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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

Research Leadership

- 2017+ Vice President, Biofuels and Bioproducts Division, Joint BioEnergy Institute (JBEI), Emeryville, CA
- 2024-2025 Project co-PI for the DARPA CERES project, Plant-Enhanced Degradation Of Munitions by Engineered TERrestrial microbes (PEDOMETER), LBNL
- 2021+ Project co-PI in the DOE SFA, Microbial Community Analysis & Functional Evaluation in Soils (m-CAFEs), LBNL
- 2009+ Project co-PI in the DOE Scientific Focus Area: Ecosystems and genomes integrated with genes and molecular assemblies (ENIGMA)
- 2020+ Project co-PI in the DOE Scientific Focus Area: m-CAFEs, LBNL
- 2019-2021 Co-PI, Roots 2.0 Laboratory Directed Research and Development (LDRD) project, LBNL
- 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
- 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

Professional positions

2021+	Science Deputy, Biological Systems and Engineering Division, Biosciences Area, Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA
2024+	Board of Directors (Elected 2024), Society for Industrial Microbiology and Biotechnology (SIMB)
2022+	Co-Chair, Laboratory Staff Committee, LBNL
2016+	Senior Scientist, Biological Systems and Engineering, Biosciences Area, LBNL, Berkeley, CA
2018+	Adjunct Professor, Comparative Biochemistry Program, University of California, 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

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 organisms like *Rhodanococcus*, *Pseudomonas stutzeri*, *Desulfovibrio vulgaris* and *Microcoleus vaginatus*, *Agrobacterium tumefaciens* and for which I have conducted detailed studies. I develop tools, and use host genome and protein engineering strategies, to improve bioproduction and bioremediation applications, using many bacterial and fungal systems: *Escherichia coli*, *Pseudomonas putida*, *Corynebacterium glutamicum*, *Nosctoc punctiforme*, *Pantoea* MT58, *Saccharomyces cerevisiae* and *Rhodospiridium toruloides*.

Publications (n = 160; google citations >13k; google h-index = 60)

Peer Reviewed

1. Menasalvas, J., Kulakowski, S., Chen, Y., Gin, J.W., Akyuz Turumtay, E., Baral, N.R., Apolonio, M.A., Rivier, A., Yunus, I.S., Garber, M.E., Scown, C.D., Adams, P.D., Lee, T.S., Blaby, I.K., Baidoo, E.E.K., Petzold, C.J., Eng, T.*, **Mukhopadhyay, A***, Biosensor-driven strain engineering reveals key cellular processes for maximizing isoprenol production in *Pseudomonas putida*, *Science Advances* **2025**, doi.org/10.1126/sciadv.ady2677
2. Carruthers, D.N., Kinnunen, P.C., Li, Y., Chen, Y., Gin, J.W., Yunus, I.S., Galliard, W.R., Tan, S., Adams, P.D., Singh, A.K., Sustarich, J., Petzold, C.J., Mukhopadhyay, A, Garcia

- Martin, H*, Lee, T.S.*, Automation and machine learning drive rapid optimization of isoprenol production in *Pseudomonas putida*, **2025**, *Nature Communications* (in press)
3. Czajka, J.J., Kim, J., Tang, Y.J., Pomraning, K.R., **Mukhopadhyay, A**, Garcia Martin, H*, FluxRETAP: a REaction TArget Prioritization genome-scale modeling technique for selecting genetic targets, *Bioinformatics* **2025**, doi.org/10.1093/bioinformatics/btaf471
 4. Pearson, A.N., Lynch, J.M., Ho, C.N., Hudson, G.A., Roberts, J.B., Menasalvas, J., Vilchez, A.A., Incha, M.R., Schmidt, M., **Mukhopadhyay, A**, Deutschbauer, A.M., Thompson, M.G., Shih, P.M., Keasling, J.D*., RB-TnSeq elucidates dicarboxylic-acid-specific catabolism in β -proteobacteria for improved plastic monomer upcycling, *Applied and Environmental Microbiology* **2025**, doi.org/10.1128/aem.00924-25
 5. de Siqueira, G.M.V., Eng, T., Mukhopadhyay, A, Guazzaroni, M.-E.*, Differences in GenBank and RefSeq annotations may affect genomics data interpretation for *Pseudomonas putida* KT2440, *mSphere* **2025**, doi.org/10.1128/msphere.00391-25
 6. Chainani, Y., Diaz, J., Guilarte-Silva, M., Blay, V., Zhang, Q., Sprague, W., Tyo, K.E.J., Broadbelt, L.J., **Mukhopadhyay, A**, Keasling, J.D., Garcia Martin, H., Backman, T.W.H.*, Merging the computational design of chimeric type I polyketide synthases with enzymatic pathways for chemical biosynthesis, *Nature Communications* **2025**, doi.org/10.1038/s41467-025-61160-y
 7. Petzold, CJ*, **Mukhopadhyay, A*** From bench to biofactory: high-throughput technologies and automated workflows to accelerate biomanufacturing, *Current Opinion in Biotechnology*, 94,103320, **2025** doi.org/10.1016/j.copbio.2025.103320
 8. Lim, HG, Srinivasan, A, Menchavez, R, Yunus, IS, Noh, MH, White, M, Chen, Y, Gin, JW, Palsson, BO, Lee, TS, Petzold CJ, Eng T, **Mukhopadhyay A***, Feist AM*, Evolution-guided tolerance engineering of *Pseudomonas putida* KT2440 for production of the aviation fuel precursor isoprenol, *Metabolic Engineering* **2025**, doi.org/10.1016/j.ymben.2025.05.007
 9. Zournas, A, Incha, MR, Radivojevic, T, Blay, V, Martí, JM, Costello, Z, Schimdt, M, Chung, T, Thompson, M.G, Pearson, A, Kinnunen PC, Eng T, Lawson CE, Tan S, Ogorzalek T, Kaplan N, Forrer M, Backman T, **Mukhopadhyay A**, Hillson NJ, Keasling JD, Martin HG* Machine learning-led semi-automated medium optimization reveals salt as key for flavin production in *Pseudomonas putida* *Communications Biology* **2025**
 10. de Siqueira, GMV; Srinivasan, A, Chen, Y, Gin, JW, Petzold, CJ, Lee, TS, Guazzaroni, M-E, Eng, T, **Mukhopadhyay, A***, Alternate routes to acetate tolerance lead to varied isoprenol production from mixed carbon sources in *Pseudomonas putida* *Applied and Environmental Microbiology* **2025**
 11. Baral, NR*, Banerjee, D, Eng, T, Simmons, BA, **Mukhopadhyay, A**, Scown, CD, Microbial Pathways for Cost-Effective Low-Carbon Renewable Indigoidine ACS Sustainable Chemistry & Engineering **2025**
 12. Banerjee, D., Menasalvas, J., Chen, Y. Gin JW, Baidoo, EEK, Petzold CJ, Eng, T, **Mukhopadhyay A***. Addressing genome scale design tradeoffs in *Pseudomonas putida* for bioconversion of an aromatic carbon source. *npj Syst Biol Appl* **11**, 8, **2025** doi.org/10.1038/s41540-024-00480-z
 13. Priya S, Rossbach S, Eng T, Lin H, Andeer PF, Mortimer JC, Northen TR, **Mukhopadhyay A*** Assessing horizontal gene transfer in the rhizosphere of *Brachypodium distachyon* using fabricated ecosystems (EcoFABs). *Appl Environ Microbiol* **2024** 90:e01505-24.
 14. Kakouridis A, Diamond, S., Eng T, Mills HJ, Gamez Holzhaus, O, Summers ML, Garcia-Pichel F, **Mukhopadhyay A*** Desiccated cyanobacteria serve as efficient plasmid DNA carriers in space flight *ACS Synthetic Biology*, **2024** doi.org/10.1021/acssynbio.3c00672

15. Baral N, Banerjee D, **Mukhopadhyay A**, Simmons BA, Singer SW, Scown CD, Integration of Genome-Scale Metabolic Model with Biorefinery Process Model Reveals Market-Competitive Carbon-Negative Sustainable Aviation Fuel Utilizing Microbial Cell Mass Lipids and Biogenic CO₂ *BioResources*, **2024** doi: 10.15376/biores.19.3.4056-4086
16. Shrestha S, Goswami, S, Banerjee, D, Garcia, V, Zhou, E, Olmsted, Charles N; Majumder, E L-W, Kumar, D, Awasthi, D, **Mukhopadhyay, A**, Singer SW, Gladden JM, Simmons BA, Choudhary H, Perspective on Lignin Conversion Strategies That Enable Next Generation Biorefineries, *ChemSusChem* **2024** doi.org/10.1002/cssc.202301460
17. Yunus, IS, Hudson GA, Chen Y, Gin JW, Kim J, Baidoo, EEK, Petzold CJ, Adams PD, Simmons BA, **Mukhopadhyay A**, Keasling JD, Lee TS Systematic engineering for production of anti-aging sunscreen compound in *Pseudomonas putida*, *Metabolic Engineering*, **2024** doi.org/10.1016/j.ymben.2024.06.001
18. Banerjee D, Yunus IS, Wang X, Kim J, Srinivasan A, Menchavez R, Chen Y, Gin JW, Petzold CJ, Garcia Martin H, Magnuson JK, Adams PD, Simmons BA, **Mukhopadhyay A**, Kim JH, Lee TS*, Genome-scale and pathway engineering for the sustainable aviation fuel precursor isoprenol production in *Pseudomonas putida*, *Metabolic Engineering*, **2024**, doi.org/10.1016/j.ymben.2024.02.004.
19. Srinivasan A, Chen-Xiao K, Banerjee D, Oka, Asun; Pidatala V R, Eudes A, Simmons BA, Eng T, **Mukhopadhyay A*** Sustainable production of 2, 3, 5, 6-Tetramethylpyrazine at high titer in engineered *Corynebacterium glutamicum* *Journal of Industrial Microbiology and Biotechnology*, **2024** doi.org/10.1093/jimb/kuae026
20. Baral NR, Banerjee D, **Mukhopadhyay A**, Simmons BA, Singer SW, Scown CD * Economic and Environmental Trade-Offs of Simultaneous Sugar and Lignin Utilization for Biobased Fuels and Chemicals, *ACS Sustainable Chem. Eng.* **2024** doi: 10.1021/acssuschemeng.3c05541
21. Garber ME, Frank V, Kazakov AE, Incha MR, Nava AA, Zhang H, Valencia LE, Keasling JD, Rajeev L, Mukhopadhyay A. 2023. REC protein family expansion by the emergence of a new signaling pathway. **2023** *mBio* doi.org/10.1128/mbio.02622-23
22. Kulakowski, S, Banerjee, D, Scown, CD, **Mukhopadhyay, A*** Improving microbial bioproduction under low-oxygen conditions *COBIOT* **2023** doi.org/10.1016/j.copbio.2023.103016
23. Camargo AP*, Call L, Roux S, Nayfach S, Huntemann M, Palaniappan K, Ratner A, Chu K, Mukherjee S, Reddy T B K, Chen I-M A, Ivanova NN, Eloë-Fadrosch EA, Woyke T, Baltrus, Castañeda-Barba DAS, de la Cruz F, Funnell BE, Hall JPJ, **Mukhopadhyay A**, Rocha EPC, Stalder T, Top E, Kyrpides NC, IMG/PR: a database of plasmids from genomes and metagenomes with rich annotations and metadata, *Nucleic Acids Research*, **2024**, doi.org/10.1093/nar/gkad964
24. Eng T, Banerjee D, Menasalvas J, Chen Y, Gin J, Choudhary H, Baidoo E, Chen J-H, Ekman A, Kakumanu R, Liu Diercks Y, Codik A, Larabell C, Gladden J, Simmons BA, Keasling JD, Petzold CJ, **Mukhopadhyay A***, Maximizing microbial bioproduction from sustainable carbon sources using iterative systems engineering, *Cell Reports*, **2023**, doi.org/10.1016/j.celrep.2023.113087.
25. Garcia VE, Pidatala V, Barcelos CA, Liu D, Otoupal P, Wendt, O, Choudhary H, Sun N, Eudes A, Sundstrom ER, Scheller HV, Putnam DH, **Mukhopadhyay A**, Gladden JM, Simmons BA, Rodriguez A* Enhanced microbial production of protocatechuate from engineered sorghum using an integrated feedstock-to-product conversion technology *Green Chemistry* **2023** doi 10.1039/D3GC01481A
26. Huang J, Quest A, Cruz-Morales P, Deng K, Pereira JH, Van Cura D, Kakumanu R, Baidoo EEK, Dan Q, Chen Y, Petzold CJ, Northen TR, Adams PD, Clark DS*, Balskus EP, Hartwig

- JF*, **Mukhopadhyay A***, Keasling JD* Complete integration of carbene-transfer chemistry into biosynthesis *Nature* **2023** doi.org/10.1038/s41586-023-06027-2
27. Gauttam R, Eng T, Zhao Z, Rana Q, Simmons BA, Yoshikuni Y, **Mukhopadhyay A**, Singer SW Development of genetic tools for heterologous protein expression in a pentose-utilizing environmental isolate of *Pseudomonas putida* *Microbial Biotechnology* **2023** doi.org/10.1111/1751-7915.14205
 28. Zha J*, Zhao Z, Xiao Z, Eng T, **Mukhopadhyay A**, Koffas MAG*, Tang Y* Biosystems Design of *Corynebacterium glutamicum* for Bio-Production, *COBIOT* **2023**
 29. Banerjee D, **Mukhopadhyay A*** Perspectives in Growth Production Trade-off in Microbial Bioproduction *RSC Sustainability*, **2023**
 30. Zhao R, Sengupta A, Tan AX, Whelan R, Pinkerton T, Menasalvas J, Eng T, **Mukhopadhyay A**, Jun Y-S, Pakrasi HB, Tang Y Photobiological production of high-value pigments via compartmentalized co-cultures using Ca-alginate hydrogels npg *Sci Rep* **2022**
 31. Wang X, Baidoo EEK, Kakumanu R, Xie S, **Mukhopadhyay A**, Lee TS* Engineering isoprenoids production in metabolically versatile microbial host *Pseudomonas putida*, *Biotechnology for Biofuels and Bioproducts* **2022**
 32. Park M-R, Gauttam R, Fong B, Chen Y, Lim H-Y, Feist, A, **Mukhopadhyay A**, Petzold CJ, Simmons BD, Singer SW Revealing Oxidative Pentose Metabolism in New *Pseudomonas putida* Isolates *Environmental Microbiology* **2022**
 33. Otoupal PB, Geiselman GM, Oka A, Barcelos CA, Choudhary H, Dinh D, Zhong W, Hwang H, Keasling JD, **Mukhopadhyay A**, Sundstrom E, Haushalter RW, Sun N, Simmons BA Gladden* Advanced one-pot deconstruction and valorization of lignocellulosic biomass into triacetic acid lactone using *Rhodospiridium toruloides* *Microbial Cell Factories* **2022**
 34. Lin H-H, Mendez-Perez D, Park J, Wang X, Cheng Y, Huo J, **Mukhopadhyay A**, Lee TS, Shanks BH* Precursor Prioritization for p-Cymene Production through Synergistic Integration of Biology and Chemistry, *Biotechnology for Biofuels and Bioproducts* **2022**
 35. Czajka JJ, Banerjee D, Eng TT, Menasalvas J, Yan C, Munoz NM, Poirier BC, Kim Y-M, Baker SE, Tang YJ, **Mukhopadhyay A*** Tuning a high performing multiplexed-CRISPRi *Pseudomonas putida* strain to further enhance indigoidine production *MEC* **2022**
 36. Schmidt M, Pearson AN, Incha MR, Thompson MG, Baidoo EEK, Kakumanu R, **Mukhopadhyay A**, Shih PM, Deutschbauer AM, Blank LM, Keasling JD Nitrogen metabolism in *Pseudomonas putida*: functional analysis using random barcode transposon sequencing *Applied and Environmental Microbiology* **2022**
 37. Garber ME, Fregoso R, Lake J, Kakouridis A, **Mukhopadhyay A*** Pseudomonas response regulators produced in an E. coli heterologous expression host exhibit host-derived post-translational phosphorylation *Scientific reports* **2022**
 38. Iwai K*, Wehrs M, Garber ME, Sustarich J, Washburn L, Costello Z, Kim PW, Ando D, Gaillard WR, Hillson NJ, Adams PD, **Mukhopadhyay A**, Garcia Martin H, Singh AK* Scalable and automated CRISPR-based strain engineering using droplet microfluidics. *Microsyst Nanoeng* **2022**
 39. Liu Z, Huang J, Gu Y, Clark DS, **Mukhopadhyay A**, Keasling JD, Hartwig JF* Assembly and Evolution of Artificial Metalloenzymes within *E. coli* Nissle 1917 for Enantioselective and Site-Selective Functionalization of C—H and C=C Bonds *JACS* **2022**
 40. Huang, J, Liu, Z, Bloomer B, Clark*, DS, **Mukhopadhyay, A***, Keasling*, JD, Hartwig*, JF. Unnatural Biosynthesis by an Engineered Microorganism with Heterologously Expressed Natural Enzymes and an Artificial Metalloenzyme *Nature Chemistry* **2021**
 41. Keasling JD*[§], Martin HG[§], Lee TS[§], **Mukhopadhyay A[§]**, Singer SW[§], Sundstrom E[§] Microbial production of advanced biofuels *Nature Microbiology Reviews* **2021**

42. Banerjee D, Eng T, Sasaki Y, Srinivasan A, Oka A, Herbert RA, Trinh J, Singan VR, Sun N, Putnam D, Scown CD, Simmons B, **Mukhopadhyay, A***. Genomics Characterization of an Engineered *Corynebacterium glutamicum* in Bioreactor Cultivation Under Ionic Liquid Stress. *Frontiers in bioengineering and biotechnology* **2021**
43. Kothari A, Roux S, Zhang H, Prieto A, Soneja D, Chandonia J-M, Spencer S, Wu X, Sara Altenburg, Fields MW, Deutschbauer AM, Arkin AP, Alm EJ, Chakraborty R, **Mukhopadhyay A*** Ecogenomics of groundwater phages suggests niche differentiation linked to specific environmental tolerance *mSystems* **2021**
44. Eng T[§], Banerjee D[§], Lau AK, Herbert RA, Prahl JP, Deutschbauer AM, Tanjore D, and **Mukhopadhyay A***. Determinants of Bioreactor Fitness in *Pseudomonas putida* KT2440 Via Fitness Profiling Enables Optimized Indigoidine Production from Lignin-Derived Monomers. *Metabolic Engineering*, **2021**
45. Lim HY, Eng T, Banerjee D, Alarcon G, Lau AK, Park MR, Simmons BA, Palsson BO, Singer SW, **Mukhopadhyay A**, and Feist AM*. Generation of *Pseudomonas putida* KT2440 Strains with Efficient Utilization of Xylose and Galactose via Adaptive Laboratory Evolution. *ACS Sus Chemistry & Engineering* **2021**
46. Baral NR, Yang M, Harvey BG, Simmons BA, **Mukhopadhyay A**, Lee TS, Scown CD* Production Cost and Carbon Footprint of Biomass-Derived Dimethylcyclooctane as a High-Performance Jet Fuel Blendstock *ACS Sus Chemistry & Engineering* **2021**
47. Gauttam R, **Mukhopadhyay A**, Simmons BA, Singer SW* Development of dual-inducible duet-expression vectors for tunable gene expression control and CRISPR interference-based gene repression in *Pseudomonas putida* KT2440 *Microbial Biotechnology* **2021**
48. 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**
49. Kim J, Baidoo EEK, Amer B, **Mukhopadhyay A**, Adams PD, Simmons BA, Lee TS Engineering *Saccharomyces cerevisiae* for isoprenol production, *Metabolic Engineering*, **2021**
50. 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**
51. Banerjee, D[§]Eng, T[§], Lau, A.K., Sasaki, Y., Wang, B., Chen, Y., Prahl, J-P., Singan, VR., Herbert, RA., Liu, Y., Tanjore, D., Petzold, C.J., Keasling, J.D., **Mukhopadhyay, A*** Genome-scale metabolic rewiring improves titers rates and yields of the non-native product indigoidine at scale. *Nat. Commun.* **2020**
52. Wehrs, M[§], Thompson, MG[§], Banerjee, D[§], Prahl, J-P., Morella, NM., Barcelos, CA., Moon, J., Costello, Z., Keasling, J.D., 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**
53. 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 J.D.* Functional analysis of the fatty acid and alcohol metabolism of *Pseudomonas putida* using RB-TnSeq *AEM* **2020**
54. 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**

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56. 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**
57. Rajeev, L., Garber, ME. and **Mukhopadhyay, A***. Tools to map target genes of bacterial two-component system response regulators. *Environmental Microbiology Reports*. **2020**
58. Gauttam R, **Mukhopadhyay A**, Singer SW* Construction of a novel dual-inducible duet-expression system for gene (over) expression in *Pseudomonas putida* *Plasmid*, 2020
59. Chiniquy, J., Garber, M.E., **Mukhopadhyay, A.** Hillson N*. Fluorescent amplification for next generation sequencing (FA-NGS) library preparation. *BMC Genomics* **2020**
60. Chen Y, Banerjee D, **Mukhopadhyay A**, Petzold CJ* Systems and synthetic biology tools for advanced bioproduction hosts, *Current Opinion in Biotechnology*, **2020**
61. 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**
62. 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**
63. 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**
64. Rigual V, Papa G, Rodriguez A, Wehrs M, Kim K, Olier 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
65. 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**
66. 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**
67. 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**
68. 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**
69. 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**

70. 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**
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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)

Scientific Society and peer activities

- SIMB NNF Workshop of Bioming Workshop, Sept 23 – 25, 2025
- SIMB Board of Directors (elected 2024)
- ASM Scientific Advisory Group, 2024-25
- ASM Expert Panel for Biomanufacturing, August 2023
- Program Chair, Society for Industrial Microbiology and Biotechnology (SIMB) Annual Meeting 2023
- Session Convener, Automated and Computational Approaches to Metabolic Engineering SIMB Annual Meeting 2022
- Session Chair for 44th SBFC 2022
- Session Co-Chair, Metabolic Engineering 14, Jul 2021
- Session Chair for 43rd 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
 - JIMB Special Issue 2024
- Associate Editor for ACS Synthetic Biology
- 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).

Mentorship

Mentor for graduate students, exchange students/ postdocs from

- SULI/ BLUR programs 2015+
- Fullbright Scholar 2024
- FASEB Brazil 2023-24
- Visiting Faculty Program 2022
- DOE SCGSR exchange student program: 2016, 2021, 2022
- 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
- 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
 - DU Sustain, Denmark

Professional community service (internal)

- Development of the BSE Strategic Plan, 2022-2027
- Committee for selection of the LBNL BSA ALD 2022
- Proposal preparation, presentation and defense team; BER SFA m-CAFEs 2022 review
- Proposal preparation, presentation and defense team; BER BRC JBEI 2022 review
- 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 (n> 80, Since 2007)

1. Invited speaker, SIMB, San Francisco, CA, Jul 27-30th 2025
2. Invited speaker, SIVB, Norfolk, VA June 7-10, 2025
3. Keynote speaker, Oklahoma State University Sustainable Energy and Biobased Product Symposium, Stillwater, OK, Feb 20th 2025
4. Keynote speaker, *Pseudomonas* Conference, Copenhagen, Denmark, Sept 1-5th 2024
5. Invited speaker, Biochemical and Molecular Engineering XXIII Conference, Dublin Ireland, July 21-25th 2024
6. Invited speaker for mini-conference at ASM Microbe: Microbial Solutions for Climate Change – Science & Policies Required to Support a Sustainable Economy for the Future, Atlanta GA, June 13th 2024
7. Plenary Talk, GSP PI meeting session on Bioenergy Research Centers, Washington DC, April 2024
8. Plenary Talk, Gas Fermentation Conference, Heron Island. Australia, Feb 21-25 2024
9. Invited speaker, DARPA DUF Workshop, Boston, MA, Dec 12, 2023
10. Invited Lecture, Comparative Biochemistry Seminar, Virtual, UC Berkeley, Oct 17th 2023
11. SynBYSS Seminar Series, Virtual, Sept 7th 2023
12. CAFFI seminar on BRC overview, Virtual, Aug 15th 2023
13. JBIMS (Joint Berkeley Initiative for Microbiome Sciences) Synthetic Communities Workshop, UC Berkeley Campus, Nov 10th, 2022
14. Women in Biotechnology Panel: BioEngineering - Engineering solutions forging new paths in multi-industry innovations, Newark, CA, Oct 12th, 2022
15. Career Exploration Seminar Series in the Institute of Molecular Biology (IMB), University of Oregon on Oct 11th, 2022
16. Review with the NATO Parliamentary Assembly Joint Committee, LBNL visit, September 20, 2022
17. Invited speaker, Lake Arrowhead Microbial Genomics Sept 2022
18. Presentation to DOE Sec. of Energy Granholm and SEAB April 19th 2022
19. 44th SBFC, Virtual 2021
20. Invited speaker, Seminar Series, Edinburgh June 2021
21. Invited speaker, ASM Microbe Meeting June 2021
22. Invited speaker, EBRC Seminar Series, May 13th 2021
23. Invited speaker, Lignin Conversion, 43rd SBFC, April 26-28, 2021
24. Invited speaker, Bio-Manufacturing Solutions workshop, BU-ISE and ITIF Boston, Feb 10th 2021
25. Radio talkshow with Julie Motz, Hot Tech – Cool Science, KWMR FM Feb 9th 2021
26. Virtual Sci Foo Camp, Oct 23-25, 2020
27. Invited speaker, Indo-US workshop on Recent Developments in Bioenergy Research, Oct 19th 2020
28. Amazing Microbes, Finding Genius Podcast with Richard Jacobs, Jul 20th 2020
29. Gordon Research Seminar Mentorship Panel, Ventura Beach, CA, Jan 11th 2020
30. National Lab Day, Toledo, OH, Oct 11-12th 2019
31. CCST Biomass Expert Briefing, Sacramento, Sept 19th 2019

32. Pseudomonas 2019, Kuala Lumpur, Malaysia, July 22nd 2019
33. GapSummit, Boston, MA, June 18th, 2019
34. DOE JGI User meeting, San Francisco, CA, April 5th 2019
35. Tech Mini Colloquia JGI User meeting, San Francisco, CA, April 2th 2019
36. IGI Seminar, Berkeley, CA, March 12th 2019
37. Google team Offsite Keynote, San Francisco, CA, Jan 10th 2019
38. ABLC, San Francisco, CA, Nov 8th 2018
39. Synthetic Biology for Defense, Arlington, VA, Sept 25-27th 2018
40. Lignin Gordon Research Conference, Easton, MA, Aug 5th 2018
41. DTRA CB Tech Watch Seminar, Ft. Belvoir, VA, April 11th 2018
42. Departmental Seminar, Iowa State University, Ames, IA, Oct 12th 2017
43. SFSU Department of Chemistry Colloquium, San Francisco, CA, Sept 22nd 2017
44. BESC retreat, Plenary speaker for JBEI, Chattanooga, TN, July 11-13th 2017
45. Biology colloquium, Sonoma State University, Sonoma, CA, April 18th 2017
46. Comparative Biochemistry Seminar course, UC Berkeley, Berkeley, CA, Oct 27th 2016
47. Gordon Conference Green chemistry, Stowe, VT, July 31-Aug-5, 2016.
48. Beyond Academia, UC Berkeley, Berkeley CA, April 27th 2016
49. SFSU Department of Biology Colloquium in Microbiology and Cell & Molecular Biology, San Francisco, CA, Apr 7th 2016
50. Indo-US Bilateral Conference in Cell Factories, Mumbai, India, March 18-20th 2016
51. John Lawrence Seminar Series, LBNL, Berkeley, CA Oct 6th 2015
52. Gordon research Conference, Lucca, Italy April 24-May 1 2015
53. JGI, User meeting Walnut Creek, CA, March 25 2015
54. Genomic Science Contractors-Grantees Meeting XIII, Washington DC, Feb 22-25 2015
55. Departmental Seminar, Chemical Engineering, IIT, Mumbai, India, Feb 10th 2015
56. Indo-US Conference in Systems and Synthetic Biology, New Delhi, India, Nov 9th 2014
57. Society for Industrial Microbiology Annual Meeting, St Louise MO, Jul 24th 2014
58. Bioenergy and Photosynthesis Seminar, ASU, Tempe, AZ Feb 20th 2014
59. 12th Biennial Conference of Science and Management on the Colorado Plateau Northern Arizona University, Flagstaff, Sept 18th 2013
60. EBI Seminar series, UC Berkeley, Berkeley, Sept 3rd 2013
61. Eight Big Ideas, Berkeley Repertory Theater, Berkeley CA, May 13th 2013
62. ChemE class, University of Washington Seattle, Feb 8th 2013
63. Bioenergy and Biotechnology Team, Reliance India Limited, Mumbai, India Jan 3rd 2013
64. DBT-ICT Center for Energy Biosciences, Mumbai, India, Dec 31st 2012
65. Departmental Seminar, Washington University at St Louis, Missouri, Sept 21, 2012
66. Society for General Microbiology, Fall Conference, Warwick, UK, Sept 3-5 2012
67. Biobased Materials and Chemical, ITRI Forum 2012, Milpitas, CA, June 27th 2012
68. ASM Conference for Undergraduate Educators, San Mateo, CA June 14-17, 2012
69. Departmental Seminar, NCBS, Bangalore, India, April 10th 2012.
70. Departmental Seminar, MBU, IISc, Bangalore, India, April 9th 2012.
71. Departmental Seminar, CESE, IIT Powai, Mumbai, India, March 28th 2012.
72. Plenary session speaker, Genomic Science Meeting X, Bethesda, MD, Feb 26-29, 2012
73. Sci-Ops Talk, Physical Biosciences Division, LBNL, Berkeley, Jan 12th 2012
74. Society for Industrial Microbiology Annual Meeting, New Orleans, MI, July 27th 2011
75. Yeast Synthetic biology Workshop, San Francisco, CA, Oct 16th 2010.
76. Society for Industrial Microbiology Annual Meeting, San Francisco, CA, Aug 5th 2010
77. Indo-American Frontiers of Engineering Symposium, Agra, India, March 10-13th 2010

78. Departmental Seminar, Department of Chemistry, IIT Powai, India, March 8th 2010
79. Knowledge Economy Institute (KE2) Summit, Emeryville, CA Jan 27-28th 2010
80. American Geophysical Union (AGU) conference, San Francisco, CA, Dec 15-19 2008
81. Society for Industrial Microbiology Annual Meeting, San Diego, CA, August 10-14 2008
82. NAE workshop, Wisconsin, Madison, March 14th 2008
83. World Congress on Industrial Biotechnology and Bioprocessing, Orlando, FL, March 21-24, 2007
84. Human Genome Conference, Zeta NEF Foundation, Los Angeles CA, October 26th 2007

Awards and Honors

- AAM Fellow (elected 2025)
- Service Award SIMB 2023
- AAAS Fellow class of 2022
- LBNL Spot award: Developing the BSE 7-year Strategic Plan (2022)
- 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 Award for excellence in Research (Emory University) for the Academic year 2001-2002

Memberships

American Society for Microbiology (ASM), American Chemical Society (ACS), American Association for the Advancement of Science (AAAS), Society for Industrial Microbiology and Biotechnology (SIMB), American Institute of Chemical Engineers (AIChE), Women in Biotech (WIB)

Funding (since 2007)

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