Jackson Champer

jchamper@pku.edu.cn
https://jchamper.github.io

SIGNIFICANT ACADEMIC POSITIONS

Assistant Professor, Peking University 2021.5-Present

- School of Life Sciences, Center for Bioinformatics, Center for Life Sciences.
- Experimental gene drive research with flies, mosquitoes, and others.
- Computational modeling of gene drives.
- Visiting Professor at Fujian Agriculture and Forestry University.

Postdoctoral Fellow, Cornell University 2016.5-2021.3

- Labs of Philipp Messer and Andrew Clark in the Department of Molecular Biology and Genetics and the Department of Computational Biology.
- Improved gene drive systems, designs and experiments.
- Computational modeling and genetic analysis of gene drives in realistic environments.

Graduate Researcher, City of Hope Beckman Research Institute 2010.9-2015.6

- Lab of Markus Kalkum in the Department of Immunology.
- Mass spectrometry and proteomics for antifungal vaccine development.
- Rotation on the immunological and proteomic analysis of breast cancer extracellular matrix with S. Emily Wang.

Researcher, University of California, Los Angeles 2008.6-2009.7, 2013.8-2014.9

- Lab of Jenny Kim in the Department of Dermatology.
- Immunological and proteomic analysis of *Propionibacterium acnes* phylotypes.
- Analysis of antimicrobial treatments for acne and *Staphylococcus aureus* infection.

Graduate Researcher, University of California, Los Angeles 2004.6-2004.9

- Lab of David Cline in the Department of Physics and Astronomy.
- Simulations, design, and construction of a dark matter detector.

Undergraduate Researcher, University of Oregon 2003.8-2004.6

- Lab of Russell Donnelly in the Department of Physics.
- Propagation of vortex rings in fluid and diffusion of a marker dye.

EDUCATION

Ph.D. in Biology, City of Hope Beckman Research Institute 2015.6
M.S. in Physics, University of California, Los Angeles 2006.12
B.S. in Physics and Mathematics, University of Oregon 2004.6

PUBLICATIONS

#Equal contribution
*Corresponding author
Italics indicate mentored lab member for the project

Preprints

88. *Zhang X, Ma Z, Xie X, Guo M,* **Champer J***. Models show altered outcomes from evolution of standing genetic variation in response to a suppression gene drive. *bioRxiv*, November 2026.

87. *Wu Y#, Xu X#, Liang N, Xia Y, Tan AYN, Yang J, Yang X,* **Champer J***. The effects of DNA repair factor-Cas9 fusions on homing gene drive performance. *bioRxiv,* 2026.

86. *Feng R, Tan AYN, Lu Z, Chen Y,* **Champer J***. Two-locus CRISPR toxin-antidote gene drive for confined population modification. *bioRxiv*, July 2026.

85. Yadav AK, *Chen W,* **Champer J**, Scott MJ. Target site and guide RNA multiplexing architecture shape homing gene drive efficiency in *Drosophila suzukii*. *bioRxiv*, July 2026.

84. *Li J#, Shi C#,* **Champer J***. Comparative assessment of gene drive release patterns and spread with a hex-based model for large-scale simulations. *bioRxiv*, July 2026.

83. *Xu X*, Liu Y, Jia X, Yang J, Xia Y, Chen J,* **Champer J***. A confined gene drive for population modification in the malaria vector *Anopheles stephensi*. *bioRxiv*, April 2026.

82. *Wang Z,* **Champer J***. Optimal spatial release strategies for confined gene drives and *Wolbachia*. *bioRxiv*, March 2026.

81. Li Y, Qiao Z, Xian C, Hu S, Jia J, Yang L, Li W, Tian M, Yang R, Zhang Q, Hua H, **Champer J**, Ma W*, Zhu Z*. Yuanyang allele pairs enable engineered obligate co-inheritance for population replacement and suppression. *bioRxiv*, November 2025.

80. *Zhou R#, Du J#*, Faber NR,* **Champer J***. Variants in Cas9 and *nanos* regulatory elements modulate activity and reduce resistance allele formation in homing gene drive. *bioRxiv*, November 2025.

79. *Guo J, Chen W,* **Champer J***. Experimental demonstration of daisy chain gene drive and modelling of daisy suppression systems. *bioRxiv*, September 2025.

78. Faber NR*, **Champer J**, Pannebakker BA, Zwaan BJ, van den Heuvel J. Investigating multiple types of resistance against a homing gene drive in European populations of *Drosophila melanogaster*. *bioRxiv*, June 2025.

77. *Zhang X, Sun W,* Kim IK, Messer, PW, **Champer J***. Population dynamics in spatial suppression gene drive models and the effect of resistance, density dependence, and life history. *bioRxiv,* August 2024.

Publications in Journals

76. *Chen W, Liang J,* **Champer J***. Dominant resistance alleles accelerate population suppression by CRISPR-based gene drive. *bioRxiv*, May 2026. (accepted at *iScience*)

75. *Xu Z#, Cho YI#, Zhang X#,* **Champer J***. Confinement considerations for CRISPR toxin-antidote gene drive systems. *Evolutionary Applications,* August 2026.

74. Liang N#, Li JY#, Ding Y, Wang Y, **Champer J***, Ren LC*, Gao G*. A systematic delineation of 3′UTR regulatory elements and their contextual associations. *Cell Systems*, 2026.

73. *Wu Y, Xia Y, Yao Z, Chen W, Jia X, Liang N**, **Champer J***. Finding the perfect promoter for Cas9 in homing gene drives using single cell transcriptome data. *Nature Communications*, 2026.

72. *Chen W#, Yang X#, Guo J#, Han Y#,* **Champer J***. Gene drives and other transgenic approaches for mosquito control. *Trends in Parasitology*, 2026.

71. Feng X#*, Ding J#, *Liu Y*,* Lopez Del Amo V, Gantz VM, Chen XX, **Champer J***, Liu F*. Self-limiting population suppression gene drive design in the West Nile vector mosquito, *Culex quinquefasciatus*. *Nature Communications*, 2026.

70. *Chen W, Wang Z,* **Champer J***. Experimental and modeling demonstration of stronger population suppression by gene drive targeting *doublesex* from dominant female-sterile resistance alleles. *Nature Communications*, 2026.

69. Zhou M, Sun Y, **Champer J**, Huang S, You M, Wang-Pruski G, You S*. Disruption of olfactory perception in the *Empoasca onukii* Matsuda by a defensive green leaf volatile, (Z)-3-hexenal. *Pest Management Science*, 2026.

68. Kim IK#, Tian L#, Chaffee R, Haller BC, **Champer J**@, Messer PW@, Kim J*@. Seed dormancy shapes gene drive dynamics in plants. *Nature Plants*, 2026. @Joint supervision

67. *Allegretti YH#, Sun W#,* **Champer J***. A simulation-based deep learning framework for spatially explicit malaria modeling of CRISPR suppression gene drive mosquitoes. *iScience*, 2026.

66. Yang X, Huang W, Wei J, Xu X, **Champer J***, Zhang L*, Wang J*. Knockout of aminopeptidase N3 confers resistance to low concentrations of *Bacillus thuringiensis* Cry4Ba protoxin in *Aedes aegypti*. *Parasites & Vectors*, 2026.

65. *Xu X**, *Fang J, Chen J, Yang J, Yang X, Hou S, Sun W,* **Champer J***. Assessing target genes for homing suppression gene drive. *The EMBO Journal*, 2026.

64. *Chen W, Wu P,* **Champer J***. Strategies to improve the efficiency of homing gene drives with multiplexed gRNAs. *BMC Biology,* 2025.

63. *Liu Y,* Champer SE, Haller BC, **Champer J***. Modeling control of invasive fire ants by gene drive. *Advanced Science,* 2025.

62. Sun H, Bu L, *Zhang X,* Zhang Z, Su S, Guo D, Gao C, Palli SR, **Champer J**, Wu S*. *β2-tubulin* regulates the development and migration of eupyrene sperm in *Spodoptera frugiperda*. *Cellular and Molecular Life Sciences,* 2025.

61. Davydova S, Liu J, *Liu Y,* Prince K, Mann J, Kandul NP, Braswell WE, **Champer J**, Akbari OS, Meccariello A*. A self-limiting Sterile Insect Technique alternative for *Ceratitis capitata*. *BMC Biology,* 2025.

60. *Han Y,* **Champer J***. A comparative assessment of self-limiting genetic control strategies for population suppression. *Molecular Biology and Evolution,* 2025.

59. *Xu X**, *Chen J,* Wang Y, *Liu Y,* Zhang Y, *Yang J, Yang X,* He Z*, **Champer J***. Gene drive-based population suppression in the malaria vector *Anopheles stephensi*. *Nature Communications,* 2025.

58. *Yang X, Xu X,* Chen Y, Wei J, Huang W, Wu S*, **Champer J***, Wang J*. Assessment of drive efficiency and resistance allele formation of a homing gene drive in the mosquito *Aedes aegypti*. *Journal of Pest Science,* 2025.

57. *Faber N#**, *Xu X#, Chen J, Hou S, Du J,* Pannebakker BA, Zwaan BJ, van den Heuvel J, **Champer J***. Improving the suppressive power of homing gene drive by co-targeting a distant-site female fertility gene. *Nature Communications,* 2024.

56. Champer SE*, Chae B, Haller BC, **Champer J**, Messer PW*. Resource-explicit interactions in spatial population models. *Methods in Ecology and Evolution,* 2024.

55. Wang GH*, Hoffman A*, **Champer J***. Gene drive and symbiont technologies for control of mosquito-borne diseases. *Annual Review of Entomology,* 2024.

54. *Feng R,* **Champer J***. Deployment of tethered gene drive for confined suppression in continuous space requires avoiding drive wave interference. *Molecular Ecology,* 2024.

53. *Chen W, Guo J, Liu Y,* **Champer J***. Population suppression by release of insects carrying a dominant sterile homing gene drive targeting *doublesex* in *Drosophila*. *Nature Communications,* 2024.

52. *Zhu J#, Chen J#, Liu Y#, Xu X,* **Champer J***. A Population suppression with dominant female-lethal alleles is boosted by homing gene drive. *BMC Biology,* 2024.

51. **Champer J***, Schlenoff D*. Battles between ants (Hymenoptera: Formicidae): a review. *Journal of Insect Science*, 2024.

50. *Zhang S*, **Champer J***. Performance characteristics allow for confinement of a CRISPR toxin-antidote gene drive for population suppression in a reaction-diffusion model. *Proceedings: Biological Sciences*, 2024.

49. Liu Y, Jiao B, **Champer J**, Qian W*. Overriding Mendelian inheritance in *Arabidopsis* with a CRISPR toxin-antidote gene drive that impairs pollen germination. *Nature Plants*, 2024.

48. *Du J**, *Chen W*, *Jia X*, *Xu X*, *Yang E*, *Zhou R*, *Zhang Y*, *Metzloff M*, Messer PW, **Champer J***. Germline Cas9 promoters with improved performance for homing gene drive. *Nature Communications*, 2024.

47. *Hou S#*, *Chen J#*, *Feng R*, *Xu X*, Liang N, **Champer J***. A homing rescue gene drive with multiplexed gRNAs reaches high frequency in cage populations but generates functional resistance. *Journal of Genetics and Genomics*, 2024.

46. Ma S#, Ni X#, Chen S, Qiao X, *Xu X*, *Chen W*, **Champer J**, Huang J*. A small-molecule approach to restore female sterility phenotype targeted by a homing suppression gene drive in the fruit pest *Drosophila suzukii*. *PLoS Genetics*, 2024.

45. Yang J, *Xu X*, Wu J, **Champer J**, Xie M*. Involvement of miR-8510a-3p in response to Cry1Ac protoxin by regulating *PxABCG3* in *Plutella xylostella*. *International Journal of Biological Macromolecules*, 2024.

44. Clark AC*, Alexander A, Edison R, Esvelt K, Kamau S, Dutoit L, **Champer J**, Champer S, Messer PW, Gemmell N. A framework for identifying fertility gene targets for mammalian pest control. *Molecular Ecology Resources*, 2023.

43. *Pan M*, **Champer J***. Making waves: Comparative analysis of gene drive spread characteristics in a continuous space model. *Molecular Ecology*, 2023.

42. *Liu Y*, *Teo W*, *Yang H*, **Champer J***. Adversarial interspecies relationships facilitate population suppression by gene drive in spatially explicit models. *Ecology Letters*, 2023.

41. *Zhu Y*, **Champer J***. Simulations reveal high efficiency and confinement of a population suppression CRISPR toxin-antidote gene drive. *ACS Synthetic Biology*, 2023.

40. *Chen J*, *Xu X*, **Champer J***. Assessment of distant-site rescue elements for CRISPR toxin-antidote gene drives. *Front Bioeng Biotechnol*, 2023.

39. *Li J*, **Champer J***. Harnessing *Wolbachia* cytoplasmic incompatibility alleles for confined gene drive: a modeling study. *PLoS Genetics*, 2023.

38. *Champer SE*[#], *Kim IK*[#], Clark AG, Messer PW, **Champer J***. *Anopheles* homing suppression drive candidates exhibit unexpected performance differences in simulations with spatial structure. *eLife*, 2022.

37. *Langmüller AM*[#], **Champer J**[#]*, *Lapinska S, Xie L, Metzloff M, Champer SE, Liu J, Xu Y, Du J*, Clark AG, Messer PW*. Fitness effects of CRISPR endonucleases in *Drosophila melanogaster* populations. *eLife*, 2022.

36. *Metzloff M, Wang E*, Dhole S, Clark AG, Messer PW, **Champer J***. Experimental demonstration of tethered gene drive systems for confined population modification or suppression. *BMC Biology*, 2022.

35. *Liu Y*, **Champer J***. Modeling homing suppression gene drive in haplodiploid organisms. *Proceedings: Biological Sciences*, 2022.

34. *Yang E, Metzloff M, Langmüller AM, Xu X*, Clark AG, Messer PW, **Champer J***. A homing suppression gene drive with multiplexed gRNAs maintains high drive conversion efficiency and avoids functional resistance alleles. *G3: Genes, Genomes, Genetics*, 2022.

33. Wang GH*, *Du J, Chu CY*, Madhav M, Hughes GL, **Champer J***. Symbionts and gene drive: two strategies to combat vector-borne disease. *Trends in Genetics*, 2022.

32. *Champer SE*, Oakes N, Sharma R, Garcia-Diaz P, **Champer J**, Messer PW*. Modeling CRISPR gene drives for suppression of invasive rodents. *PLoS Comput Biol*, 17(12), e1009660 2021.

31. Ferreira-Martins D[#]*, **Champer J**[#]*, McCauley DW, Zhang Z, Docker MF. Genetic control of invasive sea lamprey in the Great Lakes. *J Great Lakes Res*, 47(S1), S764-S775, 2021.

30. **Champer J**[#]*, *Kim IK*[#], *Champer SE*, Clark AG, Messer PW*. Suppression gene drive in continuous space can result in unstable persistence of both drive and wild-type alleles. *Mol Ecol*, 30(4), 1086-1101, 2021.

29. Long KC, Alphey L, Annas GJ, Bloss CS, Campbell KJ, **Champer J**, *et al*. Core commitments for field trials of gene drive organisms. *Science*, 370(6523), 1417-1419, 2020.

28. **Champer J**[#]*, *Champer SE*[#], *Kim IK*, Clark AG, Messer PW. Design and analysis of CRISPR-based underdominance toxin-antidote gene drives. *Evol Appl*, 14(4), 1052-1069, 2020.

27. **Champer J**[#]*, *Yang E*[#], *Lee E, Liu J*, Clark AG, Messer PW*. A CRISPR homing gene drive targeting a haplolethal gene removes resistance alleles and successfully spreads through a cage population. *Proc Natl Acad Sci U S A*, 117(39), 24377-24383, 2020.

26. **Champer J***, *Kim IK, Champer SE*, Clark AG, Messer PW. Performance analysis of novel toxin-antidote CRISPR gene drive systems. *BMC Biol*, 8(1), 27, 2020.

25. **Champer J***, *Zhao J*, *Champer SE*, *Liu J*, Messer PW*. Population dynamics of underdominance gene drive systems in continuous space. *ACS Synth Biol*, 9(4), 779-792, 2020.

24. *Champer SE*, *Liu C*, *Oh SY*, *Wen Z*, Clark AG, Messer PW, **Champer J***. Computational and experimental performance of CRISPR homing gene drive strategies with multiplexed gRNAs. *Sci Adv*, 6(10), eaaz0525, 2020.

23. **Champer J***, *Lee E*, *Yang E*, *Liu C*, Clark AG, Messer PW*. A toxin-antidote CRISPR gene drive system for regional population modification. *Nat Commu*, 11(1), 1082, 2020.

22. **Champer J**#*, *Wen Z*#, *Luthra A*, *Reeves R*, *Chung J*, *Liu C*, *Lee YL*, *Liu J*, *Yang E*, Messer PW, Clark AG*. CRISPR Gene drive efficiency and resistance rate is highly heritable with no common genetic loci of large effect. *Genetics*, 212(1), 334-341, 2019.

21. **Champer J***, *Chung J*, *Lee YL*, *Liu C*, *Yang E*, *Wen Z*, Clark AG, Messer PW*. Molecular safeguarding of CRISPR gene drive experiments. *Elife*, 8, e41439, 2019.

20. *Liu J*#, **Champer J**#*, *Langmüller AM*, *Liu C*, *Chung J*, *Reeves R*, *Lee YL*, *Luthra L*, Clark AG, Messer PW*. Maximum likelihood estimation of fitness components in experimental evolution. *Genetics*, 211(3), 1005-1017, 2019.

19. *Yu Y**, Dunway S, **Champer J**, Kim J, Alikhan A*. Changing our microbiome: Probiotics in dermatology. *Br J Dermatol*, 182(1), 39-46, 2019.

18. **Champer J**#*, *Liu J*#, *Oh SY*, *Reeves R*, *Luthra L*, *Oakes N*, Clark AG, Messer PW*. Reducing resistance allele formation in CRISPR/Cas9 gene drive. *Proc Natl Acad Sci U S A*, 115(21), 5522-5527, 2018.

17. *Champer M**, *Wong AM*, **Champer J**, Brito IL, Messer PW, Hou JY, Wright JD. The role of the vaginal microbiome in gynaecological cancer. *BJOG*, 125(3), 309-315, 2018.

16. **Champer J***, *Reeves R*, *Oh SY*, *Liu C*, *Liu J*, Clark AG, Messer PW*. Novel CRISPR/Cas9 gene drive constructs reveal insights into mechanisms of resistance allele formation and drive efficiency in genetically diverse populations. *PLoS Genetics*, 13(7), e1006796, 2017.

15. **Champer J**#, Buchman A#, Akbari OS*. Cheating evolution: Engineering gene drives to manipulate the fate of wild populations. *Nat Rev Genet*, 17, 146-159, 2016.

14. **Champer J**, Ito JI, Clemons KV, Stevens DA, Kalkum M*. Proteomic analysis of pathogenic fungi reveals highly expressed conserved cell wall proteins. *J. Fungi*, 2(1), 6, 2016.

13. *Yu Y*#, **Champer J**#, Agak GW, Kao S, Modlin RL, Kim J*. Different *Propionibacterium acnes* phylotypes induce distinct immune responses and express unique surface and secreted proteomes. *J Invest Dermatol*, 136(11), 2221-2228, 2016.

12. *Yu Y*, **Champer J**, Kim J*. Analysis of the surface, secreted, and intracellular proteome of *Propionibacterium acnes*. *EuPA Open Proteom*, 9, 1-7, 2015.

11. *Yu Y*, **Champer J**, Beynet DP, Kim J, Friedman AJ*. The role of the cutaneous microbiome in skin cancer: Lessons learned from the gut. *J Drugs Dermatol*, 14(5), 461-465, 2015.

10. *Yu Y*, **Champer J**, Garbán H, Kim J*. Typing of *Propionibacterium acnes*: A review of methods and comparative analysis. *Br J Dermatol*, 172(5), 1204-1209, 2015.

9. Schmidt NW, Agak GW, Deshayes S, *Yu Y*, Blacker A, **Champer J**, Xian W, Kasko AM, Kim J, Wong GC*. PenTobra: An aminoglycoside with robust antimicrobial & membrane activity against *Propionibacterium acnes*. *J Invest Dermatol*, 135(6), 1581-1589, 2015.

8. Chow A, Zhou W, Liu L, Fong MY, **Champer J,** Van Haute D, Chin AR, Ren X, Gugiu BG, Meng Z, Huang W, Ngo V, Kortylewski M, Wang SE*. Macrophage immunomodulation by breast cancer-derived exosomes requires Toll-like receptor 2-mediated activation of NF-κB. *Sci Rep*, 4, 5750, 2014.

7. *Taylor EJM*, *Yu Y*, **Champer J**, Kim J. Resveratrol demonstrates antimicrobial effects against *Propionibacterium acnes*. *Dermatol Ther*, 4, 249-257, 2014.

6. Lehrnbecher T*, Kalkum M, **Champer J**, Tramsen L, Schmidt S, Klingebiel T. Immunotherapy in invasive fungal infection-focus on invasive aspergillosis. *Curr Pharm Des*, 19(20), 3689-3712, 2013.

5. **Champer J***, *Patel J*, *Fernando N*, *Salehi E*, *Wong V*, Kim J. Chitosan against cutaneous pathogens. *AMB Express*, 3(1), 37, 2013.

4. Friedman AJ, Phan J, Schairer DO, **Champer J**, Qin M, Pirouz A, Blecher-Paz K, Oren A, Liu PT, Modlin RL, Kim J*. Antimicrobial and anti-inflammatory activity of chitosan-alginate nanoparticles: a targeted therapy for cutaneous pathogens. *J Invest Dermatol*, 133(5), 1231-1239, 2013.

3. **Champer J**, Diaz-Arevalo D, *Champer M*, Hong TB, *Wong M*, *Shannahoff M*, Ito JI, Clemons KV, Stevens DA, Kalkum M*. Protein targets for broad-spectrum mycosis vaccines: quantitative proteomic analysis of *Aspergillus* and *Coccidioides* and comparisons with other fungal pathogens. *Ann N Y Acad Sci*, 1273, 44-51, 2012.

2. Chandra M, Zang S, Li H, Zimmerman L, **Champer J**, Chow A, Zhou W, Tsuyada A, Yu Y, Gao H, Ren X, Lin RJ, Wang SE*. Nuclear translocation of type I TGF-β receptor confers a novel function in RNA splicing. *Mol Cell Biol*, 32(12), 2183-2195, 2012.

1. Bungau C, Camanzi B, **Champer J**, Chen Y, Cline DB, Luscher R, Lewin JD, Smith PF*, Smith NJT, Wang H. Monte Carlo studies of combined shielding and veto techniques for neutron background reduction in underground dark matter experiments based on liquid noble gas targets. *Astroparticle Physics*, 23, 97-115, 2005.

Book Chapters

4. *Zhang X[#]*, *Liu Y[#]*, *Feng R[#]*, *Du J[#]*, **Champer J**. Engineered Gene Drives. Published in: "Encyclopedia of Evolutionary Biology." *Elsevier Academic Press*, 2026.

3. Clark AC, Alexander A, **Champer J**, Edison R, Katuwal M, Gemmell NJ. Management of vertebrate pests using genetic control techniques. Published in: "Applied Environmental Genomics." *CSIRO Publishing*, 2023.

2. **Champer J**. Gene Drives for *Anopheles* Mosquitoes. Published in: "Mosquito Gene Drives and the Malaria Eradication Agenda." *Jenny Stanford Publishing*, 2023.

1. **Champer J**. *Drosophila melanogaster* as a Model for Gene Drive Systems. Published in: "Transgenic Insects: Techniques and Applications." *CABI*, 2022.

Patents

2. *Yu Y*, **Champer J**, Kim J. Compositions and Methods for Treating Skin and Mucus Membrane Diseases. US 20170065647. Published November 2015.

1. *Taylor E*, **Champer J**, Kim J. Treatment of inflammatory and infectious skin disorders. US 20140018437 A1. Published January 2014.

RESEARCH SUPPORT

Gates Foundation Grant	2026.11-2028.10
SLS-Qidong Innovation Fund	2025.6 - 2027.5
Li Ge Zhao Ning Life Science Research Fund	2025.3 - 2027.2
Frontier Innovation Fund of Chengdu	2025.2 - 2027.1
NSFC RFIS II	2024.10 - 2026.9
Beijing City Project	2024.7 - 2026.6
Beijing Foreign Talents Program	2023.11 - 2024.10
Li Ge Zhao Ning Life Science Research Fund	2023.3 - 2025.2
NSFC General Project	2022.11 - 2026.10
NSFC Overseas Youth Program	2022.9 - 2025.8

SLS-Qidong Innovation Fund	2021.10 - 2023.9
Center for Life Sciences	2021.5 - 2027.3
Peking University SLS Laboratory Startup	2021.5 - 2022.5
NIH/NIAID K22AI146276 *award only available for new faculty at domestic institutions	award declined*
NIH/NIAID F32AI138476	2018.4 - 2021.3
NIH/NIAID R21AI130635* *drafted the grant, key personnel	2017.9 - 2020.9

CLASSROOM TEACHING

Lecturer, Animal Behavior, Conservation, and Evolution, Peking University	2025.9 - Present
Co-Lecturer, Fundamentals of Genetics, Peking University	2023.9 - Present
Session Host/Coordinator, Frontiers Literature Review, Peking University	2023.3 - Present
Lecturer, Population Genetic Engineering, Peking University	2022.9 - Present
Co-Lecturer, Mathematical Modeling in the Life Sciences, Peking University	2022.3 - Present
Co-Lecturer, Various Short Classes, Peking University	2021.10 - Present
Visiting Lecturer, General Academics, Peking Union Medical College	2022.10
Guest Lecturer, Population Genetics and CRISPR classes, Cornell University	2017.9 - 2020.3
Teaching Fellow, Current Topics in Biology, City of Hope	2014.3 - 2014.4
Physics Teaching Assistant, University of California, Los Angeles	2004.9 - 2006.12

RESEARCHERS MENTORED

Current Lab Members at Peking University

Postdocs: Jie Du, Jie Yang, Christopher Krueger (co-mentored with Bo Zhang)

Graduate Students: Ariola Gervalla (visiting), Jiahe (Carol) Li, Jialiang Guo, Jinyu Zhu,), Ruobing Feng, Weitang Sun, Weizhe Chen, Xiaozhen Yang (co-mentored, Zhejiang University), Xinyue Zhang, Yingke Wu, Yinuo Zhang, Yiran Liu, Yue Han, Yunchen Xia

Staff Members: Yang Zhang (Lab Manager)

Undergraduates and Volunteers: Jinyu Ran, Xinrui Zhang, Yuna Cho, Yuchuan Wang, Yuning (Rachel) Xia, Zhuoran Lu, Zichao Ma

Former Lab Members

Peking University Postdocs: Xuejiao Xu, Yuan Hu Allegretti

Peking University Graduate Students: Haonan Yang (M.S.), Mollyann Qi (visiting), Nicky Faber (co-mentored, Wageningen University

Peking University Staff Members: Chenyi Chu, Jingheng Chen, Li Yang (Lab Manager), Ning Xia (Lab Manager), Ruizhi (Rachel) Zhou, Shibo Hou, Weiwei Chen, Xihua Jia

Peking University Undergraduates and Volunteers: Andrea Tan, Chenhaitong Wang, Chengwei Shi, (Coco) Kehan Zhang, Emma Yao, Haochen Yang, Jessica Miao, Jiahe (Carol) Li, Jingyun (Jane) Liang, Jialing Fang, Mingzuyu Pan, Peixin Wu, Shijie Zhang, Shuo Han, Siyan Wu, Theodore Jeliazkov, WeiJian Teo, Weitang Sun, Xiaohan Xie, Xiaokuan Wang, Xinyue (Elaine) Lu, Yanxiang Wang, Yawen Xue, Yihan Feng, Yuntian Zhao, Yutong Zhu, Yuqi Zhang, Yuqian Chan, Ziqian Xu, Ziye Wang, Ziyin Yao

Peking University Rotation-Only Graduate Students: Biao Zhang, Cao Yu, Changtai Hu, Dongxu Chen, Hongjun Long, Jiajun Zhang, Kunyu Wang, Moming Guo, Muhua Liu. Nan Chen, Ruishan Lyu, Siyang Zhou, Suning Hu, Tianyi Wang, Weiwen Yang, Wenqing Tian, Xinyi Wang, Xuqing Feng, Yiming Liu, Yiyang Duan, Yuchang Chen, Yukun Shen, Zhuocheng Yao, Zihao Zhang, Ziyin Yao

Cornell University Undergraduates: Anisha Luthra, Chen Liu, Emily Yang, Isabel Kim, Jingxian (Clara) Liu, Joan Chung, Joanna Zhao, Lin Xie, Matt Metzloff, Phoebe Conley, Riona Reeves, Sandra Lapinska, Suh Yeon (Sunny) Oh, Esther (formerly Yoo Lim) Lee, Zhaoxin (Cindy) Wen

Cornell University Other Students: Anna Langmuller (visiting graduate student), Nathan Oakes (graduate student for one project), Sam Champer (volunteer, brother), Yineng Xu (rotating graduate student)

University of California, Riverside Students: Jennifer Shyong, Kenneth Truong

City of Hope Students: Jason Yu, Mayyen Wong, Miriam Champer (sister), Molly Shannahoff

University of California, Los Angeles Students: Elaheh Salehi, Julie Patel, Nathalie Fernando, Sam Ngo, Victoria Wong, Yang Yu

OTHER EXPERIENCE

Conference Sessions Organized
Gordon Genetic Biocontrol, 2026 (session host only)
Entomological Society of America, 2025
International Congress of Entomology, 2024 (main session and satellite session)

International Conference on Insect Science, 2023
International Congress of Genetics, 2023 (main session and satellite session)

Conference Talks
Gene Drive Outreach Network, 2026
Internal Conflicts and Organismal Adaptation, 2026
Wageningen Gene Drive Symposium, 2026
Asia Pacific Malaria Elimination Network, 2026
International Symposium on Potato and Tuber Crop Pests, 2026
Gene Drive Technologies, 2025
Gates Foundation Malaria Workshop Beijing, 2025
Center for Life Sciences, 2025
International Workshop on Chemical Ecology, 2025
International Conference on Insect Science, 2025
Society for Mathematical Biology Conference, 2025
International Forum for Control of Mosquitoes and Vector-borne Diseases, 2025
Zhongshan Academic Festival, 2024
Entomological Society of China, 2024
Society for Mathematical Biology Conference, 2024
Malaria Vector Control Technologies Conference, 2024
Gene Drive Research Forum Meeting, 2024
BRIN Mathematics of Malaria Transmission Dynamics, 2023
International Conference on Insect Pest Management, 2023
Entomological Society of China, 2021 (two talks)
Interdisciplinary Workshop on Synthetic Gene Drives, 2021
Canadian Conference for Fisheries Research, 2021
Entomological Society of America, Conference, 2019
Sea Lamprey International Symposium, 2019
EMBO Vector Conference, 2019
Society for the Study of Evolution Annual Meeting, 2019
Entomological Society of America, Joint Annual Meeting, 2018
Genetics Society of America, *Drosophila* Research Conference, 2018
Cold Spring Harbor, Genome Engineering: The CRISPR-Cas Revolution, 2017

Academic Seminars
Sorbonne Universite, 2026
University of California, Berkeley, 2026
Jilin University, 2026
Hainan University, 2026
University of Maryland, 2026
University of Hawaii, Manoa, 2025
Michigan State University, 2025
AgriFutures, 2025
University of York, 2025
Imperial College London, 2025
University of Oxford, 2025

Wageningen University and Research, 2025
Indian Institute of Science Bengaluru, 2025
National University of Singapore, 2025
University of Oregon, 2025
University of Otago, 2025
Vietnam Academy of Science and Technology, 2025
Vietnam National University, 2025
Hanoi University of Science and Technology, 2025
Ton Duc Thang University, 2025
Nong Lam University, 2025
Nguyen Tat Thanh University, 2025
National Institute of Infectious Diseases, Tokyo, 2024
Gannan Normal University, 2024
Seoul National University, 2024
Zhejiang University, 2024
Chongqing Normal University, 2024
Chinese Academy of Sciences Institute of Genetics and Developmental Biology, 2023
Nanjing Agricultural University, 2023
Fujian Agriculture and Forestry University, 2023
France National Research Institute for Agriculture, Food and Environment, 2022
Chinese Academy of Sciences Institute of Zoology, 2021

Seminars at High Schools
Korea Science Academy of KAIST, 2024, 2026
High School Affiliated to Renmin University, 2024, 2025

Workshops
Zhongshan School of Medicine - Building a New Ecology for Global Life and Health, 2024
Gene Drive Research Forum - Bridging gaps in Stakeholder Engagement, 2021
Target Malaria - Plausible Pathways to Potential Harm Workshop, 2021
FNIH - Data Needs and Assay Design for Decision Making on Gene Drive Mosquitoes, 2019
ILSI - Gene Drive Modeling Conference, 2019

Journal Editor: PLOS Genetics 2021-Present, BMC Biology 2022-Present, Mathematical Biosciences 2026-Present

Journal Referee: American Naturalist, Applied Biosciences, BioDesign Research, Bioscience, BMC Biology, Chromosome Research, Communications Biology, Current Opinion in Insect Science, Current Opinion in Microbiology, Ecological Applications, Ecological Frontiers, Ecological Modelling, Ecological Psychology, eLife, European Journal of Dermatology, Entomologia Generalis, Evolutionary Applications, Frontiers in Agronomy, Frontiers in Bioengineering and Biotechnology, Frontiers in Insect Science, Frontiers in Microbiology, G3, Genes, Genetics, Infection Genetics and Evolution, Insect Biochemistry and Molecular Biology, Insect Science, International Journal of Biological Macromolecules, iScience, Journal of Applied Ecology, Journal of Evolutionary Biology, Journal of Functional Foods, Journal of Fungi, Journal of Great Lakes Research, Journal of Medical Entomology, Journal of Theoretical

Biology, Lancet Regional Health - Western Pacific, Malaria Journal, Mathematical Biosciences and Engineering, Molecular Ecology, NAR Genomics and Bioinformatics, Nature Communications, Nature Protocols, PeerJ, Pest Management Science, Plant Biotechnology Journal, PLOS Genetics, PLOS Neglected Tropical Diseases, PNAS, Proceedings of the Royal Society B, Research Ideas and Outcomes, Review Commons, Science Bulletin, Scientific African, Scientific Reports, Scientific World, STAR Protocols, Transgenic Research

Other Referee

National Carp Control Plan for Australia "Synergistic genetic biocontrol options for common carp (*Cyprinus carpio*)"

United Nations Environment Programme: Frontiers, Emerging Issues of Environmental Concern, Synthetic Biology