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EDUCATION

- University of California, San Diego** September 2005
Ph.D., Bioengineering
Principal Advisor: Bernhard Palsson, Ph.D.
Thesis: Model Driven Analysis of *Escherichia coli* Metabolism
- University of California, San Diego** June 2002
Master of Science, Bioengineering
Principal Advisor: Bernhard Palsson, Ph.D.
- University of California, San Diego** June 2000
Bachelor of Science, Bioengineering
Summa Cum Laude

POSITIONS

- Associate Professor, Dept. of Chemical & Biological Engineering, University of Wisconsin-Madison (2013-present)
- Assistant Professor, Dept. of Chemical & Biological Engineering, University of Wisconsin-Madison (2007-2013)
- Project Lead, Great Lakes Bioenergy Research Center (2007-present)
- Faculty Fellow, Department of Bioengineering, University of California, San Diego (2005-2007)
- Graduate Student, Department of Bioengineering, University of California, San Diego (2000-2005)
- Consultant, Genomatica (2003, 2006)
- Teaching Assistant, University of California, San Diego (1999-2004)
- Research Assistant, National Institutes of Health (1999)
- Intern, General Atomics, San Diego (1998-1999)

HONORS & ACTIVITIES

- Harvey D. Spangler Faculty Scholar in the College of Engineering (2015)
- Vilas Faculty Early Career Investigator Award (2014)
- Vilas Research Investigator Award (2014)
- Recipient of Presidential Early Career Award for Scientists and Engineers (2013)
- Named as "Scientist to Watch" by [The Scientist](#) (2013)
- DOE Early Career Awardee (2012)
- NSF CAREER Awardee (2011)
- University of California, Faculty Fellow (2005-2007)
- Irwin and Joan Jacobs Fellow (2000 – 2001)
- Reuben H. Fleet Scholarship and William W. Stout Scholarship (1999-2000)
- Participant in Whitaker Bioengineering Summer Internship Program at the NIH (1999)
- Award for Excellence as a Teaching Assistant, Department of Bioengineering (June 2001 and June 2003)
- Award for Highest Academic Achievement, Department of Bioengineering (June 2000)

- Award for Best Oral Presentation, 3rd Annual Southern California Biomedical Engineering Student Symposium (January 2004)
- Award for Outstanding Service, Department of Bioengineering (June 2000)
- Member of Phi Beta Kappa honor society (June 2000)
- Undergraduate Provost's Honor Roll, Every Quarter at University of California, San Diego (1996-2000)
- Member of Tau Beta Pi engineering honor society, UC San Diego (June 1997)
 - Student Outreach Coordinator (September 1999- June 2000)

PUBLICATIONS

* Indicates authors contributed equally towards the work

ResearcherID= <http://www.researcherid.com/rid/E-5137-2011>

1. Tervo CJ and JL Reed. Computational Tools for Tracking Carbon in Genome-Scale Metabolic Models. Under Review.
2. Hamilton JJ, Contreras MC, and JL Reed. Thermodynamics and H₂ Transfer in a Methanogenic, Syntrophic Community. *PLOS Computational Biology*. (Accepted).
3. Long MR, Ong WK, and JL Reed. Computational Methods in Metabolic Engineering for Strain Design. *Current Opinion in Biotechnology*. 34:135-141 (2015).
4. Vinay-Lara E, Hamilton JJ, Stahl B, Broadbent JR, Reed JL, JL Steele. Genome-scale Reconstruction of Metabolic Networks of *Lactobacillus casei* ATCC 334 and 12A. *PLOS One*. 9(11):e110785 (2014).
5. Tervo CJ and JL Reed. Expanding Metabolic Engineering Algorithms Using Feasible Space and Shadow Price Constraint Modules. *Metabolic Engineering Communication*, 1:1-11 (2014).
6. Zhang X and JL Reed. Adaptive Evolution of Synthetic Mutualistic Communities Improves Growth Performance. *PLOS One*. 9(10):e108297 (2014).
7. Ong WK, Vu TT, Lovendahl KN, Llull JM, Serres MH, Romine MF, and JL Reed. Comparisons of *Shewanella* strains based on genome annotations, modeling, and experiments. *BMC Systems Biology*, 8(1):31 (2014).
8. Kim J and JL Reed. Refining Metabolic Models and Accounting for Regulatory Effects. *Current Opinion in Biotechnology*. 29:34-38 (2014)
9. Hamilton JJ and JL Reed. Software Platforms to Facilitate Reconstructing Genome-Scale Metabolic Networks. *Environmental Microbiology*, 16(1):49-59 (2014).
10. Tervo CJ and JL Reed. BioMog: A Computational Framework for the De Novo Generation or Modification of Essential Biomass Components. *PLOS One*, 8(12):e81322 (2013).
11. Baumler DJ, Ma B, Reed JL, and NT Perna. Inferring Ancient Metabolism Using Ancestral Core Metabolic Models of Enterobacteria. *BMC Systems Biology*, 7:46 (2013).
12. Hamilton JJ, Dwivedi V, and JL Reed. Quantitative Assessment of Thermodynamics on the Solution Space of Genome-Scale Metabolic Models. *Biophysical Journal*, 105(2):512-22 (2013).
13. Vu TT, Hill EA, Kucek LA, Konopka AE, Beliaev AS, and JL Reed. Computational evaluation of *Synechococcus* sp. PCC 7002 metabolism for chemical production. *Biotechnology Journal*, 8(5):619-30 (2013).
14. Cotten C and JL Reed. Constraint-Based Strain Design Using Continuous Up and Downregulation of Fluxes. *Biotechnology Journal*, 8(5):595-604 (2013).
15. Cotten C and JL Reed. Mechanistic Analysis of Multiomics Datasets to Generate Kinetic Parameters for Constraint-Based Metabolic Models. *BMC Bioinformatics*, 14(1):32 (2013).
16. Tervo CJ and JL Reed. Experimental Design Tool for Systematizing Metabolic Discoveries and Model Development. *Genome Biology*, 13(12):R116 (2012).
17. Kim J and JL Reed. RELATCH: relative optimality in metabolic networks explains robust metabolic and regulatory responses to perturbations. *Genome Biology*, 13(9):R78 (2012).
18. JL Reed. Shrinking the Metabolic Solution Space Using Experimental Datasets. *PLoS Computational Biology*, 8(8):e1002662 (2012).
19. Hamilton JJ and JL Reed. Identification of Functional Differences in Metabolic Networks Using Comparative Genomics and Constraint-Based Models. *PLoS ONE*, 7(4):e34670 (2012).
20. Vu T*, Stolyar SS*, Pinchuk GE, Hill EA, Kucek LA, Brown RN, Lipton MS, Osterman AL, Fredrickson JK, Konopka AE, Beliaev AS, and JL Reed. Genome-Scale Modeling of Light-Driven

- Reductant Partitioning and Carbon Fluxes in Diazotrophic Unicellular Cyanobacterium *Cyanothece* sp. ATCC 51142. *PLoS Computational Biology*, 8(4):e1002460 (2012).
21. Schwalbach MS, Keating DH, Tremaine M, Marner WD, Zhang Y, Bothfeld W, Higbee A, Grass JA, Cotten C, Reed JL, da Costa Sousa L, Jin M, Balan V, Ellinger J, Dale B, Kiley PJ, and Landick R. Complex physiology and compound stress responses during fermentation of alkaline-pretreated corn stover hydrolysate by an *Escherichia coli* ethanologen. *Applied and Environmental Microbiology*, 78(9):3442-57 (2012).
 22. Schellenberger J, Zielinski DC, Choi W, Madireddi S, Portnoy V, Scott DA, Reed JL, Osterman AL, and Palsson BO. Predicting outcomes of steady-state ¹³C isotope tracing experiments with Monte Carlo sampling. *BMC Systems Biology*, 1(1):9 (2012).
 23. Baumler DJ, Peplinski RG, Reed JL, Glasner JD and NT Perna. The evolution of metabolic networks of *E. coli*. *BMC Systems Biology*, 5:182 (2011). (Listed as one of the Journal's Highly Accessed Articles)
 24. Pinchuk GE, Geydebekdt OV, Hill EA, Reed JL, Konopka AE, Beliaev AS, and JK Fredrickson. Pyruvate and Lactate Metabolism by *Shewanella oneidensis* MR-1 under Fermentative, Oxygen-limited and Fumarate-Respiring Conditions. *Applied and Environmental Microbiology*, 77(23):8234-40 (2011).
 25. Kim J, Reed JL, and CT Maravelias. Large-Scale Bi-Level Strain Design Approaches and Mixed-Integer Programming Solution Methods. *PLoS ONE*, 6(9):e24162 (2011).
 26. Imam S, Yilmaz SL, Sohem U, Gorzalski AS, Reed JL, Noguera DR, and TJ Donohue. iRsp1095: A Genome-scale Reconstruction of the *Rhodobacter sphaeroides* metabolic network. *BMC Systems Biology*, 5:116 (2011).
 27. Reed JL, Senger RS, Antoniewicz MR, and JD Young. Computational Approaches in Metabolic Engineering. *Journal of Biomedicine and Biotechnology*, 2010: 07414 (2010).
 28. Chen X, Alonso AP, Allen DK, Reed JL, and Y Shachar-Hill. Synergy between ¹³C-metabolic flux analysis and flux balance analysis for understanding metabolic adaptation to anaerobiosis in *E. coli*. *Metabolic Engineering*, 13(1):38-48 (2011).
 29. Thiele I, Hyduke DR, Steeb B, Fankam G, Allen DK, Bazzani S, Charusanti P, Chen FC, Fleming RM, Hsiung CA, De Keersmaecker SC, Liao YC, Marchal K, Mo ML, Ozdemir E, Raghunathan A, Reed JL, Shin SI, Sigurbjornsdottir S, Steinmann J, Sudarsan S, Swainston N, Thijs IM, Zengler K, Palsson BO, Adkins JN, Bumann D. A community effort towards a knowledge-base and mathematical model of the human pathogen *Salmonella Typhimurium* LT2. *BMC Systems Biology*, 5(1):8 (2011).
 30. Barua D*, Kim J*, and JL Reed. An automated phenotype-driven approach (GeneForce) for refining metabolic and regulatory models. *PLoS Computational Biology*, 6(10):e1000970 (2010).
 31. Kim J, and JL Reed. OptORF: Optimal metabolic and regulatory perturbations for metabolic engineering of microbial strains. *BMC Systems Biology*, 4:53 (2010). (Listed as one of the Journal's Highly Accessed Articles).
 32. Pinchuk G*, Hill EA, Geydebekht OV, De Ingeniis J, Zhang X, Osterman A, Scott JH, Reed SB, Romine MF, Konopka AE, Beliaev AS, Fredrickson JK, and JL Reed*. Constraint-based model of *Shewanella oneidensis* MR-1 metabolism: a tool for data analysis and hypothesis generation. *PLoS Computational Biology*, 6(6):e1000822 (2010).
 33. Wier A, Nyholm S, Mandel M, Massengo-Tiassé R, Schaefer A, Koroleva I, Splinter BonDurant S, Brown B, Manzella L, Snir E, Almabrazi H, Scheetz T, de Fatima Bonaldo M, Casavant T, Soares M, Cronan J, Reed J, Ruby E, and M McFall-Ngai. Transcriptional patterns in both host and bacterium underlie a daily rhythm of ultrastructural and metabolic change in a beneficial symbiosis. *Proc Natl Acad Sci U S A*, 107(5):2259-64 (2010).
 34. Reed JL. Descriptive and Predictive Applications of Metabolic Constraint-Based Models. *Conf Proc IEEE Eng Med Biol Soc*, 1:5460-3 (2009).
 35. Raghunathan A*, Reed JL*, Shin S, Palsson BO, and Daefler S. Constraint-Based Analysis of Metabolic Capacity of *Salmonella Typhimurium* During Host-Pathogen Interaction. *BMC Systems Biology*, 3:38 (2009). (Listed as one of the Journal's Highly Accessed Articles)
 36. Feist AM, Herrgard MJ, Thiele I, Reed JL and Palsson BO. Reconstruction of Biochemical Networks in Microbial Organisms. *Nature Reviews Microbiology*, 7(2):129-43 (2009).

37. Fredrickson JK, Romine MF, Beliaev AS, Auchtun JM, Driscoll ME, Gardner TS, Nealson KH, Osterman AL, Pinchuk G, Reed JL, Rodionov DA, Rodrigues JLM, Saffarini DA, Serres MH, Spormann AM, Zhulin IB, and Tiedje JM. Towards Environmental Systems Biology of Shewanella. *Nature Reviews Microbiology*, 6(8):592-603 (2008).
38. Feist AM, Henry CS, Reed JL, Krummenacker M, Joyce AR, Karp PD, Broadbelt LJ, Hatzimanikatis V, and Palsson BO. A genome-scale metabolic reconstruction for Escherichia coli K-12 MG1655 that accounts for 1260 ORFs and thermodynamic information. *Molecular Systems Biology*, 3:121 (2007).
39. Resendis-Antonio O, Reed JL, Encarnación S, Collado-Vides J, and Palsson BO. Metabolic reconstruction and modeling of nitrogen fixation in *Rhizobium etli*. *PLoS Computational Biology*, 3(10):1887-1895 (2007).
40. Reed JL, Patel TR, Chen KH, Joyce AR, Applebee MK, Herring CD, Bui OT, Knight EM, Fong SS, and Palsson BO. Systems Approach to Refining Genome Annotation: Prediction and Validation of Gene Functions. *Proc Natl Acad Sci U S A*. 103(46):17480-17484 (2006).
41. Joyce AR*, Reed JL*, White A, Edwards R, Osterman A, Baba T, Mori H, Lesley SA, Palsson BO, and Agarwalla S*. Experimental and computational assessment of conditionally essential genes in *E. coli*. *J Bacteriology*. 188(23): 8259-8271 (2006).
42. Reed JL, Famili I, Thiele I, and Palsson BO. Towards Multidimensional Genome Annotation. *Nature Reviews Genetics*. 7(2):130-141 (2006).
43. Barrett CL, Herring CD, Reed JL, and Palsson BO. The global transcriptional regulatory network for metabolism in Escherichia coli exhibits few dominant functional states. *Proc Natl Acad Sci U S A*. 102(52):19103-19108 (2005).
44. Papin JA, Reed JL, and Palsson BO. Hierarchical thinking in network biology: the unbiased modularization of biochemical networks. *Trends in Biochemical Sciences*. 29:641-647 (2004).
45. Price ND, Reed JL, and Palsson BO. Genome-scale Models of Microbial Cells: Evaluating the consequences of constraints. *Nature Reviews Microbiology*. 2:886-897 (2004).
46. Reed JL and Palsson BO. Genome-scale in silico models of *E. coli* have multiple equivalent phenotypic states: assessment of correlated reaction subsets that comprise network states. *Genome Research*, 14(9): 1797-1805 (2004).
47. Covert MW, Knight EM, Reed JL, Herrgard MJ, and Palsson BO. Integrating high-throughput data and computational models leads to *E. coli* network elucidation. *Nature* 429: 92-96 (2004).
48. Reed JL, Vo TD, Schilling CH, and Palsson BO. An expanded genome-scale model of *Escherichia coli* K-12 (iJR904 GSM/GPR). *Genome Biology*, 4(9): p. R54.1-R54.12 (2003). [Impact Factor 9.0; Times Cited 388 (as of 8/2013)]
49. Price ND*, Reed JL*, Papin JA*, Wiback SJ, and Palsson BO. Network-based Analysis of Regulation in the Human Red Blood Cell. *Journal of Theoretical Biology*, 225(2):185-194 (2003).
50. Reed JL and Palsson BO. Thirteen years of building constraint-based in silico models of Escherichia coli. *Journal of Bacteriology*, 185(9):2692-9 (2003).
51. Price ND*, Reed JL*, Papin JA*, Famili I, and Palsson BO. Analysis of metabolic capabilities using singular value decomposition of extreme pathway matrices. *Biophysical Journal*, 84(2):794-804 (2003).
52. Antzutkin ON, Balbach JJ, Leapman RD, Rizzo NW, Reed J, and Tycko R. Multiple quantum solid-state NMR indicates a parallel, not antiparallel, organization of beta-sheets in Alzheimer's beta-amyloid fibrils. *Proc Natl Acad Sci U S A*, 97(24):13045-50 (2000).
53. Balbach JJ, Ishii Y, Antzutkin ON, Leapman RD, Rizzo NW, Dyda F, Reed J, and Tycko R. Amyloid fibril formation by A beta 16-22, a seven-residue fragment of the Alzheimer's beta-amyloid peptide, and structural characterization by solid state NMR. *Biochemistry*, 39(45):13748-13759 (2000).

BOOK CHAPTERS

- Cotten C and JL Reed. Applications of Constraint-Based Models for Biochemical Production (in press).
 Reed JL and Palsson BO. Systems Biology: A Four Step Process, book chapter in Introduction to Bioengineering, edited by P.C. Chen, S. Chien, and Y.C. Fung, 2008.
 Reed JL, Fong SS, and Palsson BO. Phenomics, book chapter in Microbial Diversity and Bioprospecting, edited by A.T. Bull, 2003. p. 280-287.

CONFERENCE PRESENTATIONS**2015**

Zhang X, Tervo CJ and JL Reed. Development and Analysis of Precursor Production Strains. Puerto Vallarta, Mexico, July 2015. (poster)

Zhang X, Tervo CJ and JL Reed. Development and Analysis of Precursor Production Strains for Chemical Production. Austin, TX, January 2015. (talk)

2014

Zhang X and JL Reed. Metabolic engineering for production of valuable chemicals based on *Escherichia coli* strains designed in silico. Metabolic Engineering X, Vancouver, Canada, June 2014. (poster)

Kim J, Tremaine J, Landick R, Kileyu PJ, and JL Reed. Model-Driven Engineering of *Escherichia coli* for Improving Conversion of Lignocellulose-Derived Sugars to Ethanol. Metabolic Engineering X, Vancouver, Canada, June 2014. (poster)

Ong WK, Vu TT, Lovendahl KN, Lull JM, Serres MH, Romine JF, and JL Reed. Comparative Modeling of Metabolism Across the *Shewanella* Genus. 3rd Conference on Constraint-Based Reconstruction and Analysis, Charlottesville, VA, May 2014. (poster)

Hamilton JJ, Calixto-Contreras J, and JL Reed. Thermodynamics and H₂ Transfer in a Methanogenic Syntrophic Community. 3rd Conference on Constraint-Based Reconstruction and Analysis, Charlottesville, VA, May 2014. (talk & poster)

Cotten C and JL Reed. Strain Design Using Continuous Modifications (CosMos) of Flux Bounds Finds New Strategies for Metabolic Engineering. 3rd Conference on Constraint-Based Reconstruction and Analysis, Charlottesville, VA, May 2014. (poster)

Zhang X and JL Reed. Metabolic engineering for production of valuable chemicals based on *Escherichia coli* strains designed in silico. 114th ASM General Meeting, Boston, MA, May 2014. (talk)

Zhang X and JL Reed. Metabolic engineering of *Escherichia coli* strains for production of ethanol based on in silico designed pyruvate producing strains. 247th ACS National Meeting, TX, March 2014. (talk)

Long MR and JL Reed. Predicting Metabolic Fluxes using Mutant Phenotypes. 247th ACS National Meeting, TX, March 2014. (talk)

2013

Ong WK, Vu TT, Lovendahl KN, Lull JM, and JL Reed. Comparative Modeling of Metabolism Across the *Shewanella* Genus. American Institute of Chemical Engineers National Meeting, San Francisco, CA, November 2013. (talk)

Tervo CJ and JL Reed. Biomog: A Computational Framework for the Modification Or De Novo Generation of Genome-Scale Biomass Compositions. American Institute of Chemical Engineers National Meeting, San Francisco, CA, November 2013. (talk)

Hamilton JJ and Reed JL. Identification of Functional Differences in Cyanobacterial Metabolic Networks Using Constraint-Based Models. American Society of Microbiology (ASM) General Meeting, Denver, CO, May 2013. (talk)

Kim J and Reed JL. Reconstruction of Integrated Metabolic and Transcriptional Regulatory Network Models as a Platform for Microbial Systems Engineering. American Society of Microbiology (ASM) General Meeting, Denver, CO, May 2013. (talk)

Tervo CJ and Reed JL, “Experimental Design via a Forced Coupling Algorithm”, American Chemical Society National Meeting, New Orleans, LA, April 2013. (talk)

Cotten C and Reed JL, “Constraint-based strain design using continuous up and downregulation of fluxes”, American Chemical Society National Meeting, New Orleans, LA, April 2013. (talk and poster)

2012

Hamilton JJ and Reed JL, “Thermodynamics-Based Flux-Balance Analysis: Incorporation of Thermodynamic and Metabolomic Data Into Genome-Scale Constraint-Based Models”, American Institute of Chemical Engineers National Meeting, Pittsburgh, PA, October 2012. (talk)

- Kim J and Reed JL, "Reconstruction of Integrated Metabolic and Transcriptional Regulatory Network Models As a Platform for Metabolic Engineering", American Institute of Chemical Engineers National Meeting, Pittsburgh, PA, October 2012. (talk)
- Reed JL, "Experimental Design and Model Refinement Algorithms for Driving Biological Discovery", 2nd Conference on Constraint-Based Reconstruction and Analysis, Copenhagen, Denmark, October 2012. (Invited Speaker)
- Kim J and Reed JL, "Predicting Metabolic Behaviors of Microbial Strains in Response to Genetic and Environmental Perturbations", SIMB Annual Meeting, Washington, DC, August 2012. (Invited Speaker)
- Kim J and Reed JL, "RELATCH: A New Computational Tool for Predicting Metabolic Responses to Genetic and Environmental Perturbations", Metabolic Engineering IX, Biarritz, France, June 2012. (poster)
- Vu T, Stolyar SS, Pinchuk GE, Konopka AE, Beliaev AS, and Reed JL, "Development of a genome-scale metabolic model for cyanobacterial metabolism," Society of Industrial Microbiology 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, May 2012. (talk)
- Hamilton JJ and Reed JL, "Comparison of microbial metabolic networks to guide background strain selection", American Chemical Society National Meeting, San Diego, CA, March 2012. (talk)
- Kim J, CT Maravelias, and Reed JL, "Predicting immediate behaviors of engineered microbial strains for chemical production", American Chemical Society National Meeting, San Diego, CA, March 2012. (talk)
- Tervo CJ and Reed JL, "Evaluating Metabolic Network Elements Via a Forced Coupling Algorithm", American Chemical Society National Meeting, San Diego, CA, March 2012. (talk)

2011

- Zhang X and Reed JL, "Adaptive evolution of *E. coli* Auxotroph Co-Cultures", 5th IECA Conference: Gene Regulatory Networks in the Enterobacteriaceae, Xcaret, Mexico, December 2011. (talk)
- Kim J, Barua D, Reed JL, "Computational Methods for Re-Designing Metabolic and Regulatory Networks", 5th IECA Conference: Gene Regulatory Networks in the Enterobacteriaceae, Xcaret, Mexico, December 2011. (Invited Speaker)
- Pfleger BF and Reed JL, "Integration of Systems and Synthetic Biology for Metabolic Engineering," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Tervo CJ and Reed JL, "Evaluating Metabolic Network Elements Via a Forced Coupling Algorithm," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Hamilton JJ and Reed JL, "Genome Alignment and Pair-Wise Comparison of Microbial Metabolic Networks Identifies Novel Potential Drug Targets," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Tervo CJ and Reed JL, "Evaluating Metabolic Network Elements Via a Forced Coupling Algorithm," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Cotten C and Reed JL, "Using Multi-Omics Data to Estimate Parameters In Enzymatic Rate Laws," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Kim J, CT Maravelias, and Reed JL, "Predicting Immediate Behaviors of Engineered Microbial Strains for Biofuel Production," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Vu T, Stolyar SS, Pinchuk GE, Konopka AE, Beliaev AS, and Reed JL, "Constraint-Based Modeling of Cyanobacterial Metabolism," American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011. (talk)
- Kim J, Barua D, Reed JL, "Computational Approaches for Re-Wiring Cellular Networks", 71st Harden Conference Metabolic Pathways Analysis, Chester, England, September 2011. (Invited Speaker)
- Reed JL, "Using Computational Models to Explore and Leverage Biochemical Networks", 13th Congress of the European Society for Evolutionary Biology Tubingen, Germany, August 2011. (Invited Speaker)
- Reed JL, "Computational Methods for Re-Designing Metabolic and Regulatory Networks", Biochemical and Molecular Engineering XVII, Seattle, WA, June 2011. (Invited Speaker)
- Reed JL, "GeneForce: A computational tool to improve integrated metabolic and regulatory models used in metabolic engineering", American Chemical Society National Meeting, Anaheim, CA, March 2011. (talk)

Reed JL, "Using Computational Models to Explore Biochemical Networks", Western Photosynthesis Conference, Asilomar, CA, January 2011. (Invited Speaker)

2010

Kim J, Reed JL and Maravelias CT, "A Novel Optimization Strategy for Microbial Strain Design", American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November 2010. (talk)

Reed JL, "GeneForce: A computational tool to improve integrated metabolic and regulatory models used in metabolic engineering", American Chemical Society National Meeting, Anaheim, CA, March 2011. (talk)

Reed JL. "Model-Driven Analysis of Experimental Datasets Provides Insights into Cellular Environments and Behaviors", American Institute of Chemical Engineers National Meeting, Nov 2010, Salt Lake City, UT. (talk)

Reed JL. "Predicting Metabolic Pathways in Enteric Bacteria Using Constraint-Based Models", 3rd ASM Conference on Beneficial Microbes, Oct 2010, Miami, FL. (Invited Speaker)

Reed JL. "OptORF: Optimal metabolic and regulatory changes for metabolic engineering of microbial strains", ACS Best of BIOT Webinar, July 2010. (Invited Speaker)

Reed JL. "OptORF: Optimal metabolic and regulatory changes for metabolic engineering of microbial strains", ACS, March 2010, San Francisco, CA. (talk)

Reed JL. "Weaving Experimental Data into Genome-Scale Models Provides Insights into Cellular Environments and Behaviors", DOE: Subsurface Biogeochemical Research (ERSP) Meeting, March 2010, Washington, DC. (Invited Speaker)

2009

Reed JL, et al. "Constraint-Based Analysis of Metabolic Capacity of *Salmonella typhimurium* LT2", American Institute of Chemical Engineers National Meeting, November 2009, Nashville, TN. (talk)

Barua D, Kim J and Reed JL, "Optimization-Based Approach for Transcriptional Regulatory Network Refinement", American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009. (talk)

Kim J and Reed JL, "OptORF: Optimal Metabolic and Regulatory Gene Knockouts for Metabolic Engineering of Microbial Strains", American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009. (talk)

Vu T, Stolyar S, Beliaev A, De Ingeniis J, Osterman A, and Reed JL, "Development of a Constraint-Based Model for Photobiological Production of Hydrogen in *Cyanothece* sp. ATCC 51142" American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009. (talk)

Reed JL, et al. "Constraint-Based Analysis of Metabolic Capacity of *Salmonella typhimurium* LT2", BMES, October 2009, Pittsburg, PA. (talk)

Reed JL. "Descriptive and Predictive Applications of Constraint-Based Models", EMBC, September 2009, Minneapolis, MN. (Invited Speaker)

Reed JL. "Integration of Experiments and Metabolic Modeling Facilitate Network Design & Biological Discovery", ICTP, June 2009, Trieste, Italy. (Invited Speaker)

Reed JL. "Designing Microbial Production Strains using Computational Approaches", ASM, May 2009, Philadelphia, PA. (talk)

Reed JL. "Getting from Genotypes to Phenotypes through Network Reconstruction and Modeling", APS, March 2009, Pittsburgh, PA. (Invited Speaker)

Reed JL, et al. "Constraint-Based Analysis of Metabolic Capacity of *Salmonella typhimurium* LT2", AIChE-ICBE, January 2009, Santa Barbara, CA. (talk)

2007-2008

Reed JL, et al. "Determining Metabolic Fluxes Using Experimental Measurements", American Institute of Chemical Engineers National Meeting, November 2008, Philadelphia, PA. (talk)

Reed JL, et al. "Combining Computational And Experimental Methods To Identify Genes With Metabolic Functions", American Institute of Chemical Engineers National Meeting, November 2007, Salt Lake City, UT. (talk)

Reed JL, Hua Q, and Palsson BO. "Sensitivity of 13C Isotopomer Model Calculations to Metabolic Network Scope", BMES, September 2007, Los Angeles, CA. (talk)

- Reed JL and Palsson BO. "Development and Applications of Genome-Scale Metabolic Models", 15th Annual International Conference on Microbial Genomics, September 2007, Rockville, MD. (talk)
- Reed JL, et al. "Combining Computational and Experimental Methods to Identify Genes with Metabolic Functions," First International Conference on Biomolecular Engineering (Society for Biological Engineering, AIChE), January 2007, Coronado, CA. (talk)

INVITED SEMINARS

- Reed JL. "Application of Systems Biology to Engineering Cellular Metabolism", University of Delaware, April 2015, Newark, DE.
- Reed JL. "Engineering Microbial Metabolism: A Systems Approach", Washington University, March 2015, St Louis, MO.
- Reed JL. "Engineering Microbial Metabolism: A Systems Approach", Naval Research Lab, February 2015, Washington, DC.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", Colorado State University- Fort Collins, September 2013, Fort Collins, CO.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", University of Tennessee, Knoxville, September 2012, Knoxville, TN.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", Northwestern University, July 2012, Evanston, IL.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", Boston University, April 2012, Boston, MA.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", University of California, San Diego, March 2012, La Jolla, CA.
- Reed JL. "Systems Approaches for Exploring and Exploiting Cellular Metabolism", North Carolina State University, February 2012, Raleigh, NC.
- Reed JL. "Models of *E. coli* and *Shewanella oneidensis* and their use in metabolic engineering", University of Minnesota BioTechnology Institute, November 2010, St. Paul, MN.
- Reed JL. "Exploring and Leveraging Biochemical Networks", Emory University, April 2010, Atlanta, GA.
- Reed JL. "Development and Applications of *Escherichia coli* Metabolic Models, Michigan State University, February 2008, East Lansing, MI.
- Reed JL. "Development and Applications of *Escherichia coli* Metabolic Models", Hope College, February 2008, Holland, MI.
- Reed JL. "Use of Network Reconstructions and Models in Systems Biology," Nara Institute of Science and Technology (NAIST), December 2006, Nara, Japan.
- Reed JL. "Model-Driven Analysis of *Escherichia coli* Metabolism," Bioengineering Seminar, Department of Bioengineering, University of California, San Diego, June 2006, San Diego, CA.