Gene-Wei Li

Assistant Professor of Biology, Massachusetts Institute of Technology

31 Ames St, Rm 223a
Cambridge, MA 02139
gwli@mit.edu

PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology 2015 – present
Assistant Professor of Biology

University of California, San Francisco 2010 – 2014
Postdoctoral Fellow
Advisor: Jonathan S. Weissman

EDUCATION

Harvard University 2004 – 2010
Ph.D. Physics
Advisor: X. Sunney Xie and David Nelson

National Tsinghua University 2000 – 2004
B.S. Physics
Advisor: Yuen-Ron Shen

HONORS & AWARDS

NSF CAREER Award	2019 – 2024
NIGMS Maximizing Investigator Research Award (R35)	2017 – 2022
Pew Biomedical Scholar	2017 – 2021
Smith Family Award for Excellence in Biomedical Research	2017 – 2020
Searle Scholar	2016 – 2019
Alfred. P. Sloan Research Fellow	2016 – 2018
Helen Sizer Career Development Professorship	2015 – 2018
NIH Pathway to Independence Award (K99/R00)	2013 – 2018
Helen Hay Whitney Postdoctoral Fellowship	2011 – 2013
National Science Foundation Graduate Research Fellowship	2005 – 2008
American Chemical Society Outstanding Poster Award	2007
Purcell Fellowship	2004 – 2005
Taiwan Semiconductor Manufacturing Co. Exchange Fellowship	2002 – 2003

PUBLICATIONS

Since 2015:

26. Taggart JC, **Li GW**. Production of protein-complex components is stoichiometric and lacks general feedback regulation in eukaryotes. *Cell Systems* **7**, 580 (2018)
25. Johnson GE, **Li GW**. Genome-wide quantitation of protein synthesis rates in bacteria. *Methods in Enzymology* **612**, 225 (2018)
24. Babina AM, Parker DJ, **Li GW**, Meyer MM. Fitness advantages conferred by the L20-interacting RNA cis-regulator of ribosomal protein synthesis in *Bacillus subtilis*. *RNA* **24**, 1133 (2018)
23. DeLoughery A, Lalanne JB, Losick R, **Li GW**. Maturation of polycistronic mRNAs by the endoribonuclease RNase Y and its associated Y-complex in *Bacillus subtilis*. *PNAS* **115**, E5585 (2018)
22. Lalanne JB, **Li GW**. Enzyme pathways call for precise recipes. *Cell Systems* **6**, 397 (2018)
21. Zhang Y, Burkhardt DH, Rouskin S, **Li GW***, Weissman JS*, Gross CA*. A stress response that monitors and regulates mRNA structure is central to cold shock adaptation. *Molecular Cell* **70**, 274 (2018) ***corresponding authors**

20. Lalanne JB, Taggart JC, Guo MS, Herzel L, Schieler A, **Li GW**. Evolutionary convergence of pathway-specific enzyme expression stoichiometry. *Cell* **173**, 749 (2018)
19. DeFrancesco AS, Masloboeva N, DeLoughery A, Bradshaw N, **Li GW**, Gilmore NS, Walker S, Losick R. Genome-Wide Screen for Genes Involved in eDNA Release During Biofilm Formation by *Staphylococcus aureus*. *PNAS* **114**, E5969 (2017)
18. Burkhardt DH, Rouskin S, Zhang Y, **Li GW***, Weissman JS*, Gross CA*. Operon mRNAs are organized into ORF-centric structures that predict translation efficiency. *Elife* **6**, e22037 (2017) ***corresponding authors**
17. Schrader JM, **Li GW**, Childers WS, Perez AM, Weissman JS, Shapiro L, McAdams HH. Dynamic translation regulation in Caulobacter cell cycle control. *Proceedings of the National Academy of Sciences* **113** (44), E6859 (2016)
16. **Li GW**. How do bacteria tune translation efficiency? *Current Opinion in Microbiology* **24**, 66 (2015)

Before 2015:

15. **Li GW***, Burkhardt D, Gross CA, Weissman JS*. Quantifying absolute protein synthesis rates reveals principles underlying allocation of cellular resources. *Cell* **157**, 624 (2014) *corresponding author
14. Schrader JM, Zhou B, **Li GW**, Lasker K, Childers WS, Williams B, Long T, Crosson S, McAdams HH, Weissman JS, Shapiro L. The coding and noncoding architecture of the Caulobacter crescentus genome. *PLoS Genetics* **10**, e1004463 (2014)
13. Keseler IM, Skrzypek M, Weerasinghe D, Chen AY, Fulcher C, **Li GW**, Lemmer KC, Mladinich KM, Chow ED, Sherlock G, Karp PD. Curation accuracy of model organism databases. *Database* **2014**, bau058 (2014)
12. Chen B, Gilbert LA, Cimini BA, Schnitzbauer J, Zhang W, **Li GW**, Park J, Blackburn EH, Weissman JS, Lei SQ, Huang B. Dynamic imaging of genomic loci in living human cells by an optimized CRISPR/Cas system. *Cell* **155**, 1479 (2013)
11. O'Connor PBF, **Li GW**, Weissman JS, Atkins JF, Baranov PV. rRNA:mRNA pairing alters the length and the symmetry of mRNA-protected fragments in ribosome profiling experiments. *Bioinfomatics* **29**, 1488 (2013)
10. **Li GW**, Oh E, Weissman JS. The anti-Shine-Dalgarno sequence drives translational pausing and codon choice in bacteria. *Nature* **484**, 538 (2012)
9. Brandman O, Stewart-Ornstein J, Wong D, Larson A, Williams CC, **Li GW**, Zhou S, King D, Shen PS, Weibezahn J, Dunn JG, Rouskin S, Inada T, Frost A, Weissman JS. A ribosome-bound quality control complex triggers degradation of nascent peptides and signals translation stress. *Cell* **151**, 1042 (2012)
8. Wang W*, **Li GW***, Chen C*, Xie XS, Zhuang X. Chromosome organization by a nucleoid-associated protein in live bacteria. *Science* **333**, 1445 (2011) *equal contribution
7. **Li GW**, Xie XS. Central dogma at the single-molecule level in living cells. *Nature* **475**, 308 (2011)
6. Taniguchi Y*, Choi PJ*, **Li GW***, Chen H*, Babu M, Hearn J, Emili A, Xie XS. Quantifying E. coli proteome and transcriptome with single-molecule sensitivity in single cells. *Science* **329**, 533 (2010) *equal contribution
5. **Li GW**, Elf J. Single molecule approaches to transcription factor kinetics in living cells. *FEBS Letters* **583**, 3979 (2009)
4. **Li GW**, Berg OG, Elf J. Effects of macromolecular crowding and DNA looping on gene regulation kinetics. *Nature Physics* **5**, 294 (2009)
3. Xie CS, Choi PJ, **Li GW**, Lee NK, Lia G. Single-molecule approach to molecular biology in living bacterial cells. *Annual Reviews of Biophysics* **37**, 417 (2008)
2. Xiao J, Elf J, **Li GW**, Yu J, Xie XS. Imaging gene expression in living cells at the single-molecule level. *Single Molecules: a laboratory manual*. Cold Spring Harbor Press (2007)
1. Elf J*, **Li GW***, Xie XS. Probing transcription factor dynamics at the single-molecule level in a living cell. *Science* **316**, 1191 (2007) *equal contribution