

CURRICULUM VITAE

Julius B. Lucks

Professor of Chemical and Biological Engineering
Co-Director, Center for Synthetic Biology
Northwestern University, 2145 Sheridan Rd. Evanston, IL 60208
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EDUCATION

B.S., Chemistry (Highest Honors) (2001) University of North Carolina, Chapel Hill, NC
M.Phil., Chemistry (2002) University of Cambridge, Cambridge, UK
M.S., Chemical Physics (2004) Harvard University, Cambridge, MA
Ph.D., Chemical Physics (2007) Harvard University, Cambridge, MA
Miller Fellow Postdoctoral Associate (2011) University of California, Berkeley, CA

PROFESSIONAL EXPERIENCE

Professor (2021-)

Associate Professor (2016-2021)

and Associate Chair (2018-2023), Chemical and Biological Engineering, Northwestern University

Affiliations at Northwestern:

Faculty Associate, Institute for Policy Research, 2025-Present
Associate Chair, Chemical and Biological Engineering, 2018-2023
Member, Center for Synthetic Biology, 2016-Present
Member and Preceptor, Chemistry of Life Processes Institute, 2016-Present
Member, Center for Water Research, 2018-Present
Member, Center for Engineering, Sustainability and Resilience, 2019-Present
Member, Center for Air and Water, International Institute of Nanotechnology, 2020-Present
Preceptor, Interdisciplinary Biological Sciences Graduate Program, 2016-Present
Preceptor, Steering Committee, Molecular Biophysics Training Program, 2017-Present
Preceptor, Biotechnology Training Program, 2017-Present
Affiliate, International Institute of Nanotechnology, 2016-Present

Assistant Professor, Chemical and Biomolecular Engineering, Cornell University, 2011-2016

Affiliations at Cornell:

Graduate Field Member, Biochemistry, Molecular and Cell Biology, 2013-2016
Graduate Field Member, Biomedical Engineering, 2014-2016
Graduate Field Member, Computational Biology, 2014-2016
Graduate Field Member, Microbiology, 2014-2016

Co-director, Northwestern Center for Synthetic Biology, 2023-Present

Director, NSF Synthetic Biology Across Scales NRT Graduate Training Program, 2019-Present

Co-founder, Stemloop Inc., 2019-Present

Instructor and Co-Creator, Cold Spring Harbor Course on Synthetic Biology, 2013-2015

James C. and Rebecca Q. Morgan Sesquicentennial Faculty Fellow, Cornell University, 2012-2016

Miller Fellow Postdoctoral Associate, Bioengineering, Univ. of California, Berkeley, 2008-2011

Postdoctoral Associate, Information Science, Cornell University, Ithaca, NY, 2007

Visiting Scholar, Theoretical Physics, Institute Marie Curie, Paris, Fr, 2005

Visiting Bi Fellow, Churchill College, Cambridge UK 2023-2024

Visiting Researcher, Applied Math and Theoretical Physics, Cambridge University, 2023-2024

Visiting Researcher, Laboratory of Molecular Biology, MRC, Cambridge UK 2023-2024

HONORS AND AWARDS

2025 Fellow, American Association for the Advancement of Science

2025 Visscher Lectureship in Genetics (w/ Professor Sera Young), Hope College

2023 Guggenheim Fellow, Biology
2022 Phi Lambda Upsilon Award Lecture, University of Nebraska
2022 American Institute for Medical and Biological Engineering (AIMBE) College of Fellows
 For “discovering RNA folding principles related to understanding and treating disease, and engineering synthetic biology diagnostics for global health.”
2020 Blavatnik National Awards for Young Scientists, Finalist Life Sciences
2017 Camille Dreyfus Teacher-Scholar Award
2016 ACS Synthetic Biology Young Investigator Award
2016 Northwestern Searle Leadership Award
2015 NSF CAREER Award
2015 Cornell College of Engineering Mr. and Mrs. Richard F. Tucker `50 Teaching Award
2013 NIH Director’s New Innovator Award
2013 Office of Naval Research (ONR) Young Investigator
2013 Alfred P. Sloan Research Fellowship
2012 Defense Advanced Research Projects Agency (DARPA) Young Faculty Award
2012 James C. and Rebecca Q. Morgan Sesquicentennial Faculty Fellow
2008-2011 Miller Research Fellow, University of California, Berkeley
2002-2007 John and Fannie Hertz Foundation Graduate Fellow
2002 Robert Karplus Prize Fellowship in Chemical Physics, Harvard University
2001 Winston Churchill Scholarship, Churchill College, Cambridge University
2001 National Science Foundation Graduate Fellowship (Declined, Duplicate Funding)
2001 Department of Defense Graduate Fellowship (Declined, Duplicate Funding)
2000-2001 Barry M. Goldwater Scholarship, Univ. North Carolina, Chapel Hill
2001 Francis P. Venable Medal, Univ. North Carolina, Chapel Hill
2001 Academic Excellence in Physical Chemistry, Univ. North Carolina, Chapel Hill
2000 Phi Beta Kappa, Univ. North Carolina, Chapel Hill
2000 NSF REU Fellowship, Univ. Colorado, Boulder
1999 American Chemical Society Undergraduate Research Award

BOARDS AND ADVISORY COMMITTEES

Scientific Advisory Board, Institute for RNA-based Infection Research, Helmholtz Centre for Infection Research, Würzburg, Germany, 2025 - Present
Advisory Committee, NSF Directorate for Biological Science (BIO), 2024-2025 (Disestablished by Executive Order)
Advisory Board, Engineering Biology Interdisciplinary Research Center, Cambridge University, 2024-Present
Member, National Academies Committee Towards Sequencing and Mapping RNA Modifications, 2022-2024
Advisory Board, MSCA European Doctoral Network SYNSSENS, 2022-Present
Editorial Board, GEN Biotechnology, 2021-Present
Guest Editor, PNAS, 2022
Editorial Board, Nucleic Acids Research, 2015-2021
Editorial Board, ACS Synthetic Biology, 2011-Present
Editorial Affiliate, bioRxiv, 2014-Present

PUBLICATIONS (As of 6/15/25, Google Scholar H-index: 47; i10-index 73; Total Citations: 7073)

* = corresponding author; # = student from Lucks group; % = undergraduate student; blue = highlight

1. L. M. Irie, D. M. Brown[#], **J. B. Lucks***, N. Gianneschi* (2025). "UV-resistant cell-free reactions with synthetic melanin additives." *ACS Synthetic Biology*, doi:10.1021/acssynbio.5c00212.
2. D. M. Brown[#], D. A. Phillips, D. C. Garcia, A. Arce[#], T. Lucci[#], J. P. Davies Jr., J. Mangini, K. A. Rhea, C. B. Bernhards, J. R. Biondo, S. M. Blum, S. D. Cole, J. A. Lee, M. S. Lee, N. D. McDonald, B. Wang, D. L. Perdue, W. Thavarajah[#], A. S. Karim, M. W. Lux, M. C. Jewett, A. E. Miklos*, **J. B. Lucks*** (2025). "Semiautomated production of cell-free biosensors." *ACS Synthetic Biology*, doi:10.1021/acssynbio.4c00703.
3. D. K. Agarwal, T. J. Lucci[#], K. J. Jung[#], G. S. Shekhawat, A. S. Green, **J. B. Lucks***, V. P. Dravid* (2025). "Ultra-sensitive water contaminant detection with transcription factor interfaced microcantilevers." *ACS Nano*, doi: 10.1021/acsnano.4c17598.
4. D. Z. Bushhouse[#], J. Fu[#], **J. B. Lucks*** (2025). "RNA folding kinetics control riboswitch sensitivity in vivo." *Nature Communications*, doi: 10.1038/s41467-024-55601-3
5. Y. Li[#], T. J. Lucci[#], M. Villarruel Dujovne, K. J. Jung[#], D. A. Capdevila, **J. B. Lucks*** (2025). "A cell-free biosensor signal amplification circuit with polymerase strand recycling." *Nature Chemical Biology*, doi:10.1038/s41589-024-01816-w.
6. T. Lucci[#], A. Neufarth, J.-F. Gaillard, **J. B. Lucks*** (2024). "A sensor for detecting aqueous Cu²⁺ that functions in a just-add-water format." *ACS Omega*, doi: 10.1021/acsomega.4c08751.
7. J. K. Jung[#], K. S. Dreyer, K. E. Dray, J. J. Muldoon, J. George, S. Shirman, M. D. Cabezas, A. E. D'Aquino, M. S. Verosloff[#], K. Seki, G. A. Rybnicky, K. K. Alam, N. Bagheri, M. C. Jewett, J. N. Leonard*, N. M. Mangan*, **J. B. Lucks*** (2024). "Developing, characterizing and modeling CRISPR-based point-of-use pathogen diagnostics." *ACS Synthetic Biology*, doi: 10.1021/acssynbio.4c00469.
8. K. Haynes*, L. Andrews, C. Beisel, J. Chappell, C. Cuba Samaniego, J. Dueber, M. Dunlop, E. Franco, **J. B. Lucks**, V. Noireaux, D. Savage, P. Silver, M. Smanski, E. Young (2024). "Ten Years of the Synthetic Biology Summer Course at Cold Spring Harbor Laboratory". *ACS Synthetic Biology*, doi: 10.1021/acssynbio.4c00276.
9. H. M. Ekas, B. Wang, A. D. Silverman[#], **J. B. Lucks**, A. S. Karim, M. C. Jewett* (2024). "An automated, cell-free workflow for transcription factor engineering." *ACS Synthetic Biology*, doi: 10.1021/acssynbio.4c00471. [Editors Choice](#).
10. H. M. Ekas, B. Wang, A. D. Silverman[#], **J. B. Lucks**, A. S. Karim, M. C. Jewett* (2024). "Engineering a PbrR-based biosensor for cell-free detection of lead at the legal limit." *ACS Synthetic Biology*, doi: 10.1021/acssynbio.4c00456.
11. J. D. Miller, C. Staddon, A. Salzberg, **J. B. Lucks**, W. B. De Bruin, S. L. Young* (2024). "Self-reported anticipated harm from drinking water across 141 countries". *Nature Communications*, doi:10.1038/s41467-024-51528-x.
12. A. S. Karim*, D. M. Brown[#], C. M. Archuleta[#], S. Grannan, L. Aristilde, Y. Goyal, J. N. Leonard, N. Mangan, A. Prindle, G. J. Rocklin, K. J. Tyo, L. Zoloth, M. C. Jewett, S. Calkins, N. Kamat, D. Tullman-Ercek, **J. B. Lucks*** (2024). "Deconstructing synthetic biology across scales: a conceptual approach for training synthetic biologists." *Nature Communications*, doi:10.1038/s41467-024-49626-x.
13. R. Weinstock, A. Knaus, J. Messing, V. Bly, **J. B. Lucks**, S. L. Young (2024). "When it comes to lead in water, new biosensing technology can reveal what the eyes can't see and what the rules don't yet stop." *AQUA Water Infrastructure, Ecosystems and Society*, doi: 10.2166/aqua.2024.019.
14. L. M. Hertz[#], E. N. White, K. Kuznedelov, L. Cheng[#], A. M Yu[#], R. Kakkaramadam, K. Severinov, A. Chen*, **J. B. Lucks*** (2024). "The effect of pseudoknot base pairing on cotranscriptional structural switching of the fluoride riboswitch." *Nucleic Acids Research*, doi:10.1093/nar/gkae231.
15. Y. Li[#], A. Arce[#], T. Lucci[#], R. A. Rasmussen[#], **J. B. Lucks*** (2023). "Dynamic RNA synthetic biology: new principles, practices and potential." *RNA Biology*, 20, 817-829, doi: 10.1080/15476286.2023.2269508.
16. D. M. Stranford, L. M. Simons, K. E. Berman[#], L. Cheng[#], **J. B. Lucks**, J. F. Hultquist, J. N. Leonard* (2023). "Genetically encoding multiple functionalities into extracellular vesicles for the targeted delivery of biologics to T cells". *Nature Biomedical Engineering* doi: 10.1038/s41551-023-01142-x.

17. K. E. Berman[#], R. Steans[#], L. M. Hertz[#], **J. B. Lucks*** (2023). "A transient intermediate RNA structure underlies the regulatory function of the *E. coli thiB* TPP translational riboswitch." ***RNA***, 29, 1658-1672, doi: 10.1261/rna.079427.122.
18. J. K. Jung[#], B. J. Rasor, G. A. Rybnicky, A. D. Silverman[#], J. Standeven, R. Kuhn, T. Granito, H. M. Ekas, B. M. Wang, A. S. Karim, **J. B. Lucks***, M. C. Jewett* (2023). "At-home, cell-free synthetic biology education modules for transcriptional regulation and environmental water quality monitoring." ***ACS Synthetic Biology***, 23, 2909-2921, doi: 10.1021/acssynbio.3c00223.
19. K. Dray, K. Dreyer, **J. B. Lucks**, J. N. Leonard* (2023). "Teaching systematic, reproducible model development using synthetic biology." ***Chemical Engineering Education***, 57, 124-130, doi:10.18260/2-1-370.660-132665.
20. D. Z. Bushhouse, **J. B. Lucks*** (2023). "Tuning strand displacement kinetics enables programmable ZTP riboswitch dynamic range *in vivo*." ***Nucleic Acids Research***, 51, 2891-2903, doi:10.1093/nar/gkad110.
21. W. Thavarajah[#], P. Our, D. Awuor, K. Kiprotich, R. Aggarwal, **J. B. Lucks***, S. L. Young (2023). The accuracy and usability of point-of-use fluoride biosensors: a field study in Nakuru County, Kenya. ***npj Clean Water***, 6, 5, doi:10.1038/s41545-023-00221-5.
22. M. A. Boyd, W. Thavarajah[#], **J. B. Lucks***, N. P. Kamat* (2023). Robust and tunable performance of a cell-free biosensor encapsulated in lipid vesicles. ***Science Advances***, 9, eadd6605, doi:10.1126/sciadv.add6605.
23. R. A. Rasmussen[#], S. Wang, J. M. Caramillo, V. Sosnowski, B-K Cho, Y. A. Goo, **J. B. Lucks***, T. V. O'Halloran (2022). Zur and zinc increase expression of *E. Coli* ribosomal protein L31 through RNA-mediated repression of the repressor L31p. ***Nucleic Acids Research***, 50, 12739-12753, doi: 10.1093/nar/gkac1086.
24. S. V. Harbough, A. D. Silverman[#], Y. G. Chushak, K. Zimlich, M. Wolfe, W. Thavarajah[#], M. C. Jewett, **J. B. Lucks**, J. L. Chávez (2022). "Engineering a synthetic dopamine-responsive riboswitch for in vitro biosensing" ***ACS Synthetic Biology***, 11, 2275-2283, doi: 10.1021/acssynbio.1c00560.
25. D. Z. Bushhouse[#], E. K. Choi[#], L. M. Hertz[#], **J. B. Lucks*** (2022). "How does RNA fold dynamically?" ***Journal of Molecular Biology***, 434, 167665, doi: 10.1016/j.jmb.2022.167665.
26. L. Cheng[#], Elise N. White, Naomi L. Berg, Angela M Yu, Alan A. Chen*, **J. B. Lucks*** (2022). "Cotranscriptional RNA strand exchange underlies the gene regulation mechanism in a purine-sensing transcriptional riboswitch". ***Nucleic Acids Research***, 50, 12001-12018, doi:10.1093/nar/gkac102. [Breakthrough Article](#).
27. K. J. Jung[#], K. K. Alam[#], Chloé M. Archuleta[#], **J. B. Lucks*** (2022). "Programming cell-free biosensors with DNA strand displacement circuits". ***Nature Chemical Biology***, 18, 385-393, doi:10.1038/s41589-021-00962-9. [Cover article. News and Views: "Logic invades cell-free biosensing."](#) E. Amalfatino and K. Pardee, ***Nature Chemical Biology***, doi:10.1038/s41589-021-00963-8.
28. K. J. Jung[#], K. K. Alam[#], **J. B. Lucks*** (2022). "ROSALIND: Rapid detection of chemical contaminants with in vitro transcription factor-based biosensors". ***Methods in Molecular Biology***, 2433:325-342, doi:10.1007/978-1-0716-1998-8_20.
29. W. Thavarajah[#], L. M. Hertz[#], D. Z. Bushhouse[#], C. M. Archuleta[#], **J. B. Lucks*** (2021). "RNA Engineering for Public Health: Innovations in RNA-Based Diagnostics and Therapeutics." ***Ann Rev Chemical and Biological Engineering***, 12, 263-286, doi:10.1146/annurev-chembioeng-101420-014055. (Invited submission).
30. C. J. Glasscock[#], J. T. Lazar, B. W. Biggs, J. H. Arnold[%], M. K. Kang, D. Tullman-Ercek*, K. Tyo*, **J. B. Lucks*** (2021). "Dynamic control of pathway expression with riboregulated switchable feedback promoters." ***ACS Synthetic Biology*** 10, 1199-1213, doi:10.1021/acssynbio.1c00015.
31. M. Verosloff[#], W. Corcoran, T. Dolberg, J. Leonard*, **J. B. Lucks*** (2021). "RNA sequence and structural determinants of Pol III transcriptional termination in human cells". ***Journal of Molecular Biology***, 433, 166978, doi: 10.1016/j.jmb.2021.166978.

32. A. Yu[#], P. M. Gasper, L. Cheng[#], L. B. Lai, S. Kaur, V. Gopalan, A. A. Chen^{*}, **J. B. Lucks^{*}** (2021). "Computationally reconstructing RNA cotranscriptional folding pathways from experimental data reveals rearrangement of non-native folding intermediates". *Molecular Cell*, 81, 870-883, doi:10.1016/j.molcel.2020.12.017.
33. K. J. Jung[#], K. K. Alam[#], M. Verosloff[#], D. A. Capdevila, M. Desmau, P. R. Clauer[#], J. W. Lee, P. Q. Nguyen, P. A. Pasten, S. Matiassek, J.-F. Gaillard, D. P. Giedroc, J. J. Collins, **J. B. Lucks^{*}** (2020). "Cell-free biosensors for rapid detection of water contaminants." *Nature Biotechnology*, 38, 1451-1459, doi: 10.1038/s41587-020-0571-7.
34. E. J. Strobel^{##}, J. T. Lis, **J. B. Lucks** (2020). "Chemical transcription roadblocking for nascent RNA display." *Journal of Molecular Biology*, 295, 6401-6412, doi: 10.1074/jbc.RA120.012641. [Selected for special issue on methods](#).
35. W. Thavarajah[#], M. Verosloff[#], K. J. Jung[#], K. K. Alam[#], J. Miller, M. C. Jewett, S. L. Young^{*}, **J. B. Lucks^{*}** (2020). "A primer on emerging field-deployable tools for democratizing global water quality monitoring." *npj Clean Water*, 3, 18, doi: 10.1038/s41545-020-0064-8.
36. A. D. Silverman[#], U. Akova[#], K. K. Alam[#], M. C. Jewett^{*}, **J. B. Lucks^{*}** (2020). "Design and optimization of a cell-free atrazine biosensor." *ACS Synthetic Biology*, 9, 671, doi: 10.1021/acssynbio.9b00388.
37. W. Thavarajah[#], A. D. Silverman[#], M. Verosloff[#], N. Kelley-Loughnane, M. C. Jewett, **J. B. Lucks^{*}** (2020). "Point-of-use detection of environmental fluoride via a cell-free riboswitch-based biosensor." *ACS Synthetic Biology*, 9, 10-18, doi: 10.1021/acssynbio.9b00347.
38. X. Liu, A. D. Silverman[#], K. K. Alam[#], E. Iverson, **J. B. Lucks^{*}**, M. C. Jewett^{*}, S. Raman^{*} (2019). "Design of a transcriptional biosensor for the portable, on-demand detection of cyanuric acid." *ACS Synthetic Biology*, 9, 84-94, doi: 10.1021/acssynbio.9b00348.
39. A. J. Meyer, I. Saaem, A. D. Silverman[#], V. Varaljay, R. Mickol, S. M. Blum, A. V. Tobias, N. D. Schwalm, W. Mojadedi, E. Onderko, C. Bristol, S. Liu, A. Casini, R. Eluere, F. Moser, C. Drake, M. Gupta, N. Kelley-Loughnane, **J. B. Lucks**, K. L. Akingbade, M. W. Lux, S. M. Glaven, W. J. Crookes-Goodson, M. C. Jewett, B. Gordon, C. A. Voigt (2019). "Organism engineering for the bioproduction of the triaminotrinitrobenzene (TATB) precursor phloroglucinol (PG)." *ACS Synthetic Biology*, 8, 2746-2755, doi:10.1021/acssynbio.9b00393.
40. E. J. Strobel^{##}, L. Cheng[#], K. Berman[#], P. D. Carlson[#], **J. B. Lucks^{*}** (2019). "A ligand-gated strand displacement mechanism for ZTP riboswitch transcription control." *Nature Chemical Biology*, 15, 1067-1076, doi:10.1038/s41589-019-0382-7. [News and Views: "A newborn RNA switches its fate."](#) M. L. Rogers, Y. Has and S. A. Woodson, *Nature Chemical Biology*, doi:10.1038/s41589-019-0391-6.
41. J. Kim, Y. Zhou, P. D. Carlson[#], M. Teichmann, F. C. Simmel, P. A. Silver, J. J. Collins, **J. B. Lucks**, P. Yin, A. A. Green (2019). "De-novo designed translation-repressing riboregulators for multi-input cellular logic." *Nature Chemical Biology*, 15, 1173-1182, doi: 10.1038/s41589-019-0388-1.
42. J. D. Yesselman, D. Eiler, E. D. Carlson, M. R. Gotrik, A. E. d'Aquino, A. N. Ooms, W. Kladawang, P. D. Carlson[#], X. Shi, D. A. Constantino, D. Herschlag, **J. B. Lucks**, M. C. Jewett, J. S. Kieft, R. Das^{*} (2019). "Computational design of three-dimensional RNA structure and function." *Nature Nanotechnology*, 14, 866-873, doi:10.1038/s41565-019-0517-8.
43. A. Y. Xue, A. M. Yu[#], **J. B. Lucks^{*}**, N. Bagheri^{*} (2019). "DUETT quantitatively identifies novel events in nascent RNA structural dynamics from chemical probing data." *Bioinformatics*, 35, 5103-5112, doi:10.1093/bioinformatics/btz449. (* = co-corresponding)
44. A. Yu[#], **J. B. Lucks^{*}** (2019). "Tracking RNA structures as RNAs transit through the cell." *Nature Structural and Molecular Biology*, 26, 256-257. doi:10.1038/s41594-019-0213-2.
45. M. Verosloff[#], J. Chappell[#], K. L. Perry, J. R. Thompson, **J. B. Lucks^{*}** (2019). "PLANT-Dx: A molecular diagnostic for point of use detection of plant pathogens." *ACS Synthetic Biology*, 8, 902-905. doi: 10.1021/acssynbio.8b00526.
46. P. D. Carlson[#], **J. B. Lucks^{*}** (2019). "Elements of RNA Design." *Biochemistry*, 58, 1457-1459. doi: 10.1021/acs.biochem.8b01129.

47. A. D. Silverman[#], N. Kelley-Loughnane, **J. B. Lucks**, M. Jewett* (2019). "Deconstructing cell-free extract preparation for in vitro application of transcriptional genetic circuitry." *ACS Synthetic Biology*, 8, 403-414. doi: 10.1021/acssynbio.8b00430.
48. A. M. Westbrook[#], X. Tang, R. Marshall, C. S. Maxwell, J. Chappell[#], D. K. Agrawal, M. J. Dunlop, V. Noireaux, C. L. Beisel, **J. B. Lucks***, E. Franco* (2019). "Distinct timescales of RNA regulators enable the construction of a genetic pulse generator." *Biotechnology and Bioengineering*, 116, 1139-1151. doi: 10.1002/bit.26918.
49. P. D. Carlson[#], M. E. Evans[#], A. M Yu[#], E. J. Strobel[#], **J. B. Lucks*** (2018). "SnapShot: RNA Structure Probing Technologies." *Cell*, 175, P600. doi: 10.1016/j.cell.2018.09.024.
50. E. J. Strobel[#], A. Yu[#], **J. B. Lucks*** (2018). "High-throughput determination of RNA structures." *Nature Reviews Genetics*, 19, 615-634. doi: 10.1038/s41576-018-0034-x. [Cover article](#).
51. C. J. Glasscock[#], L. E. Yates, T. Jaroentomeechai, J. D. Wilson, J. H. Merritt, **J. B. Lucks**, M. P. DeLisa* (2018). "A flow cytometric approach to engineering *Escherichia coli* for improved eukaryotic glycosylation." *Metabolic Engineering*, 47, 488-495, doi: 10.1016/j.ymben.2018.04.014.
52. C. Hu[#], M. K. Takahashi[#], Y. Zhang^{#%}, **J. B. Lucks*** (2018). "Engineering a functional small RNA negative auto regulation network with model-guided design." *ACS Synthetic Biology*, 7, 1507-1518, doi: 10.1021/acssynbio.7b00440.
53. D. K. Agrawal, X. Tang, A. M. Westbrook[#], R. Marshall, C. S. Maxwell, **J. B. Lucks**, V. Noireaux, C. L. Beisel, M. J. Dunlop*, E. Franco* (2018). "Mathematical modeling of RNA-based architectures for closed loop control of gene expression." *ACS Synthetic Biology*, 7, 1219-1228, doi:10.1021/acssynbio.8b00040.
54. K. E. Watters[#], K. Choudhary, S. Aviran, **J. B. Lucks**, K. L. Perry, J. L. Thompson* (2017). "Probing of RNA structures in a positive sense RNA virus reveals selection pressures for structural elements." *Nucleic Acids Research*, 46, 2573-2584, doi: 10.1093/nar/gkx1273.
55. S. Meyer[#], P. D. Carlson[#], **J. B. Lucks*** (2017). "Characterizing the structure-function relationship of a naturally-occurring RNA thermometer." *Biochemistry*, 56, 6629-6638, doi: 10.1021/acs.biochem.7b01170.
56. J. Chappell[#], A. Westbrook[#], M. Verosloff[#], **J. B. Lucks*** (2017). "Computational design of STARs for versatile and dynamic gene regulation." *Nature Communications*, 8:1051, 1-12, doi:10.1038/s41467-017-01082-6.
57. E. J. Strobel[#], K. E. Watters[#], Y. Nedialakov, I. Artismovitch, **J. B. Lucks*** (2017). "Distributed biotin-streptavidin transcription roadblocks for mapping cotranscriptional RNA folding." *Nucleic Acids Research*, 45, e109, doi: 10.1093/nar/gkx233.
58. A. Westbrook[#], **J. B. Lucks*** (2017). "Achieving large dynamic range control of gene expression with a compact RNA transcription-translation regulator." *Nucleic Acids Research*, 45, 5614-5624, doi: 10.1093/nar/gkx215.
59. J. Chappell[#], **J. B. Lucks*** (2016). "Turning it up to 11: Modular proteins amplify RNA sensors for sophisticated circuitry", *Cell Systems*, 3, 509-511, doi:10.1016/j.cels.2016.12.004.
60. K. E. Watters[#], E. J. Strobel[#], A. Yu[#], **J. B. Lucks*** (2016). "Cotranscriptional Folding of a Riboswitch at Nucleotide Resolution", *Nature Structural and Molecular Biology*, 23, 1124-1131, doi:10.1038/nsmb.3316.
61. K. E. Watters[#], **J. B. Lucks*** (2016). "Mapping RNA structure in vitro with SHAPE chemistry and next generation sequencing (SHAPE-Seq)," in "RNA Structure Determination," D. Turner and D. Mathews (eds.) *Methods in Molecular Biology*, 1490, 135-162, doi:10.1007/978-1-4939-6433-8_9.
62. K. E. Watters[#], A. Yu[#], E. J. Strobel[#], A. H. Settle^{#%}, **J. B. Lucks*** (2016). "Characterizing RNA structures in vitro and in vivo with selective 2'-hydroxyl acylation analyzed by primer extension sequencing (SHAPE-Seq)." *Methods*, 103, 34-48, doi:10.1016/j.ymeth.2016.04.002.

63. M. K. Takahashi[#], K. E. Watters[#], P. M. Gaspar, T. R. Abbott^{#%}, P. D. Carlson[#], A. A. Chen, **J. B. Lucks*** (2016). "Using in-cell SHAPE-Seq and simulations to probe structure-function design principles of RNA transcriptional regulators." *RNA*, 22, 920-933, doi:10.1261/rna.054916.115.
64. E. J. Strobel[#], K. E. Watters[#], D. Loughrey[#], **J. B. Lucks*** (2016). "RNA systems biology: Uniting functional discoveries and structural tools to understand the global roles of RNAs," *Current Opinion in Biotechnology*, 39, 182-191, doi:10.1016/j.copbio.2016.03.019.
65. C. J. Glasscock[#], **J. B. Lucks**, M. P. DeLisa* (2016). "Engineered Protein Machines: Emergent Tools for Synthetic Biology," *Cell Chemical Biology*, 23, 45-56, doi:10.1016/j.chembiol.2015.12.004 .
66. K. E. Watters[#], T. R. Abbott^{#%}, **J. B. Lucks*** (2015). "Simultaneous characterization of cellular RNA structure and function with in-cell SHAPE-Seq." *Nucleic Acids Research*, 44, e12, doi:10.1093/nar/gkv879.
67. S. Meyer[#], J. Chappell[#], S. Sankar^{#%}, R. Chew^{#%}, **J. B. Lucks*** (2015). "Improving fold activation of small transcription activating RNAs (STARs) with rational RNA engineering strategies." *Biotechnology and Bioengineering*, 113, 216-225, doi:doi:10.1002/bit.25693. [Featured in Biotechnology and Bioengineering Spotlight Summary](#).
68. C. Y. Hu[#], J. D. Varner, **J. B. Lucks*** (2015). "Generating effective models and parameters for RNA genetic circuits." *ACS Synthetic Biology*, 4, 914-926, doi:10.1021/acssynbio.5b00077.
69. M. K. Takahashi[#], C. A. Hayes, J. Chappell[#], Z. Z. Sun, R. M. Murray, V. Noireaux*, **J. B. Lucks*** (2015). "Characterizing and prototyping genetic networks with cell-free transcription-translation reactions." *Methods*, 86, 60-72, doi:10.1016/j.ymeth.2015.05.020.
70. J. Chappell[#], K. E. Watters[#], M. K. Takahashi[#], **J. B. Lucks*** (2015). "A renaissance in RNA synthetic biology: new mechanisms, applications and tools for the future." *Current Opinion in Chemical Biology*, 28, 47-56, doi:10.1016/j.cbpa.2015.05.018.
71. J. Chappell[#], M. K. Takahashi[#], **J. B. Lucks*** (2015). "Creating small transcription activating RNAs." *Nature Chemical Biology*, 11, 214-220, doi:10.1038/nchembio.1737. [Research Highlight in Nature Methods "RNA that activates transcription" by N. Rusk \(2015\), 12, 290](#).
72. M. K. Takahashi[#], J. Chappell[#], C. A. Hayes, Z. Z. Sun, J. Kim, V. Singhal, K. J. Spring, S. Al-Khabouri, C. P. Fall, V. Noireaux, R. M. Murray, **J. B. Lucks*** (2015). "Rapidly characterizing the fast dynamics of RNA genetic circuitry with cell-free transcription-translation (TX-TL) systems." *ACS Synthetic Biology*, 4, 503-515, doi:10.1021/sb400206c. [Cover article](#).
73. D. Loughrey[#], K. E. Watters[#], A. H. Settle^{#%}, **J. B. Lucks*** (2014). "SHAPE-Seq 2.0: Systematic optimization and extension of high-throughput chemical probing of RNA secondary structure with next-generation sequencing." *Nucleic Acids Research*, 42, e165, doi:10.1093/nar/gku909.
74. J. Chappell[#], M. K. Takahashi[#], S. Meyer[#], D. Loughrey[#], K. E. Watters[#], **J. B. Lucks*** (2013). "The centrality of RNA for engineering gene expression." *Biotechnology Journal*, 8, 1379-1395, doi:10.1002/biot.201300018.
75. M. K. Takahashi[#], **J. B. Lucks*** (2013). "A modular strategy for engineering orthogonal chimeric RNA transcription regulators." *Nucleic Acids Research*, 41, 7577-7588, doi:10.1093/nar/gkt452.
76. S. A. Mortimer, C. Trapnell, S. Aviran, L. Pachter, **J. B. Lucks*** (2012). "SHAPE-Seq: High-throughput RNA structure analysis." *Current Protocols in Chemical Biology*, 4, 275-297, doi:10.1002/9780470559277.ch120019.
77. C. C. Liu, L. Qi, **J. B. Lucks**, T. H. Segall-Shapiro, D. Wang, V. K. Mutalik, A. P. Arkin* (2012). "An adapter from translational to transcriptional control enables predictable assembly of complex regulation." *Nature Methods*, 9, 1088-1094, doi:10.1038/nmeth.2184. [Highlighted in commentary "Modular gene-circuit design takes two steps forward" by J. J. Tabor in Nature Methods News and Views \(2012\), 9, 1061-1063](#).
78. P. Cordero, **J. B. Lucks**, R. Das* (2012). "An RNA mapping database for curating RNA structure mapping experiments." *Bioinformatics*, 28, 3006-3008, doi:10.1093/bioinformatics/bts554.

79. V. K. Mutalik, L. Qi, J. C. Guimaraes, **J. B. Lucks**, A. P. Arkin* (2012). "Rationally designed families of orthogonal RNA regulators of translation." *Nature Chemical Biology*, 8, 447-454, doi:10.1038/nchembio.919. [Highlighted in commentary "Automated Design of RNA Devices" by Farren Isaacs in Nature Chemical Biology.](#)
80. L. Qi, **J. B. Lucks**, C. C. Liu, V. K. Mutalik, A. P. Arkin* (2012). "Engineering naturally occurring trans-acting non-coding RNAs to sense molecular signals," *Nucleic Acids Research*, 40, 5775-5786, doi:10.1093/nar/gks168.
81. S. Aviran, **J. B. Lucks**, L. Pachter* (2011). "RNA structure characterization from chemical mapping experiments." *In: Proceedings of the Forty-Ninth Allerton Conference on Communication, Control and Computing*. Monticello, IL, 1743-1750 doi:10.1109/Allerton.2011.6120379.
82. **J. B. Lucks***, S. A. Mortimer, C. Trapnell, S. Luo, S. Aviran, G. P. Schroth, L. Pachter, J. A. Doudna, A. P. Arkin* (2011). "Multiplexed RNA structure characterization with selective 2'-hydroxyl acylation analyzed by primer extension sequencing (SHAPE-Seq)." *Proceedings of the National Academy of Sciences*, 108, 11063-11068, doi:10.1073/pnas.1106501108. [Highlighted in commentary "RNA structure probing dash seq" by Kevin Weeks in PNAS, and "A SHAPE in the Crowd" by M. Eisenstein in Biopolymers.](#)
83. S. Aviran, C. Trapnell, **J. B. Lucks**, S. A. Mortimer, S. Luo, G. P. Schroth, J. A. Doudna, A. P. Arkin, L. Pachter* (2011). "Modeling and automation of sequencing-based characterization of RNA structure." *Proceedings of the National Academy of Sciences*, 108, 11069-11074, doi:10.1073/pnas.1106541108. [Featured on the cover.](#)
84. S. L. Young, P. W. Sherman, **J. B. Lucks**, G. H. Peltó* (2011). "Why on Earth?: Evaluating hypotheses about the physiological functions of human geophagy." *Quarterly Review of Biology*, 86, 97-120, doi:10.1086/659884.
85. **J. B. Lucks**, L. Qi, V. K. Mutalik, D. Wang, A. P. Arkin* (2011). "Versatile RNA-sensing transcriptional regulators for engineering genetic networks." *Proceedings of the National Academy of Sciences*, 108, 8617-8622, doi:10.1073/pnas.1015741108.
86. J. M. Skerker, **J. B. Lucks**, A. P. Arkin* (2009). "Evolution, ecology and the engineered organism: lessons for synthetic biology." *Genome Biology*, 10, 114, doi:10.1186/gb-2009-10-11-114.
87. **J. B. Lucks**, L. Qi, W. R. Whitaker, A. P. Arkin* (2008). "Toward scalable parts families for predictable design of biological circuits." *Current Opinion Microbiology*, 11, 567-573, doi:10.1016/j.mib.2008.10.002.
88. **J. B. Lucks**, D. R. Nelson, G. R. Kudla, J. B. Plotkin* (2008). "Genome landscapes and bacteriophage codon usage." *PLoS Computational Biology*, 4, e1000001, doi:10.1371/journal.pcbi.1000001.
89. V. Vitelli, **J. B. Lucks**, D. R. Nelson* (2006). "Crystallography on curved surfaces." *Proceedings of the National Academy of Sciences*, 103, 12323-12328, doi:10.1073/pnas.0602755103. [Featured on the cover.](#)
90. J. D. Weeks, **J. B. Lucks**, Y. Kafri, C. Danilowicz, D. R. Nelson, and M. Prentiss* (2005). "Pause point spectra in DNA constant-force unzipping." *Biophysical Journal*, 88, 2752-2765, doi:10.1529/biophysj.104.047340.
91. **J. B. Lucks**, A. J. Cohen, N. C. Handy* (2002). "Constructing a map from the electron density to the exchange-correlation potential." *Physical Chemistry Chemical Physics*, 4, 4612-4618, doi:10.1039/B205854E.
92. P. W. Ayers, **J. B. Lucks**, R. G. Parr* (2002). "Constructing exact density functionals from the moments of the electron density." *Acta Univ. Debreceniensis Series Physica et Chimica*, XXXIV-XXXV, 223.

NON-PEER REVIEWED PUBLICATIONS

93. D. S. Clark, C. Fischbach-Teschl, D. A. Hammer, K. H. Lee, **J. B. Lucks**, C. Reinhart-King, M. Saltzman, A. Stroock, M. C. H. van der Muelen, J. D. Varner. (2018) "Michael L. Shuler Tribute." *Biotechnology and Bioengineering*, 115, 1642-1645, doi:10.1002/bit.26716.
94. **J. B. Lucks**, A. P. Arkin (2011). "The hunt for the biological transistor." *IEEE Spectrum*, 48, 38-43, doi:10.1109/MSPEC.2011.5719724. [Cover story](#).

MANUSCRIPTS UNDER REVIEW OR REVISION

95. M. A. Boyd, K. K. Alam[#], **J. B. Lucks***, N. P. Kamat* (2023). "Transcription-based sensing inside lipid vesicles using a fluorescent a-tamer." (*In Revision*)
96. B. M. Wang, N. Chiang, H. M. Ekas, D. M. Brown[#], G. Dildine, T. J. Lucci[#], J.-F. Gaillard, **J. B. Lucks**, A. S. Karim, D. Shukla, M. C. Jewett* (2025). "Transcription factor-based biosensor development by machine learning-guided cell-free gene expression." (*In Review*).
97. H. A. Demissie, S. Das, J. R. Thompson, J. B. Lucks (2025). "An integrated nucleic acid sequence-based amplification (NASBA) and CRISPR-Cas13a-based platform for accurate and sensitive detection of cucumber mosaic virus." (*Submitted*).

GRANTED PATENTS

1. "On demand, portable, cell-free molecular sensing platform." M. Jewett, J. B. Lucks, A. D. Silverman, K. K. Alam (2024). United States Patent US12098433B2.
2. "Analytes' detection using regulated in vitro transcription." J. B. Lucks, K. K. Alam, J. K. Jung (2025). United States Patent US12203144B2.
3. "Riboswitch-based fluoride sensing in cell-free extract." J. B. Lucks, W. M. Thavarajah, A. D. Silverman, M. C. Jewett (2019). United States Patent US12325884B2.

PATENT APPLICATIONS

4. "Systems and methods for ultra-sensitive detection of analytes with allosteric transcription factor interfaced microcantilevers." G. S. Shekhawat, V. P. Dravid, J. B. Lucks (2024). Provisional patent application.
5. "Cell-free biosensors with DNA strand displacement circuits." J. K. Jung, K. K. Alam, J. B. Lucks (2021). United States Patent Application 63/254,824.
6. "Ultrasensitive and multiplexed cell-free biosensors using cascaded amplification and positive feedback." A. D. Silverman, M. C. Jewett, J. B. Lucks (2019). United States Patent Application 62/943,094.
7. "Stabilization and preservation of in vitro transcription reactions through lyophilization." J. B. Lucks, K. K. Alam, M. S. Verosloff, J. K. Jung, P. R. Clauer, J. W. Lee, J. J. Collins (2019). United States Patent Application 62/838,852.
8. "Inducible feedback promoter systems and uses thereof." K. E. Tyo, B. Biggs, D. Tullman-Ercek, J. Lucks, C. Glasscock (2018). United States Patent Application 62/730,720.
9. "Small RNAs (sRNAs) that activate transcription." J. B. Lucks, J. Chappell, M. K. Takahashi (2014). United States Patent Application 61/981,241.
10. "Transcription elongation control elements and methods of use thereof." A. P. Arkin, J. B. Lucks, L. Qi, W. P. Whitaker (2010). United States Patent Application 61/250,342.

INVITED PRESENTATIONS by JBL (87)

Universities/Institutes:

Penn State Center for RNA Molecular Biology Symposium, Penn State, May 2025
 Visscher Lectureship in Genetics (w/ Professor Sera Young), Hope College, MI, Dec. 2024
 Chemistry-Biology Interface Program, Johns Hopkins University, Student Invitation, Nov. 2024
 Northpark University, Chicago, IL Oct. 2024
 Protein and Nucleic Acids Division Seminar, Laboratory for Molecular Biology, Cambridge, UK, Sept. 2024
 Oxford Engineering Biology Network, Oxford University, UK, September 2024
 European Bioinformatics Institute, Wellcome Genome Center, UK, July 2024
 Manchester Institute of Biotechnology, Manchester, UK, April 2024
 John Innes Center, Norwich, UK, April 2024
 Technical University of Munich, March 2024
 Helmholtz Center for Infection Research, Braunschweig, Germany, March 2024
 Cambridge University Engineering Biology IRC, St. Catherine's College, November 2023
 Department of Applied Maths and Theoretical Physics, Cambridge University, BioLunch Seminar, October 2023
 IISER Thiruvananthapuram iGEM Conclave, September 2023
 Miller Institute for Basic Research in Science, Annual Retreat, UC Berkeley, May 2023
 Department Seminar, Chemical Engineering, UCSB, April 2023
 Center for RNA Biomedicine, University of Michigan, April 2023
 COFOLD Project Seminar, Aarhus University, April 2023
 Institute of Quantitative Biology, Biochemistry, and Biotechnology, The University of Edinburgh, February 2023
 Center Seminar, The Center for RNA Biology, The Ohio State University, May 2022
 Phi Lambda Upsilon Award Lecture, Department of Chemistry, University of Lincoln, Nebraska, April 2022
 Department Seminar, Bioengineering, King Abdullah University of Science and Technology, October 2021
 Department Seminar, Biomedical Engineering, Duke University, October 2021
 RNA Club, City University of Hong Kong, October 2021
 Department Seminar, Chemistry, Rutgers University, April 2021
 Department Seminar, Chemical and Biological Engineering, Seoul National University, South Korea, April 2021
 National Science Foundation Biotechnology/Bioeconomy Distinguished Lecture Series, March 2021
 Department Seminar, Biological Sciences Division, Department of Chemistry, UNC Chapel Hill, November 2020
 Distinguished Alumni Talk, Junior/Senior Banquet, UNC Chapel Hill, November 2020
 Engineering Biology Research Consortium Virtual Seminar Series, August 2020
 Center for Synthetic Biology, Warwick University, UK, March 2020 (Postponed)
 RNA Synthetic Biology Symposium, Imperial College, UK, March 2020 (Postponed)
 Exploring Ethics: Across Art, Humanities and Science, Block Museum, Northwestern University, May 2019
 Department Seminar, Biochemistry Biophysics and Mol. Bio., Iowa State, February 2019
 Department Seminar, University at Washington St. Louis Medical School, February 2019
 Department Seminar, Chemistry, Arizona State University, Tempe, AZ, September 2018
 Center for Cancer Research RNA Initiative Seminar Series, National Cancer Institute, Bethesda MD, March 2018
 Department Seminar, Chemistry, Marquette University, Marquette, WI, December 2017
 Department Seminar, Biology, University of Colorado, Boulder, CO, November 2017
 Department Seminar, Physics, University of Minnesota, Minneapolis, MN, April 2017
 Department Seminar, Biology, University of Illinois at Chicago, Chicago, IL, April 2017
 Department Seminar, Biophysics, Rockefeller University, New York, NY, March 2017
 Department Seminar, Molecular and Cell Biology, University of California Berkeley, April 2016
 Center Seminar, The Center for RNA Biology, Ohio State University, March 2016

Department Seminar, Chemical and Biomolecular Engineering, University of Illinois Urbana-Champaign, December 2015

Department Seminar, Chemical and Biological Engineering, Princeton University, November 2015

Department Seminar, Biomedical Engineering, Boston University, October 2015

Department Seminar, Bioengineering, Caltech, April 2015

Department Seminar, Chemical and Biological Engineering, Northwestern University, March 2015

Department Seminar, Bioengineering, Rice University, February 2015

Department Seminar, Chemical and Biological Engineering, Rensselaer Polytechnic Institute, Feb. 2015

Department Seminar, Biology, Middlebury College, October 2014

Field Seminar, Microbiology, Cornell University, October 2014

Department Seminar, RNA Institute and Department of Chemistry, The University at Albany, October 2014

Field Seminar, Biomedical Engineering, Cornell University, May 2014

Department Seminar, Applied Mathematics, Harvard University, April 2014

Department Seminar, Biology, Ithaca College, March 2014

Department Seminar, Laboratory for Atomic and Solid State Physics, Cornell University, March 2014

Keynote Lecture, CBE 4th Annual Graduate Research Symposium, Cornell University, October 2013

Field Seminar, Biochemistry, Molecular and Cell Biology, Cornell University, May 2013

Department Seminar, Biochemistry and Biophysics, University of Rochester Medical Center, May 2013

Department Seminar, Computational Biology, MIT, April 2013

Center Seminar, Center for Computational Molecular Biology, Brown University, March 2013

Department Seminar, Molecular Medicine, Cornell University, March 2012

Conferences:

Discussion Leader, GRC on RNA Nanotechnology, Ventura Beach, CA, Jan 2024

Synthetic Biology UK 2023, Bristol UK, November 2023

GRC on RNA Nanotechnology, Ventura Beach, CA, Jan 2023

10th International mRNA Health Conference, Boston, MA, November 2022

UNC Water Meeting, UNC Chapel Hill, October 2022

Synthetic Biology Young Speaker Series, Pioneer Introduction of Boya Wang, Sept 2022

Cold Spring Harbor Asia Synthetic Biology Conference, Virtual, October, 2021

NSF Workshop: Cross Disciplinary Study of Post-Transcriptional and Post-Translational Modifications, Virtual, October, 2021

German Conference on Synthetic Biology, Virtual, September, 2021

Workshop on Nucleic Acids, Synthetic Biology and Artificial Life, Imperial College, UK, March 2021

Gordon Research Conference on Nucleic Acid Nanotechnology, Venturi Beach, CA, Jan 2021 (Postponed)

Seventh International Mammalian Synthetic Biology Workshop, Virtual, December 2020

Plenary Lecture, New York Academy of Sciences, "New Horizons in Synthetic Biology", NYC November 2020

Cell Free Synthetic Biology Conference, Cambridge, MA, December 2019

Sixth International Mammalian Synthetic Biology Workshop, Northwestern University, May 2019

FASEB Meeting, San Diego, CA, April 2018

Innovation Session, Gates Foundation Grand Challenges Annual Meeting, Berlin, October 2018

American Institute of Chemical Engineers, Minneapolis, MN, October 2017

Compugen Symposium, TU Darmstadt, Darmstadt, Germany, June 2017

Gordon Research Conference on Nucleic Acid Nanotechnology, Venturi Beach, CA, Jan 2017

Award Lecture, ACS Synthetic Biology Young Investigator Award, Synthetic Biology Engineering Evolution and Design (SEED) Meeting, Chicago, Il, June 2016

Inaugural Annual Retreat, Engineering Biology Research Consortium, Pasadena, CA, November 2016

Workshop, EU/US Biological Systems Standardization Workshop, Valencia, Spain, March 2015

Inaugural Meeting, Synthetic Biology: Engineering, Evolution and Design, Los Angeles, CA, July 2014
Symposium Presentation, Donald Danforth Plant Science Center, St Louis, MO, September 2012
Invited Lecture, Upstate New York Illumina Users Group Meeting, Ithaca NY, May 2012
Annual Retreat, Synthetic Biology Engineering Research Center Retreat, UC Berkeley, CA, March 2012
Inaugural Meeting, Cold Spring Harbor Asia Conference on the Design and Synthesis of Biological Systems, Suzhou, China, October 2011

Industry:

Seminar, Moderna, Cambridge MA, May 2022
Seminar, Biogen, Cambridge MA (Virtual), August 2021
Seminar, Translate Bio, Boston MA (Virtual), May 2021
Speaker, 2nd RNA-Targeted Drug Discovery Summit, Cambridge, MA, December 2019
Seminar, Synthetic Biology: A New Biotechnology Revolution, Kellogg Executive Education, Sept. 2019
Seminar, Arrakis TX, Cambridge, MA, May 2018
Seminar, Manus Biosynthesis, Cambridge, MA, October 2015
Seminar, DSM, Cambridge, MA, October 2016

CONTRIBUTED PRESENTATIONS and POSTERS by JBL or LUCKS GROUP MEMBERS (117)

2014, 2015, 2016, 2017, 2019, 2022 Synthetic Biology Evolution, Engineering and Design (SEED)
Presentations: ADS, KKA
Posters: KJJ, MKT, CYH (2), PDC (2) CJG (3), EJS, JEC, AMY, DAL, JEW, SIM, AMW, MV, JL
2023, 2025 Gordon Research Conference RNA Nanotechnology
Presentations: DZB, EKC, LMH
Posters: DZB, EKC (2), LMH (2), JL, CMA, TF
2019 Cell Free Synthetic Biology Meeting
Posters: MV, ADS, KJJ
2019 UNC Water Meeting
Posters: JBL
2019 Colorado WASH Symposium
Posters: MV, WT
2018 Computational Approaches to RNA Structure and Function
Presentations: JBL, AMY
2017 FASEB Machines on Genes Meeting
Presentations: EJS
2017 FASEB Transcription Meeting
Presentations: EJS
2017, 2019 Gordon Research Conference Nucleic Acids
Presentations: EJS
Posters: EJS, AMY
2016, 2017 Engineering Biology Research Consortium Retreats
Presentations: PDC
Posters: KA (2), AMW, CH, CJG, AMY, KEB, MV, ADS
2016, 2019 Chicago RNA Club
Presentations: EJS, MEE, AMY
2016 Mountain Lake Transcription Meeting
Presentations: EJS
2016, 2017, 2019 Rustbelt RNA
Presentations: EJS, AMY
Posters: MEE, RAR, LMH, DZB, EDC

2011, 2013, 2015 International Conference on Biomolecular Engineering
 Presentations: JBL (2); Posters: JBL

2012, 2014, 2015, 2020 AIChE National Meetings
 Presentations: SIM (2), MKT (2), KEW (2), KJJ
 Posters: TRA (undergraduate)

2011, 2012, 2013, 2014, 2015, 2016 Synthetic Biology Engineering Research Center Retreats
 Presentations: MKT (2), KEW, JEC, AMW
 Posters: DAL (4), MKT (1), SIM (2), KEW (1), PDC (1), CJG (1), CYH (1), AW (2), AY (1)

2015 Cold Spring Harbor Genome Engineering Meeting
 Poster: KEW

2014, 2015, 2016 Annual RNA Science Symposium, Albany NY
 Presentations: KEW
 Posters: KEW (2), EJS (1)

2014, 2020, 2022 RNA Society Meeting
 Poster: KEW, LMH (2), DZB, EKC

2013 Gordon Conference on Synthetic Biology, Mount Snow, VT
 Posters: DAL, SIM, MKT

2013 Mammalian Synthetic Biology Conference, MIT, MA
 Poster: KEW

2013 Hudson RNA Club Meeting
 Poster: KEW

2012, 2018 Benasque RNA Bioinformatics Meeting, Benasque, Spain
 Presentation: JBL (2), AMY

2011 Synthetic Biology 5.0, Stanford University, Palo Alto CA
 Poster: DAL

2008 Synthetic Biology 4.0, Hong Kong, China
 Presentation: JBL

2008 Pycon, Chicago, IL
 Presentation: JBL

2007 Microsoft Research eScience Workshop, Chapel Hill, NC
 Presentation: JBL

SUPERVISION OF POST-DOCTORAL SCHOLARS - Former: 5, Current: 2.

1. **Yueting Zhang**, 2012-2013. Current position - Senior Director, Global Alliance, Bristol Myers Squibb.
2. **James Chappell**, 2013-2017. Current position - Associate Professor, Rice University Department of Biosciences.
3. **Khalid Alam**, 2016-2019. Current position - Co-Founder and CEO, Stemloop, Inc.
4. **Eric Strobel**, 2015-2020. Current position - Assistant Professor, University at Buffalo Department of Biosciences.
5. **Molly Evans**, 2017-2020. Current position - Scientist II, Evozyn.
6. **Anibal Arce**, 2022-present.
7. **Rebecca Rasmussen**, 2024-present.

SUPERVISION OF PHD STUDENTS - Former: 19, Current: 9.

1. **Melissa K. Takahashi**, Ph.D. Chemical Engineering, Cornell University, 8/15/2010-6/15/2015. Thesis title: "Developing design principles for engineering RNA transcription regulators and RNA synthetic networks." Current position - Assistant Professor, Cal State Northridge, Department of Biology.

2. **David A. Loughrey**, Ph.D. Chemical Engineering, Cornell University, 8/15/2010-12/15/2016. Thesis title: "Using SHAPE-Seq as a tool to understand RNA structure/function relationships." Current position - Lead Research Biomedical Engineer, Emory University School of Medicine.
3. **Kyle E. Watters**, Ph.D. Chemical Engineering, Cornell University, 8/15/2011-6/15/2016. Thesis title: "SHAPE-Seq technologies for analyzing, understanding, and designing RNA structures and functions." Current position - Director, Arbor Biosciences.
4. **Sarai I. Meyer**, Ph.D. Chemical Engineering, Cornell University, 8/15/2011-6/15/2016. Thesis Title: "Engineering and characterizing RNA genetic regulators." Current position - Principle Regulatory Affairs Specialist, Detect.
5. **Alexandra Westbrook**, Ph.D. Chemical Engineering, Cornell University, 8/15/2013-6/15/2018. Thesis title: "Characterization of RNA genetic regulators and synthetic networks." Current position - Research Scientist, Recombia Biosciences.
6. **Paul Carlson**, Ph.D. Chemical Engineering, Cornell University, 8/15/2013-6/15/2018. Thesis title: "Uncovering the elements of RNA design." Current position - Principle Scientist, Sanofi.
7. **Cameron Glasscock**, Ph.D. Chemical Engineering, Cornell University, 8/15/2013-6/15/2019, Co-Advised with Prof. Matt DeLisa. Thesis title: "Genetic tools and approaches for engineering metabolism and metabolic pathways." Current position - Assistant Professor, Rice University, Department of Biosciences.
8. **Chelsea Hu**, Ph.D. Chemical Engineering, Cornell University, 8/15/2013-6/15/2018, Co-Advised with Prof. Jeff Varner. Thesis title: "Advancing RNA circuitry engineering with guidance of mathematical and computational models." Current position - Assistant Professor, Texas A&M, Department of Chemical Engineering.
9. **Angela Yu**, Ph.D. Computational Biology and Medicine, Tri-Institutes Training Program, Cornell University, 8/15/2014-6/15/2020, Co-Advised with Christina Leslie, Memorial Sloan Kettering Thesis title: "Computationally reconstructing RNA folding pathways from experimental data." Current position - Assistant Professor, Baylor College of Medicine.
10. **Mathew Verosloff**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 7/1/2016-12/15/2020. Thesis title: "Uncovering the Mechanism of Intrinsic Transcription Termination in Order to Develop Point-of-Care Diagnostics." Current position - Scientist, Recode Therapeutics.
11. **Adam Silverman**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2016-6/1/2021, Co-Advised with Prof. Mike Jewett. Thesis title: "Design and optimization of a field-deployable biosensing platform for measuring water quality." Current position - Scientist, CATALOG.
12. **Luyi Cheng**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2016-2/28/2022. Thesis title: "Investigating co-transcriptional folding in RNA-based gene regulation." Current position - Advisor, US Department of State.
13. **Kirsten Jung**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2017-4/15/2022. Thesis title: "Engineering *in vitro* transcriptional biosensors for rapid and programmable molecular detection." Current position - Scientist, Mammoth Biosciences.
14. **Walter Thavarajah**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2017-6/30/2022. Thesis title: "Strategies for the design and field deployment of cell-free biosensors." Current position - Scientist, Ginkgo Bioworks.
15. **Katherine Berman**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 7/1/2016-10/15/2022. Thesis title: "Investigating RNA structural dynamics for gene regulation." Current position - Post-doc, Bowman Lab, UCSD.
16. **Rebecca Rassmussen**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2018-3/1/2024, Co-Advised with Prof. Tom O'Halloran, Thesis title: "Elucidating and applying bacterial sensing and response mechanisms." Current position - Post-doc, Northwestern Center for Synthetic Biology.
17. **Chloé Archuleta**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2019-Present

18. **David Bushhouse**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2020-6/1/2024. Thesis title: "Programming riboswitch function using principles of cotranscriptional RNA folding." Current position - Post-doc, Li Lab Van Abdel Institute.
19. **Jenni Li**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2020-3/17/25. Thesis title: "Engineering Nucleic Acid Circuits to Expand Capabilities and Accessibility of Cell-Free Systems". Current position - Principle, Michigan Capital Network Ventures.
20. **Edric Choi**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2019-Present
21. **Laura Hertz**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2020-Present
22. **Dylan Brown**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2020-Present
23. **Tyler Lucci**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2021-Present
24. **Maram Naji**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2022-Present
25. **Herma Demisse**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2022-Present
26. **Siyuan Feng**, Ph. D. Biomedical Engineering, Northwestern University, 6/15/2023-Present
27. **Tina Fu**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 9/15/2022-Present
28. **Xavier Bower**, Ph. D. Chemical Engineering, Northwestern University, 9/15/2024-Present

SUPERVISION OF MASTERS STUDENTS

1. **Karl Brennan**, M.S. Chemical Engineering, Cornell University, 2014-2015. Current position - Chemical Process Engineer, ValSource.
2. **Olivia Meyer**, Masters in Biotechnology, Northwestern University 2021-2022. Current position - Program Venture Analyst, NIH SEED.
3. **Kayd Bagat**, M.S. Chemical and Biological Engineering, Northwestern University, 2023-2024. Current position - Technician, Lucks Lab.

SUPERVISION OF UNDERGRADUATE STUDENTS - Former: 27, Current: 1 %indicates published (in parenthesis: present position)

1. Jay Park, 2011-2013. Current position - Medical School.
2. Helen Tan, 2011-2013 (Process Engineer, Mondavi Wineries)
3. Matt Carter, 2011-2014. Current position - PhD Student, Stanford.
4. Misha Baheti, 2011-2013. Current position - Managing Partner, Midas Capital.
5. Ruize Zhuang, 2012-2015. Current position - Senior Scientist II, AbbVie.
6. Sitara Sankar%, 2012-2015. Current position - Product Manager, Natera.
7. Tim Abbott%, 2012-2015. Current position - Scientist, Mammoth Biosciences.
8. Rebecca Chew%, 2012-2015. Current position - Masters Student, UC Berkeley.
9. Alex Settle%, 2013-2016. Current position - Post-doc, Regeneron.
10. Yan Zhang%, 2015-2016. Current position - Presidential Postdoctoral Fellow, Caltech.
11. Elizabeth Weiss, 2015-2016. Current position - MD/PhD Student, Northwestern University.
12. Aron Coraor, 2015-2016. Current position - Post-doc, University of Chicago.
13. Jane Liao, 2015-2016. Current position - PhD Student, Columbia University.
14. Raashed Raziuddin, 2015-2016. Current position - PhD Candidate, Weill Cornell Medical School.
15. Phillip Clauer%. Current position - PhD Student, MIT Bioengineering.
16. Kristen Shytel, 2017-2019. Current position - Scientist I, Sherlock Biosciences.
17. Lulu Sun, 2017-2018. Current position - Researcher, Seattle Children's Hospital.
18. Jack Arnold%, 2017-2019. Current position - PhD Candidate, University of Chicago.
19. Katarina Cheronis, 2017-2018. Current position - PhD Candidate, University of Chicago.
20. Umut Akova%, 2018-2020. Current position - MD Candidate, Emory Medical School.
21. Kevin Fitzgerald, Summer 2019. Current position - PhD Candidate, Northwestern University.
22. Paulina Tarsul, 2019. Current position - Developer, United Airlines.
23. Russell Steans%, 2019-2022. Current position - MD/PhD Student, Northwestern University.

24. Kelly Gebman, 2019-2020. Current position - Process Engineer, Glatt.
25. Crestelynn Ligo, 2021-2022. Current position - Process Engineer, ADM Decatur.
26. Stephanie Maynez, 2022-2023. Current position - Manufacturing Process Engineer, Abbott.
27. Paul Bernhard, 2022-2024. Current position - Cardiology Clinical Research Assistant, University of Texas Southwestern.
28. Rohan Chiravuri, 2023-2025. Current position - PhD Student student, MIT Bioengineering.

ACHIEVEMENTS BY GROUP MEMBERS

NU IBiS Service Award, 2024 (Hertz)
 NU ChBE Distinguished Graduate Researcher Award Runner Up, 2024 (Li)
 Gordon Research Conference RNA Nanotechnology Best Poster Award: 2023 (Li)
 Synthetic Biology Across Scales (SynBAS) Training Grant, Northwestern University: 2021 (Brown), 2022 (Lucci)
 RNA Society Poster Award: 2022 (Bushhouse), 2025 (Hertz)
 NSF Graduate Fellowship Honorable Mention: 2022 (Li)
 Northwestern International Institute of Nanotechnology Outstanding Researcher in Nanotechnology, 2021 (Thavarajah, Jung)
 NU ChBE Distinguished Graduate Researcher Award, 2020 (Jung)
 Terminal Year Fellowship, Northwestern University, 2020 (Jung)
 Presidential Fellowship, Northwestern University, 2019 (Silverman)
 Ryan Fellowship, Northwestern University: 2018 (Silverman), 2019 (Jung), 2022 (Li); 2023 (Hertz)
 Biotechnology Training Grant, Northwestern University: 2017 (Silverman), 2018 (Thavarajah, Jung), 2020 (Hertz), 2022 (Li)
 Molecular Biophysics Training Grant, Northwestern University: 2017 (Cheng), 2020, 2022 (Bushhouse)
 Chemistry of Life Processes Training Grant, Northwestern University: 2019 (Rasmussen)
 Best E-Poster, Biochemistry and Molecular Biology, AAAS National Meeting, Seattle WA, 2020 (Cheng)
 Poster Awards, Cell Free Synthetic Biology Conference, Boston MA, 2019 (Jung, Silverman)
 Washington Research Foundation Postdoctoral Fellowship 2019 (Glasscock), 2020 (Yu)
 Short Talk Award, FASEB Machines on Genes Conference 2018 (Strobel)
 Beckman Postdoctoral Fellowship 2017 (Strobel)
 Best Talk, Rustbelt RNA Conference 2016 (Strobel), 2017 (Yu)
 Inaugural Cornell CBE Fleming Graduate Scholar 2015 (Watters)
 NSF Graduate Fellowships: 2011 (Takahashi), 2012 (Watters, Meyer), 2013 (Carlson) 2015 (Glasscock, Abbott), 2016 (Zhuang), 2019 (Rasmussen), 2020 (Archuleta), 2023 (Naji)
 NDSEG Graduate Fellowships: 2020 (Archuleta)
 Austin Hooey Graduate Award (2015 Takahashi, 2016 Watters, 2019 Carlson)
 AIChE Women's Initiative Committee Travel Award 2014 (Meyer, Takahashi)
 Engineering Learning Initiatives Research Awards: 2012 (Tan), 2013 (Sankar, Abbott), 2014 (Chew, Abbott), 2015 (Chew)
 Cornell Undergraduate Research Board Best Poster 2014 (Sankar)
 Cornell Engineering Alumni Association Undergraduate Research Award 2014 (Abbott)
 Genentech Scheele Outstanding Junior Awards: 2011 (Park), 2013 (Zhuang)
 Amgen Research Scholarship 2013 (Zhuang)
 Great Lakes National Scholarship 2012 (Watters)

PHD COMMITTEES

1. **Michael-Paul Robinson**, Ph. D. Chemical and Biomolecular Engineering, Cornell University, 2010-2017

2. **Bill Bedell**, Ph. D. Chemical and Biomolecular Engineering, Cornell University, 2012-2016
3. **Erin Stephens**, Ph.D. Biochemistry, Molecular and Cellular Biology, Cornell University, 2013-2018
4. **May Taw**, Ph. D. Microbiology, Cornell University, 2013-2019
5. **Tara Srinivasan**, Ph. D. Biomedical Engineering, Cornell University, 2012-2016
6. **Daniel Tapias-Rojas**, Ph. D. Microbiology, Cornell University, 2013-2018
7. **Thapakorn Jareontomeechai**, Ph. D. Chemical and Biomolecular Engineering, Cornell University, 2014-2016
8. **Christine Rose Laramy**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2015-2018
9. **Do Soon Kim**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2016-2020
10. **Alexis Amaris Reyes**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2016-2022
11. **Nolan Kennedy**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2016-Present
12. **Margarethe Boyd**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2018-2022
13. **Andrew Hunt**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2016-2022
14. **Alex Prybutok**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2016-2022
15. **Blaise Kimmel**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2017-2021
16. **Katie Warfel**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2018-Present
17. **Jack McGee**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2017-2022
18. **Kate Dray**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2017-2022
19. **Peter Tran**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2017-Present
20. **Hailey Edelstein**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
21. **Will Corcoran**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2019-Present
22. **Sam Gowland**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-2022
23. **Camilla Koffman**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
24. **Reese Richardson**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2019-Present
25. **Healthier Calcaterra**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
26. **Holly Ekas**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
27. **Brooke Angell**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2020-Present
28. **Eduardo Campos Chávez**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2020-Present
29. **Maddie DeWinter**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
30. **James Coxon**, Ph. D. Department of Pathology, Cambridge University, 2021 (External Examiner)
31. **Mengxi Li**, Ph. D. Department of Biological Sciences, Edinburgh University, 2023 (External Examiner)
32. **Katie Dreyer**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2019-Present
33. **Dalton Jun-da Huey**, Ph. D. Driskoll Graduate Program, Northwestern University, 2019-Present
34. **Daniel de Castro Assumpcao**, Ph. D. Driskoll Chemical and Biological Engineering, Northwestern University, 2022-Present
35. **Caleb Lay**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2021-Present
36. **Jacob Miller**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2022-Present
37. **Kevin Vazquez**, Ph. D. Chemical and Biological Engineering, Northwestern University, 2022-Present
38. **Roger Romero**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2023-Present
39. **Connor Forsyth**, Ph. D. Interdisciplinary Biological Sciences, Northwestern University, 2023-Present

MS COMMITTEES - past and current

1. **Daniel Tien**, M.S. Chemical and Biomolecular Engineering, Cornell University, 2015-2016
2. **Jingyi Li**, M. S. Biomedical Engineering, Northwestern University, 2023-2025
3. **Sichen Mu**, M. S. Biomedical Engineering, Northwestern University, 2025-2026

EDUCATION EXPERIENCE and RECOGNITION

Mentor, Searle Center for Advanced Learning Teaching Certificate, Tae-Eun Kim, 2020-2021

Camille Dreyfus Teacher-Scholar Award, Camille and Henry Dreyfus Foundation, 2017

Cornell College of Engineering Mr. and Mrs. Richard F. Tucker '50 Teaching Award, 2015

Professor, *Northwestern University*

Deconstructing Synthetic Biology, W21, W22, W23, W25

Principles of Synthetic Biology, F24

Molecular Folding and Function, S21

Computational Biology, S22

Advanced Thermodynamics, S21

Associate Professor, *Northwestern University*

Advanced Thermodynamics (graduate), W17, W18, W19, W20

Advanced Principles of Biomolecular Engineering (graduate), S18, S19, S20

Graduate Student Professional Development Course (co-instructor), F16, F17, F18, F19, F20

Responsible Conduct of Research (co-instructor), F18, F19

Assistant Professor, *Cornell University*

Heat and Mass Transfer (undergraduate), F11, F12, F14, F15

Advanced Principles of Biomolecular Engineering (graduate), S13, S14, S15

Principles and Practices of Graduate Research (graduate), F11, F12, F14

Co-Creator and Instructor, Cold Spring Harbor Summer Course on Synthetic Biology, Su13, Su14, Su15.

The CSHL synthetic biology course is an international, intensive laboratory course consisting of real research projects in synthetic biology combined with talks and interactions with world class researchers.

The course is emerging as a focal point for setting the research and teaching agenda for biomolecular engineering and synthetic biology.

Panel Participant, "Mastering Your Future - Learning to Read (Scientific Papers)." Cornell College of Engineering. February 2013

"How to write a grant proposal." w/ Paulette Clancy. Cornell Chemical and Biomolecular Engineering Graduate Students. S15, F15

SERVICE - CONFERENCE / SYMPOSIUM / COLLOQUIUM ORGANIZATION

1. Synthetic Biology 5.0: The Fifth International Meeting on Synthetic Biology
 - Co-organizer, June 15-17 2011, Stanford, Palo Alto, CA
2. 4th International Conference on Biomolecular Engineering
 - Poster session co-chair, January 13-16 2013, Fort Lauderdale, FL
3. American Institute for Chemical Engineering (AIChE) National Meeting
 - Co-chair, "Gene Regulation Engineering" & "Paradigms in Systems and Synthetic Biology", Section 15c, October 2013, San Francisco, CA
 - Co-chair, Topical A "Paradigms in Systems and Synthetic Biology", October 2014, Atlanta, GA
 - Chair, Topical A "Emerging Frontiers in Systems and Synthetic Biology", 2015, Salt Lake City, Utah
4. Metabolic Engineering X Meeting
 - Poster session co-chair, June 2014, Vancouver BC
5. 5th International Conference on Biomolecular Engineering
 - Co-chair "High-Throughput Biological Design", January 13-16 2014, Austin, TX
6. The Nuts and Bolts of Bioengineered Systems: A Workshop on Standards in Synthetic Biology
 - Meeting Co-organizer, March 8-12, 2015, Valencia Spain
7. 6th International Conference on Biomolecular Engineering
 - Organizing Committee, January 13-16 2016, Singapore
8. Synthetic Biology: Engineering, Evolution and Design (SEED) Conference

- Organizing Committee, July 2016, Chicago
 - Organizing Committee, July 2017, Vancouver
 - Organizing Committee, July 2018, Arizona
 - Co-organizer, July 2019, New York
 - Organizing Committee, July 2020, San Francisco
9. Computational Approaches to RNA Structure and Function, Benasque, Spain
 - 2018: Session Chair - Experimental Approaches
 10. Cell Free Synthetic Biology Conference
 - Co-Chair, 2021
 11. Central US Synthetic Biology Workshop
 - Co-Chair, 2024
 12. Gordon Research Conference on RNA Nanotechnology
 - Co-Vice Chair, 2027
 - Co-Chair, 2029

SERVICE - PROFESSIONAL

1. **Synthetic Biology Engineering Research Center (SynBERC)**, Parts Thrust Co-Leader, 2010-2011
2. **Synthetic Biology Engineering Research Center (SynBERC)**, Affiliate Investigator, 2010-2016
3. **Synthetic Biology Engineering Research Center (SynBERC)**, Leadership Task Force, 2014-2016
4. **US Chair, EU/US Biotechnology Task Force Synthetic Biology Working Group**, 2014-2016
5. **Board of Directors, Engineering Biology Research Consortium**, 2015-2017
6. **Chicago RNA Club, Co-organizer**, 2016-Present
7. **Founding Council Member, Engineering Biology Research Consortium**, 2017-2020
8. **Founding Chair, Individual Membership Committee, Engineering Biology Research Consortium**, 2017-2019
9. **Member, Education Working Group, Engineering Biology Research Consortium**, 2019-Present
10. **Research Roadmapping Participant, Engineering Biology Research Consortium**, 2019-Present
11. **AIChE Chemical Engineering Diversity Equity and Inclusion Working Group**, 2021-Present
12. **National Academies Study Committee: Toward Sequencing and Mapping RNA Modifications**, 2022-2024
13. **Advisory Board, Engineering Biology Interdisciplinary Research Center, Cambridge University**, 2024-Present
14. **NSF BIO Directorate Advisory Committee**, 2024(Fall)-Present
15. **Scientific Advisory Board, Institute for RNA-based Infection Research, Helmholtz Centre for Infection Research, Würzburg, Germany**, 2025 - Present
16. **Advisory Board, Engineering Biology Interdisciplinary Research Center, Cambridge University**, 2024-Present

SERVICE - PROPOSAL AND MANUSCRIPT REVIEW

1. **National Science Foundation**
 - CBET *ad hoc* reviewer, 2011, 2015, 2018
 - MCB *ad hoc* reviewer, 2014, 2018, 2019, 2021
 - SBIR *ad hoc* reviewer, 2020
2. **National Institutes of Health**
 - MSFB *ad hoc* reviewer, 2018
 - NIAID special emphasis panel (ZAI1 KLM-D) *ad hoc* reviewer, 2025
3. **Journal Advisory and Editorial Boards**

- GEN Biotechnology, 2021-
- Nucleic Acids Research, 2015-2021
- ACS Synthetic Biology, 2011-Present
- bioRxiv, 2014-Present

4. **Journal Reviews**

ACS Chemical Biology, ACS Synthetic Biology, Biophysical Journal, Biotechnology and Bioengineering, Cell, Journal of Biological Engineering, Molecular Cell, Molecular Systems Biology, Nature Biotechnology, Nature Chemical Biology, Nature Communications, Nature Methods, Nature Protocols, Nature Reviews Microbiology, Nature Structural and Molecular Biology, Nucleic Acids Research, PLoS ONE, PLoS Pathogens, Proceedings of the National Academy of Sciences USA, Science, WIREs RNA

SERVICE - OUTREACH

1. **J. B. Lucks***, M. K. Takahashi[#], J. Saathoff. "An Introduction to Chemical and Biomolecular Engineering". CATALYST Academy for Under Represented Minorities, Cornell University, Ithaca NY, June 2011)
2. **J. B. Lucks***, S. I. Meyer[#], K. E. Watters[#]. "An Introduction to Chemical and Biomolecular Engineering". CATALYST Academy for Under Represented Minorities, Cornell University, Ithaca NY, June 2012
3. **J. B. Lucks***. "Optimization of Biosynthetic Pathways". NSF GK-12 Grass Roots: Advancing Education in Renewable Energy and Cleaner Fuels through Collaborative Graduate Fellow/Teacher/Grade-School Student Interactions, Cornell University, Ithaca NY, July 2012
4. **J. B. Lucks**. "Mastering Your Future - Learning to Read (Scientific Papers)." Cornell College of Engineering. Panelist, February 2013
5. **Cold Spring Harbor Course on Synthetic Biology**
 - Co-organizer, July-August 2013, 2014, 2015
6. **NSF Building with Biology Project Developer/Participant**
 - Developed 'Microbe Match' card game with the Sciencenter, Ithaca NY, 2015
 - 'Showtime!' on Synthetic Biology, Sciencenter, Ithaca NY, 2015
 - Participated in 'SynBio Day' at the Sciencenter, Ithaca NY, September 2015
 - Community forum on 'Building with Biology', Ithaca Generator, Ithaca NY, September 2015.
7. **Northwestern Center for Synthetic Biology**
 - Western Springs Elementary School Synthetic Biology Demonstration, Evanston, IL 2018
 - Host-Laboratory, Expanding Your Horizons Synthetic Biology Demonstration, Evanston, IL 2019

SERVICE - UNIVERSITY

1. Northwestern University, Ad-Hoc Promotion Committee, 2025
2. Northwestern University, Chair, Faculty Search Committee Chemical and Biological Engineering, 2022-2023
3. Northwestern University, Limited Submission Advisory Committee (LSAC) Member, 2022-2023
4. Northwestern University, McCormick School of Engineering Faculty Appeals Committee, 2021-2023
5. Northwestern University, Interdisciplinary Biological Sciences (IBiS) Advisory Committee, 2021-Present
6. Northwestern University, McCormick School of Engineering DEI Leaders Committee, 2020-2023
7. Northwestern University, Limited Submission Advisory Committee (LSAC) Reviewer, 2021
8. Northwestern University, Chair ChBE Anti-racism, Diversity, Equity and Inclusion Committee, 2020-2023
9. Northwestern University, International Institute for Nanotechnology, Faculty Search Committee, 2020
10. Northwestern University, Interdisciplinary Biological Sciences (IBiS) Curriculum Committee, 2019-2020
11. Northwestern University, Exploring Ethics: Across Art, Humanities, and Science - May 8 2019
12. Northwestern University, Internal Program Review - Materials Science and Engineering, 2019

13. Northwestern University, Associate Chair of Chemical and Biological Engineering, 2019-Present
14. Northwestern University, Co-Chair, Graduate Student Experience Committee, 2019-Present
15. Northwestern University, Member, Alumni Relations Committee, 2019-2020
16. Northwestern University, Member, Biophysics Training Grant Steering Committee, 2018-Present
17. Northwestern ChBE Awards Committee, 2016-Present (Chair, 2017-Present)
18. Northwestern ChBE Faculty Search Committee, 2016, 2020
19. Cornell CBE Graduate Field Committee, 2011-2014, 2016
20. Cornell CBE Faculty Search Committee, 2012
21. Cornell CBE Awards Committee, 2012, 2013, 2014, 2015, 2016
22. Cornell CBE Policy Committee, 2012-2013
23. Cornell CBE Seminar Series Coordinator, 2014, 2015
24. Cornell CBE Director's Search Committee 2016
25. Cornell MBG Faculty Search Committee, 2013-2014
26. Cornell CBE Undergraduate Academic Advisor, 2012-2016
27. Cornell Churchill Scholarship Internal Selection Committee, 2013-2016

MEDIA COVERAGE AND RESEARCH HIGHLIGHTS

Media Coverage

1. E. Check Hayden (2011). Life hackers seek new tools, Nature 474, 261.
2. S. Cohen (2012). The Scientist: Prof. Lucks Researches RNA to Build Biological Circuitry. Cornell Daily Sun, September 12 2012.
3. A. Dy (2016). SEED 2016: Welcome to Chicago! PLoS Blogs, July 29, 2016.
4. NIH NIGMS Biomedical Beat Blog. Interview with a Scientist: Julius Lucks, Shape Seeker, July 18, 2018. <https://biobeat.nigms.nih.gov/2018/07/interview-with-a-scientist-julius-lucks-shape-seeker/> , <https://www.youtube.com/watch?v=QLiCQ5KrigA&feature=youtu.be>
5. Planet Forward. Researchers bring biotech to farmers worldwide with Plant-Dx, February 8, 2019, <https://www.planetforward.org/idea/researchers-bring-biotech-to-farmers-worldwide-with-plant-dx>
6. Northwestern University Scientists Sprint to Develop New Kind of Rapid Coronavirus Test (2020). Chicago Tribune. <https://www.chicagotribune.com/coronavirus/ct-coronavirus-northwestern-university-coronavirus-test-research-20200421-wzqacvbbh5fezl6lm67bk2zta-story.html>
7. Northwestern Engineering synthetic biologists aim to create one-step diagnostic test for COVID-19 (2020). The Daily Northwestern. <https://dailynorthwestern.com/2020/05/18/campus/northwestern-engineering-synthetic-biologists-aim-to-create-one-step-diagnostic-test-for-covid-19/#photo>
8. Sewage may help predict future virus outbreaks. Chicago researchers aim to test hundreds or thousands of manholes at a time (2020). Chicago Tribune. <https://www.chicagotribune.com/news/environment/ct-coronavirus-tracking-sewage-20200530-4zpb3hn2prb5vj4ks7i67bnha-story.html>
9. Using sewage to track COVID-19 (2020). The 21st show. <https://will.illinois.edu/21stshow/story/using-sewage-to-track-covid-19>
10. A one-drop test for water contamination (2020). Axios Future. <https://www.axios.com/newsletters/axios-future>
11. Local researchers developing at-home kit for faster water contamination testing (2020). WGN. <https://wgntv.com/news/medical-watch/local-researchers-developing-at-home-kit-for-faster-water-contamination-testing/>

12. Toxin Tester (2020). National Science Foundation Discovery Files. https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=186632&from=
13. Northwestern researchers hope to democratize drinking water tests through ROSALIND (2020). The Daily Northwestern. <https://dailynorthwestern.com/2020/07/12/campus/northwestern-researchers-hope-to-democratize-drinking-water-tests-through-rosalind/>
14. Every toilet flush reveals a clue in fight to stop COVID-19 (2020). Chicago Tribune. <https://www.chicagotribune.com/news/environment/ct-covid-sewage-monitoring-20201117-rgi5wgme75h5lb2qxd6rnr6lq-story.html>
15. DNA finds pollutants in green-glowing water test (2020). Scientific American. <https://www.scientificamerican.com/article/dna-finds-pollutants-in-green-glowing-water-test/>
16. RNA ties itself into knots, then unties itself in mesmerizing video (2021). Live Science. <https://www.livescience.com/new-high-resolution-rna-videos.html> . Picked up by MSN (<https://www.msn.com/en-au/news/techandscience/rna-ties-itself-in-knots-then-unties-itself-in-mesmerizing-video/ar-BB1cRdZh>) and Yahoo (<https://uk.news.yahoo.com/rna-ties-itself-knots-then-120050426.html>)
17. Ground-breaking films show RNA's complex curves take shape (2021). Nature. <https://www.nature.com/articles/d41586-021-00126-8>
18. Using R2D2 to understand RNA folding (2021). NIH Director's Blog. <https://directorsblog.nih.gov/2021/02/25/using-r2d2-to-understand-rna-folding/>
19. This cheap 'DNA computer' finds water toxins within minutes (2022). The Daily Beast. <https://www.thedailybeast.com/new-dna-computer-is-fast-cheap-way-to-measure-water-quality?ref=wrap>
20. Scientists develop device to test if water is safe to drink - it shows results in minutes (2022). The Independent. <https://www.independent.co.uk/news/world/americas/water-drink-safety-device-test-dna-b2018898.html?amp>
21. Gadget 'tastes' water to tell you if it is safe to drink (2022). Metro. <https://metro.co.uk/2022/02/18/gadget-tastes-water-to-tell-you-if-its-safe-to-drink-16124989/>
22. Sci-fi tech could solve world's water crisis (2022). WebMD. https://www.webmd.com/a-to-z-guides/features/sci-fi-tech-could-solve-worlds-water-crisis?src=rss_public
23. Learn how the device works (2022). Northwestern Magazine Youtube cartoon on ROSALIND. <https://www.youtube.com/watch?v=k5YOEzEUd4g>
24. Proteins-on-demand - just add water (2023). Nature. <https://media.nature.com/original/magazine-assets/d41586-023-00760-4/d41586-023-00760-4.pdf>
25. Water testing kits for lead, copper and PFAS to debut in Chicago (2023). Forbes. <https://www.forbes.com/sites/jeffkart/2023/08/12/home-water-quality-testing-kits-for-lead-copper-and-pfas-to-debut-in-chicago/?sh=43e72ef2832d>
26. 350 Chicago households to get free lead water testing kits. Chicago Tribune (2023). <https://www.chicagotribune.com/news/environment/ct-chicago-lead-water-kits-northwestern-20230911-h6hp43jbzzccrdevknvaeazi3q-story.html>
27. How tiny cantilevers are transforming water testing. SynBio Beta (2025). <https://www.synbiobeta.com/read/how-tiny-cantilevers-are-transforming-water-testing>
28. Northwestern braces for massive cuts that could nearly wipe out all its federal research funding. WBEZ. (2025). <https://www.wbez.org/education/2025/04/09/northwestern-braces-for-massive-funding-cuts-that-could-nearly-wipe-out-all-its-federal-research-funding>
29. Department of defense issues over 100 stop work-orders to Northwestern researchers. Chicago Sun Times (2025). <https://chicago.suntimes.com/education/2025/04/10/northwestern-department-of-defense-funding-stop-work-orders>

30. What's next for Northwestern researchers amid funding cuts and work stoppages? WBEZ Reset (2025). <https://www.wbez.org/reset-with-sasha-ann-simons/2025/04/16/northwestern-funding-cuts-stop-work-orders>
31. How Trump's attack on universities is putting research in peril. Nature (2025). <https://www.nature.com/articles/d41586-025-01289-4>
32. Federal Funding Freezes. WTTW Chicago Tonight (2025). <https://www.youtube.com/watch?v=2d12XHL0YCg&list=PLF90BC11433790515&index=2> Segment link: <https://news.wttw.com/2025/04/24/university-research-limbo-trump-administration-pauses-federal-grants>
33. Lead biosensors could make water testing accessible for Chicagoans. Medill Reports Chicago (2025). <https://news.medill.northwestern.edu/chicago/lead-biosensors-could-make-water-testing-accessible-for-chicagoans/>
34. Northwestern's scientific innovation faces significant setback under Trump. Evanston Round Table (2025). <https://evanstonroundtable.com/2025/05/20/trump-administration-cuts-scientific-funding/>
35. An invisible threat: How many more decades of lead pipes can Chicagoans handle? The Chicago Reporter (2025). <https://www.chicagoreporter.com/an-invisible-threat-how-many-more-decades-of-lead-pipes-can-chicagoans-handle/>
36. Chicago was supposed to warn residents about toxic lead pipes. It's barely started. Chicago Sun Times (2025) <https://chicago.suntimes.com/environment/2025/07/14/chicago-toxic-lead-pipes-notification-delayed> .

Research Highlights

37. K. M. Weeks (2011). RNA structure probing dash seq. Proceedings of the National Academy of Sciences, 108, 10933-10934.
38. M. Eisenstein (2011). A SHAPE in the Crowd. Biopolymers, 95, iii-iv.
39. J. J. Tabor (2012). Modular gene-circuit design takes two steps forward. Nature Methods, 9, 1061-1063.
40. Cornell Engineering 'Breaking the Rules' web and video stories (2014). <http://www.engineering.cornell.edu/brand/independent/>
41. L. Cahoon (2014). Code Breaker: Julius Lucks Unlocks the Secrets of RNA to Advance Human Health. Cornell Engineering Magazine, Summer, 2014.
42. S. Adams (2015). Cornell's new genetic "switch" could detect deadly diseases. IthacaWeek, <http://www.ithacaweek-ic.com/cornell-researchers-engineer-on-switch-for-genes/> .
43. N. Rusk (2015). RNA that activates transcription. Nature Methods, 12, 290.
44. Sharing Science: Watching the STARS (Small Transcription Activating RNAs). NSF MCB Blog, April 10, 2015. <https://nsfmcb.wordpress.com/2015/04/01/sharing-science-watching-the-stars-small-transcription-activating-rnas/>
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Op-Ed

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