Thomas T. Eng, Ph.D. *Curriculum Vitae*
Lawrence Berkeley National Laboratory (LBNL)
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Email: tteng@lbl.gov

Professional Appointments

2020 Career Biologist Research Scientist, Biological Systems Engineering Division. Biosciences Area, Lawrence Berkeley National Lab. *(Current appointment.)*

2018 Biologist Project Scientist, Biological Systems Engineering Division. Biosciences Area, Lawrence Berkeley National Lab. Berkeley, CA. *(Duration: 2 years.)*

2010 Graduate Student Instructor: Undergraduate Genetics (MCB.140), Department of Molecular and Cell Biology, UC Berkeley. Berkeley, CA. *(Duration: 1 semester.)*

2007 Technical Assistant I, Whitehead Institute for Biomedical Research. Cambridge, MA. *(Duration: Two years.)*

2006 Laboratory Teaching Assistant: Undergraduate Molecular Biology Laboratory (7.02L) Department of Biology, Massachusetts Institute of Technology. Cambridge, MA. *(Duration: 1 semester.)*

Training

2016 Post-doctoral research in Microbial Systems Biology, LBNL. Berkeley, CA.

2015 *Ph.D.* in Molecular and Cell Biology, UC Berkeley. Berkeley, CA.

2007 *B.S.* in Biology, Massachusetts Institute of Technology. Cambridge, MA.

National and International Conference Presentations

2020 Engineering Conferences International: Microbial Engineering II. Albufeira, Portugal. September 13-19, 2020.

2019 Engineering Conferences International: Biochemical and Molecular Engineering XXI. Mont Tremblant, Quebec, Canada. July 14-18th 2019.

2018 Society for Industrial Microbiology, Annual Meeting and Exhibition. Chicago, IL, USA. August 12-16th 2018.

2018 Department of Energy Genome Sciences Annual Principal Investigators' Meeting. Tysons Corner, VA, February 25-28th, 2018

2017 Department of Energy Genome Sciences Annual Principal Investigators' Meeting. Crystal City, VA, February 5-8th, 2017.

2013 Cold Spring Harbor Symposium: Cell Biology of the Yeasts. Cold Spring Harbor, NY, November 5-9th, 2013.

2013 Cohesin Biology and the Cohesinopathies. Certosa di Pontignano Centro Congressi, Pontignano, Siena, Italy. July 12-15th, 2013.

2012 Federation of American Societies for Experimental Biology (FASEB): Yeast Chromosome Structure, Replication & Segregation. Steamboat Springs, CO, July 15-20th, 2012.

2009 Third Meeting of the Model Organism ENCODE (modENCODE) and ENCODE Consortia. Bethesda, MD, March 25-27th, 2009.

2008 Second Meeting of the Model Organism Encode (modENCODE) and ENCODE Consortia. Rockville, MD, June 16-19, 2008.

2008 49th Annual Drosophila Research Conference. San Diego, CA, April 2-6, 2008.

Publications (Google Scholar h-index = 11; 1,964 total citations) § *denotes co-first authorship.*

1. **T. Eng**, R.A. Herbert, B. Wang, U. Martinez, J. Chen, B. Brown, M. Bissell, J.M. Mortimer, and A. Mukhopadhyay. Iron Limitation Drives Antagonistic Interactions Between Root Associated Bacteria. Submitted.
2. D. Banerjee§, **T. Eng**§, A.K. Lau, B. Wang, Y. Sasaki, R.A. Herbert, Y. Chen, J. Prahl, V.R. Singan, D. Tanjore, C.J. Petzold, J.D. Keasling, and A. Mukhopadhyay. Genome-scale Metabolic Rewiring to Achieve Predictable Titers Rates and Yields of a Non-Native Product at Scale. Submitted. Preprint: doi.org/10.1101/2020.02.21.954792
3. H.G. Lim, B. Fong, G. Alarcon, H. Magurudeniya, **T. Eng**, C.A. Olson, R. Szubin, B.O. Palsson, S.W. Singer, and A.M. Feist. Generation of an Ionic Liquid Tolerant *Pseudomonas putida* KT2440 strain via Adaptive Laboratory Evolution. Manuscript under revision.
4. **T. Eng**§**,** Y. Sasaki§, R.A. Herbert, A. Lau, J. Trinh, Y. Chen, M. Mirsiaghi, C.J. Petzold, and A. Mukhopadhyay. Production of Tetra-methylpyrazine Using Engineered *C. glutamicum*. *Metabolic Engineering Communications*. doi: 10.1016/j.mec.2019.e00115.
5. S. Langley, **T. Eng,** K.H. Wan, R.A. Herbert, A.P. Klein, Y. Yoshikuni, S.G. Tringe, J.B. Brown, S.E. Celniker, J.C. Mortimer, and A. Mukhopadhyay. Complete Genome Sequence of *Agrobacterium* sp. 33MFTa1.1 Isolated From the Roots of *Thlaspi arvense*. *Microbiology Resource Announcements*, 2019 September 12. doi: 10.1128/MRA.00432-19
6. R.A. Herbert, **T. Eng**, U. Martinez, B. Wang, S. Langley, K. Wan, V. Pidatala, E. Hoffman, J. Chen, M.J. Bissell, J.B. Brown, A. Mukhopadhyay, and J. C. Mortimer. Rhizobacteria mediate the phytotoxicity of a range of biorefinery-relevant compounds. *Environmental Toxicology and Chemistry*, 2019 May 20. doi: 10.1002/etc.4501
7. M. Wehrs, D. Tanjore, **T. Eng**, J. Lievense, T. R. Pray, and A. Mukhopadhyay. Engineering Robust Production Microbes for Large-scale Cultivation. *Trends in Microbiology*, 2019 June. doi.org/10.1016/j.tim.2019.01.006
8. Y. Sasaki§, **T. Eng**§, R.A. Herbert, J. Trinh, Y. Chan, C.J. Petzold, B. Simmons, and A. Mukhopadhyay. Engineering Corynebacterium glutamicum to produce the biogasoline isopentenol from plant biomass hydrolysates. *Biotechnology for Biofuels,* 2019 February 18. doi.org/10.1186/s13068-019-1381-3
9. **T. Eng**, P. Demling, R.A. Herbert, Y. Chen, V. Benites, J. Martin, A. Lipsen, E.E.K. Baidoo, L. Blank, C.J. Petzold, and A. Mukhopadhyay. Restoration of biofuel production levels and increased tolerance under ionic liquid stress is enabled by a mutation in the essential Escherichia coli gene cydC. *Microbial Cell Factories.* 2018 Oct 8;17(1):159. doi: 10.1186/s12934-018-1006-8.
10. H.M. Jensen, **T. Eng**, V. Chubukov, R.A. Herbert, and A. Mukhopadhyay. Improving membrane protein expression and function using genomic edits. *Scientific Reports,* 2017 Oct 12;7(1):13030. doi: 10.1038/s41598-017-12901-7.
11. **T. Eng,** V. Guacci, D. Koshland. Inter-allelic Complementation Provides Evidence for Cohesin Oligomerization on DNA. *Molecular Biology of the Cell.* 2015 Nov 15;26(23):4224-35. doi: 10.1091/mbc.E15-06-0331.
12. O. Orgil, A. Matityahu, **T. Eng**, V. Guacci, D. Koshland, and I. Onn. A conserved domain in the Scc3 subunit of cohesin mediates the interaction with both Mcd1 and the cohesin loader complex. *PLoS Genetics*, 2015 Mar 6;11(3):e1005036. DOI: 10.1371/journal.pgen.1005036

13. **T. Eng**, V. Guacci, D. Koshland. ROCC, a conserved region in cohesin's Mcd1 subunit, is essential for the proper regulation of the maintenance of cohesion and establishment of condensation. *Molecular Biology of the Cell*. 2014 Aug 15;15(16):2351-64.
14. N. Sher, S. Li, G. Bell, **T. Eng**, M. Eaton, D. MacAlpine, and T.L. Orr-Weaver. Developmental Control of Gene Copy Number by Repression of Replication Initiation and Fork Progression. *Genome Research.* 2012 Jan;22(1):64-75.
15. A.M. McGehee, E. Guillen, O. Kirak, **T. Eng,** and H.L. Ploegh. Ubiquitin-Dependent Control of Class II MHC Localization is Dispensable for Antigen Presentation and Antibody Production. *PLoS One.* 2011 Apr 20;6(4):e18817.
16. J.C. Kim, J. Nordman, F. Xie, H. Kashevsky, **T. Eng**, D.M. MacAlpine, and T.L. Orr-Weaver. Integrative analysis of gene amplification in Drosophila follicle cells: parameters of origin activation and repression. *Genes and Development.* 2011 Jul 1;25(13):1384-98.
17. J. Nordman, S. Li, **T. Eng**, David MacAlpine, and T.L. Orr-Weaver. Developmental Control of the DNA Replication and Transcription Programs. *Genome Research.* 2011 Feb;21(2):175-81
18. **modENCODE Consortium** *et al.* Identification of functional elements and regulatory circuits by Drosophila modENCODE. *Science*. 2010 Dec 24;330(6012):1787-97.
19. S.E. Celniker, L.A. Dillon, M.B. Gerstein, K.C. Gunsalus, S. Henikoff, G.H. Karpen, M. Kellis, E. C. Lai, J.D. Lieb, D.M. MacAlpine, G. Micklem, F. Piano, M. Snyder, L. Stein, K.P. White, R.H. Waterston, **modENCODE Consortium**. Unlocking the Secrets of the Genome. *Nature*. 2009 Jun 18;459(7249):927-30.

Awards, Honors, Inventions

2020 Filed U.S. Patent Application 62/982,001.
2020 Filed U.S. Patent Application 62/980,054.
2019 Filed U.S. Patent Application 62/842,737.
2010 National Science Foundation Graduate Research Fellowship (2010-2013)
2009 National Institutes of Health Predoctoral Training Grant
2003 Robert and Mona Dillon Scholarship for Worthy Students (Internal, MIT)

Professional Service and Certifications

Principal Investigator of Record for BSL-2 level work at the Joint Bioenergy Institute/LBNL (2018-present).
Sartorius Stedim ambr250 Basic Training Certification (December 2018)
Laboratory Safety Committee, Member (2016-present).
Trainees since 2015:
Undergraduate level: Peyton Freeman (2016), Brenda Wang (2017+), Andrew Lau (2018+), Jessica Trinh (2018), Robin Herbert (2016-2018), Emily Bowen (2019).
Graduate level: Philipp Demling (2016), Yusuke Sasaki PhD (2017), Alberto Lopes (2018).