

Wendy Victoria Gilbert

Curriculum Vitae

Department of Molecular Biophysics & Biochemistry
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Degrees

2004 Ph.D., Biochemistry; University of California, San Francisco
Thesis Advisor: Dr. Christine Guthrie
1994 A.B., Molecular Biology; Princeton University, Princeton, NJ

Employment

2017- Associate Professor of Molecular Biophysics and Biochemistry, Yale University
2013-2016 Associate Professor of Biology, MIT
2008-2013 Assistant Professor of Biology, MIT
2004-2008 Post-doctoral Fellow with Dr. Jennifer Doudna
Howard Hughes Medical Institute/University of California, Berkeley

Honors

2017 RNA Society Early Career Award
2014 American Cancer Society Research Scholar Award
2009 Robert A. Swanson Career Development Professor
2007 NIH Pathways to Independence Award
2004 Fellow, Damon Runyon Cancer Research Foundation
1995 Howard Hughes Medical Institute Predoctoral Fellowship
1994 Bachelor of Arts, cum laude, Princeton University

Other Professional Activities

2012 Session Chair, Gordon Research Conference on Post-Transcriptional Gene Regulation
2014 Session Chair, RNA Society Meeting
2015 Session Chair, Eukaryotic RNA Processing Meeting, Cold Spring Harbor
2015 Grant Reviewer for Medical Research Council (UK)
2015-2016 Co-Organizer RNA Society Meeting 2016
2017-2018 Co-Organizer EMBO Conference | Complex Life of mRNA 2018
2017 NIH Study Section Ad hoc Reviewer, Cancer Molecular Pathobiology
2017 NCI SBIR Contract Review on RNA Tools and Technologies
2017 Session Chair, Translational Control Meeting, EMBL
2017-2020 Peer Review Committee member RNA Mechanisms in Cancer, American Cancer Society
2017-2020 Editorial Board, *Plos Biology*
2018 Session Chair, RNA Society Meeting
2018 Session Chair, Translational Control Meeting, Cold Spring Harbor
2018-2019 Member, RNA Society Board of Directors

Publications

1. Zinshteyn, B., Rojas-Duran, M. F., and **Gilbert, W.V.** “Translation initiation factor eIF4G1 preferentially binds yeast transcript leaders containing conserved oligo-uridine motifs. *RNA*, in press.
2. Thompson, M. K. and **Gilbert, W. V.** “mRNA length-sensing in eukaryotic translation: reconsidering the "closed loop" and its implications for translational control”. *Current Genetics*, in press.
3. Cattie, D.J., Richardson, C. E., Reddy, K. C., Ness-Cohn, E. M., Droste, R., Thompson, M. K., **Gilbert, W. V.**, Kim, D. H. “Mutations in Nonessential eIF3k and eIF3l Genes Confer Lifespan Extension and Enhanced Resistance to ER Stress in *C. elegans*”. (2016) *PLoS Genetics* **12** (9): e1006326.
4. Gould, G. M., Paggi, J. M., Guo, Y., Zinshteyn, B., Wang, E. T., **Gilbert, W. V.**, Gifford, D. K., and Burge, C. B. (2016) “Identification of new branch points and unconventional introns in *Saccharomyces cerevisiae*”. *RNA* **22**: 1522-1534.
5. Stanley, S. E., Gable, D. L., Wagner, C. L., Thomas M. Carlile, T. M., Hanumanthu, V. S., Podlevsky, J. D., Sara E. Khalil, S. E., DeZern, A. E., Rojas-Duran, M. F., Carolyn D. Applegate, C. D., Jonathan K. Alder, J. K., Parry, E. M, **Gilbert, W. V.**, and Armanios, M. (2016) “Loss-of-function mutations in the RNA biogenesis factor NAF1 predispose to pulmonary fibrosis-emphysema”. *Science Translational Medicine* **8** (351): 351ra107.
6. **Gilbert, W. V.**, Bell, T. A., and Schaening, C. S. (2016) “Messenger RNA Modifications – Form, Distribution, and Function”. *Science* **352**:1408-12.
7. Thompson, M. K., Rojas-Duran, M. F., Gangaramani, P. and **Gilbert, W. V.** (2016) “The ribosomal protein Asc1/RACK1 is required for efficient translation of short mRNAs”. *eLife* Apr 27;5. pii: e11154. doi: 10.7554/eLife.11154.
8. Berchowitz, L. E., Walker, M. R., Kabachinski, G. L., Carlile, T. M., **Gilbert, W. V.**, Schwartz, T. U., Amon, A. (2015) “Regulated formation of an amyloid-like translational repressor governs gametogenesis”. *Cell* **163** (2): 406-18.
9. Carlile, T. M., Rojas-Duran, M. F., and **Gilbert, W. V.** (2015) “Pseudo-Seq: Genome-wide detection of pseudouridine modifications in RNA”. *Methods in Enzymology* **560**: 219-45.
10. Carlile, T. M., Rojas-Duran, M. F., and **Gilbert, W. V.** (2015) “Transcriptome-wide identification of pseudouridine modifications using Pseudo-seq”. *Current Protocols* **112**: 4.25.1-4.25.24.
11. Saha, A., Mitchell, J. A., Nishida, Y., Hildreth, J. E., Arribere, J. A., **Gilbert, W. V.**, and Garfinkel, D. J. (2015) “A trans-dominant form of Gag restricts Ty1 retrotransposition and mediates copy number control”. *J. Virology* **89**(7): 3922-38.
12. Carlile, T. M., Rojas-Duran, M. F., Shin, H., Zinshteyn, B., Bartoli, K. B., and **Gilbert, W. V.** (2014). “Pseudouridine profiling reveals regulated mRNA pseudouridylation in yeast and human cells”. *Nature* **515** (7525): 143-6. **Highlighted in Nature Reviews Genetics. Highlighted in Nature Methods. Highlighted in ACS Chemical Biology. Highlighted in Cell Research. Highlighted by the Saccharomyces Genome Database (“New & Noteworthy”).**
13. Vaidyanathan, P. V., Zinshteyn, B., Thompson, M. K., and **Gilbert, W. V.** (2014) “Protein kinase A regulates gene-specific translational adaptation in differentiating yeast”. *RNA* **20** (6): 912-922.
14. Zinshteyn, B. and **Gilbert, W.V.** (2013) “Loss of a Conserved tRNA Anticodon Modification Perturbs Cellular Signaling”. *PLoS Genetics* **9** (8): e1003675.

15. Arribere, J. A. and **Gilbert, W. V.** (2013) "Roles for transcript leaders in translation and mRNA decay revealed by transcript leader sequencing". *Genome Research* **23** (6): 977-87.
16. Rojas-Duran, M. F. and **Gilbert, W. V.** (2012) "Alternative transcription start site selection leads to large differences in translation in yeast". *RNA* **18** (12): 2299-305.
17. Arribere, J. A., Doudna, J. A., and **Gilbert, W. V.** (2011). "Reconsidering movement of eukaryotic mRNAs between polysomes and P-bodies". *Molecular Cell* **44** (5): 745-58. **Highlighted by Faculty of 1000.**
18. **Gilbert, W. V.** (2011). "Functional specialization of ribosomes?" *Trends in Biochemical Sciences* **36** (3): 127-32.
19. **Gilbert, W. V.** (2010). "Alternative ways of thinking about cellular internal ribosome entry". *Journal of Biological Chemistry* **285** (38): 29033-8.
20. Clarkson, B. K., **Gilbert, W. V.**, Doudna, J. A. (2010). "Functional overlap between eIF4G isoforms in *Saccharomyces cerevisiae*". *PLoS One* **5** (2): e9114.
21. Coyle, S. M., **Gilbert, W. V.**, and Doudna, J. A. (2009). "Direct link between RACK1 function and localization at the ribosome in vivo". *Molecular and Cellular Biology* **29** (6): 1626-34.
22. **Gilbert, W. V.**, Zhou, K., Butler, T. K. and Doudna, J. A. (2007). "Cap-independent translation is required for starvation-induced differentiation in yeast". *Science* **317** (5842): 1224-7. **Highlighted by Faculty of 1000.**
23. **Gilbert, W.** and Guthrie, C. (2004) "The Glc7p nuclear phosphatase promotes mRNA export by facilitating association of Mex67p with mRNA". *Molecular Cell* **13** (2): 201-212.
24. **Gilbert, W.**, Siebel, C. W., and Guthrie, C. (2001). "Phosphorylation by Sky1p promotes Npl3p shuttling and mRNA dissociation". *RNA* **7** (2): 302-13.

Research Contracts and Grants

Federal

National Cancer Institute (**R21**). "Characterizing Functional Targets of a Non-coding RNA Oncogene, SNORA42." 5/1/15-4/30/17. \$275,000 (Direct Costs). Role: PI

National Institute of General Medical Sciences (**R01**). "Regulation and Function of snoRNA Genes." 9/1/14-7/31/18. \$760,000 (Direct Costs). Role: PI

National Institute of General Medical Sciences (**R01**). "Functional Consequences of Ribosome Heterogeneity." 6/4/12-5/31/17. \$950,000 (Direct Costs). Role: PI

National Center for Research Resources (**S10**). "Upgrade of Tecan Robotic Liquid-Handling Equipment." 4/1/10-3/31/11. \$205,759 (Direct Costs). Role: PI

National Institute of General Medical Sciences (**R00**). "Mechanisms and Regulation of Yeast Internal Ribosome Entry Sites." 9/1/08-12/31/11. \$747,000 (Direct Costs). Role: PI

National Institute of General Medical Sciences (**R00 – Supplement**). "Mechanisms and Regulation of Yeast Internal Ribosome Entry Sites." 1/8/10-12/31/11. \$101,280 (ARRA Award) (Direct Costs). Role: PI

Non-Federal

Koch Institute Frontier Research Program. "Pseudouridine Sequencing in Lung Cancer Cells and Tumors." 9/1/14-8/30/15. \$100,000 (Total Costs). Role: PI

American Cancer Society Research Scholar Award. "Role of snoRNAs in DNA Repair and Cancer." 1/1/14-12/31/17. \$702,500 (Direct Costs). Role: PI

American Cancer Society Postdoctoral Fellowship Award (Dr. Kristen Bartoli). "Determining the Mechanism of Action of Tumor Suppressor snoRNA U50." 7/1/13-6/30/15. \$150,000 (Direct Costs). Role: Mentor

American Cancer Society Postdoctoral Fellowship Award (Dr. Thomas Carlile). "Examination of the Roles of snoRNAs in Response to DNA Damage." 7/1/12-6/30/14. \$150,000 (Direct Costs). Role: Mentor

Jane Coffin Childs Postdoctoral Fellowship Award (Dr. Nicole Martinez). "Defining the Landscape and Function of Pseudouridine in pre-mRNA." 7/1/16-6/30/19. \$160,500 (Direct Costs). Role: Mentor

Charles E. Reed Faculty Initiatives Award. "Investigating the Roles of Alternative 5'UTR Isoforms in Control of Gene Expression in Yeast." 6/16/09. \$50,000 (Total Costs). Role: PI