

## **AINDRILA MUKHOPADHYAY**

Lawrence Berkeley National Laboratory (LBNL)

1 Cyclotron road, MS 978, Berkeley CA 94720

Phone (510) 495-2628, Fax (510)-495-4252; email: amukhopadhyay@lbl.gov; m-group.lbl.gov

### **Education**

- 2003 Post doctoral research, Microbiology/ Systems Biology, UC Berkeley and LBNL
- 2002 *Ph.D.*, Organic Chemistry, University of Chicago, Chicago, IL
- 1997 *M.S.*, Organic Chemistry, University of Chicago, Chicago, IL
- 1996 *M.Sc.*, Chemistry, Indian Institute of Technology, Mumbai, India
- 1993 *B.Sc.*, Chemistry, Zoology, Botany, Isabella Thoburn College, Lucknow, India

### **Professional positions**

- 2018+ Adjunct Professor, Comparative Biochemistry Program, University of California, Berkeley, CA
- 2016+ Senior Scientist, Biological Systems and Engineering, LBNL, Berkeley, CA
- 2016-17 Visiting Professor, Department of Chemical Engineering, Indian Institute of Technology, Mumbai, India.
- 2015-2016 Interim Division Director, Biological Systems and Engineering, Biosciences Area, LBNL
- 2015 Biosciences Area Divisional Reorganizational Lead, Biological Engineering Division, BioSciences Area, LBNL
- 2014+ Adjunct Professor, School of Life Sciences of the College of Liberal Arts and Sciences, Arizona State University, Tempe, AZ
- 2007-2016 Staff Scientist, LBNL, Berkeley, CA
- 2004-2007 Career Scientist, LBNL, Berkeley, CA
- 2000-2002 GSRA, Dept of Chemistry, Emory University, Atlanta, GA
- 1996-2000 GSRA, Dept of Chemistry, University of Chicago, Chicago, IL

### **Research Leadership**

- 2019+ Co-PI, Roots 2.0 LDRD project, LBNL
- 2017+ Vice President, Biofuels and Bioproducts Division, JBEI, Emeryville, CA
- 2017-2019 Co-PI, Advanced Bioinspired Chemicals and Materials Initiative LDRD project, LBNL
- 2016-2018 Science Strategy Mentor for Energy and Biomanufacturing for the LBNL BioSciences Area 10-year strategic plan.
- 2016-2018 Co-PI, Ecotoxicity for biomufacturing process, LDRD project, LBNL
- 2015-2017 Vice President, Fuels Synthesis Division, JBEI, Emeryville, CA
- 2015-2017 Deputy Vice President, Fuels Synthesis Division, JBEI, Emeryville, CA
- 2015-2016 PI, NASA STTR Phase II project: Automated strain engineering in cyanobacteria
- 2012+ Director, Host Engineering, Joint BioEnergy Institute, Emeryville, CA

- 2009+ Project co-PI in the DOE SFA: Ecosystems and genomes integrated with genes and molecular assemblies (ENIGMA).
- 2014-2015 PI, Study of novel *Acinetobacter venetianus* genes for alkane degradation, LBNL
- 2013-2014 Co-PI, microCLEAN DARPA seedling G-agent Bioremediation project, LBNL
- 2011-2014 Co-PI, Cyanobacterial Biological Soil Crusts, strategic LDRD project, LBNL
- 2007-2012 Director, Fuels Transport & toxicity, JBEI, Emeryville, CA
- 2007-2012 Director, Omics Technologies, Joint BioEnergy Institute (JBEI), Emeryville, CA
- 2007-2009 Project co-PI in the DOE Project: Environmental stress pathway project, LBNL
- 2004-2007 Technical lead for Proteomics studies for the DOE project: Virtual Institute of Microbial Stress and Survival, LBNL

## General Background and Research Interests

My work is focused on understanding host response, membrane transport, signaling, stress and tolerance phenotypes in microbial systems. I study engineered and environmental microbes. I use microbiological, biochemical and systems biology tools to examine environmentally important organisms such as sulfate and metal reducing bacteria, cyanobacteria. I have specific interest in signaling mechanisms in non-model organisms like *Pseudomonas stutzeri*, *Desulfovibrio vulgaris* and *Microcoleus vaginatus* and for which I have conducted detailed studies in *Agrobacterium tumefaciens*. I develop tools, and use host genome and protein engineering strategies, to improve bioproduction and bioremediation applications, using bacterial and fungal systems such as *Escherichia coli*, *Pseudomonas putida*, *Corynebacterium glutamicum*, *Saccharomyces cerevisiae* and *Rhodospiridium toruloides*.

## Publications (n = 113; google citations ~ 7k; google h-index = 41)

### Peer Reviewed

1. Wang X, Pereira, JH, Tsutakawa S, Fang X, Adams, PD. **Mukhopadhyay, A.** Lee, T S Efficient production of oxidized terpenoids via engineering fusion proteins of terpene synthase and cytochrome P450 *Metabolic Engineering* **2021**
2. Kim J, Baidoo EEK, Amer B, **Mukhopadhyay A**, Adams PD, Simmons BA, Lee TS Engineering *Saccharomyces cerevisiae* for isoprenol production, *Metabolic Engineering*, **2021**
3. Geiselman GM and Kirby J Landera A, Otoupal P, Papa G, Barcelos C, Sundstrom ER, Das L, Magurudeniya HD, Wehrs M, **Mukhopadhyay A**, Blake Simmons, Gladden JD, Conversion of poplar biomass into high-energy density tricyclic sesquiterpene jet fuel blendstocks *Microbial cell factories* **2020**
4. Banerjee, D., Eng, T., Lau, A.K., Sasaki, Y., Wang, B., Chen, Y., Pahl, J-P., Singan, VR., Herbert, RA., Liu, Y., Tanjore, D., Petzold, CJ., Keasling, JD., **Mukhopadhyay, A\*** Genome-scale metabolic rewiring improves titers rates and yields of the non-native product indigoidine at scale. *Nat. Commun.* **2020**
5. Wehrs, M., Thompson, MG., Banerjee, D., Pahl, J-P., Morella, NM., Barcelos, CA., Moon, J., Costello, Z., Keasling, JD., Shih, PM., Tanjore D\*, **Mukhopadhyay A\*** Investigation of Bar-seq as a method to study population dynamics of *Saccharomyces cerevisiae* deletion library during bioreactor cultivation *Microbial cell factories* **2020**
6. Thompson, MG., Incha, MR., Pearson, AN., Schmidt, M., Sharpless, WA., Eiben, C.B., Cruz-Morales, P., Blake-Hedges, JM., Liu, Y., Adams, CA., Haushalter, RW., Krishna,

- RN., Lichtner, P., Blank, LM., **Mukhopadhyay, A.**, Deutschbauer, AM., Shih, PM., Keasling JD\* Functional analysis of the fatty acid and alcohol metabolism of *Pseudomonas putida* using RB-TnSeq *AEM* **2020**
7. Lim, HG., Fong, B., Alarcon, G., Magurudeniya, HD., Eng, T., Szubin, R., Olson, CA., Palsson, BO., Gladden, JM., Simmons, BA., **Mukhopadhyay, A.**, Singer, SW., Feist AM., Generation of ionic liquid tolerant *Pseudomonas putida* KT2440 strains via adaptive laboratory evolution *Green Chemistry* **2020**
  8. Mohamed, ET., Werner, Allison Z; Salvachúa, D., Singer, C., Szostkiewicz, K., Jiménez-Díaz, M., Eng, T., Radi, MS., Simmons, BA., **Mukhopadhyay, A.**, Herrgård, MJ., Singer, SW., Beckham, GT., Feist AM., Adaptive laboratory evolution of *Pseudomonas putida* KT2440 improves p-coumaric and ferulic acid catabolism and tolerance, *Metabolic Engineering Communications* **2020**
  9. Eng T, Herbert RA, Martinez U, Wang B, Chen J, Brown JB, Deutschbauer A, Bissell MJ, Mortimer JC\* **Mukhopadhyay A\*** Iron Supplementation Eliminates Antagonistic Interactions Between Root Associated Bacteria *Frontiers Microbiology*, **2020**
  10. Rajeev, L., Garber, ME. and **Mukhopadhyay, A\***. Tools to map target genes of bacterial two-component system response regulators. *Environmental Microbiology Reports*. **2020**
  11. Gauttam R, **Mukhopadhyay A**, Singer SW\* Construction of a novel dual-inducible duet-expression system for gene (over) expression in *Pseudomonas putida* *Plasmid*, **2020**
  12. Chiniqy, J., Garber, M.E., **Mukhopadhyay, A.** Hillson N\*. Fluorescent amplification for next generation sequencing (FA-NGS) library preparation. *BMC Genomics* **2020**
  13. Chen Y, Banerjee D, **Mukhopadhyay A**, Petzold CJ\* Systems and synthetic biology tools for advanced bioproduction hosts, *Current Opinion in Biotechnology*, **2020**
  14. Eng T, Sasaki Y, Herbert RA, Lau A, Trinh J, Chen Y, Mirsiaghi M, Petzold CJ, **Mukhopadhyay A\*** Production of tetra-methylpyrazine using engineered *Corynebacterium glutamicum*, *Met Eng Comm*, **2020**
  15. Thompson MG, Pearson AM, Barajas JF, Cruz-Morales P, Sedaghatian N, Costello Z, Garber ME, Incha MR, Valencia LE, Baidoo EEK, Garcia-Martin H, Mukhopadhyay, A, Keasling JD\* Identification, Characterization, and Application of a Highly Sensitive Lactam Biosensor from *Pseudomonas putida* *ACS Synthetic Biology* **2020**
  16. Kothari A, Soneja D, Tang A, Carlson H, Deutschbauer AM, **Mukhopadhyay A\*** Native plasmid-encoded mercury resistance genes are functional and demonstrate natural transformation in environmental bacterial isolates *mSphere* **2019**
  17. Rigual V, Papa G, Rodriguez A, Wehrs M, Kim K, Olet M, Alonso M, Gladden J, Mukhopadhyay A, Simmons B, Singh S\* Evaluating protic ionic liquid for woody biomass one-pot pretreatment + saccharification, followed by *Rhodospiridium toruloides* cultivation *ACS Sus Chem & Eng* **2019**
  18. Rodrigues AV, Tantillo DJ, **Mukhopadhyay A**, Keasling JD, Beller HR\* Insights into the Mechanism of Phenylacetate Decarboxylase (PhdB), a Toluene-Producing Glycyl Radical Enzyme. *Chembiochem* **2019**
  19. Kang A, Mendez-Perez D, Goh E-B, Baidoo EEK. Benites VT, Beller HR, Keasling JD, Adams PD, **Mukhopadhyay A**, Lee TS\* Optimization of the IPP-bypass mevalonate pathway and fed-batch fermentation for the production of isoprenol in *Escherichia coli* *Metabolic Engineering* **2019**
  20. Langley S, Eng T, Wan K, Herbert RA, Klein A, Yoshikuni Y, Tringe S, Brown JB, Celniker S, Mortimer JC\*, and **Mukhopadhyay A\*** Complete Genome Sequence of *Agrobacterium sp.* 33MFTa1.1 isolated from the roots of *Thlaspi arvense*. *Microbiology Resource Announcements* **2019**

21. Baral NR, Kavvada, O, Mendez-Perez D, **Mukhopadhyay A**, Lee TS, Simmons BA Scown CD\* Greenhouse Gas Footprint, Water-Intensity, and, Production Cost of Bio-Based Isopentenol as a Renewable Transportation Fuel *ACS Sus. Chem & Eng.* **2019**
22. Czamanski Nora L, Wehrs M, Kim J-H, Cheng J-F, Tarver A, Simmons BA, Magnuson J, Harmon-Smith M, Silva-Rocha R, Gladden JM, **Mukhopadhyay A**, Skerker JM\*, Kirby J\* A toolset of promoters for metabolic engineering of *Rhodospiridium toruloides* Microbial Cell Factories **2019**
23. Wehrs, M., Gladden JM, Liu Y, Platz L, Prahl J-P, Moon J, Papa G, Sundstrom E, Geiselman GM, Tanjore D, Keasling JD, Pray TR, Simmons BA **Mukhopadhyay A\*** Sustainable bioproduction of the blue pigment indigoidine: Expanding the range of heterologous products in *R. toruloides* to include non-ribosomal peptides *Green Chemistry* **2019**
24. Herbert RA, Eng T, Martinez U, Wang B, Langley S, Wan K, Pidatala V, Hoffman E, Chen JC, Bissell MJ, Brown JB, **Mukhopadhyay A\*** Mortimer JC\* Rhizobacteria mediate the phytotoxicity of a range of biorefinery-relevant compounds *Environmental Toxicology and Chemistry* **2019**
25. Dong J, Chen Y, Benites VT, Baidoo EE, Petzold CJ, Beller HR, Eudes A, **Mukhopadhyay A**, Singer SW\* Methyl ketone production by *Pseudomonas putida* is enhanced by plant-derived amino acids, *Biotech and Bioeng* **2019**
26. Barajas JF, Wehrs M, To M, Cruickshanks L, Urban R, McKee A, Gladden J, Goh E-B, Brown ME, Pierotti D, Carothers JM, **Mukhopadhyay A**, Keasling JD, Fortman JL, Singer SW\*, Bailey CB\* Isolation and Characterization of Bacterial Cellulase Producers for Biomass Deconstruction: A Microbiology Laboratory Course” *Journal of Microbiology and Biology Education* **2019**
27. Baral, NR, Sundstrom E, Das L, Gladden J, Eudes, A, Mortimer JC, Singer SW, **Mukhopadhyay A**, Scown CS\* Approaches for More Efficient Biological Conversion of Lignocellulosic Feedstocks to Biofuels and Bioproducts *ACS Sus. Chem. & Eng.* **2019**
28. Rajeev L, Luning EG, Zane GM, Juba TR, Kazakov AE, Novichkoc P, Wall J, **Mukhopadhyay A\*** LurR is a regulator of the central lactate oxidation pathway in sulfate-reducing *Desulfovibrio* species. *PLOS ONE* **2019**.
29. Sasaki Y, Eng T, Herbert RA, Trinh J, Chen Y, Rodriguez, A, Gladden, JM, Simmons BA, Petzold CJ, **Mukhopadhyay, A\*** Engineering *Corynebacterium glutamicum* to produce the biogasoline isopentenol from plant biomass hydrolysates. *Biotechnology for Biofuels.* **2019**
30. Kothari A, Wu Y-W, Chandonia J-M, Charrier M, Rajeev L, Rocha AM, Joyner DC, Hazen TC, Singer SW, **Mukhopadhyay A\*** Large circular plasmids from groundwater plasmidomes span multiple incompatibility groups and are enriched in multimetal resistance genes. *mBio* **2019**
31. Wehrs M, Tanjore D, Eng T, Lievense J, Pray TR, **Mukhopadhyay A\*** Engineering robust production microbes for large scale cultivation *Trends in Microbiology* **2019**
32. Baral, N. R., Kavvada, O., Mendez-Perez, D., **Mukhopadhyay, A.**, Lee, T. S., Simmons, B. A., Scown, C. D., Techno-economic analysis and life-cycle greenhouse gas mitigation cost of five routes to bio-jet fuel blendstocks. *Energy & Environmental Science* **2019**
33. Wang, S, Cheng G, Dong J, Tian T, Lee TS, **Mukhopadhyay A**, Simmons BA, Yuan Q, Singer SW\* NaCl enhances *Escherichia coli* growth and isoprenol production in the presence of imidazolium-based ionic liquids, *Bioresource Technology Reports*, **2019**
34. Wehrs M, Prahl JP, Moon J, Li Y, Tanjore D, Keasling JD, Pray T, **Mukhopadhyay A\*** Production efficiency of the bacterial non- ribosomal peptide indigoidine relies on the respiratory metabolic state in *S. cerevisiae* *Microbial Cell Factories* **2018**

35. Rajeev L, Garber M, Zane G, Wall JD, Dubchak I, Novichkov P, **Mukhopadhyay A**, Kazakov A\* A new family of transcriptional regulators of tungstoenzymes and molybdate/tungstate transport *Environmental Microbiology*, **2018**
36. Wang S, Cheng G, Dong J, Tian T, Lee TS, **Mukhopadhyay A**, Simmons BA, Yuan Q, Singer S Tolerance characterization and isoprenol production of adapted *Escherichia coli* in the presence of ionic liquids *ACS Sustainable Chem. Eng.*, **2018**
37. Eng T, Demling P, Herbert RA, Chen Y, Benites V, Martin J, Lipzen A, Baidoo EEK, Blank LM, Petzold CJ, **Mukhopadhyay A\*** Restoration of Biofuel Production Levels and Increased Tolerance Under Ionic Liquid Stress is Enabled by a Mutation in the Essential *Escherichia coli* gene *cydC*. *Microbial Cell Factories* **2018**
38. Xu F, Sun J, Wehrs M, Kim KHo, Rau SS, Chan AM, Simmons BA, **Mukhopadhyay A**, Singh S\* Biocompatible choline-based deep eutectic solvents enable one-pot production of cellulosic ethanol. *ACS Sustainable Chem. Eng.*, **2018**
39. Garber ME, Rajeev L, Kazakov AE, Trinh J, Masuno D, Thompson MG, Kaplan, N, Luk, J, Novichkov PS and **Mukhopadhyay A\*** Multiple signaling systems target a core set of transition metal homeostasis genes using similar binding motifs. *Mol Microbiol* **2018**
40. Thompson MG, Sedaghatian N, Barajas JF, Wehrs M, Bailey CB, Kaplan N, Hillson NJ, **Mukhopadhyay A**, Keasling JD\* Isolation and characterization of novel mutations in the pSC101 origin that increase copy number. *npj Scientific Reports* **2018**
41. Jensen, H. M., Eng, T., Chubukov, V., Herbert, R. A. & **Mukhopadhyay, A\*** Improving membrane protein expression and function using genomic edits. *npj Sci. Reports* **2017**
42. Dossani ZY, Reider Apel A, Szmidt-Middleton H, Hillson NJ, Deutsch S, Keasling JD, **Mukhopadhyay A\*** A combinatorial approach to synthetic transcription factor-promoter combinations for yeast strain engineering. *Yeast* **2017**
43. Morrell, WC., Birkel, GW., Forrer, M, Lopez, T, Backman, TWH., Dussault, M, Petzold, CJ., Baidoo, EEK., Costello, Z, Ando, D, Alonso-Gutierrez, J, George, KW., **Mukhopadhyay, A**, Vaino, I, Keasling, JD., Adams, PD., Hillson, NJ. and Garcia Martin, H\* The Experiment Data Depot: A Web-Based Software Tool for Biological Experimental Data Storage, Sharing, and Visualization. *ACS Synthetic Biology* **2017**.
44. d'Espaux L, Ghosh A, Runguphan W, Wehrs M, Xu F, Konzock O, Dev I, Nhan M, Gin J, Reider Apel A, Petzold CJ, Singh S, Simmons BA, **Mukhopadhyay A**, Martín HG, Keasling JD\* Engineering high-level production of fatty alcohols by *Saccharomyces cerevisiae* from lignocellulosic feedstocks *Metabolic Engineering* **2017**
45. Parisutham V, Sathesh-Prabu C, **Mukhopadhyay A**, Lee SK\*, Keasling JD Intracellular cellobiose metabolism and its applications in lignocellulose-based biorefineries *Bioresource Technology* **2017**
46. Liang Y, Richardson S, Yan J, Benites VT, Cheng-Yue C, Tran T, Mortimer J, **Mukhopadhyay A**, Keasling JD, Scheller HV, Loqué D\* Endoribonuclease-Based Two-Component Repressor Systems for Tight Gene Expression Control in Plants *ACS Syn Bio* **2017**
47. Chubukov V, Desmarais JJ, Wang G, Chan LJG, Baidoo EEK, Petzold CJ, Keasling JD, **Mukhopadhyay A\*** Engineering glucose metabolism of *Escherichia coli* under nitrogen starvation. *npj Systems Biology and Applications* **2017**
48. Reider Apel A, d'Espaux L, Wehrs M, Sachs D, Li R, Tong G, Garber M, Nnadi O, Zhuang W, Hillson N, Keasling JD, **Mukhopadhyay, A\*** A Cas9-based toolkit to program gene expression in *Saccharomyces cerevisiae* *NAR* **2016**

49. Thorgersen MP, Lancaster WA, Rajeev L, Ge X, Vaccaro BJ, Poole FL, Arkin AP, **Mukhopadhyay A**, Adams MWW\* A Highly Expressed High Molecular Weight S-Layer Complex of Pelosinus Strain UFO1 Binds Uranium *AEM*. **2016**
50. Hollinshead WD, Rodriguez S, Martin HG, Wang G, Baidoo EEK, Keasling JD, **Mukhopadhyay A\***, Tang YJ\* *Escherichia coli* glycolytic strategies, catabolite repression, and metabolite channeling *Biotechnology for biofuels* **2016**
51. Kothari A, Charrier M, Wu Y-W, Malfatti S, Zhou CE, Singer SW, Dugan L, **Mukhopadhyay A\***. Transcriptomic analysis of the highly efficient oil-degrading bacterium *Acinetobacter venetianus* RAG-1 reveals genes important in dodecane uptake and utilization. *FEMS Microbiology Letters* **2016**
52. Brown ME, **Mukhopadhyay A**, Keasling JD\*. Engineering bacteria to catabolize the carbonaceous component of sarin: teaching *E. coli* to eat isopropanol. *ACS Synthetic Biology* **2016**
53. Frederix M, Mingardon F, Sun N, Pray T, Singh S, Simmons BA, Keasling JD, **Mukhopadhyay A\*** Development of an *E. coli* strain for one-pot biofuel production from ionic liquid pretreated cellulose and switchgrass. *Green Chemistry* **2016**
54. Fortman JL and **Mukhopadhyay A\***, Future of Antibiotics: Emerging technologies, in Science & Society, *Trends in Microbiology* **2016**
55. Chubukov V, **Mukhopadhyay A**, Petzold CJ, Keasling JD, Garcia-Martín HG\* Synthetic and systems biology for microbial production of commodity chemicals, *npj Systems Biology and Applications* **2016**
56. Reider-Apel A, Ouellet M, Szmidt-Middleton H, Keasling JD, **Mukhopadhyay A\***, Evolved hexose transporter enhances xylose uptake and glucose/xylose co-utilization in *Saccharomyces cerevisiae*, *npj Sci Rep* **2016**
57. Kazakov A, Rajeev L, Chenn A, Luning EJ, Dubchak I, **Mukhopadhyay A**, Novichkov P\*,  $\sigma^{54}$ -dependent Regulome in *Desulfovibrio vulgaris* Hildenborough *BMC Genomics* **2015**
58. Rajeev L, Chen A, Kazakov AE, Luning EG, Zane GM, Novichkov PS, Wall JD, **Mukhopadhyay A\*** Regulation of nitrite stress response in *Desulfovibrio vulgaris* Hildenborough, a model sulfate-reducing bacterium *J. Bact.* **2015**
59. **Mukhopadhyay A\*** Tolerance engineering in bacteria for the production of advanced biofuels and chemicals *Trends in Microbiology* **2015**
60. Garcia-Martin H\*, Kumar VS, Weaver D, Ghosh A, Chubukov V, **Mukhopadhyay A**, Arkin AP, Keasling JD. A method to constrain genome-scale models with  $^{13}\text{C}$  labeling data. *PLoS Comput Biol* **2015**
61. Chubukov V, Mingardon F, Schackwitz W, Baidoo EEK, Alonso-Gutierrez J, Hu Q, Lee TS, Keasling JD, **Mukhopadhyay A\*** Acute limonene toxicity in *Escherichia coli* is caused by limonene-hydroperoxide and alleviated by a point mutation in alkyl hydroperoxidase (AhpC) *Appl Environ Microbiol.* **2015**
62. Mingardon F, Clement C, Hirano K, Nhan M, Luning EG, Chanal A, **Mukhopadhyay A\*** Improving olefin tolerance and production in *E. coli* using native and evolved AcrB. *Biotechnology and Bioengineering.* **2015**
63. Rocha UN\*, Cadillo-Quiroz H, Karaoz U, Rajeev L, Klitgord N, Dunn S, Truong V, Buenrostro M, Bowen BP, Garcia-Pichel F, **Mukhopadhyay A**, Northen TR and Brodie EL, Isolation of a significant fraction of non-phototroph diversity from a desert Biological Soil Crust *Front. Microbiol* **2015**
64. Jensen HM#, Foo JL#, Dahl RH, George K, Keasling JD, Lee TS, Leong SSJ, **Mukhopadhyay A\***. Improving microbial bio-gasoline production in *Escherichia coli* using tolerance engineering. *mBio* **2014**

65. Ghosh A, Nilmeier J, Weaver D, Adams PD, Keasling JD, **Mukhopadhyay A**, Petzold CJ, García-Martín H\*. A Peptide-Based Method for <sup>13</sup>C Metabolic Flux Analysis in Microbial Communities. *PLoS Comput Biol* **2014**
66. Rajeev L, Luning, EG, Altenburg S, Zane GM, Baidoo EE, Catena M, Keasling JD, Wall JD, Fields MW, **Mukhopadhyay A\***. Identification of a cyclic-di-GMP-modulating response regulator that impacts biofilm formation in a model sulfate reducing bacterium. *Frontiers in Microbiology* **5**. **2014**
67. Frederix M, Hutter K, Leu J, Batth TS, Turner WJ, Ruegg TL, Blanch H, Simmons BA, Adams PD, Keasling JD, Thelen MP, Dunlop MJ, Petzold CJ, **Mukhopadhyay A\*** Development of a native *Escherichia coli* induction system for ionic liquid tolerance *Plos One* **2014**
68. Rajeev, L.\*, Luning, E. G., **Mukhopadhyay, A.** DNA-affinity-purified Chip (DAP-chip) Method to Determine Gene Targets for Bacterial Two component Regulatory Systems. *J. Vis. Exp.* **2014**
69. Ray J, Keller KL, Catena M, Juba TR, Zemla M, Rajeev L, Knierim B, Zane GM, Robertson J, Auer M, Wall JD, **Mukhopadhyay A\*** Exploring the role of CheA3 in *Desulfovibrio vulgaris* Hildenborough motility *Frontiers in Microbiology* **2014**
70. Dahl RH, Zhang F, Alonso-Gutierrez J, Baidoo E, Batth TS, Redding-Johanson AM, Petzold CJ, **Mukhopadhyay A**, Lee TS, Adams PD, Keasling JD\* Engineering dynamic pathway regulation using stress-response promoters. *Nat Biotechnol* **2013**.
71. Kazakov A, Rajeev L, Luning EG, Zane G, Siddartha K, Rodionov D, Dubchak I, Arkin A, Wall J, Mukhopadhyay A, Novichkov P. A new family of tungstate-responsive transcriptional regulators in sulfate-reducing bacteria" *J Bact* **2013**
72. Zhou A, Baidoo E E, He Z, Mukhopadhyay A, Baumohl J, Benke P I, Joachimiak M, Xie M, Song R, Arkin A, Hazen T, Keasling J, Wall J, Stahl D, Zhou J Characterization of NaCl-tolerance in *Desulfovibrio vulagris* Hildenborough through experimental evolution *ISME J* **2013**
73. Szmidt-Middleton HL, Ouellet M, Adams PD, Keasling JD, **Mukhopadhyay A\***. Utilizing a highly responsive gene, *yhjX*, in *E. coli* based production of 1,4-Butanediol *CES* **2013**
74. Rajeev L, da Rocha U, Klitgord N, Luning E, Fortney J, Axen S, Shih P, Bouskill N, Bowen B, Kerfeld C, Garcia-Pichel F, Brodie E, Northen T\*, **Mukhopadhyay A\***. Dynamic cyanobacterial response to hydration and dehydration in a desert biological soil crust. *ISME J* **2013**
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- Biosynthesis and incorporation of side-chain-truncated lignin monomers to reduce lignin polymerization and enhance saccharification *Plant Biotechnol J.* **2012**
79. Parsons HT, Christiansen K, Knierim B, Carroll A, Ito J, Batth TS, **Mukhopadhyay A**, Petzold CJ, Scheller HV, Loque D, Heazlewood JL\*. Isolation and Proteomic Characterization of the Arabidopsis Golgi Defines Functional and Novel Components Involved in Plant Cell Wall Biosynthesis. *Plant Physiol.* **2012**
  80. Rautengarten C, Ebert B, Ouellet M, Nafisi M, Baidoo EE, Benke P, Stranne M, **Mukhopadhyay A**, Keasling JD, Sakuragi Y, Scheller HV\* Arabidopsis Deficient in Cutin Ferulate Encodes a Transferase Required for Feruloylation of  $\omega$ -Hydroxy Fatty Acids in Cutin Polyester. *Plant Physiol.* **2012**
  81. **Mukhopadhyay A** Microbial host engineering: beyond the metabolic pathway **2012** Special Issue: New Science of Synthetic and Systems Biology, Science And Culture Journal, Indian Science News Association, ed. R. Bhadra.
  82. Rutherford, B.J and **Mukhopadhyay, A\***. **2012** Engineering Stress Tolerance in Microbial Systems for Bioproduction of Fuels, In: Microbial Biotechnology: Energy and Environment. CABI, Wallingford, UK. ed. Arora, R.
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  87. **Mukhopadhyay A**, Hillson NJ, Keasling JD\* Control of Stress tolerance in bacterial host organisms for bioproduction of fuels **2011** Microbial Stress Tolerance: From Genomics to Biofuels, Microbiology Monographs (Springer series) ed. Z. Lewis Liu
  88. Zhou J\*, He Q, Hemme CL, **Mukhopadhyay A**, Hillesland K, Zhou A, He Z, Van Nostrand JD, Hazen TC, Stahl DA, Wall JD, Arkin AP. How sulphate-reducing microorganisms cope with stress: lessons from systems biology. *Nat Rev Microbiol.* **2011**
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  91. Redding-Johanson AM, Batth TS, Chan R, Krupa R, Szmidski HL, Adams PD, Keasling JD, Lee TS, **Mukhopadhyay A**, Petzold CJ\*. Targeted proteomics for metabolic pathway optimization: application to terpene production. *Metab Eng.* **2011**
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93. Ito J, Batth TS, Petzold CJ, Redding-Johanson AM, **Mukhopadhyay A**, Verboom R, Meyer EH, Millar AH, Heazlewood JL\*. Analysis of the Arabidopsis Cytosolic Proteome Highlights Subcellular Partitioning of Central Plant Metabolism. *J Proteome Res.* **2010**
94. Ito J, Petzold CJ, **Mukhopadhyay A**, Heazlewood J\*. The role of proteomics in the development of cellulosic biofuels. *Current Proteomics.* **2010**
95. Cong Y, Baker ML, Jakana J, Woolford D, Miller EJ, Reissmann S, Kumar RN, Redding-Johanson AM, Batth TS, **Mukhopadhyay A**, Ludtke SJ, Frydman J, Chiu W\*. 4.0-Å resolution cryo-EM structure of the mammalian chaperonin TRiC/CCT reveals its unique subunit arrangement. *Proc Natl Acad Sci U S A.* **2010**
96. Zhou A, He Z, Redding-Johanson AM, **Mukhopadhyay A**, Hemme CL, Joachimiak MP, Luo F, Deng Y, Bender KS, He Q, Keasling JD, Stahl DA, Fields MW, Hazen TC, Arkin AP, Wall JD, Zhou J\*. Hydrogen peroxide-induced oxidative stress responses in *Desulfovibrio vulgaris* Hildenborough. *Environ Microbiol.* **2010**
97. He Z, Zhou A, Baidoo E, He Q, Joachimiak MP, Benke P, Phan R, **Mukhopadhyay A**, Hemme CL, Huang K, Alm EJ, Fields MW, Wall J, Stahl D, Hazen TC, Keasling JD, Arkin AP, Zhou J\*. Global transcriptional, physiological, and metabolite analyses of the responses of *Desulfovibrio vulgaris* Hildenborough to salt adaptation. *Appl Environ Microbiol.* **2010**
98. Dunlop MJ, Keasling JD, **Mukhopadhyay A**\*. A Model for Improving Microbial Biofuel Production using a Synthetic Feedback Loop. *Systems and Synthetic Biology* **2010**.
99. Ouellet M, Adams PD, Keasling JD and **Mukhopadhyay A**\*. A Rapid and Inexpensive Labeling Method for Microarray Gene Expression Analysis. *BMC Biotechnology* **2009**
100. Shaikh AS<sup>#</sup>, Tang YJ<sup>#</sup>, **Mukhopadhyay A**<sup>#</sup>, García Martín H, Gin J, Benke PI, Keasling JD\* Study of stationary phase metabolism via isotopomer analysis of amino acids from an isolated protein. *Biotechnology Progress* **2009**
101. Elias DE\*, **Mukhopadhyay A**<sup>#</sup>, Joachimiak MP<sup>#</sup>, Redding AM, Yen H-CB, Fields MW, Hazen TC, Arkin AP, Keasling JD, Wall JD. Expression profiling of hypothetical genes in *Desulfovibrio vulgaris* leads to improved functional annotation. *Nucleic Acids Research* **2009**
102. Borglin S, Joyner DC, Jacobsen JS, **Mukhopadhyay A**, Hazen TC\*. Overcoming the anaerobic hurdle in phenotypic microarrays: Generation and visualization of growth curve data for *Desulfovibrio vulgaris* Hildenborough. *J Microbiol Methods.* **2009**
103. Gaucher S<sup>#</sup>, Redding AM<sup>#</sup>, **Mukhopadhyay A**, Keasling JD, Singh AK\*. Post-translational Modifications of *Desulfovibrio vulgaris* Hildenborough Sulfate Reduction Pathway Proteins. *Journal of Proteomic Research* **2008**
104. **Mukhopadhyay A**, Redding AM, Rutherford BJ, Keasling JD\*. Importance of systems biology in engineering microbes for biofuel production. *Curr Opin Biotechnol.* **2008**
105. Fortman JL<sup>#</sup>, Chhabra S<sup>#</sup>, **Mukhopadhyay A**<sup>#</sup>, Chou H, Lee TS, Steen E, Keasling JD\*. Biofuel alternatives to ethanol: pumping the microbial well. *Trends Biotechnol.* **2008**
106. Shaikh AS<sup>#</sup>, Tang YJ<sup>#</sup>, **Mukhopadhyay A**, Keasling JD\*. Isotopomer Distributions in Amino Acids from a Highly Expressed Protein as a Proxy for Those from Total Protein. *Analytical Chem* **2008**
107. **Mukhopadhyay A**, Redding AM, Joachimiak MP, Arkin AP, Borglin SE, Dehal PS, Chakraborty R, Geller JT, Hazen TC, He Q, Joyner DC, Martin VJ, Wall JD, Yang ZK, Zhou J, Keasling JD\*. Cell-wide responses to low-oxygen exposure in *Desulfovibrio vulgaris* Hildenborough. *J Bacteriol.* **2007**
108. Tang YJ<sup>#</sup>, Pingitore F<sup>#</sup>, **Mukhopadhyay A**<sup>#</sup>, Phan R, Hazen TC, Keasling JD\*. Pathway confirmation and flux analysis of central metabolic pathways in *Desulfovibrio vulgaris* Hildenborough using GC-MS and FT-ICR mass spectrometry. *J. Bacteriol.* **2007**

109. Redding A-M, **Mukhopadhyay A**, Joyner DC, Hazen TC, Keasling JD\* Study of nitrate stress in *Desulfovibrio vulgaris* Hildenborough using iTRAQ proteomics. *Brief Funct Genomic Proteomic* **2006**
110. **Mukhopadhyay A**, He Z, Alm EJ, Arkin AP, Baidoo EE, Borglin SC, Chen W, Hazen TC, He Q, Holman H-Y, Huang K, Huang R, Joyner DC, Katz N, Keller M, Oeller P, Redding AM, Sun J, Wall J, Wei J, Yang J, Yen H-C, Zhou J, Keasling JD\*. Salt Stress in *Desulfovibrio vulgaris* Hildenborough: an Integrated Genomics Approach *J. Bacteriol.* **2006**
111. Gao R, **Mukhopadhyay A**, Fang F, Lynn DG\* Constitutive Activation of Two-Component Response Regulators: Characterization of VirG Activation in *Agrobacterium tumefaciens*. *J Bacteriol* **2006**,
112. **Mukhopadhyay A**, Gao R, Lynn DG\*. Integrating Input from Multiple Signals: The VirA/VirG Two-Component System of *Agrobacterium tumefaciens*. *ChemBioChem* **2004**
113. Wang Y, **Mukhopadhyay A**, Howitz VR, Binns AN, Lynn DG\*. Construction of an efficient expression system for *Agrobacterium tumefaciens* based on the coliphage T5 promoter. *Gene* **2000**

### Reports and commentaries

1. Mukhopadhyay A, Hauser Loren Workflow 4: Signaling, in the DOE Systems Biology Knowledgebase Implementation Plan. U.S. Department of Energy Office of Science. DOE Genomic Science Microbial Systems Biology Knowledgebase Workshop, Feb. 9–10, **2010**
2. Lee TS, Keasling JD, Beller HR, Mukhopadhyay A. New methods to modify or control regulation of engineered pathways for biofuel production [www.jbei.org/wp-content/uploads/2016/03/Q2-Report\\_full\\_v4.pdf](http://www.jbei.org/wp-content/uploads/2016/03/Q2-Report_full_v4.pdf). **2016**
3. Mukhopadhyay A, Perspective on the future of biofuels using microbial platforms, *Biofuels International*, Volume 11 (1) Jan **2017**

### Theses

- **Mukhopadhyay A**, Initiating lateral gene transfer: analysis of the VirA/VirG two component system *in vivo*. (Ph. D.) Department of Chemistry, University of Chicago, Chicago, IL, USA **2002**. Adv. David G. Lynn
- **Mukhopadhyay A**, Synthesis of chiral bioactive molecules using enzymes and microorganisms. (M. Sc) Department of Chemistry Indian Institute of Technology, Powai, Mumbai, Maharashtra, India, **1996**. Adv. S. V. Bhatt

### Patents (applications and granted)

1. Huang, J, Liu, Z, Clark, DS, Keasling, JD, **Mukhopadhyay, A**, Hartwig, JF. Novel Artificial Metalloenzyme chemistry in biological systems *U.S. Patent Application Ser. No:* 62/989,568 (2020/03/13)
2. Eng, TT, Banerjee, D, **Mukhopadhyay, A** Engineered *P. putida* strain with high yields of glutamine-derived heterologous products due to growth-production locking (GPL) *U.S. Patent Application Ser. No:* 62/980,054 (2020/02/21)
3. Eng T, **Mukhopadhyay A**, "Production of Tetramethyl Pyrazine in the Industrial Host *Corynebacterium Glutamicum* *U.S. Patent Application Ser. No:* 62/982,001 (2020/02/26)

4. Budin, I, Reider A, Hummel NFC **Mukhopadhyay, A**, Keasling, JD Methods for mitochondria and organelle genome editing *U.S. Patent Application Ser. No: 62/673,597* (2020/1/16)
5. Mortimer, JC, Herbert, RA, **Mukhopadhyay, A**, Eng, TT, Use of Cholinium Lysinate as a Broad-Spectrum Herbicide. *US, Patent Application Ser. No. 62/842,737* (2019/05/03)
6. Wehrs, M, Gladden, J, **Mukhopadhyay, A** Host yeast cells and methods useful for producing indigoidine *U.S. Patent Application Ser. No 16/417,499* (2019/04/20)
7. **Mukhopadhyay A**, Mingardon F, Chanal A. Modified Host Cells Having tolerance to  $\alpha$ -Olefins. *US Patent 20,170,051,317*, (2017/02/23)
8. **Mukhopadhyay A**, Reider-Apel A, Ouellet M, Keasling JD, Synthetic Polypeptide Having A Xylose Import Activity *US Patent 20170015714 A1* (2017/01/19)
9. Dunlop, MJ. Keasling, JD. **Mukhopadhyay, A**. Modified Host Cells with Efflux Pumps. *U.S. Patent No. 9428726* (2016/8/30)

### Professional community service (external)

- Session Chair for ASM Microbe conference 2021
- Session Chair for 43<sup>rd</sup> SBFC 2021
- Co-Chair, Session Chair for ACS BIOT 2020
- Scientific Advisory Committee, Center for Advanced Bioenergy and Bioproducts Innovation (CABBI) 2019+
- Chair, Division O of the American Society of Microbiology (2015/16)
- Co-chair Organizing committee for the Indo-US Science and Technology Forum workshop on Cell Factories (IIT Mumbai India, March 2016).
- Editorial positions
  - *Frontiers in Microbiology Journal*, 2011+
  - *npj Scientific Reports*, 2017+
  - *Metabolic Engineering Communications Special issue* 2019-2020
- Reviewer for peer-reviewed articles (*Nature Biotech*, *Nature Microbiol.*, *Mol Sys Biol*, *PNAS*, *AEM*, *Mol Microb*, *mBio*, *J Bact*, *JMB*, *Scientific Reports*, *Biotechnology for Biofuels*, *Metabolic Engineering*, *Metabolic Engineering Communications*, *Applied Microbiology and Biotechnology*, *Microbial Cell Factories*, etc).
- Reviewer for funding agencies (DOE BER, DOD IARPA).
- Reviewer for the JGI SynBio Internal Review Process 2014+
- Co-chair conference symposia session (ASM general conference 2010).
- Mentor for graduate students, exchange students/ postdocs from
  - DOE SCGSR exchange student program. 2016, 2021
  - B-ACER Fellowship, India 2020
  - CAPES Brazil 2019
  - FAPESP BEPE Research Project, Brazil 2018
  - Heidelberg University Biochemistry Centre, Germany, 2018
  - IIT Mumbai India 2018
  - Kyoto University 2017-18
  - University of California, Berkeley 2016-
  - Technical University of Braunschweig 2016-2020
  - SULI/ BLUR programs 2015+
  - RWTH Aachen University 2015-16

- Khorana Program 2014+
- EPFL Switzerland 2012-16
- ETH Zurich, 2016
- Mines Paristech France 2012-13,
- NTU Singapore 2012,
- Mannheim University, Germany 2012, 2011
- IIT Kharagpur India 2009
- University of Chicago Externship program (2012)
- Biotech Partners program (2009)
- Thesis Advisory Committees
  - Arizona State University, Tempe, AZ, USA
  - Indian Institute of Technology, Mumbai, India
  - Leiden University, The Netherlands

### **Professional community service (internal)**

- Proposal preparation, presentation and defense team; BER SFA ENIGMA 2017 review
- Proposal preparation, presentation and defense team for competitive BRC FOA 30M/ year proposal 2016-2017
- Chair, Divisional Staff Committee, Biological Systems and Engineering, LBNL, Berkeley, CA, 2017+
- Scientific Focus group for selection of the LBNL Lab Director 2015
- Committee for Biosciences Mentoring Program 2014-15
- Mentor for the Biosciences Mentoring Program 2015+
- Committee for suitable search for the JBEI COO and JBEI CSTO
- Committee for suitable search for the JBEI Director for Plant wall biosynthesis
- JBEI Volunteer, Berkeley Lab Open house 2011
- Committee for LBNL Directors Award 2011
- Committee for selection of the LBNL Lab Director 2007

### **Invited talks/ Panels/ podcasts (Since 2007)**

- Lignin Conversion, 43<sup>rd</sup> SBFC, April 26-28, 2021
- Bio-Manufacturing Solutions workshop, BU-ISE and ITIF Boston, Feb 10<sup>th</sup> 2021
- Radio talkshow with Julie Motz, Hot Tech – Cool Science, KWMR FM Feb 9<sup>th</sup> 2021
- Virtual Sci Foo Camp, Oct 23-25, 2020
- Indo-US workshop on Recent Developments in Bioenergy Research, Oct 19<sup>th</sup> 2020
- Amazing Microbes, Finding Genius Podcast with Richard Jacobs, Jul 20<sup>th</sup> 2020
- Gordon Research Seminar Mentorship Panel, Ventura Beach, CA, Jan 11<sup>th</sup> 2020
- National Lab Day, Toledo, OH, Oct 11-12<sup>th</sup> 2019
- CCST Biomass Expert Briefing, Sacramento, Sept 19<sup>th</sup> 2019
- Pseudomonas 2019, Kuala Lumpur, Malaysia, July 22<sup>nd</sup> 2019
- GapSummit, Boston, MA, June 18<sup>th</sup>, 2019
- DOE JGI User meeting, San Francisco, CA, April 5<sup>th</sup> 2019
- Tech Mini Colloquia JGI User meeting, San Francisco, CA, April 2<sup>th</sup> 2019
- IGI Seminar, Berkeley, CA, March 12<sup>th</sup> 2019
- Google team Offsite Keynote, San Francisco, CA, Jan 10<sup>th</sup> 2019

- ABLC, San Francisco, CA, Nov 8<sup>th</sup> 2018
- Synthetic Biology for Defense, Arlington, VA, Sept 25-27<sup>th</sup> 2018
- Lignin Gordon Research Conference, Easton, MA, Aug 5<sup>th</sup> 2018
- DTRA CB Tech Watch Seminar, Ft. Belvoir, VA, April 11<sup>th</sup> 2018
- Departmental Seminar, Iowa State University, Ames, IA, Oct 12<sup>th</sup> 2017
- SFSU Department of Chemistry Colloquium, San Francisco, CA, Sept 22<sup>nd</sup> 2017
- BESC retreat, Plenary speaker for JBEI, Chattanooga, TN, July 11-13<sup>th</sup> 2017
- Biology colloquium, Sonoma State University, Sonoma, CA, April 18<sup>th</sup> 2017
- Comparative Biochemistry Seminar course, UC Berkeley, Berkeley, CA, Oct 27<sup>th</sup> 2016
- Gordon Conference Green chemistry, Stowe, VT, July 31-Aug-5, 2016.
- Beyond Academia, UC Berkeley, Berkeley CA, April 27<sup>th</sup> 2016
- SFSU Department of Biology Colloquium in Microbiology and Cell & Molecular Biology, San Francisco, CA, Apr 7<sup>th</sup> 2016
- Indo-US Bilateral Conference in Cell Factories, Mumbai, India, March 18-20<sup>th</sup> 2016
- John Lawrence Seminar Series, LBNL, Berkeley, CA Oct 6<sup>th</sup> 2015
- Gordon research Conference, Lucca, Italy April 24-May 1 2015
- JGI, User meeting Walnut Creek, CA, March 25 2015
- Genomic Science Contractors-Grantees Meeting XIII, Washington DC, Feb 22-25 2015
- Departmental Seminar, Chemical Engineering, IIT, Mumbai, India, Feb 10<sup>th</sup> 2015
- Indo-US Conference in Systems and Synthetic Biology, New Delhi, India, Nov 9<sup>th</sup> 2014
- Society for Industrial Microbiology Annual Meeting, St Louise MO, Jul 24<sup>th</sup> 2014
- Bioenergy and Photosynthesis Seminar, ASU, Tempe, AZ Feb 20<sup>th</sup> 2014
- 12th Biennial Conference of Science and Management on the Colorado Plateau Northern Arizona University, Flagstaff, Sept 18<sup>th</sup> 2013
- EBI Seminar series, UC Berkeley, Berkeley, Sept 3<sup>rd</sup> 2013
- Eight Big Ideas, Berkeley Repertory Theater, Berkeley CA, May 13<sup>th</sup> 2013
- ChemE class, University of Washington Seattle, Feb 8<sup>th</sup> 2013
- Bioenergy and Biotechnology Team, Reliance India Limited, Mumbai, India Jan 3<sup>rd</sup> 2013
- DBT-ICT Center for Energy Biosciences, Mumbai, India, Dec 31<sup>st</sup> 2012
- Departmental Seminar, Washington University at St Louis, Missouri, Sept 21, 2012
- Society for General Microbiology, Fall Conference, Warwick, UK, Sept 3-5 2012
- Biobased Materials and Chemical, ITRI Forum 2012, Milpitas, CA, June 27<sup>th</sup> 2012
- ASM Conference for Undergraduate Educators, San Mateo, CA June 14-17, 2012
- Departmental Seminar, NCBS, Bangalore, India, April 10<sup>th</sup> 2012.
- Departmental Seminar, MBU, IISc, Bangalore, India, April 9<sup>th</sup> 2012.
- Departmental Seminar, CESE, IIT Powai, Mumbai, India, March 28<sup>th</sup> 2012.
- Plenary session speaker, Genomic Science Meeting X, Bethesda, MD, Feb 26-29, 2012
- Sci-Ops Talk, Physical Biosciences Division, LBNL, Berkeley, Jan 12<sup>th</sup> 2012
- Society for Industrial Microbiology Annual Meeting, New Orleans, MI, July 27<sup>th</sup> 2011
- Yeast Synthetic biology Workshop, San Francisco, CA, Oct 16<sup>th</sup> 2010.
- Society for Industrial Microbiology Annual Meeting, San Francisco, CA, Aug 5<sup>th</sup> 2010
- Indo-American Frontiers of Engineering Symposium, Agra, India, March 10-13<sup>th</sup> 2010
- Departmental Seminar, Department of Chemistry, IIT Powai, India, March 8<sup>th</sup> 2010
- Knowledge Economy Institute (KE2) Summit, Emeryville, CA Jan 27-28<sup>th</sup> 2010
- American Geophysical Union (AGU) conference, San Francisco, CA, Dec 15-19 2008

- Society for Industrial Microbiology Annual Meeting, San Diego, CA, August 10-14 2008
- NAE workshop, Wisconsin, Madison, March 14<sup>th</sup> 2008
- World Congress on Industrial Biotechnology and Bioprocessing, Orlando, FL, March 21-24, 2007
- Human Genome Conference, Zeta NEF Foundation, Los Angeles CA, October 26th 2007

### **Awards and Honors**

- Finalist C3E Awards: Mid-career women in clean energy (2019)
- LBNL Spot award: Contribution to the successful completion of the JBEI proposal (2017)
- LBNL Spot award: Exceptional leadership, service and support of the Biosciences reorganization enterprise (2016)
- LBNL Spot Award: Committee for Biosciences Mentoring Program (2015)
- UC Berkeley and Berkeley Lab Leadership Development Program, UC Berkeley, Center for Executive Education (2010)
- Recognized among Women @ The Lab 2013 event at Berkeley Lab (LBNL)
- Recognized among Women in Energy 2013 by the US Department of Energy
- Quayle Fellowship (Emory University) for the Academic year 2001-2002
- President, Student Government Association, Isabella Thoburn College (1992-93)
- Mary E. Shannon Memorial scholarship for best all round student, Isabella Thoburn College, Lucknow (1993)
- Dr. E.R. Thillayampallam Award for outstanding performance in Biology, Isabella Thoburn College, Lucknow (1992)

### **Memberships**

American Society for Microbiology, American Chemical Society, American Association for the Advancement of Science, Society for Industrial Microbiology

### **Funding (since 2007)**

United States Department of Energy via JBEI, ENIGMA, ENIGMA discovery, m-CAFEs, and LBNL LDRD funds (DE-AC02-05CH11231). WFO (LLNL, Exxon Mobile), SBIR (DOE), seedling grants (DARPA), STTR Phase II (NASA), CRADA (Total New Energies), Conference funds (IUSSTF, NSF), and UC Berkeley QB3.