KEITH PARDEE

University of Toronto
Dept. of Pharmaceutical Sciences, Faculty of Pharmacy email: keith.pardee@utoronto.ca

EDUCATION AND TRAINING

Harvard University (Wyss Inst.)	Synthetic Biology	PDF (CIHR)	2010 - 2015
University of Toronto	Molecular Genetics	PhD (NSERC)	2010
University of British Columbia	Natural Products Chemistry	MSc	2002
University of Alberta	Honors in Biological Sciences	BSc	1996

PROFESSIONAL APPOINTMENTS

Associate Professor	Faculty of Pharmacy, University of Toronto Biomolecular Sciences Division	2022 - present
Assistant Professor	Faculty of Pharmacy, University of Toronto Biomolecular Sciences Division	2016 - 2022
	Cross-Appointment Department of Mechanical And Industrial Engineering University of Toronto	2019 - present
Visiting Scholar	Wyss Institute, Harvard University	2016 - 2018

AWARDS AND DISTINCTIONS

Canada Research Chair. CIHR. Synthetic Biology and Human Health (Tier II)	2021-2026
Early Researcher Award, Ontario Ministry of Colleges and Universities	2021-2026
University of Toronto, School of Graduate Studies, Early Career Supervision Award	2021
US Office of Naval Research Visiting Scientist Program	2019
Canada Research Chair. CIHR. Synthetic Biology and Human Health (Tier II)	2016-2021
Medicine by Design Investigator, University of Toronto	2016-2023
Emerging Leaders in Biosecurity Fellow, Johns Hopkins University	2018
New Investigator Research Award, Association of Faculties of Pharmacy of Canada	2017
Nominated and Honoree of Webby Award, for Podcast “Rapid, Low-Cost Detection of Zika”	2017
Katerva Award Nominee and Finalist in the Human Development category	2017
Popular Science Best of What’s New Award - Health	2016
CIHR Postdoctoral Fellowship	2011-2014
Donnelly Centre Dissertation Prize, University of Toronto	2010
National Institutes of Health Travel Award (1R13DK071303)	2006
Up-Start Business Pitch Competition: Third Place, MaRS/Ontario Centres of Excellence	2006
Ontario Graduate Scholarship	2004-2005
Graduate Department of Molecular Genetics Top-Up	2004-2005
NSERC Postgraduate Scholarship	2002-2003
Graduate Department of Molecular Genetics Top-Up	2002-2003
Graduate Engineering and Technology Scholarship, Science Council British Columbia	2000-2001
University Graduate Fellowship, University of British Columbia, declined in lieu of above	2000

PROFESSIONAL ACTIVITIES

Broad member, Canadian Council of Engineering Biology 2022-present
Co-Director, PRiME – A Precision Medicine Initiative, University of Toronto 2021-2023
Co-Founder and Advisor, En Carta Diagnostics 2021-present
Member, Medicine by Design 2.0 Strategic Planning Committee, University of Toronto 2021-2023
Co-Founder and Advisor, Liberum Biotech 2020-present
Co-Founder and Board Director, LSK Technologies (acquired by Nicoya) 2020-2022
Member, National Engineering Biology Steering Committee of Can-DESyNe 2019-2022
Science mentor, Creative Destruction Lab, University of Toronto 2016-2022

PUBLICATIONS

1. Karlikow M, Amalfitano E, Yang X, Doucet J, Chapman A, Mousavi PS, Homme P, Sutyrina P, Chan W, Lemak S, Yakunin AF, Dolezal AG, Kelley S, Foster LJ, Harpur B, **Pardee K**. CRISPR-induced DNA reorganization for multiplexed nucleic acid detection.
   Nature Communications. 2023 Mar 17;14(1):1505. PMID: 36932065

2. Ribeiro da Silva J, Kohl A, Pena L, **Pardee K**. Clinical and Laboratory Diagnosis of Monkeypox (Mpox): Current Status and Future Directions
   iScience 2023. 2023 Jun 16;26(6):106759. PMID: 37206155

3. Norouzi M, Truong T, Jaenes K, Warner BM, Vendramelli R, Tierney K, Kobasa D, Tailor N, Plant P, Dos Santos C, Babiuk S, Ambagala A, **Pardee K**. Cell-Free Dot Blot: an Ultra-Low-Cost and Practical Immunoassay Platform for Detection of Anti-SARS-CoV-2 Antibodies in Human and Animal Sera. Microbiol Spectr. 2023 Jan 31:e0245722. PMID: 36719206

4. Ribeiro da Silva J, Kohl A, Pena L, Pardee K. Recent insights into SARS-CoV-2 omicron variant.
   Reviews in Medical Virology. e2373. (2023) PMID: 35662313

5. Karlikow M, Ribeiro J, Guo Y, Cicek S, Krokovski L, Homme P, Xiong Y, Xu T, Calderon M, Camacho S, Ma D, Nayane B, Sutyrina P, Ferrante T, Benitez D, Tamayo V, Jaenes K, Rackus D, Collins J, Castellanos J, Cevallos V, Green AA, Ayres C, Pena L, **Pardee K**. Field validation of the performance of paper-based tests for the detection of the Zika and chikungunya viruses in serum samples.
   Nature Biomedical Engineering. Mar;6(3):246-256 (2022). PMID: 35256758

6. Carr AR, Dopp JL, Wu K, Sadat Mousavi P, Jo YR, McNeley CE, Lynch ZT, **Pardee K**, Green AA, Reuel NF. Toward Mail-in-Sensors for SARS-CoV-2 Detection: Interfacing Gel Switch Resonators with Cell-Free Toehold Switches.
   ACS Sensors. 7, 3, 806–815 (2022) PMID. 35254055

7. Jaenes K, Ribeiro J, Vigar J, Wu K, Norouzi M, Bayat P, Karlikow M, Cicek S, Guo Y, Green AA, Pena L, **Pardee K**. Design to Implementation for Development and Patient Validation of Paper-Based Toehold Switch-Based Diagnostics.
   JoVE 2022;(184). PMID: 35781278

8. Narahari T, Dahmer J, Sklavounos A, Kim T, Satkauskas M, Clotea I, Ho M, Lamanna J, Dixon C, Rackus D, da Silva R, Pena L, **Pardee K**, Wheeler AR. Portable sample processing for molecular assays: application to Zika virus diagnostics.
   Lab-on-a-Chip. 22: 1748-1763. (2022) PMID. 35357372

9. Lu S, Duplat D, Benitez-Bolivar P, León C, Villota SD, Veloz-Villavicencio E, Arévalo V, Jaenes K, Guo Y, Cicek S, Robinson L, Peidis P, Pearson JD, Woodgett J, Mazzulli T, Ponce P, Restrepo S, González JM, Bernal A, Guevara-Suarez M, **Pardee K**, Cevallos VE, González C, Bremner R. Multicenter international assessment of a SARS-CoV-2 RT-LAMP test for point of care clinical application.
   PLOS ONE. 17(5): e0268340. (2022) PMID. 35544541

10. Amalfitano E and **Pardee K**. Logic Invades Cell-free Biosensing.
Nature Chemical Biology, 18, pages 356–358 (2022). PMID. 35177838

11. da Silva SJR, do Nascimento JCF, Germano Mendes RP, Guarines KM, Targino Alves da Silva C, da Silva PG, de Magalhães JJF, Vigar JRJ, Silva-Júnior A, Kohl A, **Pardee K**, Pena L. Two Years into the COVID-19 Pandemic: Lessons Learned.
ACS Infect Dis. Sep 9; 8(9): 1758–1814. PMID. 35940589

12. Arce A, Chavez FG, Gandini C, Puig J, Matute T, Haseloff J, Dalchau N, Molloy J, **Pardee K**, Federici F. Decentralizing Cell-Free RNA Sensing with the Use of Low-Cost Cell Extracts.
Frontiers in Bioengineering and Biotechnology 2021. 9:727584. PMID: 34497801

13. Norouzi M, Panfilov S, **Pardee K**. *High-Efficiency Protection of Linear DNA in Cell-Free Extracts from Escherichia coli and Vibrio natriegens*.
ACS Synthetic Biology. 2021. 10(7):1615-1624. PMID: 34161082

14. "Development and Validation of a One-Step Reverse Transcription Loop-Mediated Isothermal Amplification (RT-LAMP) for Rapid Detection of ZIKV in Patient Samples from Brazil" Ribeiro J, **Pardee K**, Balasuriya UBR, Pena LJ.
Scientific Reports. 2021. 11(1):4111. PMID: 33602985

15. “A Glucose Meter Interface for Point-of-Care Gene Circuit-based Diagnostics”
Amalfitano E, Karlikow M, Norouzi M, Jaenes K, Cicek S, Masum F, Sadat Mousavi P, Guo Y, Tang L, Sydor A, Ma D, Pearson JD, Trcka D, Pinette M, Ambagala A, Babiuk S, Pickering B, Wrana J, Bremner R, Mazzulli T, Sinton D, Brumell JH, Green A.A, **Pardee K**.
Nature Communications. 2021. Feb 1;12: 724 PMID: 33526784

16. “Adaptive, Diverse and De-centralized Diagnostics are Key to the Future of Outbreak Response”
Matthews Q, Silva SJRD, Norouzi M, Pena LJ and **Pardee K**.
BMC Biology. 2020. Oct 28;18(1):153. PMID: 33115440

17. “Clinical and Laboratory Diagnosis of SARS-CoV-2, the Virus Causing COVID-19”
da Silva SJR, Silva CTAD, Guarines KM, Mendes RPG, **Pardee K**, Kohl A, Pena L.
ACS Infect Dis. 2020 Sep 11;6(9):2319-2336. PMID: 32786280

18. “Loop-Mediated Isothermal Amplification (LAMP) for the Diagnosis of Zika Virus: A Review.”
Silva SJRD, **Pardee K**, Pena L.
Viruses. 2019 Dec 23;12(1). pii: E19. PMID: 31877989

19. “When robotics met fluidics.”
Zhong J, Riordon J, Wu TC, Edwards H, Wheeler AR, **Pardee K**, Aspuru-Guzik A, Sinton D.
Lab Chip. 2020 Feb 21;20(4):709-716.
PMID: 31895394

20. “Synthetic Biology Goes Cell-free.”
Tinafar A, Jaenes K, **Pardee K**.
BMC Biology (2019) Aug 8;17(1):64. PMID: 31395057

21. “Cell-Free Biosensors: Synthetic Biology Without Borders *in* Handbook of Cell Biosensors”
Tinafar A, Zhou Y, Hong F, Swingle KL, Tang AA, Green AA and **Pardee K.**
Springer. 2020 January, Thouand G. (Ed.), 1st Edition. P1-39. doi.:10.1007/978-3-319-47405-2_130-1

22. “A Multiplexed, Electrochemical Interface for Synthetic Gene Networks.” Mousavi PS, Smith SJ, Chen JB, Karlikow M, Tinafar A, Robinson C, Liu W, Ma D, Green AA, Kelley SO, **Pardee K**.

Nature Chemistry (2020) Jan;12(1): 48-55. PMID: 31767994

23. "Solidifying the Impact of Cell-Free Synthetic Biology Through Lyophilization." Special Issue on cell-free synthetic biology.
    Pardee K
    Biochemical Engineering Journal 138 (2018) 91–97. PMID: 30740032

24. "The Many Roads to an Ideal Paper-based Device. *In*: Paper-based Diagnostics: Current Status and Future Applications." Karlikow M and **Pardee K**
    Springer. 2018 December, Land K. (Ed.), 1st Edition. p171-201. doi:10.1007/978-3-319-96870-4_6

25. "BioBits Explorer: A Modular Synthetic Biology Education Kit."
    Huang A, Nguyen PQ, Stark JC, Takahashi MK, Donghia N, Ferrante T, Dy AJ, Hsu KJ, Dubner RS, **Pardee K**, Jewett MC and Collins JJ
    Science Advances. 2018 Aug 1;4(8):eaat5105. PMID: 30083608.

26. "BioBits Bright: A Fluorescent Synthetic Biology Education Kit."
    Stark JC, Huang A, Nguyen PQ, Dubner RS, Hsu KJ, Ferrante TC, Anderson M, Kanapskyte A, Mucha Q, Packett JS, Patel P, Patel R, Qaq D, Zondor T, Burke J, Martinez T, Miller-Berry A, Puppala A, Reichert K, Schmid M, Brand L, Hill LR, Chellaswamy JF, Faheem N, Fetherling S, Gong E, Gonzalzles EM, Granito T, Koritsaris J, Nguyen B, Ottman S, Palffy C, Patel A, Skweres S, Slaton A, Woods T, Donghia N, **Pardee K**, Collins JJ, and Jewett MC
    Science Advances. 2018 Aug 1;4(8):eaat5107. PMID: 30083609.

27. "Portable, On-demand Biomolecular Manufacturing."
    Pardee K, Slomovic S, Nguyen PQ, Lee JW, Donghia N, Burrill D, Ferrante T, McSorley F, Furuta Y, Vernet A, Lewandowski M, Boddy CN, Joshi NS, Collins JJ
    Cell. 2016 Sep 22;167(1):248-259. PMID: 27662092.

28. "Rapid, Low-Cost Detection of Zika Virus Using Programmable Biomolecular Components."
    Pardee K, Green AA, Takahashi MK, Braff D, Lambert G, Lee JW, Ferrante T, Ma D, Donghia N, Fan M, Daringer NM, Bosch I, Dudley DM, O'Connor DH, Gehrke L, Collins JJ
    Cell. 2016 May 19;165(5):1255-1266. PMID: 27160350.

29. "Synthetic Biology Devices for *In vitro* and *In vivo* Diagnostics."
    Slomovic S*, **Pardee K***, and Collins JJ
    Proc Natl Acad Sci U S A. 2015 Nov 24;112(47):14429-35. PMID: 26598662.

30. "Paper-based Synthetic Gene Networks."
    Pardee K, Green A., Ferrante T., Cameron E., Keyser A., Peng Y. and Collins JJ
    Cell. 2014 Nov 6;159(4):940-54. PMID: 25417167.

31. "Gene Networks of Fully Connected Triads with Complete Auto-Activation Enable Multistability and Stepwise Stochastic Transitions." Faucon PC, **Pardee K**, Kumar RM, Li H, Loh Y-H, Wang X
    PLoS ONE. 2014 Jul 24;9(7):e102873. PMID: 25057990.

32. "Deconstruction of the Dynamic Pluripotent Stem Cell Transcription Program."
    Kumar RM, Cahan P, Shalek A, Satija R, DaleyKeyser A, Li H, Zhang J, **Pardee K**, Gennert D, Trombetta J, Ferrante T, Regev A, Daley GQ, and Collins JJ
    Nature. 2014 Dec 4;516(7529):56-61. PMID: 25471879.

33. **"**Nuclear Receptors: Small Molecule Sensors that Coordinate Growth, Metabolism and Reproduction. *In: A Handbook of Transcription Factors."* **Pardee K**, Necakov A, Krause H
    Subcellular Biochemistry. 2011 Vol. 52. Hughes, T.R. (Ed.), Springer, 1st Edition.,123-153. PMID: 21557081.

34. “The structural Basis of Gas-Responsive Transcription by the Human Nuclear Hormone Receptor, Rev-erbβ.” **Pardee K**, Xu X., Reinking J, Schuetz A, Dong A, Liu S, Zhang R, Tiefenbach J, Lajoie G, Plotnikov A, Botchkarev A, Krause H and Edwards A
PLoS Biol. 2009 Feb 24;7(2):e43. PMID: 19243223.

35. “The *Drosophila* DHR96 Nuclear Receptor Binds Cholesterol and Regulates Cholesterol Homeostasis.” Horner M, **Pardee K**, Liu S, King-Jones K, Lajoie G, Edwards A, Krause HM, Thummel CS
Genes & Development. 2009 Dec 1;23(23):2711-6. PMID: 19952106.

36. “Nuclear Receptors *Homo sapiens* Rev-erbβ and *Drosophila melanogaster* E75 are Thiolate-ligated Heme Proteins, which Undergo Redox-mediated Ligand Wwitching and bind CO and NO.” Marvin K, Reinking J, Lee A, **Pardee K**, Krause H, Burstyn J
Biochemistry. 2009 Jul 28;48(29):7056-71. PMID: 19405475.

37. “The *Drosophila* Nuclear Receptor E75 Binds Heme and is Nitric Oxide Responsive.” Reinking J, Lam M, **Pardee K**, Yang P, Liu S, Williams S, Lajoie G, Edwards A and Krause H
Cell. 2005 Jul 29;122(2):195-207. PMID: 16051145.

38. **“**Nuclear Hormone Receptors, Metabolism, and Aging: What Goes Around Comes Around.” **Pardee K**, Reinking J, Krause H
SAGE KE AAAS. 2004 Nov 24;2004(47):re8. PMID: 15564562. Featured:*Science.* 306 (5701)p1446.

39. “Structural Proteomics: Toward High-throughput Structural Biology as a Tool in Functional Genomics.” Yee A, **Pardee K**, Christendat D, Savchenko A, Edwards A, Arrowsmith C
Accounts of Chemical Research. 2003 Mar;36(3):183-9. PMID: 12641475.

40. “P1 Trisaccharide (Galalpha1, 4Galbeta1, 4GlcNAc) Synthesis by Enzyme Glycosylation Reactions using Recombinant *Escherichia coli*.” Liu Z, Lu Y, Zhang J, **Pardee K**, Wang PG
Appl Enviro Microbiol. 2003 Apr;69(4):2110-5. PMID: 12676690.

41. “Plant Virus Inhibitors from Marine Algae.”
Pardee K, Ellis P, Bouthillier M, Towers GHN, French CJ
Canadian Journal of Botany. 2004 Vol. 82 (3): 304-309.

PROTEIN CRYSTAL STRUCTURE

“Crystal Structure of Reverb Beta in Complex with Heme.”
Xu X, Dong A, **Pardee K**, Reinking J, Krause H, Schuetz A, Zhang R, Cui H, Edwards A, Arrowsmith CH, Weigelt J, Bountra C, Savchenko A, Botchkarev A., Structural Genomics Consortium. Protein Data Bank (2008): 3CQV

PATENTS

63/142,097 Protection of Linear Deoxyribonucleic Acid from Exonucleolytic Degradation
63/070,336 Portable Manufacture of Protein-Based Drugs and Laboratory Reagents
63/038,609 Low-Cost Detection of SARS-CoV-2 using cell-free systems and riboregulators
62/982,323 Systems and Methods for a Plurality Of Wells Using Optical Reactions
62/929,452 An Electrochemical Interface For Molecular Circuit-Based Outputs
1914568.9(UK) A Molecular Sensing Platform And Methods of Use
62/609,525 Synthetic Biological Circuits for the Detection of Target Analytes using a Glucose meter
62/341,221 Portable, Low-cost Virus Detection and Strain Identification Platform
62/403,778 Portable, Low-cost Virus Detection and Strain Identification Platform
62/066,972 Matrix-assisted spectrophotometry

61/913,110 Paper-based Synthetic Gene Networks
61/913,091 Electronic Reader for Paper-based Synthetic Gene Circuits

TEACHING

Courses

Pharmaceutical Chemistry (PHC340)
University of Toronto, Full year 2017, 2018, 2019, 2020, 2021, 2023
Principles of Synthetic biology (PHM1140H)
University of Toronto, Fall 2018, 2019, 2023
Stem Cell Network Synthetic Biology Workshop
University of British Columbia, 3 full days Fall 2020
Pharmaceutical Diagnostics and Imaging Graduate Seminar Series
University of Toronto, Full year 2018, 2019, 2020, 2021

Guest Lectures

Precision *In Vitro* Diagnostics (PHM2021, Prof. Shana Kelley)
University of Toronto, 11/10/2020
Biotechnology course (HMB301H1, Prof. Naomi Levy-Strumpf)
University of Toronto, 11/26/2020, 11/18/2021, 11/2/2023
Biomedical Instrumentation and Imaging (Course GMS BT 422)
Graduate Medical Sciences, Boston University 04/24/2014
Advanced Cellular Engineering (Course 222, Prof. Neel Joshi)
School of Engineering and Applied Sciences, Harvard University
10/27/2014, 10/25/2013, 10/26/2012, 3/7/2012, 10/26/2011

RESEARCH TRANSLATION.
Training Environment for Commercialization. Recognizing the need, I dedicate a significant amount of time to ensure that my trainees are ready, if interested, for meaningful jobs in industry. This includes experience in working with patent lawyers and business development teams, licensing, and launching lab start-ups.

***Life Science Key Technologies*.** LSK Technologies was co-founded with graduate students Yuxiu Livia Guo and Seray Cicek in 2020. The company was dedicated to the commercialization of a portable plate reader, called PLUM (**P**ortable, **L**ow-cost, **U**ser-friendly, **M**ultimode), which evolved out of our diagnostic patient trials in Latin America. The company was selected by the Y Combinator Accelerator program (San Francisco) as part of their 2020 cohort, was a resident venture at the Velocity Incubator at the University of Waterloo and was acquired by Nicoya in May 2022.

***Liberum Biotech*.** Liberum was co-founded with graduate student Aidan Tinafar in 2020 to commercialize the hardware and molecular technologies developed for cell-free protein production. The company was selected by the IndieBio Accelerator Program (San Francisco) as part of their 2020 cohort of eleven companies and has graduated from the 2020/2021 Creative Destruction Lab Health Session (Toronto). Liberum has raised seed funding, is growing, and is enabling the advantages of cell-free synthesis for the research community. The company serves the research, pharma and biotech communities in North America and Europe.

***En Carta Diagnostics*.** En Carta was co-founded with postdoctoral fellow Margot Karlikow and partners Alex Green (Boston University) and Guillaume Horreard in 2020. Based in France, the company is focused on the translation of diagnostic technologies from the Pardee and Green labs, with an emphasis on improving access to diagnostics, especially in low-resource settings. The company works with industry partners to develop purpose-built diagnostics/sensors and is developing a direct-to-consumer line of products for human health.

SELECTED INVITED PRESENTATIONS

NanoMedicines Innovation Network Lecture, November 3, 2023 (online)
Build-a-Cell Seminar Series (UMinnesota), October 23, 2023 (online)
Emerging & Pandemic Infections Consortium Symposium, Toronto, Oct 17th 2023 (in-person)
Medicine by Design Summer Series – Entrepreneurship, Toronto, June 23, 2023 (in-person)
Amgen Scholars Program Distinguished Speaker Seminar, Toronto, June 7, 2023 (in-person)
THINK symposium on Diagnostics and Microfluidics, Barbados, February 5, 2023 (in-person)
Medicine by Design Symposium, Toronto, December 8, 2023 (in-person)
KTH and Karolinska Institute, Sweden, November 24, 2022 (in-person)
Nanomedicine Innovation Network Scientific Meeting, Toronto, November 19, 2023 (in-person)
University of Minnesota, Minnesota, US, November 3, 2022 (in-person)
International Genetically Engineered Machines (iGEM) Symposium, India, July 12, 2022
BioDojo, Fireside Chats November 21, 2021
Canadian Genetically Engineered Machines (cGEM) Conference, October 3rd, 2021
Oxford University Synthetic Biology Society, June 1st, 2021
National Research Council, Medical Devices Research Unit, March 25th, 2021
Pharmaceutical Chemistry Student Union, March 12th, 2021
Connaught Global Series: PRiME-HUJI Joint Symposium, March 3rd, 2021
Mayo Clinic Department of Molecular Pharmacology and Experimental Therapeutics, Feb 19 2021
LMPSU virtual research symposium, COVID-19, January 9th, 2021
Biosafety Level 4 Zoonotic Laboratory Network, September 2nd, 2020
University of Toronto, COVID-19 Webinar, April 22nd, 2020
Frontiers in Bioengineering Research Webinar, Rice University, April 16th, 2020
Materials Research Society Webinar COVID-19 Panel discussion, April 16th, 2020
Cell-free Synthetic Biology Conference, Boston, Dec 5th, 2019
TOeP and Ontario-On-A-Chip Symposium, Toronto, May 16th, 2019
Vaccine Sciences Symposium, Toronto, May 16th, 2019
US Naval Research Lab, Washington D.C., US, April 23rd, 2019
US Army, Edgewood Chemical Biological Center, MD, US, April 24th, 2019
US Defense Threat Reduction Agency, Virginia, US April 25th, 2019
Fiocruz Institute, Recife, Brazil April 17th, 2019
Canada SynBio Conference, Toronto, March 6th and 7th 2019
Genome Canada, Board of Directors Meeting, Toronto, Sept 2018
Emerging Leaders in Biosecurity, Research and Policy Symposium, Washington D.C., July 2018
Banff Conference on Infectious Diseases, May 2018
Symposium on the Future of Immunization Research at the University of Toronto, May 2018
Ministry of Public Health, Ecuador, March 2018
Donnelly Seminar Series, CCBR, University of Toronto, February 2018
OpenPlant Forum: Fast and Frugal Biology, Cambridge, UK, July 2017
US Navy Science and Technology Expo, Washington D.C., US, July 2017
POC HIV Diagnostics Workshop, NIH NIAID, US, June 2017
1st Annual European Congress on Cell-free Synthetic Biology, Switzerland, March 2017
Cambridge University, SynBio Forum, UK, March 2017
Cambridge University, Synthetic Biology Strategic Research Initiative, UK, March 2017
Engineering World Heath Annual Symposium, Toronto, February 2017
Department of Chemical Engineering, McMaster University, November 2016
The Scientist Webinar, October 2016
American Association of Clinical Chemistry Annual Meeting, Philadelphia, August 2016
CIFAR, Bio-Inspired Solar Energy Meeting, Vancouver, May 2016
NSERC-Industrial Biocatalysis Network- Annual Meeting, Keynote Lecture, Montreal, May 2016
US FDA, Winchester MA, September, 2015
Broad Institute Retreat Boston (2014)
Wyss Institute Retreats, Harvard University, Boston (2010, 2013, 2014)