Polypyrrole Nanowire FET Device, *J. Phys. Chem.C*, **114**, 13375-13380, 2010.

185. Dhawal Shah, Michael W.Y. Shen, **Wilfred Chen**, Nancy A. Da Silva, Enhanced arsenic accumulation in *Saccharomyces cerevisiae* overexpressing transporters Fps1p or Hxt7p, *J. Biotechnol.*, **150**, 101-107, 2010.

184. Kawai Tam, Cuong Tu, Jin-Hoon Lee, Min Lai, Chong Hyun Chang, Youngwoo Rheem, **Wilfred Chen**, Hor-Gil Hur, and Nosang V. Myung, Growth Mechanism of Amorphous

Selenium Nanoparticles Synthesis by *Shewanella* sp. HN-41, *Bioscience, Biotechnology and Biochemistry*, **74**, 696-700, 2010.

183. Mangesh A. Bangar, Dhammanand J. Shirale, Hemant Purohit, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Single Conducting Polymer Nanowire Based Sequence-Specific, Base-Pair-Length Dependent Label-free DNA Sensor, *Electroanal.*, **23**, 371-379, 2011.

182. Dhammanand J. Shirale, Mangesh A. Bangar, Miso Park, Marylynn V. Yates, **Wilfred Chen**, Nosang V. Myung and Ashok Mulchandani, Label-Free Chemiresistive Immunosensors for Viruses, *Environ. Sci. Technol.*, **44**, 9030-9035, 2010.

181. Jason L. Cantera, **Wilfred Chen**, and Marylynn V. Yates, A fluorescence resonance energy transfer-based fluorometer assay for screening anti-coxsackievirus B3 compounds, *J. Virol. Methods*, **171**, 176-182, 2011.

180. Lakshmi Cella, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Single-Walled Carbon Nanotubes-Based Chemiresistive Affinity Biosensors for Small Molecules: Ultrasensitive Glucose Detection, *J. Am. Chem. Soc.*, **132**, 6024-5026, 2010.

179. Shailendra Singh, Krassimir Bozhilov, Ashok Mulchandani, Nosang Myung, and **Wilfred Chen**, Biologically Programmed Synthesis of Core-Shell CdSe/ZnS Nanocrystals, *Chem. Comm.*, **46**, 1473-1475, 2010.

178. Lakshmi Cella, Pablo Sanchez, Wenwan Zhong, Nosang V. Myung, **Wilfred Chen**, Ashok Mulchandani, Nano aptasensor for protective antigen toxin of Anthrax, *Anal. Chem.*, **82**, 2042-2047, 2010.

177. Shailendra Singh, Seung Hyun Kang, Wonkyu Lee, Ashok Mulchandani, and **Wilfred Chen**, Systematic Engineering of Phytochelatin Synthesis and Arsenic Transport for Enhanced Arsenic Accumulation in *E. coli*, *Biotechnol. Bioeng.*, **105**, 780-785, 2010.

176. Shen-Long Tsai, Shailendra Singh, and **Wilfred Chen**, Arsenic Metabolism by Microbes in Nature and the Impact on Arsenic Remediation, *Curr. Opin. Biotechnol.*, **20**, 659-667, 2009.

175. Zheng Liu, Chao Yang, Hong Jiang, Ashok Mulchandani, **Wilfred Chen**, and Chuanling Qiao, Simultaneous Degradation of Organophosphates and 4-Substituted Phenols by *Stenotrophomonas* Species LZ-1 with Surface-Displayed Organophosphorus Hydrolase, *J. Agric. Food Chem.*, **51**, 6171-6177, 2009.

174. Jason L. Cantera, **Wilfred Chen**, and Marylynn V. Yates, Detection of infective Poliovirus by a simple, rapid, and sensitive flow cytometry method based on fluorescence resonance energy transfer technology, *Appl. Environ. Microbiol.*, **76**, 584-588, 2010.

173. Hsiao-Yun Yeh, Marylynn V. Yates, Ashok Mulchandani, and **Wilfred Chen**, Molecular beacon-quantum dot-Au nanoparticle hybrid nanoprobe for visualizing virus replication in living cells, *Chem. Comm.*, **46**, 3914-3916, 2010.

172. Shen-Long Tsai, Jeongseok Oh, Shailendra Singh, Ruizhen Chen, and **Wilfred Chen**, Functional assembly of mini-cellulosomes on the yeast surface for cellulose hydrolysis and ethanol production, *Appl. Environ. Microbiol.*, **75**, 6087-6093, 2009.
171. Cindy H. Wu, Stéphanie M. Bernard, Gary L. Andersen and **Wilfred Chen**, Developing microbe–plant interactions for applications in plant-growth promotion and disease control, production of useful compounds, remediation and carbon sequestration, *Microbial Biotechnology*, **2**, 428–440, 2009.
170. Huimin Zhao and **Wilfred Chen**, Chemical biotechnology: microbial solutions to global change, *Curr. Opin. Biotechnol.*, **19**, 541–543, 2008.
169. Mangesh A. Bangar, D. J. Shirale, **Wilfred Chen**, Nosang V. Myung and Ashok Mulchandani, Single conducting polymer nanowire chemiresistive label-free immunosensor for cancer biomarker, *Anal. Chem.*, **81**, 2168–2175, 2009.
168. Hsiao-Yun Yeh, Marylynn V. Yates, **Wilfred Chen**, and Ashok Mulchandani, Real-time molecular methods to detect infectious viruses: a minireview, *Seminars in Cell & Developmental Biology*, **20**, 49–54, 2009. (Invited Contribution)
167. Chao Yang, Yaran Zhu, Jijan Yang, Zheng Liu, Chuanling Qiao, Ashok Mulchandani, and **Wilfred Chen**, Development of an autofluorescent whole-cell biocatalyst by displaying dual functional moieties on *Escherichia coli* and construction of a co-culture with organophosphate mineralizing activity, *Appl. Environ. Microbiol.*, **74**, 7733–7739, 2008.
166. Mangesh A. Banger, Carlos M. Hangarter, Bongyoung Yoo, Youngwoo Rheem, **Wilfred Chen**, Ashok Mulchandani, and Nosang Myung, Magnetically assembled multi-segmented nanowires and their applications, *Electroanalysis*, **21**, 61-67, 2009.
165. C.L. Aravinda, Serge Cosnier, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Label-free detection of cupric ions and histidine-tagged proteins using single poly(pyrrole)-NTA chelator conducting polymer nanotube chemiresistive sensor, *Biosensors and Bioelectronics*, **24**, 1451–1455, 2009.
164. Hsiao-Yun Yeh, Marylynn V. Yates, Ashok Mulchandani, and **Wilfred Chen**, Visualizing the dynamics of viral replication in living cells via TAT-peptide delivery of nuclease-resistant molecular beacons, *Proc. Natl. Acad. Sci. USA*, **105**, 17522-17525, 2008.
163. Cindy H. Wu, David Le, Ashok Mulchandani, and **Wilfred Chen**, Optimization of a whole-cell cadmium sensor with a toggle gene circuit, *Biotechnol. Prog.*, **25**, 898–903, 2009.
162. Shailendra Singh, Seung Hyun Kang, Ashok Mulchandani and **Wilfred Chen**, Bioremediation: Environmental Clean Up Through Pathway Engineering, *Curr. Opin. Biotechnol.*, **19**, 437–444, 2008. (Invited Contribution)



161. Chao Yang, Qiao Zhao, Zheng Liu, Qiyun Li, Chuanling Qiao, Ashok Mulchandani, and **Wilfred Chen**, Cell surface display of functional macromolecule fusions on *Escherichia coli* for development of a bioluminescent whole-cell biocatalyst, *Environ. Sci. Technol.*, **42**, 6105-6110, 2008.
160. Maxwell C. Kum, Bong Young Yoo, Young Woo Rheem, Krassimir N. Bozhilov, **Wilfred Chen**, Ashok Mulchandani, and Nosang V. Myung, Synthesis and characterization of cadmium telluride nanowire, *Nanotechnology*, **19**, 325711, 2008.
159. Adam K. Wanekaya, **Wilfred Chen**, Ashok Mulchandani, Recent biosensing developments in environmental security, *J. Environ. Monitoring*, **10**, 703–712, 2008.
158. S. Sandhya, **Wilfred Chen** and Ashok Mulchandani, Molecular Beacons: A Real-Time Polymerase Chain Reaction Assay for Detecting *Escherichia coli* from Fresh Produce and Water, *Analytica Chimica Acta*, **614**, 208-212, 2008.
157. Lianbin Xu, Zhongwei Chen, **Wilfred Chen**, Ashok Mulchandani, and Yushan Yan, Electrochemical synthesis of perfluorinated ions doped conducting polyaniline films consisting of helical fibers and their reversible switching between superhydrophobicity and superhydrophilicity, *Macromolecular Rapid Communications*, **29**, 832–838, 2008.
156. Carlos N. Hangarter, Mangesh Banger, Sandra C. Hernandez, **Wilfred Chen**, Marc A. Deshusses, Ashok Mulchandani, and Nosang V. Myung, Maskless electrodeposited contact for conducting polymer nanowires, *Appl. Phys. Letts*, **92**, 073104, 2008.
155. Shailendra Singh, Ashok Mulchandani, and **Wilfred Chen**, Highly Selective and Rapid Arsenic Removal by Metabolically Engineered *E. coli* Expressing *Fucus vesiculosus* Metallothionein, *Appl. Environ. Microbiol.*, **74**, 2924–2927, 2008.
154. Cindy H. Wu, Ashok Mulchandani, and **Wilfred Chen**, Versatile microbial surface-display for environmental remediation and biofuels production, *Trends in Microbiology*, **16**, 181-188, 2008. **(Invited Review)**
153. Seung Hyun Kang, Krassimir N. Bozhilov, Nosang V. Myung, Ashok Mulchandani and **Wilfred Chen**, Microbial synthesis of CdS nanocrystals in genetically engineered *E. coli*, *Angewandte Chemie International Edition*, **47**, 5186 –5189, 2008.
152. Maxwell Kum, Kanchan A. Joshi, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Biomolecules-carbon nanotubes doped conducting polymer composites and their sensor application, *Talanta*, **74**, 370-375, 2007.
151. Cindy H. Wu, Yu-Chen Hwang, Wonkyu Lee, Ashok Mulchandani, Thomas K. Wood, Marylynn V. Yates, and **Wilfred Chen**, Detection of recombinant *Pseudomonas putida* biofilm in wheat rhizosphere by two-colored fluorescence *in situ* hybridization, *Appl. Microbiol. Biotechnol.*, **79**, 511–518, 2008.

150. Yu-Chen Hwang, Justin Jang-Hann Chu, Priscilla L. Yang, **Wilfred Chen**, and Marylynn V. Yate, A Cellular Sensor for Screening Small Molecules Suppressing Poliovirus Replication, *Antiviral Research*, **77**, 232–236, 2008.
149. U Loi Lao, Minwei Sun, Mark Matsumoto, Ashok Mulchandani, and **Wilfred Chen**, Genetic engineering of self-assembled protein hydrogel based on elastin-like sequences with metal binding functionality, *Biomacromolecules*, **8**, 3736-3739, 2007.
148. Joun S. Lee, Aijun A. Wang, Bongyoung Yoo, Youngwoo Rheem, Ashok Mulchandani, **Wilfred Chen** and Nosang V. Myung, DNA Assisted Assembly of Multi-Segmented Nanowires, *Electroanalysis*, **22**, 2287-2293, 2007.
147. Hsiao-Yun Yeh, Yu-Chen Hwang, Marylynn V. Yates, Ashok Mulchandani, and **Wilfred Chen**, Detection of Hepatitis A Virus Using a Combined Cell-Culture – Molecular Beacon Assay, *Appl. Environ. Microbiol.*, **74**, 2239-2243, 2008.
146. Seung Hyun Kang, Shailendra Singh, Jae-Young Kim, Wonkyu Lee, Ashok Mulchandani, and **Wilfred Chen**, Bacteria Metabolically Engineered for Enhanced Phytochelatin Production and Cadmium Accumulation, *Appl. Environ. Microbiol.*, **73**, 6317-6320, 2007.
145. Shailendra Singh, Wonkyu Lee, Nancy A. DaSilva, Ashok Mulchandani, and **Wilfred Chen**, Enhanced arsenic accumulation and removal by engineered yeast cells expressing *Arabidopsis thaliana* phytochelatin synthase, *Biotechnol. Bioeng.*, **99**, 333-340, 2008.
144. Can Attila, Akihiro Ueda, Suat L.G. Cirillo, Jeffery D. Cirillo, **Wilfred Chen**, and Thomas K. Wood, *Pseudomonas aeruginosa* PAO1 virulence factors and poplar tree response in the rhizosphere, *Microbial Biotechnology*, **1**, 17-29, 2008.
143. Sandra C. Hernandez, Debangshu Chaudhuri, **Wilfred Chen**, Nosang Myung, and Ashok Mulchandani, Single polypyrrole nanowire ammonia gas sensor, *Electroanalysis*, **19**, 2125-2130, 2007.
142. Chaokun Li, Yaran Zhu, Inga Benz, M. Alexander Schmidt, **Wilfred Chen**, Ashok Mulchandani, and Chuanling Qiao, Presentation of Functional Organophosphorus Hydrolase Fusions on the Surface of *Escherichia coli* by the AIDA-I Autotransporter Pathway, *Biotechnol. Bioeng.*, **99**, 485-490, 2008.
141. Chao Yang, Ning Cai, Ming Dong, Hong Jiang, Jinming Li, Chuanling Qiao, Ashok Mulchandani, and **Wilfred Chen**, Surface Display of MPH on *Pseudomonas putida* JS444 Using Ice Nucleation Protein and Its Application in Detoxification of Organophosphate, *Biotechnol. Bioeng.*, **99**, 30-37, 2008.
140. U Loi Lao, Alin Chen, Mark R. Matsumoto, Ashok Mulchandani, and **Wilfred Chen**, Cadmium Removal from Contaminated Soil by Thermally Responsive Elastin (ELPEC20) Biopolymer, *Biotechnol. Bioeng.*, **98**, 349-355, 2007.

139. U Loi Lao, Jan Kostal, Ashok Mulchandani, and **Wilfred Chen**, Affinity Purification of Plasmid DNA by Temperature-Triggered Precipitation, *Nature Protocols*, **2**, 1263-1268, 2007. (Invited Contribution)
138. Y-Z Zheng, W-S. Lan, C-L. Aiao, A. Mulchandani, and **W. Chen**, Decontamination of vegetables sprayed with organophosphate pesticides by organophosphorus hydrolase and carboxylesterase (B1), *Appl. Biochem. Biotechnol.*, **136**, 233-242, 2007.
137. Yu Lei, Priti Mulchandani, **Wilfred Chen**, and Ashok Mulchandani, Biosensor for direct determination of Fenitrothion and EPN using recombinant *Pseudomonas putida* JS444 with surface-expressed organophosphorus hydrolase, *Appl. Biochem. Biotechnol.*, **136**, 243-250, 2007.
136. Yu-Chen Hwang, Oymon M. Leong, **Wilfred Chen**, and Marylynn V. Yates, Comparison of a Reporter Assay and Immunomagnetic Separation Real-Time RT-PCR for the Detection of Enteroviruses in Seeded Environmental Water Sample, *Appl. Environ. Microbiol.*, **73**, 2338-2340, 2007.
135. Adam Wanekaya, Mangesh A. Banger, Minhee Yun, **Wilfred Chen**, Nosang V. Myung, and Ashok Mulchandani, Field-Effect Transistors Based on Single Nanowires of Conducting Polymers, *J. Phys. Chem. C*, **111**, 5218-5221, 2007.
134. Gabriela Jenikova, U Loi Lao, Di Gao, Ashok Muchaldani and **Wilfred Chen**, Elastin-Calmodulin Scaffold for Protein Microarray Fabrication, *Langmuir*, **23**, 2277-2279, 2007.
133. Di Gao, **Wilfred Chen**, Ashok Mulchandani, and Jerome S. Schultz, Detection of Tumor Markers Based on Extinction Spectra of Visible Light Passing through Gold Nanoholes, *Appl. Phys. Letts*, **90**, 073901, 2007.
132. Kumaran Ramanathan, Mangesh A. Bangar, Minhee Yun, **Wilfred Chen**, Ashok Mulchandani, and Nosang V. Myung, In Situ Fabrication of Single Poly(methyl pyrrole) Nanowire, *Electroanalysis*, **19**, 793-797, 2007.
131. Xianpeng Cai, Ningyi Liu, Yu Lei, Qing Zhang, Mary B. Chan, Changming Li, **Wilfred Chen**, and Ashok Mulchandani, Single-walled carbon nanotube based real-time organophosphate detector, *Electroanalysis*, **19**, 616-619, 2007.
130. Chandana Karnati, Hongwei Du, Hai-Feng Ji, Yuri Lvov, **Wilfred Chen**, Ashok Mulchandani, Organophosphorus Hydrolase Multilayer Modified Microcantilevers for Organophosphorus Detection, *Biosensor & Bioelectronics*, **22**, 2636-2642, 2007.
129. W.S. Lan, J.D. Gu, J.L. Zhang, B.C. Shen, H. Jiang, A. Mulchandani, **W. Chen**, C.L. Qiao, Coexpression of two detoxifying pesticide-degrading enzymes in a genetically engineered bacterium, *International Biodeterioration & Biodegradation*, **58**, 70-76, 2006.

128. U Loi Lao, Ashok Mulchandani, and **Wilfred Chen**, Simple Conjugation and Purification of Quantum Dot-Antibody Complexes Using A Thermally Responsive Elastin-Protein L Scaffold As Immunofluorescent Agents, *J. Am. Chem. Soc.*, **128**, 14756-14757, 2006.
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12. Richard Richins, Tin Htay, Pauli Kallio, and **Wilfred Chen**, Elevated Fis Expression Enhances Recombinant Protein Synthesis in *Escherichia coli*, *Biotechnol. Bioeng.*, **56**, 138-144, 1997.
11. Neilay Dedhia, **Wilfred Chen** and James E. Bailey, Design of Expression Systems for Metabolic Engineering: Coordinated Synthesis and Degradation of Glycogen, *Biotechnol. Bioeng.*, **55**, 419-426, 1997.
10. Marc A. Deshusses, **Wilfred Chen**, Ashok Mulchandani, and Irving J. Dunn., Innovative Bioreactors, *Curr. Opin. Biotechnol.*, **8**, 165-168, 1997.
9. Neilay N.Dedhia, Richard Richins, Archie Mesina, and **Wilfred Chen**, Improvement in Recombinant Protein Production in ppGpp-Deficient *Escherichia coli*, *Biotechnol. Bioeng.*, **53**, 379-386, 1997.
8. **Wilfred Chen**, Pauli Kallio and James Bailey, Process Characterization of a Novel Cross-Regulation System for Cloned Protein Production in *Escherichia coli*, *Biotechnol. Prog.*, **11**, 397-402, 1995.
7. **Wilfred Chen**, Pauli Kallio, and James E. Bailey, Cross-Regulation of Gene Expression in Recombinant Cells, US Patent Number 5,416,800, 1995.
6. **Wilfred Chen**, Dallas E. Hughes and James E. Bailey, Intracellular Expression of Vitreoscilla Hemoglobin Alters Aerobic Metabolism of *Saccharomyces cerevisiae*, *Biotechnol. Prog.*, **10**, 308-313, 1994.
5. **Wilfred Chen** and James E. Bailey, Application of the Cross-Regulation System as a Metabolic Switch, *Biotechnol. Bioeng.*, **43**, 1190-1193, 1994.
4. **Wilfred Chen**, Pauli Kallio, S.B. Lee, and James E. Bailey, Invention of a Useful Transcriptional Regulation System Using Mechanistic Mathematic Modelling, p. 155-158, in *Modern Trends in Biothermokinetics* (S. Schuster, M. Rigoulet, R. Ouhabi, and J.P. Mazat, Eds), Plenum Press, New York, U.S.A., 1993.
3. **Wilfred Chen**, Pauli Kallio and James E. Bailey, Construction and Characterization of a Novel Cross-Regulation System for Regulating Cloned-Gene Expression in *E. coli*, *Gene*, **130**, 15-22, 1993.
2. Neilay Dedhia, Thomas Hottiger, **Wilfred Chen**, and James E. Bailey, Genetic Manipulation of Central Carbon Metabolism in *Escherichia coli*, p. 59-62 in *Harnessing Biotechnology for the 21st Century* (M. R. Ladisch and A. Bose, Eds), American Chemical Society, New York, 1992.
1. **Wilfred Chen**, James E. Bailey and Sun Bok Lee, Molecular Design of Expression Systems: Comparison of Different Repressor Control Configurations Using Molecular Mechanism Models, *Biotechnol. Bioeng.*, **38**, 679-687, 1991.

## INVITED LECTURES

1. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical and Biological Engineering, University of Colorado, November 4, 2014.
2. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical Engineering, The City College of New York, September 15, 2014.
3. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical and Biomolecular Engineering, University of Houston, September 12, 2014.
4. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical and Biological Engineering, Northwestern University, May 22, 2014.
5. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical and Biological Engineering, Tufts University, April 27, 2014.
6. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical Engineering, University of Washington, November 25, 2013.
7. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical Engineering, University of Massachusetts Amherst, October 3, 2013.
8. “Improving the Biology of Enzyme Fuel Cells”, Chemical Heritage Foundation, September 16, 2013.
9. “Engineering Synthetic Protein Scaffolds with Modular Functionalities”, Department of Chemical Engineering, Lehigh University, September 11, 2013.
10. “Biomomolecular Tools for Sustainable Energy and Improved Human Health”, Department of Chemical and Biological Engineering, Iowa State University, March 7, 2013.
11. “Engineering Synthetic Protein Scaffolds with Exchangeable Functional Domains”, School for Engineering of Matter, Transport and Energy, Arizona State University, February 18, 2013.
12. “Engineering Synthetic Protein Scaffolds with Exchangeable Functional Domains”, Department of Chemical, Biochemical and Environmental Engineering, University of Maryland, Baltimore County, December 10, 2012.
13. “Biomomolecular Tools for Sustainable Energy and Improved Human Health”, The Chemistry-Biology Interface Program, University of Delaware, November 28, 2012.
14. “Artificial Cellulosomes for Enhanced Biomass Processing”, Department of Chemistry and Biochemistry, University of Delaware, October 26, 2012.

15. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical and Biological Engineering, Princeton University, University, September 26, 2012.
16. "A Biomolecular Engineering Approach for Environmental Remediation", DuPont Corporate Remediation Group, May 30, 2012.
17. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute, May 23, 2012.
18. "Artificial cellulosomes for enhanced biomass processing", 5th Annual Advances in Biomolecular Engineering Symposium, The New York Academy of Sciences, April 27, 2012.
19. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical and Biomolecular Engineering, Ohio State University, March 1, 2012.
20. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Civil and Environmental Engineering, University of Delaware, February 17, 2012.
21. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemistry, University of California, Davis, February 14, 2012.
22. "Real-Time Monitoring of Viral Replication and Anti-Viral Drug Discovery by Molecular FRET Probes", Department of Animal and Food Science, University of Delaware, September 26, 2011.
23. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical and Biological Engineering, University of Buffalo - SUNY, March 23, 2011.
24. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical and Biological Engineering, Polytechnic Institute - NYU, March 11, 2011.
25. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical Engineering, Columbia University, September 28, 2010.
26. "Real-Time Monitoring of Viral Replication and Anti-Viral Drug Discovery by Molecular Fret Probes", Department of Chemical Engineering and Material Sciences, University of Minnesota, February 16, 2010.
27. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Chemical Engineering, University of Delaware, February 8, 2010.
28. "Biomomolecular Tools for Sustainable Energy and Improved Human Health", Department of Biochemistry, Cal State Fullerton, October 8, 2009.



29. "Real-Time Monitoring of Viral Replication and Anti-Viral Drug Discovery by Molecular Fret Probes", MedImmune Inc., April 13, 2009.
30. "Biomolecular Tools for Sustainable Energy and Improved Human Health", Lindsay Lecture Series, Department of Chemical Engineering, Texas A&M University, February 4, 2009.
31. "A Biomolecular Engineering Approach for Environmental Remediation and Sensing", Department of Chemical and Biological Engineering, Tufts University, April 14, 2008.
32. "A Biomolecular Engineering Approach for Environmental Remediation and Sensing", Biological Process Technology Institute, University of Minnesota, March 27, 2008.
33. "Biomolecular Engineering: A New Frontier in Environmental Biotechnology", Center for Environmental Systems Microbiology Distinguished Lecture Series, Georgia Institute of Technology, March 28, 2007.
34. "Environmental Biotechnology: Challenges and Opportunities for Chemical Engineers", Bioengineering Department, University of Maryland, College Park, May 2, 2006
35. "Environmental Biotechnology: Challenges and Opportunities for Chemical Engineers", Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute, April 20, 2006.
36. "Environmental Biotechnology: Challenges and Opportunities for Chemical Engineers", Department of Chemical Engineering and Materials Science, University of Southern California, April 17, 2006.
37. "Biomolecular Engineering: A New Frontier in Environmental Biotechnology", Department of Civil and Environmental Engineering, Arizona State University, April 4, 2006.
38. "Environmental Biotechnology: Challenges and Opportunities for Chemical Engineers", Department of Chemical Engineering, Penn State University, February 16, 2006.
39. "A Biomolecular Engineering Approach for Environmental Remediation and Sensing", Department of Chemical and Biomolecular Engineering, University of California, Los Angeles, January 20, 2006.
40. "Biomolecular Engineering: A New Frontier in Environmental Biotechnology", Department of Civil and Environmental Engineering, University of California, Los Angeles, November 29, 2005.
41. "A Biomolecular Engineering Approach for Environmental Remediation and Sensing", Department of Chemical Engineering, Texas Tech University, September 9, 2005.

42. "Biomolecular Approaches for Biosensing", The Biotechnology Research Institute, Connam National University, Korea, June 26, 2005.
43. "Engineering Improved Microbes and Enzymes for Biodegradation of Nerve Agents", Korean Society for Microbiology and Biotechnology (KMB) Annual Symposium, Seoul, Korea, June 28, 2005.
44. "A Biomolecular Engineering Approach for Environmental Remediation and Sensing", Department of Chemical and Biological Engineering, Northwestern University, April 28, 2005.
45. "A Biomolecular Engineering Approach for Environmental Biotechnology", Department of Chemical Engineering, Rice University, February 3, 2005.
46. "A Biomolecular Engineering Approach for Environmental Biotechnology", Department of Chemical Engineering, University of Southern California, January 19, 2005.
47. "Biomolecular Approaches for Biosensing", Department of Chemistry, Analytical Chemistry Seminar, University of California, Riverside, May 24, 2004.
48. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Bioengineering, University of Illinois, Urbana-Campaign, February 5, 2004.
49. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Biochemistry, California State University, Fullerton, December 10, 2003.
50. "Nanoscale Biopolymers with Tunable Properties for Improved Decontamination and Recycle of Heavy Metals", EPA Science Forum, Washington D.C., May 7, 2003.
51. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Chemical Engineering, University of Maryland, College Park, April 1, 2003.
52. "Nanoscale Biomaterials for Environmental and Biomedical Applications", Photosynthesis and Biomolecular Nanotechnology Seminar Series, Arizona State University, January 23, 2003.
53. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Chemical Engineering, University of Nevada, Reno, September 27, 2002.
54. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Chemical Engineering, University of Connecticut, September 10, 2002.
55. "A Biomolecular Engineering Approach for Environmental Remediation", Department of Chemical Engineering, John Hopkins University, March 28, 2002.

56. "Engineering Improved Microbes and Enzymes for Bioremediation", Environmental Toxicology Program, University of California, Riverside, March 14, 2001.
57. "Engineering Improved Microbes and Enzymes for Bioremediation", Biological Process Technology Institute, University of Minnesota, October 13, 2000.
58. "Engineering Improved Microbes and Enzymes for Bioremediation", Department of Chemical and Biochemical Engineering and Materials Science, University of California, Irvine, May 26, 2000.
59. "Engineering Improved Microbes and Enzymes for Bioremediation", Department of Civil Engineering, University of Southern California, October 29, 1999.
60. "High Efficiency Biodegradation of Organophosphate Nerve Agents using Novel Immobilized Biocatalysts", NATO Advance Study Institute, Enzymes in Heteroatom Chemistry: Green Solutions for Chemical Problems, Berg en Dal, Netherlands, June 19-30, 1999.
61. "Biodegradation of Organophosphorus Nerve Agents by Surface-Expressed Organophosphorus Hydrolase", NATO Advance Study Institute, Enzymes in Heteroatom Chemistry: Green Solutions for Chemical Problems, Berg en Dal, Netherlands, June 19-30, 1999.
62. "Engineering Improved Microbes and Enzymes for Bioremediation", Department of Biochemistry, California State University, Fullerton, May 18, 1999.
63. "Engineering Improved Microbes and Enzymes for Bioremediation", Department of Chemical Engineering, University of Notre Dame, March 31, 1999.
64. "Molecular Approaches to Environmental Biotechnology", Department of Chemical Engineering, Virginia Tech, June 22, 1998.
65. "Molecular Approaches to Environmental Biotechnology", Department of Chemical Engineering, Penn State University, April 2, 1998.
66. "Molecular Approaches to Environmental Biotechnology", Department of Chemical Engineering, University of Florida, March 30, 1998.
67. "Molecular Approaches to Environmental Biotechnology", Department of Chemical Engineering, North Carolina State University, January 5, 1998.
68. "Chemical Engineering of Cellular Processes", Department of Chemical Engineering, Texas A&M University, November 3, 1997.
69. "Engineering the Translational Apparatus of *E. coli* for Enhanced Recombinant Protein Synthesis During Restricted Growth", Genentech Inc., June 6, 1997.

70. "Improvement in Recombinant Protein Synthesis in Genetically-Engineered *E. coli* During Restricted Growth", Biotechnology Division, National Institute of Standard and Technology, October 28, 1996.
71. "Application of Metabolic Engineering to Bioprocessing and Biodegradation", Department of Chemical Engineering, Washington University, October 14, 1996.
72. "Tuning Biphenyl Dioxygenase for Enhanced PCB Degradation", Office of Naval Research Workshop on Biological Dehalogenation in Marine Sediments, Federation of American Societies for Experimental Biology, Bethesda, May 7, 1996.
73. "Application of Metabolic Engineering to Bioprocessing and Bioremediation", Department of Chemical Engineering, UCLA, March 15, 1996.

## **TEACHING EXPERIENCE**

Instructor for courses in Cell Engineering, Process Control, Mass Transfer, Chemical Engineering Thermodynamics I and II, Mass and Energy Balance, Biochemical Engineering, Undergraduate Laboratory, and Heat Transfer

## **STUDENT ADVISING**

### **Current Post-Doctoral Students**

Dr. Vince Prince, 2014-

Dr. Maryam Raeeszadeh-Sarmazdeh, 2014-

### **Current Graduate Students (major advisor or co-advisor)**

#### **Delaware**

Qing Sun (Ph.D.), Chemical Engineering, 2009-Present

Heejae Kim (Ph.D.), Chemical Engineering, 2010-Present

Qi Chen (Ph.D.), Chemical Engineering, 2011-Present

Rebecca Chen (Ph.D.), Chemical Engineering, 2012-Present

Ka-Hei Siu (Ph.D.), Chemical Engineering, 2012-Present

Long Chen (Ph.D.), Chemical Engineering, 2012-Present

Emily Hartzell (Ph.D.), Chemical Engineering, 2014-Present

Lauren Dorsey (Ph.D.), Chemical Engineering, 2014-Present

Andrew Swartz (Ph.D.), Chemical Engineering, 2014-Present

Emily Berckman (Ph.D.), Chemistry and Biochemistry, 2015-Present

#### **Former Ph.D. Students at UC Riverside**

Dr. Aijun Wang (Cal EPA), 2001, Co-advisor: Prof. A. Mulchandani

Dr. Mark Shimazu (Ambrx.), 2002, Co-advisor: Prof. A. Mulchandani

Dr. Catherine Cho (Codexis, Inc.), 2003, Co-advisor: Prof. A. Mulchandani

Dr. Jae-Young Kim (Samsung Research Center, Korea), 2004, Co-advisor: Prof. A. Mulchandani  
Prof. Yu Lei (Associate Professor, University of Connecticut), 2004, Co-advisor: Prof. A. Mulchandani  
Dr. Kanchan Joshi (NanoMix, Inc.) 2006, Co-advisor: Prof. A. Mulchandani  
Dr. Cindy Wu, 2006, (Postdoc, Lawrence Berkeley Lab), Co-advisor: Prof. A. Mulchandani  
Dr. U Loi (Anne) Lao (Engineer, Codexis, Inc.), 2007, Co-advisor: Prof. A. Mulchandani  
Dr. Yu-Chen Hwang (Specialist, Nikon Instruments Inc.), 2007, Co-advisor: Prof. M.V. Yates  
Dr. Mangesh Banger (Postdoc, LBL), 2008, Co-advisor: Prof. A. Mulchandani and Myung  
Dr. Seung Hyun Kang (Research Scientist, LG Life Sciences, Daejeon, Korea), 2008  
Dr. Shailendra Singh (Scientist, MedImmune, Inc.), 2008  
Dr. Joun Lee (Postdoc, UCSB), 2009, Co-advisor: Prof. A. Mulchandani and Myung  
Dr. Maxwell Kum, (Engineer, ACON Laboratories, Inc.), 2009, Co-advisor: Prof. A. Mulchandani and Myung  
Dr. Hsiao-Yun Yeh (Postdoc, Max Planck Institute), 2010  
Dr. Payal Biswas (Cell culture specialist, NIH), 2010  
Dr. Divya Sivaraman, (Research Scientist, Medhus Bio), 2011  
Dr. Shen-Long Tsai (Assistant Professor, NTUST, Taiwan), 2011  
Dr. Lakshmi Narasamamba Cella, (Scientist, Merck), 2012

#### **Former Ph.D. Students at University of Delaware**

Dr. Fang Liu, (Novozymes), 2013  
Dr. Miso Park, (City of Hope), 2013  
Dr. Daniel Blackstock, 2014

#### **Former M.S. Students at UC Riverside**

Ms. Grisselle Martinez (FDA Lab), M.S. 1999, Co-advisor: Prof. A. Mulchandani  
Ms. Oymon Leong (USDA Lab), M.S. 2001, Co-advisor: Prof. M.V. Yates  
Mr. Giri Prabhukumar (Krieger and Stewart Consulting), M.S. 2002, Co-advisor: Prof. A. Mulchandani  
Mr. Alin Chen (Amgen), M.S. 2006, Co-advisor: Prof. A. Mulchandani  
Ms. Nicole McBean (Boston Scientific), M.S. 2006, Co-advisor: Prof. A. Mulchandani  
Garima Goyal, (Lawrence Berkeley National Laboratory), M.S. 2010  
Garima Chaudhary, (Cobalt Biofuels), M.S. 2011  
Chun-Che Tseng, (Dow, Taiwan), M.S., 2010, Co-advisor: Prof. Jianzhong Wu

#### **Former Post-Doctoral Students (30)**

Dr. Neilay Dedhia (Cold Spring Harbor Laboratory), 1995-1996  
Dr. Richard D. Richins (New Mexico State University), 1995-1999  
Dr. Fredi Bruhlman (Firmenich SA, Switzerland), 1996-1998  
Dr. Irina Kaneva, 1996-1998  
Dr. S. M. Zarook, 1996-1997  
Dr. Nathalie Fortin (post-doc U Bath), 1997-1998  
Dr. Weon Bae (Union Biometrica), 1997-2001  
Dr. Jan Kostal (R & D System, Inc.), 1999-2003  
Dr. Zhaohui Xu (Assistant Professor, Bowling Green State U.), 2000-2002  
Dr. Michal Stibor, 2000-2002

Dr. Hanka Stiborova, 2000-2002  
Dr. Marek Prouza, 2002-2004  
Dr. Sergi Morais, 2001-2003  
Dr. Di Gao, (Assistant Professor, U. Pittsburgh), 2004-2005  
Dr. Kumaran Ramanathan, (Applied Biosystems) 2004-2005  
Dr. Junehyng Kim, (Dong-A University, Korea), 2003-2005  
Dr. Lianbin Xu, 2004-2007 (UCR)  
Dr. Zihui Meng, 2004-2006  
Dr. Wonkyu Lee, 2004-2006  
Dr. Gabriela Jenikova, 2004-2006 (UC San Deigo)  
Dr. Debansu Chaudhuri, 2006-2008  
Dr. Zdenek Chodora, 2006-2008  
Dr. Chitradurgav Aravinda, 2006-2008  
Dr. Jeong Seok Oh, 2007-2008  
Dr. Dhammanand J. Shirale. 2008-2009  
Dr. Priti Mulchandani, 1996-2010  
Dr. Jose Jason Cantera, 2006-2010  
Dr. Chaokun Li, 2009-2010  
Dr. Mangesh Banger, 2008-2010  
Dr. Bhawna Madan, 2010-2012, Assistant Professor at Amity University, India  
Dr. Shen-Long Tsai, 2011-2012, Assistant Professor at National Taiwan University Science and Technology  
Dr. Riquig Yu, 2014-2014

## **SELECTED DEPARTMENT AND UNIVERSITY SERVICES**

### **Delaware**

Graduate Advisor, September 2013-Present

### **UCR**

Graduate Advisor, September 1998-2004, 2005-2008  
Chair, Department Seminar Series, 1997, 1999, 2002, 2004, 2008  
Chair, Faculty Search Committee, 1998, 2000, 2002, 2005, 2008  
Member, University Planning and Budget Committee, 2004-2008  
Member, Graduate Council, 2008-2009  
UCR Primary Campus representative to the Research Council of UC BioStar Program

## **SELECTED PROFESSIONAL ACTIVITIES**

### **Member**

American Institute of Chemical Engineers  
American Chemical Society  
American Society of Microbiology

### **Reviewer**

## **Journals**

Analytical Chemistry  
Antonie van Leeuwenhoek  
Applied and Environmental Microbiology  
Applied Microbiology and Biotechnology  
Biocatalysis and Biotransformation  
Biodegradation  
Biomarcomolecules  
Bioprocess Engineering  
Bioresources Technology  
Biosensors and Bioelectronics  
Biotechnology and Bioengineering  
Biotechnology Progress  
Cell Biochemistry and Biophysics  
Clinical Chemistry and Laboratory Medicine  
Critical Reviews in Biotechnology  
Electrophoresis  
Electroanalysis  
Environmental Science and Technology  
Enzyme and Microbial Technology  
FEMS Microbial Letters  
Gene  
Infection and Immunity  
Journal of American Chemical Society  
Journal of Applied Microbiology  
Journal of Biotechnology  
Journal of Chemical Technology and Biotechnology  
Journal of Chromatography B  
Journal of Hazardous Materials  
Journal of Virological Methods  
Langmuir  
Macromolecules  
Metabolic Engineering  
Microbiology  
Nature Biotechnology  
Nature Protocols  
Nano Letters  
Protein Engineering  
Protein Expression and Purification  
Sensors & Actuators: B  
Soil and Sediment Contamination: an International Journal  
Small  
Trends in Biotechnology  
Water Research

## **Proposals**

NSF  
Petroleum Research Fund  
USDA  
Wellcome Trust  
Catholic University, Leuven, Belgium  
Florida Sea Grant  
North Carolina Biotechnology Center  
US Army Medical Research and Materiel Command  
International Science and Technology Center  
National Aeronautics and Space Administration (NASA) Experimental Program to Stimulate Competitive Research (EPSCoR) Program in South Carolina  
Kentucky Science & Engineering Foundation  
National Sciences and Engineering Research Council of Canada (NSERC)  
National University of Singapore Academic Research Fund

## **Panelist**

NSF Biotechnology Group Proposal Panel, Bioengineering Division,  
May 29, 1997

EPA/NSF Panel for Technology for a Sustainable Environmental: Biological  
Applications, May, 19, 1998

NSF Biotechnology POWRE/GROUP Proposal Panel, Bioengineering Division, June 8-  
9, 2000

UC BioStar Panel, June 2, 2001

NSF Quantitative System Biotechnology Panel, Bioengineering Division, June 7-8, 2001

External Panelist, North Carolina Biotechnology Center, July 2000- 2003

External Panelist, Florida Sea Grant, July 2001

UC BioStar Panel, March 2, 2002

NSF Major Research Instrument Panel, Bioengineering Division, April 3-4, 2002

NSF Quantitative System Biotechnology Panel, Bioengineering Division, May 23-24,  
2002

EPA Panel on Environmental Futures Research in Nanoscale Science, Engineering, and  
Technology, Oct 22-23, 2002.



UC BioStar Panel, Nov 25, 2002

NSF Major Research Instrument Panel, Bioengineering Division, April 7, 2003

NSF Technology for a Sustainable Environmental Panel, Bioengineering Division, May 8-9, 2003

NSF Major Research Instrument Panel, Bioengineering Division, May 3-4, 2004.

NSF Sensors and Sensor Networks Panel, Bioengineering Division, June 10, 2004.

NSF Biotechnology GROUP Proposal Panel, Bioengineering Division, March 31-April 1, 2005.

NSF Sensors and Sensor Networks Panel, Bioengineering Division, June 7, 2005.

NIH R21 grant study section for biofilm/microbiology and periodontal disease, July 18, 2005

NIH R21 grant study section for biofilm/microbiology and periodontal disease, November 14, 2005

USDA Air, Water, and Soil SBIR Panel, February 9-10, 2006

UC BioStar Panel, March 1, 2006

Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) Review Panel, University of New Hampshire, April 26, 2006

Strategic Environmental Research and Development (SERDP) Program Review Panel for Identification of biomarkers to assess groundwater contaminant degradative potential of a microbial population, May 8, 2006

NSF Career Proposal Panel, Bioengineering Division, November 8-9, 2006

EPA Star Fellowship Panel for Microbiology, March 6-7, 2007

NSF NIRT Panel, Catalysis and Biocatalysis, March 13-14, 2007

NSF Biotechnology/Biochemical Engineering Panel, May 17-18, 2007

NSF Career Proposal Panel, Bioengineering Division, November 13-14, 2007

NSF Biotechnology/Biochemical Engineering Panel, June 9-10, 2008

NIH Special Emphasis Panel for Nanotechnology for Bioremediation, June 11, 2008

NSF Metabolic Biochemistry Panel, October 27-29, 2008

NSF Bioseparation Panel, April 23-24, 2009

NSF Biotechnology/Biochemical Engineering Panel, June 16-17, 2009

NSF Biotechnology/Biochemical Engineering Panel, May 25-26, 2010

DOE's Genomics Sciences Biofuels Panel, December 8 - 10, 2010

NSF Biotechnology/Biochemical Engineering Panel, May 20, 2011

NSF Biotechnology Career Panel, November, 2012

NSF MCB/BBE Career Panel, October, 2013

NSF Catalysis and Biocatalysis Career Panel, December, 2013

NSF Catalysis and Biocatalysis Panel, April, 2014

NSF MCB/BBE Career Panel, September, 2014

### **Program Chair**

BIOT Program Chair, 2007 ACS Fall Meeting, Boston

### **Session Chair or Co-Chair**

Poster Session, Biochemical Technology Division, American Chemical Society 1998 Fall meeting, Boston, MA.

“Recent Developments in Microbial Expression Systems”,  
Biochemical Technology Division, American Chemical Society  
1998 Fall meeting, Boston, MA.

“Molecular Approaches for Environmental Biotechnology”, Biochemical  
Technology Division, American Chemical Society 1999 Spring meeting,  
Anaheim, CA.

Poster Session, Engineering Foundation’s Enzyme Engineering XV conference,  
October, 1999, Kona, Hawaii.

"Advances in Environmental Biotechnology", American Institute of Chemical Engineers 1999 National Meeting, Dallas, TX.

"Environmental Biotechnology", Biochemical Technology Division, American Chemical Society 2000 Spring meeting, San Francisco, CA.

"Advances in Biocatalysis", Biochemical Technology Division, American Chemical Society 2001 Spring meeting, San Diego, CA.

"Environmental Biotechnology", Engineering Foundation's Biochemical Engineering XII Conference, July, 2001, Sonoma, CA.

"Advances in Biocatalysis", American Institute of Chemical Engineers 2001 National Meeting, Reno, NV.

"Nanoscale Sensing Technology: Why and How?", American Chemical Society 2003, Spring meeting, New Orleans, LO.

"BIOT Poster Session", American Chemical Society 2005, Spring meeting, San Deigo, CA.

"Poster Session", Biochemical Engineering XIV Conference, July, 2005, British Colombia, Canada.

"Topical Sensors: Environmental Sensors", American Institute of Chemical Engineers 2005 National Meeting, Cincinnati, OH.

"Topical Sensors: Advances in Biosensors III", American Institute of Chemical Engineers 2005 National Meeting, Cincinnati, OH.

"Foundametnals of Environmental Biotechnology", American Institute of Chemical Engineers 2007 National Meeting, Salt Lake City, UT.

"Fundamentals of Environmental Biotechnology", American Institute of Chemical Engineers 2008 National Meeting, Philiadelphia, PA.

## CONFERENCE PRESENTATIONS

1. Daniel Blackstock and **Wilfred Chen**, New class of protein labeled molecular beacons, ACS Annual Meeting, Dallas, March 2014.
2. Qi Chen, Qing Sun, Szu-Wen Wang, and **Wilfred Chen**, Engineering 3D protein scaffolds for biocatalysts assembly, ACS Annual Meeting, Dallas, March 2014.

3. Qing Sun, Qi Chen, Szu-Wen Wang, and **Wilfred Chen**, Post-translational modifications of protein-nanocages as a universal biosensor platform, ACS Annual Meeting, Dallas, March 2014.
4. Rebecca P Chen, Miso Park, Vlasta Dudkova, and **Wilfred Chen**, Development of a highly sensitive split protein based whole-cell bioassay to detect estrogenic compounds, ACS Annual Meeting, Dallas, March 2014.
5. Daniel Blackstock and **Wilfred Chen**, New Molecular Probes for mRNA Detection, AICHE Annual Meeting, San Francisco, November 2013.
6. Sneha Srikrishnan, **Wilfred Chen** and Nancy A. Da Silva, Characterization of Modular Designer Xylanosomes for Enhanced Hemicellulose Hydrolysis in Yeast, AICHE Annual Meeting, San Francisco, November 2013.
7. Heejae Kim and **Wilfred Chen**, Engineering Glucose Oxidase to Improve Electron Transport in Enzymatic Fuel Cells, AICHE Annual Meeting, San Francisco, November 2013.
8. Qi Chen, Qing Sun, Szu-Wen Wang, and **Wilfred Chen**, Engineering 3-Dimensional Protein Scaffolds for Biocatalysts Assembly, AICHE Annual Meeting, San Francisco, November 2013.
9. Miso Park, Qing Sun, Fang Liu, Matthew P DeLisa, and **Wilfred Chen**, Positional assembly of enzymes in bacterial outside member vesicles for cascade reactions, ACS Annual Meeting, New Orleans, March 2013.
10. Fang Liu and **Wilfred Chen**, Engineering a high-affinity and recyclable scaffold for protein purification, ACS Annual Meeting, New Orleans, March 2013.
11. Heejae Kim and **Wilfred Chen**, Engineering glucose oxidase to enhance electron transport in enzymatic fuel cells, ACS Annual Meeting, New Orleans, March 2013.
12. Daniel Blackstock and **Wilfred Chen**, New molecular probes for disease-specific mRNA detection, ACS Annual Meeting, New Orleans, March 2013.
13. Rahul Dinesh Sheth, Jia Liu, Mi Jin, Zhengjian Li, **Wilfred Chen**, Steven M Cramer, Purification of monoclonal antibodies using ELP smart biopolymer based affinity precipitation system: HTS and scale-up studies, ACS Annual Meeting, New Orleans, March 2013.
14. Fang Liu, Scott A. Banta and **Wilfred Chen**, Assembly of Multi-Enzyme Cascades Using Synthetic Scaffoldins Displayed On the Yeast Surface, AICHE Annual Meeting, Pittsburg, October 2012.
15. Lakshmi N Cella, Marylynn V. Yates, Ashok Mulchandani, and **Wilfred Chen**, Quantitative Assessment of in Vivo HIV Protease Activity Using Genetically Engineered QD-Based FRET Probes, AICHE Annual Meeting, Pittsburg, October 2012.

16. Qing Sun, Shen-Long Tsai, Bhawna Madan and **Wilfred Chen**, Functional Self-Assembly of Artificial Cellulosomes for Efficient Cellulose Hydrolysis, AICHE Annual Meeting, Pittsburg, October 2012.
17. Rahul D. Sheth, Bhawna Madan, **Wilfred Chen**, and Steven M. Cramer, Purification of Monoclonal Antibodies by Affinity Precipitation Using Thermally Responsive Elastin-Like Polypeptides(ELPs) Fused to IgG Binding Domains: High Throughput Analysis and Scale up Considerations, AICHE Annual Meeting, Pittsburg, October 2012.
18. Fang Liu and **Wilfred Chen**, Engineering high-Affinity Scaffolds for Protein Purification, ACS Annual Meeting, San Deigo, March 2012.
19. Shen-Long Tsai, Qing Sun, **Wilfred Chen**, Artificial cellulosomes for enhanced biomass processing, ACS Annual Meeting, San Deigo, March 2012.
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