

Prof. Yizhi Patrick CAI

CAREER

AUG 2017-Current	Chair Professor of Synthetic Genomics Manchester Institute of Biotechnology , University of Manchester, UK
MAR 2017-Jul, 2017	Reader School of Biological Sciences , University of Edinburgh, UK
JUL 2013-Jul, 2017	Chancellor's Fellow and Principal Investigator School of Biological Sciences , University of Edinburgh, UK
JUN 2010-Jun 2013	Postdoc Research Fellow with Autodesk Distinguished Scholarship Johns Hopkins University , Baltimore, USA Advisor: Prof. Jef Boeke

OTHER MANAGERIAL AND HONORARY POSITIONS

MAY 2025-Current	Elected Member Academia Europaea
FEB 2024-Current	Chair Geneva Science and Diplomacy Anticipator, Synthetic Biology Committee
MAY 2023-Current	Visiting Professor Massachusetts Institute of Technology
JAN 2023-Current	Associate Editor ACS Synthetic Biology
APR 2021-Current	LMB Fellow MRC LMB, The University of Cambridge , Cambridge, UK
APR 2018-Current	Visiting Research Professor Hong Kong University , Hong Kong, China
MAR 2018-Current	Associate Faculty in Synthetic Genomics Wellcome Trust Sanger Institute , UK
JUL 2013-Current	International Coordinator International Synthetic Yeast Consortium
FEB 2014-Oct, 2016	Founding co-Director Edinburgh Genome Foundry , University of Edinburgh, UK
DEC 2016-Jul, 2017	Full Member Wellcome Trust Centre for Cell Biology , University of Edinburgh, UK

DEGREES AWARDED

- JAN 2007-May 2010 Ph.D in Genetics, Bioinformatics and Computational Biology
Virginia Tech, Virginia, USA | Advisor: Prof. Jean Peccoud
- SEP 2005-Nov 2006 Master of Sciences, majored in Bioinformatics
University of Edinburgh, Edinburgh, UK | Advisor: Prof. Gordon Plotkin
- SEP 2001-Jun 2005 Bachelor of Engineering in Computer Sciences, Talented Student Program
Central South University, Changsha, China | Advisor: Prof. Sanding Luo

PENDING GRANTS

2. **Jan 2026 - Dec 2029**, European Innovation Council, “Synthetic genomics unlocking rAAV manufacture for gene therapy” (€3.5M), Role: co-PI
1. **Sep 2025 - Aug 2029**, BBSRC sLoLa, “The rules of the regulatory genomic landscapes shaping vertebrate development” (£5.3M), Role: co-PI

CURRENT GRANTS

13. **Jun 2025 - May 2028**, Advanced Research and Invention Agency (ARIA), “Engineering synthetic plant artificial chromosomes (synPACs)” (£8.5M), Role: PI
12. **Jan 2025 - Dec 2030**, Wellcome Trust, “Synthetic Human Genome.” (£9.8M), Role: co-PI
11. **Dec 2024 - Dec 2026**, Chan Zuckerberg Initiative, “Mating-Inspired Methods for Synthetic Human Chromosomes.” (\$ 1.37M), Role: co-PI
10. **Feb 2024 - Jan 2026**, BBSRC EngBio Mission Award, “SafePhage: Engineering synthetic phages with intrinsic biocontainment.” (£2M), Role: co-PI
9. **Feb 2024 - Jan 2026**, BBSRC EngBio Mission Award, “Scalable Production of Precisely Engineered Proteins Using an Expanded Genetic Code.” (£2M), Role: co-PI
8. **Jan 2024 - Dec 2028**, ERC Consolidator Award, “Genome Refactoring and Engineering Approach to study non-coding genes driving Translation.” (€2M), Role: PI
7. **Oct 2022 - Sep 2027**, EPSRC, “Open Plus Fellowship: Engineering and safeguarding synthetic genomes.” (£1.64M), Role: PI
6. **Feb 2024 - Aug 2025**, BBSRC 23IPAP International Partnering Awards Plus on AI for Bioscience , “AI- assisted DBTL cycle for synthetic yeast promoters.” (£312K), Role: PI
5. **Jul 2023 - Jun 2028**, BBSRC, “23-AIBIO - Artificial Intelligence in the Biosciences.” (£1.6M), Role: co-PI
4. **Oct 2023 - Sep 2025**, BBSRC, “A UK-Japan partnership for synergising synthetic biology with systems biology.” (£50K), Role: PI
3. **Oct 2021 - Sep 2026**, EPSRC, “Turing AI Fellowship: Human-AI Research Teams - Steering AI in Experimental Design and Decision-Making.” (£4.6M), Role: co-PI
2. **Aug 2018 - Aug 2025**, Hong Kong University, “Visiting Research Professor Award” (HKD \$500,000), Role: PI
1. **Mar 2018 - Sep 2026**, Sanger Institute, “Associate Faculty Award” (£200,000), Role: PI

COMPLETED GRANTS

30. **Jan 2022 - Jan 2025**, BBSRC, “21EBTA: Engineering Biology with Synthetic Genomes (EB-SynerGy).” (£1.6M), Role: PI
29. **Jan 2022 - Dec 2024**, Wellcome Trust, “Human genome synthesis.” (£1.98M), Role: co-PI

28. **Oct 2020 - Jan 2025**, University of Manchester - Chinese University Hong Kong, "Rhizobium genome refactoring for climate-smart agriculture." (£22.5K), Role: PI
27. **Mar 2019 - Sep 2024**, Volkswagen Foundation, "Genome SCRaMbLEing: an experimental approach to understand life's organization at a molecular level" (€1.3M), Role: UK PI
26. **Feb 2024 - Jul 2024**, BBSRC International Institutional Partnership Funding, "Rhizobium genome refactoring for climate-smart agriculture." (£25K), Role: PI
25. **Jan 2022 - Apr 2024**, BBSRC, "21ENGBIO: Engineering Human Artificial Chromosomes (HACs) to Encode Genome Complexity." (£100K), Role: co-PI
24. **Oct 2022 - Sep 2023**, UKRI, "UKRI Switzerland Partnering Awards for a UK-Swiss Engineering Biology Meeting." (£25K), Role: PI
23. **Feb 2015 - Mar 2022**, BBSRC, MRC, EPSRC, "Edinburgh Mammalian Synthetic Biology Research Centre" (£14M), Role: co-PI
22. **Jan 2020 - Dec 2022**, EPSRC, "High Resolution High Throughput Mass Spectrometry to Characterise Materials, Chemicals, and BioCatalysts" (£1.42M), Role: co-PI
21. **Jan 2019 - Aug 2022**, BBSRC, "Synthetic chromosomes to decipher requirements for optimal transmission of DNA in yeast" (£18K), Role: co-PI
20. **Oct 2018 - Sep 2021**, Royal Society Newton Advanced Fellowship, "Dissect the function of repetitive ribosomal DNA using synthetic biology approaches" (£111,000), Role: Hosting PI
19. **Oct 2017 - Dec 2020**, BBSRC, "From genetic parts to neochromosome in yeast" (£549,000), Role: PI
18. **Apr 2015 - Dec 2018**, EPSRC, "Engineering synthetic chromosomes from array based oligo pools to study chromosome segregation mechanisms" (£66K), Role: PI
17. **Jan 2018 - Dec 2018**, EPSRC, "An engineering platform for rapid prototyping synthetic genetic networks" (£125,000), Role: PI
16. **Jul 2018 - Dec 2018**, BBSRC Innovation Fellowship, "Collaborative effort to develop synthetic genomics technologies for industrial biotech" (£39,999), Role: PI
15. **Jun 2018 - May 2019**, UoM-Chinese University Hong Kong Research Fund, "Collaborative Effort to Engineer Synthetic Yeast Genome for Producing Biobutanol" (£5,000), Role: PI
14. **Jan 2016 - Jun 2018**, Bill & Melinda Gates Foundation, "A synthetic biology platform for rapid generation of highly diverse natural product-like compounds active against *Mycobacterium tuberculosis*" (\$2M), Role: UK-PI
13. **Apr 2017 - Mar 2018**, IBIOIC, "Accelerating industrial metabolic engineering using Yeast-FAB" (£500,000), Role: PI
12. **Aug 2014 - Feb 2018**, EPSRC, "Business modeling for DNA synthesis" (£66K), Role: PI
11. **Jan 2015 - Dec 2017**, EraSynbio, "Inducible Evolution of Synthetic Genomes" (€3.2M), Role: UK PI
10. **Sep 2016 - Mar 2017**, BBSRC, "Activity to support identification and prioritisation of challenges around environmental sustainability in China and other DAC countries in the Southeast Asia region' (£20,000), Role: PI
9. **Sep 2016 - Mar 2017**, EPSRC, "CRISPR up in the cloud – an exploratory collaboration between Edinburgh Genome Foundry and Desktop Genetics" (£51,846), Role: PI
8. **Jan 2016 - Dec 2016**, EPSRC IAA with Autodesk, "Collaborative software engineering for genome synthesis" (£90,703), Role: PI

7. Jan 2016 - Dec 2016, EPSRC IAA with GSK, "Synthetic biology route for the sustainable production of a key antibiotic/industrial related molecule" (£27,347), Role: PI
6. Sep 2013 - Aug 2016, Autodesk, "Engineering Neochromosomes" (£44k), Role: PI
5. Feb 2015 - 2016, BBSRC, "Phenotypical Assay Development Platforms" (£2.4M), Role: co-PI
4. Feb 2015 - Feb 2016, BBSRC, "Building national hardware and software infrastructure for UK DNA Foundries" (£1.99M), Role: PI
3. Apr 2015 - Apr 2016, IBiolC, "A synthetic metabolon for D-hydroxy phenylglycine methyl ester production" (£241k), Role: co-PI
2. Sep 2014 - Sep 2015, BBSRC, "Edinburgh Genome Foundry" (£2M), Role: co-PI
1. Apr 2014 - 2015, Wellcome Trust, "Edinburgh Repository of Genetic Parts" (£57k), Role: PI

PUBLICATIONS NATURE | SCIENCE | CELL: 11

♠ = Corresponding author | ♥ = First author | ♣ = Cover

- ♠91. Gombeau, K.; Hoffmann, S. A.; Cai, Y. A new set of mutations in the second trans-membrane helix of the Cox2p-W56R substantially improves its allotopic expression in *Saccharomyces cerevisiae*". **Genetics**. 2025 Apr 3:iyaf037. doi: 10.1093/genetics/iyaf037. PMID: 40178993, (2025).
90. Goold et al., "Construction, debugging and iterative redesign of synXVI, a 903kb synthetic chromosome of *Saccharomyces cerevisiae*". **Nature Communications**, 2025 Jan 20;16(1):841. doi: 10.1038/s41467-024-55318-3. PMID: 39833175 (2025).
89. Li et al., "Recent technology advancements in large-scale DNA assembly". **Quantitative Biology**, 2025;e79. doi: 10.1002/qub.2.79 (2025).
88. Katarzyna et al., "Confronting the unprecedented risks of mirror life". **Science**, 386(6728):1351-1353. doi: 10.1126/science.ads9158. Epub 2024 Dec 12. PMID: 39666824 (2024).
87. Zhou et al., "The de novo design and synthesis of yeast chromosome XIII facilitates investigations on aging". **Nature Communications**, in press (2024).
- ♠86. James, J. S.; Dai, J.; Chew, W. L.; Cai, Y. "The design and engineering of synthetic genomes". **Nature Review Genetics**. 2024 Nov 6. doi: 10.1038/s41576-024-00786-y. PMID: 39506144, (2024).
85. Zhang, Y.; Ku, Y. -S.; Cheung, T. -Y.; Cheng, S. -S.; Xin, D.; Gombeau, K.; Cai, Y.; Lam, H. -M.; Chan, T. -F. "Challenges to rhizobial adaptability in a changing climate: Genetic engineering solutions for stress tolerance". **Microbiological Research**, vol. 288, iss. 127886, (2024).
84. Boeke, J. D.; the Build-A-Genome Course. "Build-A-Genome and the "awesome power of undergraduates" ". **Genetics**, vol. 227, iss. 4, no. iyae083, (2024).
- ♠83. James, J. Ballerini, A. and Cai, Y. "Yeast HAC Does the Trick". **GEN Biotechnology**, Vol. 3, No. 3, (2024).
- ♠82. O'Connor, E.; Micklefield, J.; Cai, Y. "Searching for the optimal microbial factory: high-throughput biosensors and analytical techniques for screening small molecules". **Current Opinion in Biotechnology**, vol. 87, iss. 103125, (2024).
- ♠81. Schindler, D.; Walker, R. S. K.; Cai, Y. "Methodological advances enabled by the construction of a synthetic yeast genome". **Cell Reports Methods**, vol. 4, iss. 4, no. 100761, (2024).
80. Hutton, A. E.; Foster, J.; Sanders, J. E. J.; Taylor, C. J.; Hoffmann, S. A.; Cai, Y.; Lovelock, S. L.; Green, A. P. "An Efficient Pyrrolysyl-tRNA Synthetase for Economical Production of MeHis-containing Enzymes". **Faraday Discussions**, (2024).

79. Feng, Y.; Su, C.; Mao, G.; Sun, B.; Cai, Y.; Dai, J.; Ma, Y. "When synthetic biology meets medicine". **Life Medicine**, Volume 3, Issue 1, Inae010, (2024).
- ♠ ♣78. S. Jiang, Z. Cai, Y. Wang, C. Zeng, J. Zhang, W. Yu, C. Su, S. Zhao, Y. Cheng, Y. Shen, Y. Ma, Y. Cai, J. Dai. "High plasticity of ribosomal DNA organization in budding yeast". with cover **Cell Reports** , vol. 43, iss. 2, no. 113742, (2024).
- ♠77. S. A. Hoffmann, Y. Cai. "Engineering stringent genetic biocontainment of yeast with a protein stability switch". **Nature Communications**, vol. 15, iss. 1060, (2024).
76. L. Cheng, S. Zhao, T. Li, S. Hou, Z. Luo, J. Xu, W. Yu, S. Jiang, M. Monti, D. Schindler, W. Zhang, C. Hou, Y. Ma, Y. Cai, J. D. Boeke, J. Dai. "Large-scale genomic rearrangements boost SCRaMbLE in *Saccharomyces cerevisiae*". **Nature Communications**, vol. 15, iss. 1, no. 770, (2024).
- ♠75. F. M. Freimoser, M. Mahler, M. McCullough, A. O. Brachmann, L. Nägeli, M. Hilber-Bodmer, J. Piel, S. Hoffmann, Y. Cai, "Heterologous pulcherrimin production in *Saccharomyces cerevisiae* confers inhibitory activity on *Botrytis conidiation*". **FEMS Yeast Research**, vol. 24, iss. foad053, pp. 1–8, (2024).
- ♠ ♣74. D. Schindler, R. S. K. Walker, S. Jiang, A. N. Brooks, Y. Wang, C. A. Müller, C. Cockram, Y. Luo, A. García, D. Schraivogel, J. Mozziconacci, B. A. Blount, J. Cai, L. Ogunlana, W. Liu, K. Jönsson, D. Abramczyk, E. Garcia-Ruiz, T. W. Turowski, R. Swidah, T. Ellis, F. Antequera, Y. Shen, C. A. Nieduszynski, R. Koszul, J. Dai, L. M. Steinmetz, J. D. Boeke, Y. Cai, "Design, Construction, and Functional Characterization of a tRNA Neochromosome in Yeast". *bioRxiv* 2022.10.03.510608 (2022). [with Cover at **Cell**, vol. 186, iss. 24, pp. 5237–5253, 2023.]
- ♠ ♣73. Y. Shen, F. Gao, Y. Wang, Y. Wang, J. Zheng, J. Gong, J. Zhang, Z. Luo, D. Schindler, Y. Deng, W. Ding, T. Lin, R. Swidah, H. Zhao, S. Jiang, C. Zeng, S. Chen, T. Chen, Y. Wang, Y. Luo, L. Mitchell, J. S. Bader, G. Zhang, X. Shen, J. Wang, X. Fu, J. Dai, J. D. Boeke, H. Yang, X. Xu, Y. Cai, "Dissecting aneuploidy phenotypes by constructing Sc2.0 chromosome VII and SCRaMbLEing synthetic disomic yeast". *bioRxiv* 2022.09.01.506252 (2022). [with Cover at **Cell Genomics**, vol. 3, iss. 11, no. 100364, 2023]
- ♣72. Y. Zhao, C. Coelho, A. L. Hughes, L. Lazar-Stefanita, S. Yang, A. N. Brooks, R. S. K. Walker, W. Zhang, S. Lauer, C. Hernandez, L. A. Mitchell, N. Agmon, Y. Shen, J. Sall, V. Fanfani, A. Jalan, J. Rivera, F.-X. Liang, G. Stracquadanio, L. M. Steinmetz, Y. Cai, J. D. Boeke, "Debugging and consolidating multiple synthetic chromosomes reveals combinatorial genetic interactions", *bioRxiv* 2022.04.11.486913 (2022). [with Cover at **Cell**, 2023]
- ♣71. T. C. Williams, H. Kroukamp, X. Xu, E. L. I. Wightman, B. Llorente, A. R. Borneman, A. C. Carpenter, N. V. Wyk, M. I. Espinosa, E. L. Daniel, R. S. K. Walker, Y. Cai, H. K. M. Nevalainen, N. C. Curach, I. W. Deveson, T. R. Mercer, D. L. Johnson, L. A. Mitchell, J. S. Bader, G. Stracquadanio, J. D. Boeke, H. D. Goold, I. S. Pretorius, I. T. Paulsen, "Laboratory evolution and polyploid SCRaMbLE reveal genomic plasticity to synthetic chromosome defects and rearrangements", *bioRxiv* 2022.07.22.501046 (2022). [**Cell Genomics**, 2023]
70. S. Jiang, Z. Luo, K. Yu, S. Zhao, Z. Cai, W. Yu, H. Wang, L. Cheng, Z. Liang, H. Gao, M. Monti, D. Schindler, L. Huang, C. Zeng, W. Zhang, C. Zhou, Y. Tang, T. Li, Y. Ma, Y. Cai, J. D. Boeke, J. Dai, "Reconstruct a eukaryotic chromosome arm by de novo design and synthesis". *bioRxiv* 2022.10.04.509869 (2022). [**Nature Communications**, 2023]
- ♣69. B. A. Blount, X. Lu, M. R. M. Driessen, D. Jovicevic, M. I. Sanchez, K. Ciurkot, Y. Zhao, S. Lauer, R. M. McKiernan, G.-O. F. Gowers, F. Sweeney, V. Fanfani, E. Lobzaev, K. Palacios-Flores, R. Walker, A. Hesketh, S. G. Oliver, Y. Cai, G. Stracquadanio, L. A. Mitchell, J. S. Bader, J. D. Boeke, T. Ellis, "Synthetic yeast chromosome XI design enables extrachromosomal circular DNA formation on demand", *bioRxiv* 2022.07.15.500197 (2022). [**Cell Genomics**, 2023]

- ♠68. J. Sanders, S. A. Hoffmann, A. P. Green, Y. Cai. “New Opportunities for Genetic Code Expansion in Synthetic Yeast”. **Curr. Opin. Biotechnol** (DOI: 10.1016/j.copbio.2022.102691), (2022).
- ♠67. J. S. James, S. Jones, A. Martella, Y. Luo, D. I. Fisher, Y. Cai. “Automation and Expansion of EMMA Assembly for Fast-Tracking Mammalian System Engineering”. **ACS Synthetic Biology** (DOI: 10.1021/acssynbio.1c00330), 42 (2022).
- ♠66. Y. Luo, J. S. James, S. Jones, A. Martella, Y. Cai. “EMMA-CAD: Design Automation for Synthetic Mammalian Constructs”. **ACS Synthetic Biology** (DOI: 10.1021/acssynbio.1c00433), 42 (2022).
- ♠65. J. Y. Ong, R. Swidah, M. Monti, D. Schindler, J. Dai, Y. Cai. “SCRaMbLE: A Study of Its Robustness and Challenges through Enhancement of Hygromycin B Resistance in a Semi-Synthetic Yeast”. **Bioengineering** 8(3), 42 (2021).
64. S. Torres-Garcia, L. Di Pompeo, L. Eivers, B. Gaborieau, S. White, A. Pidoux, P. Kanigowska, I. Yaseen, Y. Cai, R.C. Allshire. “SpEDIT: A fast and efficient CRISPR/Cas9 method for fission yeast”. **Wellcome Open Research** 5, 274 (2021).
- ♠63. Z. Luo, K. Yu, S. Xie, M. Monti, D. Schindler, Y. Fang, S. Zhao, Z. Liang, S. Jiang, M. Luan, C. Xiao, Y. Cai, J. Dai. “Compacting a synthetic yeast chromosome arm”. **Genome Biology** 21, 205 (2021).
- ♠62. J. Dai, J. D. Boeke, Z. Luo, S. Jiang, Y. Cai. Sc3.0: revamping and minimizing the yeast genome. **Genome Biology** 21, 205 (2020).
- ♠61. Z. Luo, S. A. Hoffmann, S. Jiang, Y. Cai, J. Dai. “Probing eukaryotic genome functions with synthetic chromosomes”. **Experimental Cell Research** 390, 11936 (2020).
60. MacKay MJ, Hooker AC, Afshinnkoo E, Salit M, Kelly J, Feldstein JV, Haft N, Schenkel D, Nambi S, Cai Y, Zhang F, Church G, Dai J, Wang CL, Levy S, Huber J, Ji HP, Kriegel A, Wyllie AL, Mason CE (2020). “The COVID-19 XPRIZE and the need for scalable, fast, and widespread testing”. **Nature Biotechnology**. 2020 Sep;38(9):1021-1024. doi: 10.1038/s41587-020-06554.PMID: 32820257 (2020).
- ♠59. Swidah R, Auxillos J, Liu W, Jones S, Chan TF, Dai J, Cai Y. “SCRaMbLE-in: A fast and efficient method to diversify and improve the yields of heterologous pathways in synthetic yeast”. **Methods in Molecular Biology** 2020;2205:305-327. doi: 10.1007/978-1-0716-0908-8_17. PMID: 32809206, (2020).
- ♠58. Dai J, Boeke JD, Luo Z, Jiang S, Cai Y. “Sc3.0: revamping and minimizing the yeast genome”. **Genome Biology** 2020 Aug 13;21(1):205. doi: 10.1186/s1305902002130z. PMID: 32791980, (2020).
57. Zhao Y, Yao Z, Ploessl D, Ghosh S, Monti M, Schindler D, Gao M, Cai Y, Qiao M, Yang C, Cao M, Shao Z. “Leveraging the Hermes Transposon to Accelerate the Development of Nonconventional Yeast-based Microbial Cell Factories”. **ACS Synthetic Biology** 2020 Jul 17;9(7):1736-1752. doi: 10.1021/acssynbio.0c00123. Epub 2020 Jun 16. PMID: 32396718, (2020).
- ♠56. Lin Y, Zou X, Zheng Y, Cai Y, Dai J. “Improving Chromosome Synthesis with a Semiquantitative Phenotypic Assay and Refined Assembly Strategy”. **ACS Synthetic Biology** 2019 Oct 18;8(10):2203-2211. doi: 10.1021/acssynbio.8b00505. Epub 2019 Sep 20. PMID: 31532633, (2019).
55. Hillson N, Caddick M, Cai Y, Carrasco JA, Chang MW, Curach NC, Bell DJ, Le Feuvre R, Friedman DC, Fu X, Gold ND, Herrgård MJ, Holowko MB, Johnson JR, Johnson RA, Keasling JD, Kitney RI, Kondo A, Liu C, Martin VJJ, Menolascina F, Ogino C, Patron NJ, Pavan M, Poh CL, Pretorius IS, Rosser SJ, Scrutton NS, Storch M, Tekotte H, Travnik E, Vickers CE, Yew WS, Yuan Y, Zhao H, Freemont PS. “Building a global alliance of

- biofoundries". **Nature Communications**. 2019 May 9;10(1):2040. doi: 10.1038/s41467-019-10079-2. PMID: 31068573,(2019).
- ♠54. Auxillos JY, Garcia-Ruiz E, Jones S, Li T, Jiang S, Dai J, Cai Y. "Multiplex Genome Engineering for Optimizing Bioproduction in *Saccharomyces cerevisiae*". **Biochemistry**. 2019 Mar 19;58(11):1492-1500. doi: 10.1021/acs.biochem.8b01086. Epub 2019 Mar 8. PMID: 30817136, (2019).
- ♠53. Jones S, Martella A, Cai Y. "EMMA assembly explained: A step-by-step guide to assemble synthetic mammalian vectors". **Methods in Enzymology**. 2019;617:463-493. doi: 10.1016/bs.mie.2018.12.017. Epub 2019 Feb 13. PMID: 30784414, (2018).
- ♠52. Luo Z, Yang Q, Geng B, Jiang S, Yang S, Li X, Cai Y, Dai J. "Whole genome engineering by synthesis". **Science China Life Science** 2018 Dec;61(12):1515-1527. doi: 10.1007/s11427-018-9403-y. Epub 2018 Nov 20. PMID: 30465231, (2018).
51. Akhtar MK, Vijay D, Umbreen S, McLean CJ, Cai Y, Campopiano DJ, Loake GJ. "Hydrogen Peroxide-Based Fluorometric Assay for Real-Time Monitoring of SAM-Dependent Methyltransferases". **Front Bioeng Biotechnol**. 2018 Oct 18;6:146. doi: 10.3389/fbioe.2018.00146. eCollection 2018. PMID: 30406092, (2018).
- ♠50. Garcia-Ruiz E, Li T, Auxillos J, Dai J, Cai Y. "YeastFab: high throughput genetic parts construction, measurement and pathway engineering in yeast". **Methods in Enzymology**. 2018;608:277-306. doi: 10.1016/bs.mie.2018.05.003. PMID: 30173765, (2018).
- ♠49. Li T, Chen X, Cai Y, Dai J. "Artificial Protein Scaffold System (AProSS): An Efficient Method to Optimize Exogenous Metabolic Pathways in *Saccharomyces cerevisiae*". **Metabolic Engineering**. 2018 Jul 23;49:13-20. doi: 10.1016/j.ymben.2018.07.006. PMID: 30010058, (2018).
- ♠48. Schindler D, Dai J, Cai Y. "Synthetic genomics: a new venture to dissect genome fundamentals and engineer new functions". **Current Opinion in Chemical Biology**. 2018 May 8;46:56-62. doi: 10.1016/j.cbpa.2018.04.002. PMID: 29751161, (2018).
- ♠47. Liu W, Luo Z, Wang Y, Pham N, Tuck L, Pérez-Pi I, Liu L, Shen Y, French C, Auer M, Jon Marles-Wright J, Dai J, Cai Y. "Rapid pathway prototyping and engineering using *in vitro* and *in vivo* synthetic genome SCRaMbLE-in methods". **Nature Communications**. 2018 May 22;9(1):1936. doi: 10.1038/s41467-018-04254-0. PMID: 29789543, (2018).
- ♠46. Luo Z, Wang L, Wang Y, Zhang W, Guo Yakun, Shen Y, Jiang L, Wu Q, Zhang C, Cai Y, Dai J. "Identifying and characterizing SCRaMbLEd synthetic yeast using ReSCuES". **Nature Communications**. 2018 May 22;9(1):1930. doi: 10.1038/s41467-017-00806-y. PMID: 29789541, (2018).
45. Xie ZX., Liu D., Li BZ., Zhao M., Zeng BX., Wu Y., Shen Y., Lin T., Yang P., Dai J., Cai Y., Yang H., Yuan YJ. "Design and chemical synthesis of eukaryotic chromosomes". **Chemical Society Reviews**. 2017 Nov 2. doi: 10.1039/c7cs00208d. PMID: 29094136, (2017).
44. Craig T, Holland R, D'Amore R, Johnson JR, McCue HV, West A, Zulkower V, Tekotte H, Cai Y, Swan D, Davey RP, Hertz-Fowler C, Hall A, Caddick M. "Leaf LIMS: A Flexible Laboratory Information Management System with a Synthetic Biology Focus". **ACS Synthetic Biology**. 2017 Sep 13. doi: 10.1021/acssynbio.7b00212. PMID: 28877583, (2017).
43. Dai J., Cai Y., Yuan Y, Yang H, Boeke J. "Whole genome synthesis: from poliovirus to synthetic yeast". **Quantitative Biology**. 2017, 5(1): 105-109. doi 10.1007/s40484-017-0101-x, (2017).
- ♠42. Liu W, Tuck LR, Wright JM, Cai Y. "Using purified tyrosine site-specific recombinases *in vitro* to rapidly construct and diversify metabolic pathways". **Methods in Molecular Biology**. 2017, 1642:285-302. doi: 10.1007/978-1-4939-7169-5_18. PMID: 28815507, (2017).

41. Jia B, Qi H, Li BZ, Pan S, Liu D, Liu H, Cai Y, Yuan YJ. "Orthogonal ribosome bio-firewall". **ACS Synthetic Biology** 2017 Aug 7. doi: 10.1021/acssynbio.7b00148. PMID: 28783349, (2017).
40. Ting Yuan, Yakun Guo, Junkai Dong, Tianyi Li, Tong Zhou, Kaiwen Sun, Mei Zhang, Qingyu Wu, Zhen Xie, Yizhi Cai, Limin Cao, Junbiao Dai. "Construction, characterization and application of a genome-wide promoter library in *Saccharomyces cerevisiae*". **Frontiers of Chemical Science and Engineering**. doi: 10.1007/s11705-017-1621-7, (2017).
- ♠39. Martella, A, Matjusaitis, M, Auxillos, J, Pollard, S, Cai, Y. "EMMA: an Extensible Mammalian Modular Assembly toolkit for the rapid design and production of diverse expression vectors". **ACS Synthetic Biology**. PMID: 28418644, (2017).
- ♠♣38. Shen et al. , "A 770kb fully synthetic yeast chromosome II reveals genomic plasticity and robustness through deep functional profiling". **Science**. 2017 Mar 10;355(6329). pii: eaaf4791. doi: 10.1126/science.aaf4791. (Corresponding author). PMID: 28280153, (2017)
- ♣37. Richardson, et al., "Design of a synthetic yeast genome". **Science**. 2017 Mar 10;355(6329):1040-1044. doi: 10.1126/science.aaf4557. PMID: 28280199, (2017).
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- ♠15. Liao C, Cai Y. "Towards Modeling Automation for Synthetic Biology". **A Systems Theoretic Approach to Systems and Synthetic Biology II: Analysis and Design of Cellular Systems**: Springer Netherlands. pp. 201-217, (2014).
- ♠♣14. Cai Y, Ellis T. "The Sixth International Meeting on Synthetic Biology (SB6. 0) Special Issue Editorial". 2014 Mar 21;3(3):107. doi: 10.1021/sb500085b. **ACS Synthetic Biology**. PMID: 24898051, (2014).
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EDITORIAL AND REFEREE SERVICE

Journals ACS Synthetic Biology (Associate Editor); Synthetic and Systems Biotechnology (Editorial Board); Microbial Biotechnology (Editorial Board); BioDesign Research (Advisory Board); Engineering Microbiology (Editorial Board); Nature Chemical Biology; Nature Communications; Bioinformatics; Nucleic Acids Research; PLoS ONE; Journal of Biological Engineering

Grants Hong Kong Research Grant Council member; BBSRC; EPSRC Peer Review College; ERC; NSF

Institutes French National Institute of Cancer and Ageing; International Max Planck Centers

Tenure/Promotion Committee: National University of Singapore; Hong Kong University; Baylor College of Medicine; Tsinghua University

RESEARCH PH.D STUDENT SUPERVISION

20. **Drew Thornley**, Oct 2024 - Current, Ph.D student in Synthetic Biology, University of Manchester
19. **Thalia Tzokas**, Oct 2024 - Current, Ph.D student in Synthetic Biology, University of Manchester

18. **Warren Ho**, Oct 2024 - Current, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
17. **Zi Wang**, Sept 2024 - Current, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
16. **Maisie Czernuszka**, Sep 2023 - Current, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
15. **Smruti Biswal**, Jan 2023 - Current, Ph.D student in EPSRC CDT, University of Manchester, principal supervisor.
14. **Gabrielle David**, Sep 2022 - Current, Ph.D student in BBSRC CDT, University of Manchester, principal supervisor.
13. **Aimee Haggarty**, Apr 2022 - Current, Ph.D student in EPSRC iCAT CDT, University of Manchester, principal supervisor.
12. **Eloise O'Connor**, Jan 2021 - Current, Ph.D student in Synthetic Biology, University of Manchester, second supervisor.
11. **Miriam Vega Gordillo**, Jan 2021 - Mar 2024, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
10. **James Sanders**, Jan 2021 - Current, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
9. **Alba Ballerini**, Jan 2020 - July 2024, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor. Now postdoc in NYU Grossman School of Medicine.
8. **Joshua James**, Sep 2019 - March 2024, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
7. **Marco Monti**, Jan 2019 - Oct 2022, Ph.D student in Synthetic Biology, University of Manchester, principal supervisor.
6. **Jamie Auxillos**, Jan 2016 - Feb 2020, Ph.D student in Biological Sciences, University of Edinburgh, principal supervisor. Now postdoc in the University of Edinburgh.
5. **Katarina Jonsson**, Sep 2015 - Oct 2019, Ph.D student in Biological Sciences, University of Edinburgh, second supervisor.
4. **Paulina Kanigowska**, May 2014 - May 2018, Ph.D student in Biological Sciences, University of Edinburgh, principal supervisor. Now automation engineer at Gingko Bioworks, Boston, USA..
3. **Chantal Yue Shen**, May 2014 - May 2018, Ph.D student in Biological Sciences, University of Edinburgh, principal supervisor. Now PI in BGI.
2. **Roy Walker**, Jul 2013 - Oct 2017 (viva passed), Ph.D student in Engineering, University of Edinburgh, principal supervisor. Now at Macquarie University Australia for a postdoc with Prof. Isak S. Pretorius.
1. **Wei Liu**, Sep 2013 - Nov 2017 (viva passed), Ph.D student in Biological Sciences, University of Edinburgh, principal supervisor. Now at LMB Cambridge for a postdoc with Prof. Philipp Holliger.

CURRENT RESEARCH STAFF SUPERVISION

10. **Dr. Ewan Moody**, Mar 2025 - Current, Postdoc.
9. **Dr. Ana Luiza Queiroz**, Oct 2024 - Current, Postdoc.
8. **Dr. Sergio Gutierrez**, Sep 2024 - Current, Postdoc.
7. **Dr. Ryan Cochrane**, Jul 2024 - Current, Postdoc.

6. **Dr. Joshua James**, Apr 2024 - Current, Postdoc.
5. **Dr. Ravishankar Babu**, Feb 2023 - Current, Postdoc.
4. **Dr. Leandro Vieira dos Santos**, Dec 2022 - Current, Postdoc.
3. **Dr. Mark McCullough**, Apr 2022 - Current, Postdoc.
2. **Dr. Raymond Wan**, Apr 2022 - Current, Postdoc.
1. **Dr. Kewin Gombeau**, Sep 2019 - Current, Postdoc.

PAST RESEARCH STAFF SUPERVISION

21. **Ellie Payne**, Apr 2021 - August 2024, Technician. Now PhD student in University of Bristol.
20. **Dr. Stefan Hoffmann**, Feb 2019 - May 2024, Postdoc. Now PI in Wageningen University and Research, Wageningen, Netherlands.
19. **Dr. Reem Swidah**, Mar 2018 - May 2024, Postdoc. Now Postdoc in University of Manchester, Manchester, UK.
18. **Carmen Macias Valverde**, Jan 2020 - Dec 2020, Technician.
17. **Dr. Yingying Li**, Apr 2018 - Apr 2021, Postdoc. Now at QIAGEN.
16. **Isaac Yisha Luo**, Aug 2018 - Nov 2020, Computational Biologist.
15. **Dr. Daniel Schindler**, Mar 2017 - Current, Postdoc. Now PI in Max Planck Institute for Terrestrial Microbiology, Marburg, Germany.
14. **Sally Jones**, Sep 2017 - Sep, 2019, Technician. Now PhD student in John Innes Centre.
13. **Dr. Eva Garcia Ruiz**, Aug 2016 - Jan 2019, Postdoc. Now PI in Institute of Catalysis and Petrochemistry, Spanish Research Council, Madrid, Spain.
12. **Aileen Greig**, Jun 2015 - Oct 2017, Technician.
11. **Dr. Dariusz Abramczk**, May 2015 - Dec 2018, Postdoc
10. **Dr. Andrea Martella**, Jan 2015 - Sep 2017, Postdoc. Now PI and senior scientist at AstraZeneca, Cambridge, UK.
9. **Aitor Bleda**, May 2016 - Nov 2016, Software Engineer.
8. **Dr. Ivan Yuan**, Nov 2015 - Nov 2016, Automation Engineer.
7. **Anais Moisy**, Nov 2015 - Nov 2016, Designer, Design Informatics.
6. **Dr. Valentin Zulkower**, Jun 2015- Nov 2016, Software Developer. Now at Ginkgo Bioworks, Boston, USA.
5. **Fraser Morton**, Apr 2015 - Aug 2015, Genome Foundry Software Manager.
4. **Dr. Hille Tekotte**, Jan 2015 - Nov 2016, Genome Foundry Manager.
3. **Isaac Yisha Luo**, Mar 2014 - Nov 2016, Software Developer.
2. **Sarah Yijing Zheng**, Oct 2014 - Nov 2016, Automation Engineer.
1. **Alba Ubide**, Oct 2013 - Sep, 2016, Lab manager.

OTHER SUPERVISION

43. **Sydney Cattell**, Oct 2024 - Current, Undergraduate student
42. **Lucas Souza de Bem**, Mar 2024 - Current, Visiting PhD student from
41. **Kei Yu Kelly Wong**, Apr 2024 - Current, Undergraduate student

40. **Wenjie Zhai**, Feb 2024 - Sep 2024, MSc in Chemistry
39. **Dennis Barahona**, Oct 2023 - May 2024, Undergraduate student
38. **Meishan Rong**, Oct 2023 - May 2024, Undergraduate student
37. **Sanmukh Shivdekar**, Jun 2023 - Sep 2023, MSc in Bioinformatics, University of Manchester
36. **Martin Holub**, Jun 2023 - Sep 2023, Visiting PhD student from TU Delft
35. **Muyao Ma**, Jun 2023 - , MSc in Chemistry
34. **Mustafa Kaplan**, Jun 2023 - Sep 2023, MSc in Bioinformatics, University of Manchester
33. **Martyna Grazinyte**, Sep 2022 - Jun 2023, BSc. in Biochemistry, University of Manchester
32. **Austin Semple**, Sep 2022 - Jun 2023, BSc. in Biotechnology, University of Manchester
31. **Perrine Dalby**, Sep 2021 - Sep 2022, Master student in EPSRC BioDesign CDT, University of Manchester, principal supervisor.
30. **Xiaoran Ding**, March 2022 - Sep 2022, Master of Chemistry, University of Manchester
29. **Max Freeman**, Apr 2022 - May 2023, Master of Genetics, University of Manchester
28. **Cheng Kai Chen**, Apr 2021 - Sep 2021, Master of Biological Sciences, University of Manchester
27. **Elisa Barrow Molina**, Oct 2020 - Current, Master of Biological Sciences, University of Manchester
26. **David Leeming**, Oct 2020 - Current, Master of Chemistry, University of Manchester
25. **Milly Olifent**, Oct 2020 - Current, Master of Chemistry, University of Manchester
24. **Adam Jedrzejewski**, Oct 2020 - Current, undergraduate of biological sciences, University of Manchester
23. **Yizhao Yang**, Apr 2020 - Sep 2020, Master of Chemistry, University of Manchester
22. **Alex Atkinson**, Oct 2019 - Apr 2019, Master of Chemistry, University of Manchester
21. **Dylan Kelly**, Oct 2019 - Apr 2019, Master of Chemistry, University of Manchester
20. **Prof. Shijian Liu**, Sep 2018 - Aug 2019, Visiting scholar funded by Chinese Scholarship Council, Fujian University of Technology
19. **Alba Ballerini**, Jan 2019 - Apr 2020, Erasmus+ Master student, University of Pisa
18. **Francesco Ragazzini**, Jan 2019 - Nov 2019, Erasmus+ Master student, University of Pisa
17. **Ivy Zhang**, Jun 2019 - Aug 2019, DREAM program undergrad student, Chinese University of Hong Kong
16. **Jun Yang Ong**, Oct 2018 - May 2019, Master of Chemistry, University of Manchester
15. **Yun Wang**, Mar 2018 - Jun 2018, BBSRC Rutherford Fellow, BGI
14. **Dr. Shuangying Li**, Mar 2018 - Current, BBSRC Rutherford Fellow, Chinese Academy of Sciences. Now associate professor at Shenzhen Institute of Advanced Technology, China.
13. **Tao Lin**, Oct 2017 - Feb 2018, Visiting Scientist, BGI
12. **Macro Monti**, Nov 2018 - Current, visiting Master student in Molecular Biology from the University of Bologna.
11. **Franklin Lo**, Apr - Jul 2017, Undergraduate Research Student, University of Edinburgh

10. **Yifan Wu**, Oct 2016- Current, Undergraduate Honours Student, University of Edinburgh
9. **Fabian Schneider**, Mar - Sep, 2016, Visiting PhD student, University of Munich
8. **Jamie Auxillos**, Sep 2014 - Dec, 2015, Master student in Synthetic Biology, University of Edinburgh
7. **Tianyi Li**, Jul 2015 - Aug 2015, Visiting graduate student, Tsinghua University
6. **Lois Ogunlana**, Jun 2015 - Aug 2015, Undergraduate student in Biotechnology, University of Edinburgh
5. **Claire Chung**, Jun 2014 - Aug 2014, Visiting undergraduate from Chinese University of Hong Kong
4. **Emily Scher**, Sep 2013 - Aug 2014, Visiting undergraduate from Johns Hopkins University
3. **Hugo Vilanueva**, Sep 2013 - Sep 2014, Honors undergraduate student in Biological Sciences, University of Edinburgh
2. **Jackie Yun Wang**, Apr 2013 - Jun 2014, Visiting scholar from BGI
1. **Qi Feng**, Apr 2014 - Aug 2014, Visiting master student from Tianjin University

PATENTS

- Cai Y, Agmon A, and Boeke J. Compositions and methods for controlling microbial growth. US Patent App. 2015.
- Mitchell L, Cai Y and Boeke J. Versatile genetic assembly system (vegas) and its use in assembling pathways for expression in *S. cerevisiae*. US Patent App. 2015.
- Peccoud J, Cai Y (2008) Software for Design and Verification of Synthetic Genetic Constructs. US Patent App. 12/058,712.

SELECTED AWARDS

- **May 2021** Dean's Distinguished Lecture, King Abdullah University of Science and Technology (KAUST)
- **May 2021** Visiting Professorship, Massachusetts Institute of Technology
- **Apr 2021** MRC LMB Fellowship, MRC Laboratory of Molecular Biology, University of Cambridge
- **Apr 2018** Visiting Professorship, Hong Kong University (3 appointees globally across all disciplines)
- **Mar 2018** Associate Faculty in Synthetic Genomics, Wellcome Trust Sanger Institute (3 appointees globally)
- **Nov 2016** Raising Star in Science, ICG11
- **Aug 2015** Wellcome Trust Frontier Innovator (9 awardees worldwide)
- **Aug 2012** Chancellor's Fellowship, University of Edinburgh, UK
- **Sep 2011** Autodesk Distinguished Scholarship, Autodesk Inc.
- **Jun 2011** Traveling Fellowship, The Fifth International Conference for Synthetic Biology (SB5.0), Stanford University, USA
- **May 2011** The DeLill Nasser Award for Progressional Development, The Genetic Society of America
- **Mar 2010** Outstanding Interdisciplinary Doctoral Student of the Year (1 student per year), Virginia Tech, USA

INVITED PRESENTATIONS

136. APR 2025 The Chan-Zukerberg Initiative Cell Science Annual Meeting, Chicago, USA
135. FEB 2025 The Spirit of Asilomar and the Future of Biotechnology, Asilomar, USA
134. FEB 2025 Hitachi synthetic biology seminar, Tokyo, Japan
133. FEB 2025 UK-Japan Engineering Biology conference, Osaka, Japan
132. JAN 2025 York University Flagship Seminar, York, UK
131. OCT 2024 GESDA Global Summit, Geneva, Switzerland
130. OCT 2024 World Economic Forum meeting, Geneva, Switzerland
129. JUN 2024 World Economic Forum summer Davos meeting, Dalian, China
128. MAY 2024 University of Edinburgh Synthesis Institute seminar, Edinburgh, UK
127. APR 2024 UK-Japan Synthetic Genomics symposium, Imperial College London, UK
126. MAR 2024 GESDA Academic Forum, Swiss Alps, Switzerland
125. MAR 2024 University of Cambridge Department of Biochemistry Seminar, Cambridge, UK
124. MAR 2024 Sanger Institute Seminar, Hinxton, UK
123. JAN 2024 European Society of Applied Biocatalysis, Zoom
122. DEC 2023 Singapore A* seminar, Singapore
121. DEC 2023 University of Hong Kong seminar, Hong Kong, China
120. DEC 2023 University of Tokyo seminar, Tokyo, Japan
119. NOV 2023 UK annual Synthetic biology meeting, Opening keynote, Bristol, UK
118. OCT 2023 European Federation of Biotechnology meeting, Girona, Spain
117. SEP 2023 Germany Association of Synthetic Biology Designer Biology meeting, Freiburg, Germany
116. AUGUST 2023 UK-Swiss synthetic biology meeting, Lausanne, Switzerland
115. MAY 2023 Biosecurity Panel, SynBioBeta 2023, Oakland, California, USA
114. MAY 2023 Dean's Distinguished Lecture, King Abdullah University of Science and Technology (KAUST), Saudi Arabia
113. APR 2023 Invited Lecture at Biodesign Institute, Boston University, Boston, USA.
112. APR 2023 Invited Lecture at CSIC, Madrid, Spain.
111. MARCH 2023 Keynote at the Biomedical Engineering Department Away Day, Glasgow University, Glasgow.
110. OCT 2022 Keynote at the Bayer Foundation Symposium "From Gene Editing to Gene Writing", Moheim, Germany.
109. OCT 2022 Presentation at the Department of Engineering, Oxford, UK.
108. JUL 2022 Presentation at Max Planck Frontier Symposium, over Zoom.
107. JUL 2022 Presentation at MIB Science Day, Manchester, UK.
106. DEC 2021 Presentation at British Yeast Meeting, over Zoom.
105. OCT 2021 Presentation at 123rd International Titisee Conference Life 2.0: From designing the molecules of life to designing life, Titisee, Germany.

104. OCT 2021 Seminar at Baylor College of Medicine, over Zoom.
103. JUL 2021 Seminar at Centro Nacional de Biotecnologia, CSIC, over Zoom.
102. JUN 2021 Seminar at Cancer Research UK Manchester, over Zoom.
101. JAN 2020 Presentation at EMBO symposium on “Engineering Meets Evolution: Designing biological systems”, Chennai, India.
100. NOV 2019 Presentation at International Conference on Metabolic Sciences, Shanghai, China.
99. NOV 2019 Keynote at CBRE Annual Meeting, Liverpool, UK.
98. OCT 2019 Presentation at Cold Spring Harbor Asia Meeting for Synthetic Biology, Suzhou, China.
97. OCT 2019 Presentation at China GP-W meeting, Shenzhen, China.
96. SEP 2019 Presentation at The 91st Annual Meeting of the Genetic Society of JAPAN, Fukui, Japan.
95. AUG 2019 Presentation at the Chinese Young Synthetic Biologist Forum, Tianjin, China.
94. JUL 2019 Centre Seminar at Philipps-Universität Marburg, Marburg, Germany.
93. JUN 2019 Presentation at the 47th Korean Society for Microbiology and Biotechnology (KMB) meeting, Jeju island, South Korea.
92. MAR 2019 Pregl Colloquium Lecture, the National Institute of Chemistry, Ljubljana, Slovenia
91. MAR 2019 Cold Spring Harbor Banbury Centre meeting on DNA storage, New York, USA
90. FEB 2019 Keynote Lecture at Hong Kong Area of Excellence Symposium, Hong Kong, China
89. DEC 2018 Keynote Lecture at the SBMS Research day at the University of Hong Kong, Hong Kong, China
88. OCT 2018 Departmental seminar at the “Microbes and Booze” event, VIB, KU Leuven, Belgium
87. OCT 2018 Departmental seminar at Institut de Biochimie et Génétique Cellulaires, Bordeaux University, France
86. JUL 2018 Lectures at the 5th International Synthetic & Systems Biology Summer School (SSBSS2018), Siena, Italy.
85. JUL 2018 Seminar at Chinese Academy of Science Bioenergy Institute, Qingdao, China.
84. JUN 2018 Presentation at the 46th Korean Society for Microbiology and Biotechnology (KMB) meeting, Yeosu, South Korea.
83. APR 2018 Seminar at Astra Zeneca, Cambridge, UK.
82. MARCH 2018 Seminar at Newcastle University synthetic biology research centre, Newcastle, UK.
81. MARCH 2018 Keynote at The Manchester Molecular and Genome Evolution symposium, Manchester, UK.
80. OCT 2017 The 12th International conference for Genomics, ICG 12, Shenzhen, China.
79. OCT 2017 BBSRC NPRONET Community Meeting, Manchester, UK.
78. JUN 2017 The 7th International conference on synthetic biology (SB7.0), Singapore.

77. MAY 2017 Bristol Centre for Synthetic Biology, Bristol, UK.
76. MAY 2017 International workshop on Genome Project Write (GP-Write), New York Genome Centre, New York, USA.
75. MAY 2017 Seminar at VIB Center for Microbiology, University of Leuven, Belgium.
74. MAY 2017 Seminar at LOEWE-Schwerpunkt CompuGene, Technische Universität Darmstadt, Germany.
73. MAY 2017 Keynote at DECHEMA “ Systems Biology meets Synthetic Biology Programme” conference, Frankfurt, Germany.
72. MAR 2017 Sanger Institute workshop on synthetic biology, Hinxton, UK.
71. MAR 2017 BBSRC funded Global Challenge Research Fund workshop with China (PI and host), Edinburgh, UK.
70. MAR 2017 the 7th UK-Korea symposium on synthetic biology, Yongsei University, Seoul, Korea.
69. FEB 2017 Institute of Integrative Biology, University of Liverpool, Liverpool, UK.
68. JAN 2017 European Bioinformatics Institute, Hinxton, UK.
67. DEC 2016 US Navy Research Global Head Quarter Seminar, London, UK.
66. DEC 2016 Manchester Institute of Biotechnology Seminar, Manchester, UK.
65. DEC 2016 IET Synthetic Biology Meeting, London, UK.
64. DEC 2016 Cold Spring Harbor Asia Meeting for Synthetic Biology, Suzhou, China.
63. Nov 2016 UK-China Synthetic Biology for Global Challenges Symposium, Shenzhen, China.
62. Nov 2016 The 11th International Conference on Genomics (ICG11), Shenzhen, China.
61. SEP 2016 Labcyte-Edinburgh Genomics Symposium , Edinburgh, UK.
60. SEP 2016 The Seventh International Workshop on Static Analysis and Systems Biology (SASB 2016) Keynote, Edinburgh, UK.
59. AUG 2016 Royal Society President Dinner for Synthetic Biology Inquiry (6 invitees), London, UK.
58. JUL 2016 Annual UCL Synthetic Biology Showcase Keynote, London, UK.
57. JUL 2016 The 5th International Synthetic Yeast meeting, Edinburgh, UK.
56. JUL 2016 Edinburgh Genome Foundry Opening, Edinburgh, UK.
55. JUN 2016 UCB Annual Retreat Keynote, Windsor, UK.
54. MAY 2016 Human Genome Write Project Meeting, Harvard University, Boston, USA.
53. MAY 2016 Wellcome Trust Centre Renewal Presentation, Edinburgh, UK.
52. APR 2016 Departmental seminar in the Institute of Systems Biology, University of Chicago, Chicago, USA.
51. MAR 2016 Gates Foundation Project Meeting, Montreal, Canada.
50. FEB 2016 Automation for Synthetic Biology, Manchester, UK.
49. DEC 2015 Royal Society Edinburgh - China Academy of Sciences joint symposium on Synthetic Biology, Edinburgh, UK.

48. Nov 2015 Raymond and Beverly Sackler USA-UK Scientific Forum: Trends in Synthetic Biology and Gain of Function Research, and Regulatory Implications, Chicheley, UK
47. Nov 2015 University of Edinburgh King's Building Campus wide Seminar (Academics Unplugged, 1 of 3 elected faculty members for 2015), Edinburgh, UK
46. OCT 2015 Human Genome Project 2.0 Meeting, New York, USA
45. OCT 2015 The 10th Annual International Conference for Genomics (ICG10), Shenzhen, China
44. OCT 2015 Seminar at Synthetic Biology Research Centre at Warwick University, Coventry, UK
43. OCT 2015 Seminar at Thermo Fisher, Regensburg, Germany
42. SEP 2015 Wellcome Trust Sciences at the Interface meeting, London, UK
41. SEP 2015 UK-USA DNA Foundry meeting, London, UK
40. SEP 2015 UK Synthetic Biology Conference, London, UK
39. AUG 2015 Company Seminar, Autodesk Inc, San Francisco, USA
38. AUG 2015 Company Seminar, Labcyte Inc, Sunnyvale, USA
37. AUG 2015 Departmental Seminar, Department of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, USA
36. JUL 2015 The 4th International Synthetic Yeast Consortium Meeting. New York Genome Centre, New York, USA
35. JUL 2015 High Value Chemicals from Plants workshop. John Inners Centre, Norwich, UK
34. MAY 2015 Chinese Young Synthetic Biologist Forum, Tsinghua University, Beijing, China
33. APR 2015 BBSRC Synthetic Biology for Growth workshop, Birmingham, UK
32. MAR 2015 Agilent Headquarter, Santa Clara, California, USA
31. NOV 2014 UK-Canada workshop on Synthetic Biology, Montreal, Canada
30. OCT 2014 Synthetic Biology Congress, London, UK
29. OCT 2014 The Genome Analysis Centre (TGAC), Norwich, UK
28. SEP 2014 National Institute of Genetics, Mishima, Japan
27. SEP 2014 The 9th International Conference on Genomics (ICG9), Shenzhen, China
26. AUG 2014 EMBO Synthetic Biology of Antibiotic Production II Conference, Sant Feliu de Guixols, Spain
25. JUL 2014 XIVth International Union of Microbiological Societies, Montreal, Canada
24. JUL 2014 Fab10 Barcelona Conference, Barcelona, Spain
23. JUN 2014 The 3rd International Synthetic Yeast consortium meeting, Sicily, Italy
22. APR 2014 Outlook for Synthetic Biology meeting, Manchester, UK
21. APR 2014 Departmental seminar at the School of Life Sciences, Nottingham, UK
20. FEB 2014 Korea Advanced Institute for Sciences and Technology, Seoul, South Korea
19. JAN 2014 Departmental Seminar, National University of Singapore, Singapore
18. Nov 2013 Life Technologies GeneArt Headquarter, Regensburg, Germany

17. JUL 2013 SB6.0 Conference, London, UK
16. OCT 2012 Plenary Speaker, the BIO Pacific Rim Summit on Industrial Biotechnology and Bioenergy, Vancouver, Canada.
15. SEP 2012 IDEASstudio Meeting, Autodesk, San Francisco, USA
14. APR 2012 Synthetic Biology Centre, Imperial College London, London, UK
13. APR 2012 Institute for Systems Biology and Synthetic Biology, University of Edinburgh, UK
12. APR 2012 First International Synthetic Yeast Genome Consortium Meeting, Beijing, China
11. MAR 2012 IDEAS: The Innovation + Design Series, San Francisco, USA
10. NOV 2011 Session Chair, The 7th International Conference on Genomics, Shenzhen, China
9. NOV 2011 Cold Spring Harbor Symposium: Design & Synthesis of Biological Systems, Suzhou, China
8. NOV 2011 Departmental Seminar, Chinese University of Hong Kong, Hong Kong
7. OCT 2011 Six-academy Synthetic Biology Symposium, The enabling technology of synthetic biology, Shanghai, China
6. JUN 2011 Departmental Seminar, Hong Kong University of Science and Technology, Hong Kong
5. OCT 2010 What are the potential roles for Synthetic Biology in NASA's mission? NASA Ames Research Centre, California, USA
4. OCT 2010 Panel discussion, Synthetic Biology: Applications and Implications, Mid-Atlantic Bio Conferences, Bethesda, Maryland, USA
3. APR 2010 Seminar, High Throughput Biology Centre, School of Medicine, Johns Hopkins University
2. MAR 2010 Departmental Seminar, M.D. Anderson Cancer Research Center, Houston, USA
1. NOV 2009 Departmental Seminar, Artificial Intelligence, University of California at San Diego (UCSD)