I. **PERSONAL INFORMATION**

RYAN T. GILL
University of Colorado
Boulder, CO 80309

Chemical and Biological Engineering
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303-492-2627 (phone), 303-492-4341 (fax)

II. **EMPLOYMENT HISTORY**

2015-Present	Professor, Chemical and Biological Engineering, University of Colorado
2012-Present	Associate Director, Renewable and Sustainable Energy Institute[i] - Interim Director (Fall 2013)-
2009-Present	Fellow, Executive Board, Renewable and Sustainable Energy Institute
2008-2015	Associate Professor with Tenure, Chemical and Biological Engineering, University of Colorado, Boulder, CO
2007-2010	Dupont Young Professor
2006-2012	Founder, Managing Director, Colorado Center for Biorefining and Biofuels
2005-2008	Patten Assistant Professor. Chemical and Biological Engineering. University of Colorado, Boulder, CO.
2001-2005	Assistant Professor. Chemical and Biological Engineering. University of Colorado, Boulder, CO.
1999-2001.	Post-doctoral Associate. Chemical Engineering. Massachusetts Institute of Technology. Advisor: Professor Gregory Stephanopoulos

III. **EDUCATION**

August, 1999.	*Doctor of Philosophy.* Chemical Engineering. University of Maryland. College Park. MD. Advisor: Professor William E. Bentley Thesis: *Dynamic analysis of global stress gene transcription during recombinant Escherichia coli fermentation.*
August, 1997.	*Masters of Science.* Chemical Engineering. University of Maryland. College Park, MD. Advisor: Professor William E. Bentley Thesis: *An investigation of E. coli stress: The physiological response to DTT addition and the partial purification of a stress induced protease.*
May, 1993.	*Bachelor of Science*. Chemical Engineering. The Johns Hopkins University, Baltimore, MD.

IV. **ACADEMIC AND PROFESSIONAL ACTIVITIES**

<u>Awards</u>

2015 Keynote Address, American Chemical Society Synthetic Biology Track
2015 Keynote Address, Peptalk, Synthetic Biology Track
2012 Research Rockstar, Colorado Cleantech Industry Association
2011 Founder's Award, Opxbio
2011 Provost's Award for Achievement Associate Professor (CU)
2010 Inventor of the Year, University of Colorado
2009 Visiting Professor, Ecole Polytechnique Federal de Lausanne
2008 University of Colorado Faculty Fellowship

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[i] *RASEI is a joint institute founded in 2010 between the University of Colorado and the National Renewable Energy Laboratory comprised of 35 fellows focused on the development of energy technologies in sustainable fuels, solar, wind, storage, and natural gas application areas.*

2007 Dupont Young Professor Award
2007 Rising Star Award, Big 12 Center for Economic Dev., Innovation and Commercialization
2006 Provosts Award for Achievement Assistant Professor (CU)
2005 National Science Foundation CAREER Award
2005 National Institutes of Health CAREER (K) Development Award
2004 Subaru Educator Spotlight Award
2003 CU-Boulder, Department of Chemical Engineering, Undergraduate Advising Award
2001 Vern Norviel Junior Faculty Award

National and International Service Activities

2013-Present Founding Co-Editor in Chief, Metabolic Engineering Communications
2011-Present Associate Editor (Synthetic Biology/Metabolic Engineering), Biotechnology and Bioengineering
2011-Present Editorial Board, ACS Synthetic Biology
2011-Present Editorial Board, Metabolic Engineering
2012-2014 Conference Chair, International Metabolic Engineering Conference, Vancouver, CA
2010-2011 Section Co-Chair, Biofuels Section, ACS Spring National Meeting (2011)
2010-Present Scientific Advisory Board, SBE Biomolecular Engineering Conference
2010-2011 Editorial Advisory Board, Biotechnology and Bioengineering
2008-2011 Editorial Advisory Board, Metabolic Engineering
2008-2009 Conference Chair, Biomolecular Engineering II International Conference, Society for Biological Engineering (AICHE).
2008-Present Scientific Advisory Board, International Conference on Metabolic Engineering
2008-2011 Strategic Planning Board, American Chemical Society, Biotechnology Division.
2007-2010 Chair, Scientific Advisory Board, Opx biotechnologies.
2007 Biomolecular Engineering I International Conference, San Diego, CA. Society for Biological Engineering (AICHE), Session Chair. Molecular Methods in Strain Engineering
2005 Biochemical Engineering XIV International Conference. Harrison Hot Springs, B.C., Canada. Session chair. Evolutionary approaches in biochemical engineering.
2005 American Chemical Society (ACS). National Meeting. Co-chair. Session on Microbial Process Development – Application of New Tools in Process R&D.
2004. Metabolic Engineering V International Conference. Lake Tahoe, Ca. Co-Chair for session on Evolutionary approaches in Metabolic Engineering.
2004. Guest Editor *Metabolic Engineering*. Special Edition on Inverse Metabolic Engineering.
2003. American Chemical Society (ACS). National Meeting. Chair. Session on Advances in Metabolic Engineering
2002. American Institute of Chemical Engineers (AICHE). National Meeting. Chair. Session on Advances in Genomics
2001. American Institute of Chemical Engineering National Meeting. Co-chair. Session on Advances in Genomics

V.**PUBLICATIONS**[ii] (key publications in bold)

Authors	Title	Publication	V	#	Pages	Year
Bassalo, M., Garst, A., Halweg-Edwards, A., Domaille, D., and Gill, R.T.	A rapid pathway integration and optimization platform in E. coli	ACS Synthetic Biology			In-Review	2015
Liu, R., Bassalo, M., and Gill, R.T.	Genome Scale engineering techniques for Metabolic Engineering	Metabolic Engineering			In-Press	2015
Lynch, S., Eckert, C., Yu, J, Gill, R.T., and Maness, P.	Overcoming substrate limitations for improved production of ethylene in E. coli	Biotechnol Biofuels			In-Review	2015
Garst, A., Edwards, A., and Gill, R.T.	**Trackable Genome-Engineering at single nucleotide resolution**				**In-Review**	**2015**
Gill, R.T., Edwards, A. Way, S., and Clauset, A.	Synthesis Aided Design: A biological design-build-test paradigm?	Biotechnology and Bioengineering			In-Press	2015
Winkler, J. and Gill, R.T.	Quantifying metabolic engineering design complexity using the LASER Database				In-Preparation	2015
Winkler, J., Erickson, K., Choudhury, A., Edwards, A., and Gill, R.T.	Complex Systems in Metabolic Engineering	Current Opinion in Biotechnology			In-Press	2015
Freed, E., Winkler, J., Garst, A., Mutalik, V., Knight, R., Arkin, A., and Gill, R.T.	Genome-wide tuning of protein expression levels to rapidly engineering microbial traits	ACS Synthetic Biology			In-Review	2015
Winkler, J., Edward, A., Gill, R.T.	LASER Database: Formalizing design rules for Metabolic Engineering.	Metabolic Engineering Communication			App 7/15	2015
Edwards, A. and Gill, R.T.	Metabolic and Genome Engineering for Advanced Biofuels	Book Chapter (Elsevier, ed. C. Eckert)			In-Press	2015
Pines, G., Freed, E., Winkler, J. and Gill, R.T>	Bacterial Recombineering-genome engineering via phage based homologous recombination	ACS Synthetic Biology			In-Press	2015
Freed, E. and Gill, R.T.	Genome wide methods for trait mapping	Book Chapter (ed. M. Lynch)			In-Press	2015
Garst, A., Bassalo, M. and Gill, R.T.	Emerging strategies for Rational Genome Engineering	Book Chapter (ed. M. Lynch)			In-Press	2015
Lynch, S., Eckert, C., GIll, R.T., Yu, J., and Maness, P.	Metabolic engineering of ethylene production in E. coli	Biotechnology and Bioeng.			Appeared	2015
Mansell, T., Weiss, S., Knight, R., and Gill, R.T.	Genome-scale mapping of multi-drug cryptic resistance genes in E. coli	PLoS ONE			In-Press	2015

[ii] *Impact Factors: Nature Biotechnology (~39), Nature Methods (~23-24), PNAS (~10), Metabolic Engineering (~8), Biotechnology and Bioengineering (~4-5), PLOS ONE (~4-5), Biotechnology and Biofuels (~5-6), Current Opinion in Biotech. (~8), Gen. Bio (~10).*

Groot, A.J., Cepress-Mclean, S.C., Robbins-Pianka, A., Knight, R., and Gill, R.T.	Design, construction, and testing of a synthetic sugar co-consumption library in Escherichia coli	Biotechnology and Bioengineering			In-Review	2015
Reynolds, T., Boyle, N., and Gill, R.T.	A predictive tool for designing multiplex genome-engineering efforts	ACS Synthetic Biology			Appeared	2015
Zeitoun, R., Garst, A., and Gill, R.T.	**Multiplex Tracking of Combinatorial Genome Engineered Populations**	**Nature Biotechnology**			**Appeared**	**2015**
Gill, R.T. and Hatzimanikatis, V.	Introduction to Metabolic Engineering Communications	Metabolic Engineering Communication	1	1	1	2014
Pines, G., Pines, A., Garst, A., Zeitoun, R., and Gill, R.T.	Codon compression algorithms for tailored saturation mutagenesis libraries	ACS Synthetic Biology			In-Press	2014
Erickson, K.E., Gill, R.T., and Chatterjee, A.	Constrictor: Constraint modification provides insight into design of biochemical networks	PLoS ONE			Appd 12/3/14 0113820	2014
Glebes, T., Sandoval, N., Boyle, N., Reeder, P., Zhang, M., and Gill, R.T.	Comparison of genome-wide selection strategies to identify furfural tolerance genes in E. coli	Biotechnology and Bioengineering			112:129	2014
Eckert, C. Wu, X., Wei, X., Lynch, S., Ungerer, J., Tao, L, Gill, R.T., Maness, P., and Yu, J.	Ethylene forming enzyme and bio-ethylene production	Biotechnol Biofuels			7:33	2014
Glebes, Tirzah Y; Sandoval, Nicholas R; Reeder, Philippa J; Schilling, Katherine D; Zhang, Min; Gill, Ryan T;	Genome-Wide Mapping of Furfural Tolerance Genes in Escherichia coli	PLoS ONE	9	1	e87540	2014
Woodruff, Lauren; Pandhal, Jagroop; Ow, Saw Y; Karimpour-Fard, Anis; Weiss, Sophie J; Wright, Phillip C; Gill, Ryan T;	Genome-scale identification and characterization of ethanol tolerance genes in< i> Escherichia coli</i>	Metabolic engineering	15		124-133	2013
Nordwald, Erik M; Garst, Andrew; Gill, Ryan T; Kaar, Joel L;	Accelerated protein engineering for chemical biotechnology via homologous recombination	Current opinion in biotechnology	24	6	1017-1022	2013
Garst, Andrew; Lynch, Michael; Evans, Ron; Gill, Ryan T;	Strategies for the multiplex mapping of genes to traits	Microbial cell factories	12	1	99	2013
Woodruff, Lauren; May, Brian L; Warner, Joseph R; Gill, Ryan T;	Towards a metabolic engineering strain “commons”: an Escherichia coli platform strain for ethanol production	Biotechnology and bioengineering	110	5	1520-1526	2013
Woodruff, Lauren; Boyle, Nanette R; Gill, Ryan T;	**Engineering improved ethanol production in *Escherichia coli* with a genome-wide approach**	**Metabolic engineering**	**17**		**1-11**	**2013**

Pandhal, Jagroop; Woodruff, Lauren; Jaffe, Stephen; Desai, Pratik; Ow, Saw Y; Noirel, Josselin; Gill, Ryan T; Wright, Phillip C;	Inverse metabolic engineering to improve Escherichia coli as an N−glycosylation host	Biotechnology and bioengineering	110	9	2482-2493	2013
Boyle, Nanette R; Reynolds, T Steele; Evans, Ron; Lynch, Michael; Gill, Ryan T;	Recombineering to homogeneity: extension of multiplex recombineering to large−scale genome editing	Biotechnology journal	8	5	515-522	2013
Zeitoun, Ramsey I; Langelier, Sean M; Gill, Ryan T;	Implications of variable fluid resistance caused by start-up flow in microfluidic networks	Microfluidics and Nanofluidics			1-10	2013
Chaput, Catherine; Spindler, Eileen; Gill, Ryan T; Zychlinsky, Arturo;	O-Antigen Protects Gram-Negative Bacteria from Histone Killing	PloS one	8	8	e71097	2013
Spindler, Eileen C; Boyle, Nanette R; Hancock, Robert EW; Gill, Ryan T;	Genome-wide identification of genes conferring energy related resistance to a synthetic antimicrobial Peptide (bac8c)	PloS one	8	1	e55052	2013
Freed, Emily F; Gill, Ryan T;	Next Generation Multiplex Genome Engineering	Wiley Biotechnology Series				2013
Lynch, Sean A; Gill, Ryan T;	Synthetic biology: New strategies for directing design	Metabolic engineering	14	3	205-211	2012
Boyle, Nanette R; Gill, Ryan T;	Tools for genome-wide strain design and construction	Current Opinion in Biotechnology	23	5	666-671	2012
Sandoval, Nicholas R; Kim, Jaoon YH; Glebes, Tirzah Y; Reeder, Philippa J; Aucoin, Hanna R; Warner, Joseph R; Gill, Ryan T;	**Strategy for directing combinatorial genome engineering in Escherichia coli**	**Proceedings of the National Academy of Sciences**	**109**	**26**	**10540-10545**	**2012**
Warnecke, TE; Lynch, MD; Lipscomb, ML; Gill, RT;	Identification of a 21 amino acid peptide conferring 3−hydroxypropionic acid stress−tolerance to Escherichia coli	Biotechnology and bioengineering	109	5	1347-1352	2012
Lipscomb, Tanya Warnecke; Lipscomb, Matthew L; Gill, Ryan T; Lynch, Michael D;	Metabolic Engineering of Recombinant E. coli for the Production of 3−Hydroxypropionate	Engineering Complex Phenotypes in Industrial Strains			185-200	2012
Handke, Paul; Lynch, Sean A; Gill, Ryan T;	Application and engineering of fatty acid biosynthesis in< i> Escherichia coli</i> for advanced fuels and chemicals	Metabolic engineering	13	1	28-37	2011
Singh, Amarjeet; Cher Soh, Keng; Hatzimanikatis, Vassily; Gill, Ryan T;	Manipulating redox and ATP balancing for improved production of succinate in< i> E. coli</i>	Metabolic engineering	13	1	76-81	2011
Sandoval, Nicholas R; Mills, Tirzah Y; Zhang, Min; Gill, Ryan T;	**Elucidating acetate tolerance in< i> E. coli</i> using a genome-wide approach**	**Metabolic engineering**	**13**	**2**	**214-224**	**2011**

Spindler, EC; Hale, JDF; Giddings, TH; Hancock, REW; Gill, RT;	Deciphering the mode of action of the synthetic antimicrobial peptide Bac8c	Antimicrobial agents and chemotherapy	55	4	1706-1716	2011
Woodruff, Lauren; Gill, Ryan T;	Engineering genomes in multiplex	Current opinion in biotechnology	22	4	576-583	2011
Warner, Joseph R; Reeder, Philippa J; Karimpour-Fard, Anis; Woodruff, Lauren BA; Gill, Ryan T;	**Rapid profiling of a microbial genome using mixtures of barcoded oligonucleotides**	**Nature Biotechnology**	**28**	**8**	**856-862**	**2010**
Warnecke, TE; Lynch, MD; Karimpour-Fard, A; Lipscomb, ML; Handke, P; Mills, T; Ramey, CJ; Hoang, T; Gill, RT;	Rapid dissection of a complex phenotype through genomic-scale mapping of fitness altering genes	Metabolic engineering	12	3	241-250	2010
Prior, Jamie E; Shokati, Touraj; Christians, Uwe; Gill, Ryan T;	Identification and characterization of a bacterial cytochrome P450 for the metabolism of diclofenac	Applied microbiology and biotechnology	85	3	625-633	2010
Prior, Jamie E; Lynch, Michael D; Gill, Ryan T;	Broad−host−range vectors for protein expression across gram negative hosts	Biotechnology and bioengineering	106	2	326-332	2010
Singh, Amarjeet; Karimpour-Fard, Anis; Gill, Ryan T;	Increased mutation frequency in redox-impaired Escherichia coli due to RelA-and RpoS-mediated repression of DNA repair	Applied and environmental microbiology	76	16	5463-5470	2010
Mills, Tirzah Y; Sandoval, Nicholas R; Gill, Ryan T;	Cellulosic hydrolysate toxicity and tolerance mechanisms in Escherichia coli	Biotechnol Biofuels	2	1	26	2009
Singh, Amarjeet; Lynch, Michael D; Gill, Ryan T;	**Genes restoring redox balance in fermentation-deficient< i> E. coli</i> NZN111**	**Metabolic engineering**	**11**	**6**	**347-354**	**2009**
Warner, Joseph R; Patnaik, Ranjan; Gill, Ryan T;	Genomics enabled approaches in strain engineering	Current opinion in microbiology	12	3	223-230	2009
Struble, Julie M; Gill, Ryan T;	Genome-scale identification method applied to find cryptic aminoglycoside resistance genes in Pseudomonas aeruginosa	PloS one	4	11	e6576	2009
Drevinek, Pavel; Holden, Matthew TG; Ge, Zhaoping; Jones, Andrew M; Ketchell, Ian; Gill, Ryan T; Mahenthiralingam, Eshwar;	Gene expression changes linked to antimicrobial resistance, oxidative stress, iron depletion and retained motility are observed when Burkholderia cenocepacia grows in cystic fibrosis sputum	BMC infectious diseases	8	1	121	2008
Warnecke, TE; Lynch, MD; Karimpour-Fard, A; Sandoval, N; Gill, RT;	**A genomics approach to improve the analysis and design of strain selections**	**Metabolic engineering**	**10**	**3**	**154-165**	**2008**
Gall, S; Lynch, MD; Sandoval, NR; Gill, RT;	Parallel mapping of genotypes to phenotypes contributing to overall biological fitness	Metabolic engineering	10	6	382-393	2008

Karimpour-Fard, Anis; Leach, Sonia M; Gill, Ryan T; Hunter, Lawrence E;	Predicting protein linkages in bacteria: which method is best depends on task	BMC bioinformatics	9	1	397	2008
Bonomo, Jeanne; Lynch, Michael D; Warnecke, Tanya; Price, James V; Gill, Ryan T;	Genome-scale analysis of anti-metabolite directed strain engineering	Metabolic Engineering	10	2	109-120	2008
Karimpour-Fard, Anis; Leach, Sonia M; Hunter, Lawrence E; Gill, Ryan T;	The topology of the bacterial co-conserved protein network and its implications for predicting protein function	BMC genomics	9	1	313	2008
Lynch, Michael D; Warnecke, Tanya; Gill, Ryan T;	**SCALEs: multiscale analysis of library enrichment**	**Nature Methods**	**4**	**1**	**87-93**	**2007**
Karimpour-Fard, Anis; Hunter, Lawrence; Gill, Ryan T;	Investigation of factors affecting prediction of protein-protein interaction networks by phylogenetic profiling	BMC genomics	8	1	393	2007
Coenye, Tom; Drevinek, Pavel; Mahenthiralingam, Eshwar; Shah, Shiraz Ali; Gill, Ryan T; Vandamme, Peter; Ussery, David W;	Identification of putative noncoding RNA genes in the Burkholderia cenocepacia J2315 genome	FEMS microbiology letters	276	1	83-92	2007
Karimpour-Fard, Anis; Detweiler, Corrella S; Erickson, Kimberly D; Hunter, Lawrence; Gill, Ryan T;	Cross-species cluster co-conservation: a new method for generating protein interaction networks	Genome Biol	8	9	R185	2007
Leiske, Danielle L; Karimpour-Fard, Anis; Hume, Patrick S; Fairbanks, Benjamin D; Gill, Ryan T;	A comparison of alternative 60-mer probe designs in an in-situ synthesized oligonucleotide microarray	BMC genomics	7	1	72	2006
Lynch, Michael D; Gill, Ryan T;	Broad host range vectors for stable genomic library construction	Biotechnology and bioengineering	94	1	151-158	2006
Bonomo, Jeanne; Warnecke, Tanya; Hume, Patrick; Marizcurrena, Alex; Gill, Ryan T;	A comparative study of metabolic engineering anti-metabolite tolerance in< i> Escherichia coli</i>	Metabolic engineering	8	3	227-239	2006
Struble, Julie M; Gill, Ryan T;	Reverse engineering antibiotic sensitivity in a multidrug-resistant Pseudomonas aeruginosa isolate	Antimicrobial agents and chemotherapy	50	7	2506-2515	2006
Lynch, Michael D; Gill, Ryan T;	MINI-REVIEW: MAPPING PHENOTYPIC LANDSCAPES USING DNA MICRO-ARRAYS					2006
Warnecke, Tanya; Gill, Ryan T;	Organic acid toxicity, tolerance, and production in Escherichia coli biorefining applications	Microbial Cell Factories	4	1	25	2005

Dai, MingHua; Ziesman, Sara; Ratcliffe, Thomas; Gill, Ryan T; Copley, Shelley D;	Visualization of protoplast fusion and quantitation of recombination in fused protoplasts of auxotrophic strains of< i> Escherichia coli</ i>	Metabolic engineering	7	1	45-52	2005
Bonomo, Jeanne; Gill, Ryan T;	Amino acid content of recombinant proteins influences the metabolic burden response	Biotechnology and bioengineering	90	1	116-126	2005
Bonomo, Jeanne; Gill, Ryan T;	Antibiotic resistance as a model for strain engineering	Computers & chemical engineering	29	3	509-517	2005
Lynch, Michael D; Gill, Ryan T; Stephanopoulos, Gregory;	Mapping phenotypic landscapes using DNA micro-arrays	Metabolic engineering	6	3	177-185	2004
Gill, Ryan T; Dodge, Tim;	Special issue on inverse metabolic engineering	Metabolic Engineering	6	3	175-176	2004
Gill, Ryan T;	Enabling inverse metabolic engineering through genomics	Current opinion in biotechnology	14	5	484-490	2003
Gill, Ryan T; Katsoulakis, Eva; Schmitt, William; Taroncher-Oldenburg, Gaspar; Misra, Jatin; Stephanopoulos, Gregory;	Genome-wide dynamic transcriptional profiling of the light-to-dark transition in Synechocystis sp. strain PCC 6803	Journal of bacteriology	184	13	3671-3681	2002
Gill, Ryan T; Wildt, S; Yang, YT; Ziesman, S; Stephanopoulos, G;	**Genome-wide screening for trait conferring genes using DNA microarrays**	**Proceedings of the National Academy of Sciences**	**99**	**10**	**7033-7038**	**2002**
Stephanopoulos, Gregory; Misra, Jatin; Hwang, Daehee; Schmitt, William A; Alevizos, Ilias; Silva, Saliya Sudharshana; Gill, Ryan T;	Defining biological states and related genes, proteins and patterns					2002
Gill, RT; DeLisa, MP; Valdes, JJ; Bentley, WE;	Genomic analysis of high−cell−density recombinant Escherichia coli fermentation and “cell conditioning” for improved recombinant protein yield	Biotechnology and bioengineering	72	1	85-95	2001
Stephanopoulos, Gregory; Gill, Ryan T;	After a decade of progress, an expanded role for metabolic engineering	Metabolic Engineering			1-8	2001
DeLisa, Matthew P; Gill, Ryan T; Bentley, William E;	Mapping Stresses in Escherichia Coli to Improve Yield	Recombinant Protein Production with Prokaryotic and Eukaryotic Cells. A Comparative View on Host Physiology			43-54	2001

Gill, RT; Valdes, JJ; Bentley, WE;	A Comparative Study of Global Stress Gene Regulation in Response to Overexpression of Recombinant Proteins in< i> Escherichia coli</i>	Metabolic engineering	2	3	178-189	2000
Gill, RT; DeLisa, MP; Shiloach, M; Holoman, TR; Bentley, WE;	OmpT expression and activity increase in response to recombinant chloramphenicol acetyltransferase overexpression and heat shock in E. coli	Journal of molecular microbiology and biotechnology	2	3	283-289	2000
Taroncher-Oldenburg, Gaspar; Gill, Ryan T; Stephanopoulos, Gregory;	GREEN BIOSYNTHESIS OF POLYHYDROXYALKANOATES: ENGINEERING OF CYANOBACTERIA FOR BIOPOLYMER PRODUCTION	4th Annual Green Chemistry & Engineering Conference			61	2000
Gill, RT; Valdes, JJ; Bentley, WE;	Reverse transcription-PCR differential display analysis of Escherichia coli global gene regulation in response to heat shock	Applied and environmental microbiology	65	12	5386-5393	1999
Gill, Ryan T;	Dynamic analysis of global stress gene transcription during recombinant escherichia coli fermentation					1999
Valdes, JJ; Gill, RT;	Reverse transcription-PCR differential display analysis of Escherichia coli global gene	Applied and Environmental Microbiology	65	12	5386-5393	1999
Gill, Ryan T; Cha, Hyung Joon; Jain, Alok; Rao, Govind; Bentley, William E;	Generating controlled reducing environments in aerobic recombinant Escherichia coli fermentations: effects on cell growth, oxygen uptake, heat shock protein expression, and in vivo CAT activity	Biotechnology and bioengineering	59	2	248-259	1998
Bentley, WE; Madurawe, RD; Gill, RT; Shiloach, M; Chase, TE; Pulliam-Holoman, TR; Valdes, JJ;	Generation of a histidine-tagged antibotulinum toxin antibody fragment in E. coli: effects of post-induction temperature on yield and IMAC binding-affinity	Journal of Industrial Microbiology and Biotechnology	21	6	275-282	1998

VI. ENTREPRENEURSHIP AND TECHNOLOGY TRANSFER

Startup Companies
-Muse Biotechnologies, Founder, 2015-Present
-Biota Inc., Founder, Advisor, 2012-Present
-Opx Biotechnologies, Founder, Board Member, Advisor, 2007-2015 (acq. by Cargill, Inc.).

Intellectual Property

1. Gill, R.T. and Bentley, W.E. 1999. RTPCR Kit for Prokaryotic Differential Display. ***Patent awarded*** in 2004.

2. Gill,R.T., Wildt, S., and Stephanopoulos, G. 2001. A parallel gene-trait mapping method using DNA micro-arrays. Patent Pending.

3. Lynch, M. and Gill, R.T. 2004. Broad host range plasmid vectors. Patent Pending.

4. Copley, S., Dai, M. and Gill, R.T. 2004. Protoplast fusion techniques in gram-negative bacteria. Patent pending.

5. Lynch, M., Warnecke, T. and Gill, R.T. 2004. Mixed-Library Parallel Gene Mapping Quantitative Micro-Array Technique for Genome-Wide Identification of Trait Conferring Genes. US Patent 8,467,975. Issued, June 2013.

6. Lynch, M. and Gill, R.T. 2004. A panel of growth enhancing genes. Patent pending.

7. Warnecke, T. and Gill, R.T. 2005. Ethanol tolerance genes in *E. coli*. ***Patent awarded*** 2010.

8. Lynch, M. and Gill, R.T. 2006. A novel tool for linking screens with selections. Patent Pending.

9. Warnecke, T. and Gill, R.T.2006. Patent Pending.

10. Warnecke, T., Lynch, M., and Gill, R.T. 2008. Patent Pending.

11. Warnekce, T., Lynch, M., and Gill, R.T. 2008. Patent Pending.

12. Sandoval, N. and Gill, R.T. 2008. Methods for engineering acetate tolerance. Provisional filed May, 2008. Converted to application in 2009.

13. Prior, J, Christians, U. and Gill, R.T. P450 enzyme for drug modification. Provisional Patent filed February, 2009.

14. Mills, T. and Gill, R.T. 2009. Methods for engineering aldehyde tolerance. Provisional filed July, 2009.

15. Gill, R.T. and Medlin, W. 2009. Molecular biorefining approach to biofuels. Provisional filed in July, 2009.

16. Gill, R.T. and Warner, J. 2010. Method for assigning relevance to genes for metabolic engineering applications. Provisional filed in May, 2010.

17. Gill, R.T., Reeder, P. and Warner, J. 2010. Genes for increasing strain performance in cellulosic hydrolysate. Provisional filed in May, 2010.

18. Andrews, L.A., and Gill, R.T. 2010. Genes for increasing ethanol tolerance. Provisional filed in November, 2010.

19. Lynch, S. and Gill, R.T.2010. A method for in vivo protein sequence activity relationship mapping. Provisional filed November 2010.

20. Garst, A., Lynch, S., and Gill. 2013. CRISPR assisted protein engineering method. Provisional filed in February 2014.

21. Zeitoun, R. Garst, A., and Gill, R.T. 2013 Method for linking, emulsion based PCR for tracking combinatorial genomic scale mutations. Provisional filed in February, 2014.

Licenses

1. Lynch, M. and Gill, R.T. 2006. Broad host range plasmid vectors. Exclusive license granted to Lucigen, Inc., Middleton, Wisconsin.
2. Intellectual property #3 and #5-9 exclusively licensed to Opxbio, Boulder, CO
3. Intellectual property #10-11 exclusively licensed to Opxbio, Boulder, CO

VII. INVITED PRESENTATIONS

1. Massachusetts Institute of Technology, Summer, 2000. DNA microarray seminar series.
2. Fall, 2000. *Metabolic Engineering III.* Colorado Springs, CO. Panelist DNA Microarrays.
3. Princeton University, Spring, 2001. Department of Chemical Engineering
4. University of California-Berkeley. Spring, 2001. Department of Chemical Engineering.
5. University of Massachusetts-Amherst, Spring, 2001. Department of Chemical Engineering
6. University of Colorado-Boulder, Spring, 2001. Department of Chemical Engineering
7. University of Connecticut, Spring, 2001. Department of Chemical Engineering
8. University of Michigan, Spring, 2001. Department of Chemical Engineering
9. Rutgers University, Spring, 2001. Department of Chemical Engineering
10. University of Delaware, Spring, 2001. Department of Chemical Engineering
11. University of Colorado, Fall, 2001. Dept. of Molecular, Cellular, and Developmental Biology.
12. Colorado State University. Spring, 2002. Department of Chemical Engineering.
13. Fall, 2002. *Metabolic Engineering IV.* Tuscany, Italy.
14. University of Colorado Health Sciences Center. Spring, 2003. Bioinformatics Program.
15. Summer, 2003. *Biochemical Engineering XIII.* Boulder, CO.
16. Spring, 2004. *International Burkholderia cepacia working group annual meeting*. Vancouver, B.C., Canada.
17. Summer, 2004. *Cystic Fibrosis Foundation Williamsburg Conference*.[1]
18. Spring, 2005. *International Burkholderia cepacia working group annual meeting*. Oklahoma.
19. Summer, 2005. *Society for Industrial Microbiology National Meeting*. Chicago, IL.
20. Summer, 2005. *Biochemical Engineering XIV*. Harrison Hot Springs, Canada.
21. Cargill, Inc. Biotechnology Development Center, Corporate R&D, August, 2005.
22. The Johns Hopkins University, Dept. of Chemical and Biomolecular Engineering, Oct. 2005.
23. University of Colorado Health Sciences Center, Dept. of Microbiology, January, 2006.
24. Cornell University, Department of Chemical and Biomolecular Engineering, February, 2006.
25. University of Wisconsin, Dept. of Chemical and Biomolecular Engineering, March, 2006.
26. University of Colorado, Molecular Biotechnology Initiative Symposium, May, 2006
27. Fall, 2006. *Metabolic Engineering VI*. Amsterdam, Netherlands. (New Tools Workshop)
28. Fall, 2006. Invited PodCast for the Journal *Genetic Engineering News*.
29. January, 2007. 1st International Conference on Biomolecular Engineering. San Diego, CA.
30. University of Pennsylvania, Department of Chemical Engineering. April, 2007.
31. Colorado School of Mines. Department of Chemical Engineering. April, 2007.
32. Merck, Inc., May, 2007
33. Dupont, Inc., June, 2007
34. Genencor, Inc., June, 2007
35. University of Tennessee, Department of Chemical Engineering, October, 2007
36. October, 2007. University of Colorado Energy Event. Houston, TX.
37. May, 2008. 5th Intl. Chemical Engineering Conference of Eastern Med. Countries. Italy.
38. August, 2008. TransAtlantic Froniers in Chemistry. United Kingdom.
39. September, 2008. Metabolic Engineering VI. Mexico. Strain Engineering Workshop Lead
40. Shell Oil, Exeter, United Kingdom, July, 2008.
41. Dupont, Inc. August, 2008.
42. Ecole Polytechnique Federal Lausanne (EPFL), December, 2008
43. Opx Bioproducts, March 2009.
44. Codexis, Inc. California, March 2009.
45. May, 2009. International Conference on Microbial Stress Tolerance, Austria.
46. September 2009. Society for General Microbiology. Edinburgh, Scotland.

47. Washington University, Dept. of Chemical Engineering. November 2009.
48. Joint Bioenergy Institute, Univ. California Berkeley, LBNL, Sandia Nat. Lab. December 2009
49. Chalmers University, Sweden. May 2010.
50. Shell Oil Global Biofuels R&D Center, Thornton, UK. May, 2010.
51. National Renewable Energy Laboratory, July 2010.
52. Dupont, Inc. July, 2010.
53. August, 2010. Society for Industrial Microbiology, San Francisco, CA.
54. Texas A&M University, Dept. Chemical Engineering. October, 2010.
55. Iowa St. University, Dept. Chemical Engineering. October, 2010.
56. University of Maryland. Dept. of Chemical Engineering/Bioengineering. December, 2010.
57. Codexis, Inc. January, 2011.
58. January, 2011. CHI PepTalk, San Diego, CA.
59. January, 2011. SBE Biomolecular Engineering Conference.
60. Pennsylvania State University, Dept. of Chemical Engineering. April, 2011.
61. Univ. California Berkeley, Energy Bioscience Institute, April, 2011. Berkeley, CA.
62. November, 2011. Cold Spring Harbor Asia, Shanghai, Synthetic Biology.
63. University of California, Riverside. Dept. of Chemical Engineering. January, 2012.
64. University of Illinois, Energy Biosciences Institute. March, 2012
65. University of Wisconsin, Dept. Chemical Engineering, April, 2012.
66. International Conference on Stress Tolerance. Piedemonte, Italy. May, 2012.
67. International Metabolic Engineering VII. Biarritz, France.June, 2012.
68. University of California, Berkeley. Dept. of Chemical Engineering. Feb. 2013.
69. Copenhagen Biosciences Conferences, Cell Factories, Copenhagen, Denmark, May, 2013.
70. Intl. Symposium on the Genetics of Industrial Microorganisms, Cancun, Mexico, June, 2013.
71. Gordon Research Conferences, Synthetic Biology I, Vermont, June, 2013.
72. National Science Foundation Workshop on Advanced Biomanufacturing, July 2013.
73. American Institute of Chemical Engineering, Special Session: Paradigms in Systems Biology, San Francisco, CA, November, 2013.
74. Renssalear Polytechnical Institute, Dept. of Chemical Engineering, December, 2013.
75. North Carolina State University, Dept. of Chemical Engineering, February, 2014.
76. University of Minnesota, Dept. of Chemical Engineering and Biotechnology Series, April 2014.
77. Gordon Research Conferences, Photobiology, Piedemonte, Italy, April, 2014.
78. University of Washington, Dept. Chemical Engineering, June, 2014.
79. Synthetic Biology: Evolution, Engineering, and Design (SEED). July, 2014.
80. PepTalk. Keynote in Synthetic Biology Track. January, 2015.
81. University of California, San Diego. Dept. of Bioengineering. January, 2015.
82. ACS National Meeting, Keynote in Synthetic Biology Track. March, 2015.
83. Vanderbilt University, Dept. Chemical Engineering, April, 2015.

Contributed Presentations: Approximately 15-20 per year presented by group members.