

CURRICULUM VITAE

Chuan Ku (顧銓)



Citizenship: Taiwan
Family status: Single with one child
Institution: Institute of Plant and Microbial Biology (IPMB)
Academia Sinica, Taipei, Taiwan
Position: Associate Research Fellow / Associate Professor
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Lab website: <https://chuanku-lab.github.io/kulab/>
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Bluesky: @chuanku.bsky.social
Researcher profiles: [ResearchGate](#) [ORCID](#) [Google Scholar](#) [Web of Science](#)

Professional Profile

Education

- 2013–2016 Dr. rer. nat. in Biology (*summa cum laude*), Heinrich Heine University Düsseldorf, Germany (dissertation title: “On the prokaryotic origins of eukaryotic genes”)
2009–2011 M.Sc. in Ecology and Evolutionary Biology, National Taiwan University, Taiwan (thesis title: “Identification of *Ardisia* (Myrsinaceae) leaf-nodule symbionts and cophylogenetic analyses of plant-bacteria symbiosis”)
2005–2009 B.Sc. in Life Science with a minor degree in Geosciences, National Taiwan University, Taiwan

Professional experience

- 2023– Associate Research Fellow, Institute of Plant and Microbial Biology, Academia Sinica, Taiwan
2019–2023 Assistant Research Fellow, Institute of Plant and Microbial Biology, Academia Sinica, Taiwan
2016–2018 Postdoctoral fellow, Department of Plant and Environmental Sciences, Weizmann Institute of Science, Israel
2016 Postdoctoral fellow, Institute of Molecular Evolution, Heinrich Heine University Düsseldorf, Germany
2012–2013 Research assistant, Institute of Plant and Microbial Biology, Academia Sinica, Taiwan

2011–2012 Personnel officer, Reserve Command, Ministry of National Defense, Taiwan

2010–2012 Part-time English-Mandarin translator, Linguitronics Co., Taiwan

Professional experience (joint appointment and adjunct faculty positions)

2023– Adjunct Associate Professor, Institute of Ecology and Evolutionary Biology, National Taiwan University, Taipei, Taiwan

2023– Jointly Appointed Associate Professor, Genome and Systems Biology Degree Program, National Taiwan University and Academia Sinica, Taipei, Taiwan

2023– Jointly Appointed Associate Professor, Department of Life Science, National Taiwan Normal University, Taipei, Taiwan

2023– Jointly Appointed Associate Professor, Department of Life Sciences, National Cheng Kung University, Tainan, Taiwan

2023– Jointly Appointed Associate Professor, Biotechnology Center, National Chung Hsing University, Taichung, Taiwan

2021–2023 Jointly Appointed Assistant Professor, Department of Life Sciences, National Cheng Kung University, Tainan, Taiwan

2020–2023 Adjunct Assistant Professor, Institute of Ecology and Evolutionary Biology, National Taiwan University, Taipei, Taiwan

2020–2023 Jointly Appointed Assistant Professor, Genome and Systems Biology Degree Program, National Taiwan University and Academia Sinica, Taipei, Taiwan

2019–2023 Jointly Appointed Assistant Professor, Department of Life Science, National Taiwan Normal University, Taipei, Taiwan

2019–2023 Jointly Appointed Assistant Professor, Biotechnology Center, National Chung Hsing University, Taichung, Taiwan

Awards, honors and scholarships

2026 Caregiver Award, Society for Molecular Biology & Evolution Annual Meeting (June 28–July 2, 2026), Copenhagen, Denmark

2025 Selected representative of Academia Sinica, Taiwan, at the Young Leaders Program of the 22nd Annual Meeting of the Science and Technology in Society (STS) forum, Kyoto, Japan

2025 Research Grant for International Outstanding Young Scholars (with a salary award), 2030 Cross-Generation Young Scholars Program, National Science and Technology Council, Taiwan

2024 Outstanding Teaching Award, National Taiwan University, Taiwan

2024 Primary Caregiver Grant, 19th International Symposium on Microbial Ecology (August 18–23, 2024), Cape Town, South Africa

2024 Caregiver Award, Society for the Study of Evolution, Joint Congress on Evolutionary Biology (July 26–30, 2024), Montreal, Canada

- 2024 Early Career Travel Grant Award, Association for the Sciences of Limnology and Oceanography (ASLO) Meeting (June 2-7, 2024), Madison, Wisconsin, USA
- 2024 Childcare Grant Award, Association for the Sciences of Limnology and Oceanography (ASLO) Meeting (June 2-7, 2024), Madison, Wisconsin, USA
- 2023 Caregiver Award, Society for Molecular Biology & Evolution Annual Meeting (July 23–27, 2023), Ferrara, Italy
- 2023 Global Investigator of European Molecular Biology Organization (EMBO)
- 2022 Outstanding Young Scholar Award, Taiwan Society of Plant Biologists, Taiwan
- 2021 Young Scholars' Creativity Award, Foundation for the Advancement of Outstanding Scholarship, Taiwan (傑出人才發展基金會第九屆年輕學者創新獎)
- 2020 Academia Sinica Career Development Award with research funding for 2021–2025
- 2017 Best Dissertation Award, Faculty of Mathematics and Natural Sciences, Heinrich Heine University Düsseldorf, Germany
- 2016 EMBO Long-Term Fellowship for postdoctoral fellows for 2017–2018 (ALTF 1172-2016)
- 2016 Koshland Prize for postdoctoral fellows, Weizmann Institute of Science, Israel
- 2016 Dean of Faculty Fellowship, Weizmann Institute of Science, Israel
- 2016 Young Investigator Travel Award, Annual Meeting of SMBE 2016, Gold Coast, Australia
- 2016 Funded Visit Program for PhD students, Weizmann Institute of Science, Israel
- 2015 Travel Grant for Volkswagenstiftung “Kick-off Conference: Life? — A New Funding Initiative Introduces Itself,” Hanover, Germany
- 2013–2016 Research scholarship for foreign doctorate students and young academics, German Academic Exchange Service (DAAD), Germany
- 2011 Distinguished Master's Thesis Award, Taiwan Society of Plant Biologists, Taiwan
- 2011 Dean Award for outstanding performance in study, College of Life Science, National Taiwan University, Taiwan
- 2008 Undergraduate Research Scholarship, National Science Council, Taiwan
- 2007 Scholarship for further academic study and training in Germany, German Academic Exchange Service (DAAD), Germany
- 2005–2009 Presidential Awards for bachelor's students, National Taiwan University, Taiwan

Participation in workshops and courses

- 2026 EMBO Young Investigator Network Retreat courses: Effectively recruiting and supervising students (June 4–5, 2026), Ringhotel Schorfheide, Joachimsthal, Germany

- 2024 EMBO Young Investigator Network Retreat courses: Team and Conflict Management & Applying Design Principles to Schematic Figures (June 9–12, 2024), Mediterranean Institute for Life Sciences, Split, Croatia
- 2024 EMBO Lab Leadership Course for Group Leaders (February 13–16, 2024), Hotel Villa Toskana, Leimen, Germany
- 2022 EMBO online training course: Effective Oral Communication for Researchers in the Life Sciences (July 12, 2022), hosted by EMBO, Academia Sinica, and Ministry of Science and Technology, Taiwan
- 2018 EMBO Lab Leadership Course for Postdocs (September 3–5, 2018), Leimen, Germany
- 2017 EMBO Practical Course — Single Cell Omics (April 24–30, 2017), Heidelberg, Germany (selected attendee; oral and poster presentation)
- 2016 Hjort Summer School 2016: Microbial Oceanography — Complexity vs. Simplicity in Microbial Ecology (August 29–September 2, 2016), Bergen, Norway (selected attendee; oral and poster presentation)

Language proficiency

Mandarin (native), English (fluent), German (near-fluent), Japanese (intermediate), French (basic), Spanish (basic)

English:

- 2012 TOEFL iBT: Total 115/120 (Reading 30/30, Listening 30/30, Speaking 28/30, Writing 27/30)
- 2011 Certificate in Mandarin-English Translation and Interpretation, National Taiwan University, Taiwan
- 2010 Certificate of Competency in Chinese and English Translation and Interpretation (examination in *English to Chinese Translation: General Topics*), Ministry of Education, Taiwan

German:

- 2012 TestDaF: Reading 5/5, Listening 4/5, Speaking 4/5, Writing: 4/5

Japanese:

- 2008 Japanese Language Proficiency Test (JLPT) Level 2

Media coverage

- 10/2026 2025 Research Highlights of Academia Sinica (in English/Mandarin)
- 10/2024 2023 Research Highlights of Academia Sinica ([in English/Mandarin](#))
- 08/2023 The Reporter article with my perspectives on amoeba pathogens ([in Mandarin](#))
- 12/2022 Announcement of new EMBO Global Investigators ([in English](#))
- 12/2022 2021 Research Highlights of Academia Sinica ([in English/Mandarin](#))
- 07/2022 Comments on 2022 monkeypox outbreak, Science Media Center ([in Mandarin](#))
- 10/2021 Liberty Times newspaper coverage on our giant virus research ([in Mandarin](#))

- 12/2020 Interview and promotional video by DAAD Taiwan ([in Mandarin/German](#))
- 11/2020 Perspective on a *Nature* paper ([reported by Science](#))
- 10/2020 DAAD Info Session on PhD research ([in Mandarin](#))
- 09/2020 Interview by Radio Taiwan International ([in German](#))
- 07/2020 Short Alumnus Speech on the 20th Anniversary of DAAD Taiwan ([in German](#))
- 11/2019 PI interview, Institute of Plant and Microbial Biology ([in Mandarin](#))
- 01/2019 Introduction to new PI, Academia Sinica ([in Mandarin](#))
- 02/2017 Best Dissertation Award, Heinrich Heine University Düsseldorf ([in German](#))
- 09/2015 Report by German Academic Exchange Service ([in German](#))

Professional membership

American Society for Microbiology

International Society for Microbial Ecology

International Phycological Society

Phycological Society of America

Society for Molecular Biology and Evolution

Taiwan Society of Microbial Ecology

Research and Communication

Research interests

My lab is dedicated to studying widespread environmental microbes that are important for global carbon cycling, ecosystem functioning, or public health. Currently our research focuses on giant viruses that infect diverse organisms with complex cells (eukaryotes) and microalgae (photosynthetic microbes) that form the basis of food webs worldwide. We employ experimental and bioinformatic approaches to understand how these microbes originated, diversified, and spread, and to unravel the genomic basis of their interactions with their hosts, other microbes, and changing environments.

- Evolution and regulation of microalgal morphology, physiology and life cycles
- Gene origins and ancient evolution of eukaryotes and their giant viruses
- Microalga-microbe interactions and their impacts on ecosystems

Publications (#Corresponding author; including preprints)

46. Hsin-Tung Lai, Ming-Wei Lai, Tzu-Haw Wang, Haojia Ren, **Chuan Ku**[#] (2026): Mitochondrial genome reduction and accelerated evolution in planktonic foraminiferans. *MicrobiologyOpen* DOI: 10.1002/mbo3.70368 (in press)
45. Chia-Ling Yang, Md Mostafa Kamal, Leandro Ravael, Chi-Yen Wei, Yan-Jun Chen, Sofia Magno, Chin-Wen Chen, Pei-Yi Lin, Chuan-Chih Hsu, Jun-Yi Leu, **Chuan Ku**[#] (2026): Cellular remodeling during photosymbiosis establishment revealed by single-cell dual proteomics. *bioRxiv* DOI: 10.64898/2026.04.21.719821
44. Md Mostafa Kamal, Yu-Hsuan Cheng, Chia-Ling Yang, Chien-Fu Jeff Liu, **Chuan Ku**, Jun-Yi Leu[#] (2026): Endosymbiotic algal photosynthesis shapes diel transcriptome architecture in its ciliate host *Paramecium bursaria*. *bioRxiv* DOI: 10.64898/2026.03.31.715701
43. Hsin-Tung Lai, Ming-Wei Lai, Tzu-Haw Wang, Haojia Ren, **Chuan Ku**[#] (2025): Mitochondrial genome reduction and accelerated evolution in planktonic foraminiferans. *bioRxiv* DOI: 10.1101/2025.08.28.672841 (a modified version of this preprint was published in *MicrobiologyOpen*)
42. Pin-Yi Song, Chia-En Tsai, Yung-Chih Chen, Yu-Wen Huang, Po-Pang Chen, Tzu-Haw Wang, Chao-Yuan Hu, Po-Yin Chen, **Chuan Ku**, Kuo-Chiang Hsia, See-Yeun Ting (2025): An interbacterial cysteine protease toxin inhibits cell growth by targeting type II DNA topoisomerases GyrB and ParE. *PLOS Biology* 23(5): e3003208. DOI: 10.1371/journal.pbio.3003208
41. Avia Mizrahi, Mai Sadeh, Shifra Ben-Dor, Orly Dym, **Chuan Ku**, Ester Feldmesser, Amichai Zarfin, John K Brunson, Andrew E Allen, Robert E Jinkerson, Daniella Schatz, Assaf Vardi (2025): Cathepsin X is a conserved cell death protein involved in algal response to environmental stress. *Current Biology* 35(10): 2240-2255. DOI: 10.1016/j.cub.2025.03.045
40. Hwee Sze Tee, **Chuan Ku**[#] (2025): Host-calibrated time tree caps the age of giant viruses. *Molecular Biology and Evolution* 42(2): msaf033. DOI: 10.1093/molbev/msaf033
39. Laurie Bousquet, Shai Fainsod, Johan Decelle, Omer Murik, Fabien Chevalier, Benoit Gallet, Rachel Templin, Yannick Schwab, Yoav Avrahami, Gil Koplovitz,

- Chuan Ku**, Miguel J. Frada (2025): Life cycle and morphogenetic differentiation in heteromorphic cell types of a cosmopolitan marine microalga. *New Phytologist* 245: 1969–1984. DOI: 10.1111/nph.20360
38. Pin-Yi Song, Chia-En Tsai, Yung-Chih Chen, Yu-Wen Huang, Po-Pang Chen, Tzu-Haw Wang, Chao-Yuan Hu, Po-Yin Chen, **Chuan Ku**, Kuo-Chiang Hsia, See-Yeun Ting (2024): An interbacterial cysteine protease toxin inhibits cell growth by targeting type II DNA topoisomerases GyrB and ParE. *bioRxiv* DOI: 10.1101/2024.12.30.630690 (a modified version of this preprint was published in *PLOS Biology*)
37. Hwee Sze Tee, **Chuan Ku**[#] (2024): Host-calibrated time tree caps the age of giant viruses. *Research Square* DOI: 10.21203/rs.3.rs-5086737/v1 (a modified version of this preprint was published in *Molecular Biology and Evolution*)
36. Laurie Bousquet, Shai Fainsod, Johan Decelle, Omer Murik, Fabien Chevalier, Benoit Gallet, Rachel Templin, Yannick Schwab, Yoav Avrahami, Gil Koplovitz, **Chuan Ku**, Miguel J. Frada (2024): Life cycle and morphogenetic differentiation in heteromorphic cell types of a cosmopolitan marine microalga. *bioRxiv* DOI: 10.1101/2024.07.03.601694
35. Tzu-Tong Kao, Ming-Wei Lai, Tzu-Haw Wang, Chia-Ling Yang, Miguel Frada, **Chuan Ku**[#] (2024): Haplotype-aware multiomics unveils the regulatory basis of haplodiplontic life-cycle differentiation in a cosmopolitan marine alga. *bioRxiv* DOI: 10.1101/2024.05.26.595999
34. Avia Mizrahi, Mai Sadeh, Shifra Ben-Dor, Orly Dym, **Chuan Ku**, Ester Feldmesser, Amichai Zarkin, John K Brunson, Andrew E Allen, Robert E Jinkerson, Daniella Schatz, Assaf Vardi (2024): Cathepsin X is a conserved cell death protein involved in algal response to environmental stress. *bioRxiv* DOI: 10.1101/2024.05.15.594278
33. Ying-Lan Chen, Jo-Wei Allison Hsieh, Shang-Che Kuo, Chung-Ting Kao, Chia-Chun Tung, Jhong-He Yu, Tien-Hsien Chang, **Chuan Ku**, Jianbo Xie, Deqiang Zhang, Quanzi Li, Ying-Chung Jimmy Lin (2024): Merit of integrating in situ transcriptomics and anatomical information for cell annotation and lineage construction in single-cell analyses of *Populus*. *Genome Biology* 25: 85. DOI: 10.1186/s13059-024-03227-5
32. Gur Hevroni, Flora J. Vincent, **Chuan Ku**, Uri Sheyn, Assaf Vardi (2023): Daily turnover of active giant virus infection during algal blooms revealed by single-cell transcriptomics. *Science Advances* 9(41): eadf797. DOI: 10.1126/sciadv.adf7971
31. Sheng Kao, Chi-Fei Kao, Wen Chang, **Chuan Ku**[#] (2023): Widespread distribution and evolution of poxviral entry-fusion complex proteins in giant viruses. *Microbiology Spectrum* 11: e04944-22. DOI: 10.1128/spectrum.04944-22
30. Chia-Chun Tung, Shang-Che Kuo, Chia-Ling Yang, Jhong-He Yu, Chia-En Huang, Pin-Chien Liou, Ying-Hsuan Sun, Peng Shuai, Jung-Chen Su, **Chuan Ku**[#], Ying-Chung Jimmy Lin[#] (2023): Single-cell transcriptomics unveils xylem cell development and evolution. *Genome Biology* 24: 3. DOI: 10.1186/s13059-022-02845-1
29. Siwat Chang, Tzu-Haw Wang, Ming-Wei Lai, **Chuan Ku**[#] (2023): Complete genome sequence of *Phaeobacter* sp. strain G2 isolated from lab culture of the calcifying alga *Emiliania huxleyi*. *Microbiology Resource Announcements*. 12(1): e01067-22. DOI: 10.1128/mra.01067-22
28. Gur Hevroni, Flora J. Vincent, **Chuan Ku**, Uri Sheyn, Assaf Vardi (2022): Daily turnover of active giant virus infection during algal blooms revealed by single-cell

- transcriptomics. *bioRxiv* DOI: 10.1101/2022.10.15.512338 (a modified version of this preprint was published in *Science Advances*)
27. Tzu-Tong Kao, Tzu-Haw Wang, **Chuan Ku**[#] (2022): Rampant nuclear-mitochondrial-plastid phylogenomic discordance in globally distributed calcifying microalgae. *New Phytologist* 235(4): 1394–1408. DOI: 10.1111/nph.18219 [The first author received 2022 Research Award for Postdoctoral Fellows from National Science and Technology Council, Taiwan, for this work.]
26. Chia-Chun Tung, Shang-Che Kuo, Chia-Ling Yang, Chia-En Huang, Jhong-He Yu, Ying-Hsuan Sun, Peng Shuai, Jung-Chen Su, **Chuan Ku**[#], Ying-Chung Jimmy Lin[#] (2021): Single-cell transcriptomics unveils xylem cell development and evolution. *bioRxiv*. DOI: 10.1101/2021.10.16.464627 (a modified version of this preprint was published as *Genome Biology* 24: 3)
25. Tsu-Wang Sun, **Chuan Ku**[#] (2021): Unraveling gene content variation across eukaryotic giant viruses based on network analyses and host associations. *Virus Evolution* 7(2): veab081. DOI: 10.1093/ve/veab081
24. **Chuan Ku**[#] (2021): Giant virus-eukaryote interactions as ecological and evolutionary driving forces. *mSystems* 6(4): e00737-21. DOI: 10.1128/mSystems.00737-21
23. Tsu-Wang Sun, Chia-Ling Yang, Tzu-Tong Kao, Tzu-Haw Wang, Ming-Wei Lai, **Chuan Ku**[#] (2020): Host range and coding potential of eukaryotic giant viruses. *Viruses* 12(11): 1337. DOI: 10.3390/v12111337
22. **Chuan Ku**, Uri Sheyn, Arnau Sebé-Pedrós, Shifra Ben-Dor, Daniella Schatz, Amos Tanay, Shilo Rosenwasser, Assaf Vardi (2020): A single-cell view on alga-virus interactions reveals sequential transcriptional programs and infection states. *Science Advances* 6(21): eaba4137. DOI: 10.1126/sciadv.aba4137
21. **Chuan Ku**[#], Tsu-Wang Sun (2020): Did giant and large dsDNA viruses originate before their eukaryotic hosts? *Proceedings of the National Academy of Sciences of the United States of America* 117(6): 2747–2748. DOI: 10.1073/pnas.1919860117
20. **Chuan Ku**[#], Arnau Sebé-Pedrós[#] (2019): Using single-cell transcriptomics to understand functional states and interactions in microbial eukaryotes. *Philosophical Transactions of the Royal Society B* 374(1786): 20190098. DOI:10.1098/rstb.2019.0098
19. **Chuan Ku**, Uri Sheyn, Arnau Sebé-Pedrós, Shifra Ben-Dor, Daniella Schatz, Amos Tanay, Shilo Rosenwasser, Assaf Vardi (2019): Tracking infection dynamics at single-cell level reveals highly-resolved expression programs of a large virus infecting algal blooms. *bioRxiv*. DOI:10.1101/757542 (a modified version of this preprint is published as *Science Advances* 6(21): eaba4137)
18. **Chuan Ku**, Noa Barak-Gavish, Mark Maienschein-Cline, Stefan J. Green, Assaf Vardi (2018): Complete genome sequence of *Sulfitobacter* sp. strain D7, a virulent bacterium isolated from an *Emiliania huxleyi* algal bloom in the North Atlantic. *Microbiology Resource Announcements* 7(19): e01379-18. DOI:10.1128/MRA.01379-18
17. Noa Barak-Gavish, Miguel Frada, **Chuan Ku**, Peter A. Lee, Giacomo R. DiTullio, Sergey Malitsky, Asaph Aharoni, Stefan J. Green, Ron Rotkopf, Elena Kartvelishvily, Uri Sheyn, Daniella Schatz, Assaf Vardi (2018): Bacterial virulence against an oceanic bloom-forming phytoplankter is mediated by algal DMSP. *Science Advances* 4(10): eaau5716. DOI: 10.1126/sciadv.aau5716

16. William F. Martin, Mayo Roettger, **Chuan Ku**, Sriram G. Garg, Shijulal Nelson-Sathi, Giddy Landan (2017): Late mitochondrial origin is an artefact. *Genome Biology and Evolution* 9(2): 373–379. DOI:10.1093/gbe/evx027
15. **Chuan Ku**[#], William F. Martin[#] (2016): A natural barrier to lateral gene transfer from prokaryotes to eukaryotes revealed from genomes: the 70% rule. *BMC Biology* 14:89. DOI:10.1186/s12915-016-0315-9 (recommended by Faculty of 1000: <http://f1000.com/prime/726862983>)
14. **Chuan Ku**, Shijulal Nelson-Sathi, Mayo Roettger, Filipa L. Sousa, Peter J. Lockhart, David Bryant, Einat Hazkani-Covo, James O. McInerney, Giddy Landan, William F. Martin (2015): Endosymbiotic origin and differential loss of eukaryotic genes. *Nature* 524:427–432. DOI:10.1038/nature14963 (recommended by Faculty of 1000: <http://f1000.com/prime/725729035>)
13. **Chuan Ku**, Shijulal Nelson-Sathi, Mayo Roettger, Sriram Garg, Einat Hazkani-Covo, William F. Martin (2015): Endosymbiotic gene transfer from prokaryotic pangenomes: Inherited chimerism in eukaryotes. *Proceedings of the National Academy of Sciences of the United States of America* 112(33): 10139–10146. DOI:10.1073/pnas.1421385112
12. **Chuan Ku**, Mayo Roettger, Verena Zimorski, Shijulal Nelson-Sathi, Filipa L. Sousa, William F. Martin (2014): Plastid origin: Who, when and why? *Acta Societatis Botanicorum Poloniae* 83(4):281–289 DOI:10.5586/asbp.2014.045
11. Verena Zimorski, **Chuan Ku**, William F. Martin, Sven B. Gould (2014): Endosymbiotic theory for organelle origins. *Current Opinion in Microbiology* 22:38–48. DOI:10.1016/j.mib.2014.09.008
10. **Chuan Ku**, Wen-Sui Lo, Chih-Horng Kuo (2014): Molecular evolution of the actin-like MreB protein gene family in wall-less bacteria. *Biochemical and Biophysical Research Communications* 446(4):927–932. DOI:10.1016/j.bbrc.2014.03.039
9. Tean-Hsu Chang, Wen-Sui Lo, **Chuan Ku**, Ling-Ling Chen, Chih-Horng Kuo (2014): Molecular evolution of the substrate utilization strategies and putative virulence factors in mosquito-associated *Spiroplasma* species. *Genome Biology and Evolution* 6(3): 500–509. DOI:10.1093/gbe/evu033
8. **Chuan Ku**, Wen-Sui Lo, Ling-Ling Chen, Chih-Horng Kuo (2014): Complete genome sequence of *Spiroplasma apis* B31T (ATCC 33834), a bacterium associated with May disease of honeybees (*Apis mellifera*). *Genome Announcements* 2(1): e01151-13. DOI:10.1128/genomeA.01151-13
7. **Chuan Ku**, Jer-Ming Hu (2014): Phylogenetic and cophylogenetic analyses of the leaf-nodule symbiosis in *Ardisia* subgenus *Crispardisia* (Myrsinaceae): Evidence from nuclear and chloroplast markers and bacterial *rrn* operons. *International Journal of Plant Sciences* 175(1):92–109. DOI:10.1086/673306
6. **Chuan Ku**, Wen-Sui Lo, Chih-Horng Kuo (2013): Horizontal transfer of potential mobile units in phytoplasmas. *Mobile Genetic Elements* 3(5):e26145. DOI:10.4161/mge.26145
5. Wen-Sui Lo, **Chuan Ku**, Ling-Ling Chen, Tean-Hsu Chang, Chih-Horng Kuo (2013): Comparison of metabolic capacities and inference of gene content evolution in mosquito-associated *Spiroplasma diminutum* and *S. taiwanense*. *Genome Biology and Evolution* 5(8):1512–1523. DOI:10.1093/gbe/evt108
4. **Chuan Ku**, Wan-Chia Chung, Ling-Ling Chen, Chih-Horng Kuo (2013): The complete plastid genome sequence of Madagascar periwinkle *Catharanthus roseus* (L.)

- G. Don: Plastid genome evolution, molecular marker identification, and phylogenetic implications in asterids. *PLoS ONE* 8(6):e68518. DOI:10.1371/journal.pone.0068518
3. **Chuan Ku**, Wen-Sui Lo, Ling-Ling Chen, Chih-Horng Kuo (2013): Complete genomes of two dipteran-associated spiroplasmas provided insights into the origin, dynamics, and impacts of viral invasion in *Spiroplasma*. *Genome Biology and Evolution* 5(6):1151–1164. DOI:10.1093/gbe/evt084
 2. **Chuan Ku**, Jer-Ming Hu, Chih-Horng Kuo (2013): Complete plastid genome sequence of the basal asterid *Ardisia polysticta* Miq. and comparative analyses of asterid plastid genomes. *PLoS ONE* 8(4):e62548. DOI:10.1371/journal.pone.0062548
 1. **Chuan Ku**, Liang-Chi Wang, Su-Hwa Chen (2012): Dispersal of airborne pollen in Chatienshan nature reserve, northern Taiwan, with emphasis on Taiwan beech. *Taiwania* 57(4):331–341.

Outreach articles

1. **Chuan Ku** (2022): 艾密利的鈣板世界：地球碳循環中的隱藏角色 [Calcifying microalgae and global carbon cycling]. *Academia Sinica Newsletter*. ([in Mandarin](#))
2. **Chuan Ku**, Bo-Wei Wang (2020): 海中的盔甲浮游植物 [Armored Marine Phytoplankton]. *MiTalkzine* 6:8-14. ([in Mandarin](#))

Invited talks at scientific meetings

20. Single-cell dual proteomics reveals cellular and metabolic remodeling during microbial symbiosis establishment. 2026 AS-KAIST Bilateral Symposium: Integrative Biology of Brain, Genome, and Metabolism (May 29, 2026), Academia Sinica, Taipei, Taiwan
19. Cosmopolitan microalgae: genomic biology and regulation of key players in global carbon cycling. The 67th Annual Meeting of the Japanese Society of Plant Physiologists (March 13–17, 2026), Meiji University, Tokyo, Japan
18. Evolution of giant viruses infecting eukaryotes: Virus-host-environment interactions in the geological timescale. Genomic Big Bang: Biodiversity, Biotechnology and Evolution in the AI Era (March 3-4, 2026), College of Life Science, National Cheng Kung University, Tainan, Taiwan
17. From microalgae to giant viruses: genomics and biology of key players in carbon cycling. EvoBio Connect: RSG Taiwan and India Collaboration (September 11-12, 2025), organized by regional student groups (RSGs) of the International Society for Computational Biology, Academia Sinica, Taipei, Taiwan (hybrid)
16. Giant viruses of eukaryotes: origin, evolution and interactions. EMBO Young Investigator Network Annual Meeting (June 24–27, 2025), EMBO, Heidelberg, Germany
15. A novel method for reconstructing the timescale of pathogen evolution sheds light on the origin of giant viruses. 15th Asian Symposium on Microbial Ecology (May 28–30, 2025), Chungbuk National University, Cheongju, South Korea
14. Dating the origin of pathogens: An example from giant viruses infecting eukaryotes. 8th Annual Conference of Taiwan Microbiota Consortium (March 22, 2025), College of Medicine, National Taiwan University, Taipei, Taiwan

13. Biological functions and genomic diversity of marine giant viruses. Marine Life and Ecosystems: Lessons and Visions of Where to Discover Marine Bioactives (March 15, 2025), GIS Taichung Xinwuri Convention Center, Taichung, Taiwan. (in Mandarin)
12. Tracing the origin of eukaryotic giant viruses. EMBO 60th Anniversary Meeting (October 28–November 1, 2024), EMBO, Heidelberg, Germany
11. Complex microbes underpinning global carbon cycling. EMBO Global Investigator Network Meeting (April 15–17, 2024), Nanyang Technological University, Singapore
10. From microalgae to giant viruses: genomic biology of key players in marine carbon cycling. 2024 Asia Microbiome Conference (January 27, 2024), Academia Sinica, Taipei, Taiwan
9. Evolution of eukaryotic giant viruses. 2024 MiTalk Meeting on Microbial Ecology (January 18–19, 2024), Tzu Chi University, Hualien, Taiwan
8. Evolution of giant viruses: insights from phylogenomics and membrane proteins. 2023 Taiwan Society of Microbial Ecology Annual Meeting (October 28–29, 2023), I-Shou University, Kaohsiung, Taiwan
7. Eukaryotic microbes with global ecological impacts: an evolutionary perspective. 2023 EMBO Annual Young Investigator Network Meeting (May 23–25, 2023), Instituto Fondazione di Oncologia Molecolare (IFOM), Milan, Italy
6. On the origins of eukaryotes and eukaryotic giant viruses. Symposium “Major Microbial Transitions: From the origin of life to the origin of the domains”, 2022 Japanese Society of Microbial Ecology Annual Meeting (October 31–November 3, 2022), Sapporo Convention Center, Sapporo, Japan
5. Phylogenomic insights into evolution and inheritance of nuclear and organellar genomes. 2022 Taiwan Society of Plant Biologists Annual Meeting (October 1–2, 2022), Huisun Experimental Forest Station, National Chung Hsing University, Nantou, Taiwan
4. Workshop on Flow Cytometry and Cell Sorting. 2022 MiTalk Meeting on Microbial Ecology (January 19–20, 2022), Tunghai University, Taichung, Taiwan
3. Genome content evolution in giant viruses of eukaryotes. 2020 Multi-Omics and Precision Medicine Joint Conference (November 14–15, 2020), Chang Gung University, Taoyuan, Taiwan
2. Single-cell transcriptomics: understanding viral infection at high resolution. 2019 Taiwan Society of Plant Biologists Annual Meeting (November 23–24, 2019), Academia Sinica, Taipei, Taiwan
1. Single-cell transcriptomic dynamics of a large virus infecting a cosmopolitan alga. 2019 Taiwan Society of Microbial Ecology Annual Meeting (May 11, 2019), Tunghai University, Taichung, Taiwan

Other presentations at scientific meetings

35. Chia-Ling Yang, Md Mostafa Kamal, Leandro Ravael, Chuan-Chih Hsu, Jun-Yi Leu, **Chuan Ku**. Dynamics of photosymbiosis establishment revealed by single-cell dual proteomics. 20th International Symposium on Microbial Ecology (August 16–21, 2026), New Zealand International Convention Centre, Auckland, New Zealand. (oral)

34. **Chuan Ku.** Origin and host diversification of giant viruses infecting eukaryotes. 2026 Society for Molecular Biology & Evolution (SMBE) Annual Meeting (June 28 – July 2, 2026), Copenhagen, Denmark. (oral)
33. **Chuan Ku.** Single-cell dual proteomics reveals cellular remodeling during *Chlorella-Paramecium* photosymbiosis establishment. 2026 Phycological Society of America (PSA) Annual Meeting (June 14–17, 2026), Centennial Hall, Juneau, USA. (oral)
32. **Chuan Ku.** How old are giant viruses? 6th Ringberg Symposium on Giant Virus Biology (December 15-19, 2025), Kreuth, Germany (oral)
31. **Chuan Ku.** Evolution of complex eukaryotic microbes across spatial and temporal scales. EMBO Sectoral Meeting on Evolution and Biodiversity (November 26–28, 2025), EMBL, Heidelberg, Germany. (oral)
30. Hwee Sze Tee, **Chuan Ku.** Establishing the Evolutionary Timeline of Giant Viruses Infecting Eukaryotes. 2025 American Society for Microbiology Annual Meeting (ASM Microbe) (June 19-23, 2025), Los Angeles, USA (poster)
29. Hwee Sze Tee, **Chuan Ku.** Molecular dating of giant viruses sheds light on their origin, evolutionary rates and host shifts from amoebae to animals. XXV International Poxvirus, Asfarvirus, and Iridovirus Conference (May 18-23, 2025), Menger Hotel, San Antonio, Texas, USA. (oral)
28. **Chuan Ku.** Genomics and epigenomics of haplodiaplontic life cycling in algae. EMBO Sectoral Meeting on Genome Integrity (September 4-6, 2024), Sabancı University, Istanbul, Türkiye. (oral)
27. Tzu-Tong Kao, Ming-Wei Lai, Tzu-Haw Wang, Chia-Ling Yang, Miguel Frada, **Chuan Ku.** A multiomic view of diploid-haploid differentiation in a globally distributed microalga. 19th International Symposium on Microbial Ecology (August 18–23, 2024), Cape Town International Convention Centre, Cape Town, South Africa. (oral)
26. **Chuan Ku.** Host-calibrated time tree caps the age of giant viruses and their transitions from amoebal to animal hosts. Evolution: 3rd Joint Congress on Evolutionary Biology (July 26–30, 2024), Palais des Congrès, Montréal, Canada. (oral)
25. Tzu-Tong Kao, Ming-Wei Lai, Tzu-Haw Wang, Chia-Ling Yang, Miguel Frada, **Chuan Ku.** Life-cycle differentiation in a cosmopolitan calcifying microalga: a multiomic view. Association for the Sciences of Limnology and Oceanography (ASLO) 2024 Meeting (June 2-7, 2024), Monona Terrace Community and Convention Center, Madison, Wisconsin, USA. (oral)
24. **Chuan Ku.** Giant virus evolution: insights into entry-fusion proteins. 2023 XXIV International Poxvirus, Asfarvirus, and Iridovirus Conference (September 2-6, 2023), Hotel Land Gut Höhe, Düsseldorf, Germany. (oral)
23. Tzu-Tong Kao, Tzu-Haw Wang, **Chuan Ku.** Lessons from oceans: rampant nuclear-mitochondrial-plastid phylogenomic discordance in microalgae. 2023 Society for Molecular Biology & Evolution Annual Meeting (July 23–27, 2023), Ferrara, Italy. (poster)
22. Tzu-Tong Kao, Ming-Wei Lai, Tzu-Haw Wang, Pui-Yan Kwok, Miguel Frada, **Chuan Ku.** Life-cycle differentiation in a cosmopolitan microalga: a multi-omic approach. 77th Phycological Society of America Annual Meeting (June 25–29, 2023), Providence, USA. (oral)

21. Tzu-Tong Kao, Tzu-Haw Wang, **Chuan Ku**. Discordant evolution and inheritance of nuclear and organellar genomes in cosmopolitan microalgae. 2023 American Society for Microbiology Annual Meeting (ASM Microbe) (June 15-19, 2023), Houston, USA. (poster)
20. Tzu-Tong Kao, Tzu-Haw Wang, **Chuan Ku**. Rampant nuclear-mitochondrial-plastid phylogenomic discordance in globally distributed calcifying microalgae. Botany 2022 (July 24-27, 2022), hybrid meeting hosted in the Dena'ina Center, Anchorage, Alaska, USA. (oral, online)
19. **Chuan Ku**. Phylogenomic discordance sheds light on genome inheritance in coccolithophores. Meeting on Advances in Coccolithophore Research (June 21-23, 2022), online meeting hosted in NORCE, Bergen, Norway. (oral, online)
18. Gur Hevroni, Flora Vincent, **Chuan Ku**, Uri Sheyn, Daniella Schatz, Assaf Vardi. Zooming in on host-virus dynamics of a bloom alga one cell at a time. 12th International Phycological Congress (March 22-26, 2021), Puerto Varas, Chile. (oral, online)
17. **Chuan Ku**. A single-cell view on alga-virus interactions reveals sequential transcriptional programs and infection states. American Society for Virology 39th Annual Meeting (June 13-17, 2020), Fort Collins, Colorado, USA. (abstract accepted for oral presentation; meeting cancelled due to Wuhan coronavirus pandemic; this talk was presented on June 17 as part of the online ASV Virtual Workshop) (oral, online)
16. **Chuan Ku**. Gene sharing patterns of giant eukaryotic viruses contradict core gene phylogenies. American Society for Virology 39th Annual Meeting (June 13-17, 2020), Fort Collins, Colorado, USA. (abstract accepted for poster presentation; meeting cancelled due to Wuhan coronavirus pandemic)
15. **Chuan Ku**. Single-cell RNA-seq for microbial eukaryotes: insights into infection of a cosmopolitan alga by its large DNA virus. Fourth Microbial Single Cell Genomics Workshop (September 22-26, 2019), Boothbay Harbor, USA. (oral)
14. **Chuan Ku**. Single-cell transcriptomic dynamics of a large virus infecting a cosmopolitan alga. 2019 EMBO Fellows' Meeting (June 12-16, 2019), Heidelberg, Germany. (oral)
13. **Chuan Ku**, Uri Sheyn, Arnau Sebé-Pedós, Shifra Ben-Dor, Daniella Schatz, Amos Tanay, Shilo Rosenwasser, Assaf Vardi. Dynamics of viral infection in the ocean at the single-cell level. 17th International Symposium on Microbial Ecology (August 12-17, 2018), Leipzig, Germany. (poster)
12. **Chuan Ku**. Highly resolved transcriptomic dynamics of a large DNA virus at the single-cell level. Israel Society for Microbiology Annual Meeting (July 3-4, 2018), Be'er Sheva, Israel. (oral)
11. **Chuan Ku**, Uri Sheyn, Arnau Sebé-Pedós, Daniella Schatz, Amos Tanay, Shilo Rosenwasser, Assaf Vardi. Single-cell transcriptomics of host and virus dynamics in the ocean. Single Cell Genomics 2017 (October 16-18, 2017), Rehovot, Israel. (poster)
10. **Chuan Ku**, Uri Sheyn, Arnau Sebé-Pedós, Daniella Schatz, Amos Tanay, Shilo Rosenwasser, Assaf Vardi. Defining viral infection states of a bloom-forming marine alga with single-cell dual RNA sequencing. 11th International Phycological Congress (August 13-18, 2017), Szczecin, Poland. (oral)

9. **Chuan Ku.** Endosymbiotic origin and differential loss of eukaryotic genes. Society of Molecular Biology and Evolution SBE 2016 (July 3-7, 2016), Gold Coast, Australia. (oral)
8. **Chuan Ku,** Shijulal Nelson-Sathi, Mayo Roettger, Filipa L. Sousa, Peter J. Lockhart, David Bryant, Einat Hazkani-Covo, James O. McInerney, Giddy Landan, William F. Martin. Bacterial origins of eukaryotic genes. Gordon Research Conference: Marine Microbes (June 19-24, 2016), Girona, Spain. (poster)
7. **Chuan Ku.** Endosymbiotic origin and differential loss of eukaryotic genes. Bilateral Workshop Germany-Japan (March 22-23, 2016), National Institute of Genetics, Mishima, Japan. (oral)
6. **Chuan Ku,** Shijulal Nelson-Sathi, Mayo Roettger, Filipa L. Sousa, Peter J. Lockhart, David Bryant, Einat Hazkani-Covo, James O. McInerney, Giddy Landan, William F. Martin. Endosymbiotic origin and differential loss of eukaryotic genes. Volkswagenstiftung “Kick-off Conference: Life? - A New Funding Initiative Introduces Itself” (December 17-18, 2015), Hanover, Germany. (poster)
5. **Chuan Ku,** Shijulal Nelson-Sathi, Mayo Roettger, Filipa L. Sousa, William F. Martin. Endosymbiotic gene transfer in light of prokaryotic genome evolution. 2015 Society for Molecular Biology & Evolution (SBE) Annual Meeting (July 12-16, 2015), Vienna, Austria. (poster)
4. **Chuan Ku,** Mayo Roettger, Shijulal Nelson-Sathi, Filipa L. Sousa, William F. Martin. On the endosymbiotic origin of eukaryotic genes and apparent transfers from multiple prokaryotic sources. Sackler colloquium “Symbioses becoming permanent: The origins and evolutionary trajectories of organelles” (October 15-17, 2014), Irvine, USA. (poster)
3. **Chuan Ku,** Wen-Sui Lo, Ling-Ling Chen, Chih-Horng Kuo. Complete genome sequences of two dipteran-associated *Spiroplasma* species provided insights into the viral invasion of *Spiroplasma* genomes. 2013 Society for Molecular Biology & Evolution (SBE) Annual Meeting (July 7-11, 2013), Chicago, USA. (poster)
2. **Chuan Ku** and Jer-Ming Hu. Identification of *Ardisia* (Myrsinaceae) leaf-nodule endosymbionts and cophylogenetic analyses of plant-bacteria symbiosis. 27th Annual Meeting of the Taiwan Society of Plant Biologists (November 13, 2010), Nantou, Taiwan. (oral)
1. **Chuan Ku** and Su-Hwa Chen. Comparison of SEM microscopic structure of *Fagus* L. (Fagaceae) pollen from extant and fossil samples in Taiwan. 28th Symposium of the Microscopy Society of Taiwan (June 21, 2008), Taichung, Taiwan. (oral)

Other invited talks

20. One plus one equals one: establishment of algal endosymbiosis unraveled through single-cell dual proteomics. IPMB Faculty Seminar, IPMB, Academia Sinica, Taipei, Taiwan. (March 27, 2026; Host: myself)
19. My experience with EMBO. Global Investigator Network onboarding meeting, European Molecular Biology Organization. (February 2, 2026; online meeting; Host: Gerlind Wallon [Head, EMBO Young Investigator Program])

18. Dating the origin of pathogens: evolution of giant viruses infecting eukaryotes. Department Seminar, Department of Biological Sciences, Sungkyunkwan University, Suwon, South Korea. (May 27, 2025; Host: Hwan Su Yoon)
17. Dissecting the evolutionary relationships of giant viruses and eukaryotes: from individual gene trees to whole-phylum time trees. Institute Seminar, DOE Joint Genome Institute, Berkeley, California, USA. (May 5, 2025; Host: Frederik Schulz)
16. Genome diversity and evolution of giant viruses infecting eukaryotes. Department Seminar, Department of Botany, Institute of Ecology and Earth Sciences, University of Tartu, Tartu, Estonia. (April 3, 2025; Host: Inga Hiiesalu)
15. Diversity and evolution of giant viruses infecting eukaryotes. Student Seminar, Doctoral Program in Microbial Genomics, National Chung Hsing University, Taichung, Taiwan. (September 30, 2024; Host: Yu-Ting Chen)
14. Diving into the genomic ocean of calcifying microalgae. IPMB Faculty Seminar, IPMB, Academia Sinica, Taipei, Taiwan. (February 24, 2023; Host: myself)
13. Twenty years from now: my advice for high school students. National Yilan High School, Yilan, Taiwan. (March 15, 2022; Host: Kuo-Hsiu Huang [biology teacher])
12. Diversity and genome evolution of giant viruses. Department Seminar, Department of Plant Pathology and Microbiology, National Taiwan University, Taipei, Taiwan. (September 30, 2021; Webex online meeting; Host: Hao-Xun Chang)
11. Exploring genome evolution in giant viruses. IPMB Faculty Seminar, IPMB, Academia Sinica, Taipei, Taiwan. (December 12, 2020; Host: myself)
10. My research experience in Germany. DAAD and MOST Info Sessions on Education in Germany, GIS NTU Convention Center, Taipei, Taiwan. (October 16, 2020; Host: Josef Goldberger)
9. Single-cell transcriptomics of giant virus infection. TIGP Bioinformatics Seminar, Institute of Information Science, Academia Sinica, Taipei, Taiwan. (May 28, 2020; Host: TIGP Bioinformatics)
8. Giant viruses: From single-cell transcriptomics to genome evolution. Department of Life Science, National Tsing Hua University, Hsinchu, Taiwan. (March 26, 2020; recorded talk; Host: Gene Ng)
7. Microbial eukaryotes: From genome evolution to viral infection. Department of Life Science, National Taiwan University, Taipei, Taiwan. (December 6, 2019; Host: Kuan-Hung Lin)
6. Microbial eukaryotes: From genome evolution to viral infection. Institute of Tropical Plant Sciences and Microbiology, National Cheng Kung University, Tainan, Taiwan. (November 5, 2019; Host: Chi-Chou Chiu)
5. Highly resolved expression programs revealed by single-cell RNA-seq of a large virus infecting a bloom-forming alga. Department of Plant and Environmental Sciences, Weizmann Institute of Science, Rehovot, Israel. (June 18, 2019; Host: Assaf Vardi)
4. Evolutionary origins of eukaryotic genes and the eukaryote-prokaryote divide. National Museum of Natural Science, Taichung, Taiwan. (September 18, 2018; Host: Yu-Ling Huang)
3. Evolutionary origins of eukaryotic genes and the eukaryote-prokaryote divide. Institute of Ecology and Evolutionary Biology, Taipei, Taiwan. (September 14, 2018; Host: Cheng-Ruei Lee)

2. Endosymbiotic origin and differential loss of eukaryotic genes. Department of Plant and Environmental Sciences, Weizmann Institute of Science, Rehovot, Israel. (April 3, 2016; Host: Assaf Vardi)
1. Origins of eukaryotic genes. Biodiversity Research Center, Academia Sinica, Taipei, Taiwan. (March 9, 2015; Host: Shu-Miaw Chaw)

Teaching and Service

Course teaching

- 2026– Lecturer, “Evolutionary and comparative genomics”, TIGP course “Basic Molecular Biology II”, Academia Sinica, Taiwan (17/03/2026)
- 2026– Lecturer, “Eukaryotic microbes: diversity and functions”, Department of Life Sciences course “Microbiology”, National Cheng Kung University, Taiwan (12/10/2026)
- 2023 Lecturer, “Biology and Genomics of Microalgae”, Department of Life Sciences course “Theory and Practice in Genomics and Biotechnology”, National Cheng Kung University, Taiwan (17/03/2023)
- 2022– Lecturer, “Transcriptional control of gene expression”, TIGP course “Basic Molecular Biology I”, Academia Sinica, Taiwan (08/11/2022; 31/10/2023; 01/10/2024; 30/09/2025)
- 2022 Lecturer, “Nucleocytoplasmic Large DNA Viruses: Virus-host interactions in environmental microbes”, TIGP course “Virus and Cell Interactions”, Academia Sinica, Taiwan (01/10/2022)
- 2022– Lecturer, “Microalgae: diversity and interactions”, TIGP course “Advanced Microbiology”, Academia Sinica, Taiwan (26/04/2022; 14/03/2023; 19/03/2024; 18/03/2025; 10/03/2026)
- 2022– Lecturer, “Single-cell omics: applications to plant, algal and microbiological research”, TIGP course “Molecular and Cellular Approaches to Biotechnologies”, Academia Sinica, Taiwan (07/03/2022; 20/02/2024; 11/03/2024; 10/03/2025)
- 2020– Course instructor, “Diversity and Evolution of Eukaryotes”, fall semester course at Institute of Ecology and Evolutionary Biology and Genome and Systems Biology Degree Program, National Taiwan University, and at TIGP Biodiversity Program, Academia Sinica and National Taiwan Normal University, Taiwan (2020 Fall; 2021 Fall [student rating: 4.42/5]; 2022 Fall [rating: 5.00/5]; 2023 Fall [rating: 5.00/5]; 2024 Fall [rating: 4.67/5]; 2025 Fall [rating: 5.00/5])
- 2020– Lecturer, “Eukaryotic microbes: from microalgae to giant viruses”, Department of Life Science course “Advanced Plant and Microbial Biology”, National Central University, Taiwan (10/06/2020; 16/06/2021; 08/06/2022; 08/03/2023; 13/03/2024; 11/03/2026)
- 2020–2022 Lecturer, “Diversity of eukaryotic cellular structures”, Department of Life Science course “Microbiology”, National Taiwan University, Taiwan (27/04/2020; 29/03/2021; 28/03/2022)
- 2020–2021 Lecturer, “Omics”, TIGP course “Advanced Microbiology”, Academia Sinica, Taiwan (14/04/2020; 20/04/2021)
- 2020– Lecturer, “Eukaryotic microbes: evolution, diversity and ecology”, Biology Program for Selected Senior High School Students, Academia Sinica, Taiwan (in Mandarin) (11/04/2020; 06/02/2021; 12/02/2022)

- 2020 Lecturer, “Behind the Scenes of Scientific Publishing”, TIGP Biodiversity Seminar, Academia Sinica, Taiwan (24/03/2020)
- 2019– Student advisor, TIGP Molecular and Biological Agricultural Sciences Seminar, Academia Sinica, Taiwan
- 2014–2015 Teaching assistant, Perl for Biologists / Genomic Analyses, Institute of Molecular Evolution, Heinrich Heine University Düsseldorf, Germany
- 2009–2010 Teaching assistant, General Biology Laboratory, National Taiwan University, Taiwan

Graduate program affiliations

- 2020– Institute of Ecology and Evolutionary Biology (PhD and Master’s), National Taiwan University and Academia Sinica, Taiwan
- 2020– Genome and Systems Biology Degree Program (PhD and Master’s), National Taiwan University and Academia Sinica, Taiwan
- 2020– Bioinformatics Program (PhD), Taiwan International Graduate Program (TIGP), Academia Sinica and National Taiwan University/National Tsing Hua University, Taiwan
- 2020–2022 Marine Biotechnology PhD Degree Program, National Taiwan Ocean University and Academia Sinica, Taiwan
- 2020– Doctoral Program in Microbial Genomics, National Chung Hsing University and Academia Sinica, Taiwan
- 2019– Molecular and Biological Agricultural Sciences Program (PhD), Taiwan International Graduate Program, National Chung Hsing University and Academia Sinica, Taiwan
- 2019– Biodiversity Program (PhD), Taiwan International Graduate Program, National Taiwan Normal University and Academia Sinica, Taiwan
- 2019– Institute of Plant Biology PhD Program, National Taiwan University and Academia Sinica, Taiwan
- 2019– Department of Life Science PhD and Master’s Programs, National Central University and Academia Sinica, Taiwan
- 2019– Department of Microbiology Master’s Program, Soochow University and Academia Sinica, Taiwan

Organization of seminars/conferences

- 2026 Taiwan Society of Microbial Ecology 2026 Annual Meeting, National Taiwan University, Taipei, Taiwan (September 19, 2026) (organizing committee member)
- 2026 EMBO Workshop Evolving together: from genomics to biological interactions, Academia Sinica, Taipei, Taiwan (April 24–27, 2026) (co-organizer)
- 2024 IPMB Seminar by Dr. Cheong Xin Chan (Australian Centre for Ecogenomics, School Chemistry and Molecular Biosciences, University of Queensland, Australia) (November 26, 2024)

- 2023 Invited talk by Dr. Jyothilakshmi Vadassery (National Institute for Plant Genome Research, India; EMBO Global Investigator), EMBO Visiting Tour in Taiwan, Academia Sinica, Taipei, Taiwan (November 1, 2023)
- 2023 Session “Non-Vascular Plants”, Taiwan-Japan Plant Biology 2023 Conference, Taipei, Taiwan (October 13–15, 2023) (co-chair)
- 2021 Academia Sinica Meeting on Large-Particle Flow Cytometry and Sorting, IPMB, Academia Sinica, Taipei, Taiwan (March 3, 2021)
- 2021 IPMB-ABRC Joint Webinar by Dr. Patrick Shih (Dept. of Plant Biology, University of California, Davis, USA), IPMB, Academia Sinica, Taipei, Taiwan (March 4, 2021)
- 2020 IPMB Seminar by Dr. Oliver Mueller-Cajar (School of Biological Sciences, Nanyang Technological University, Singapore) (June 18, 2020)
- 2019 Ministry of Science and Technology Outstanding Lectureship by Prof. James Van Etten (Dept. of Plant Pathology, University of Nebraska-Lincoln, USA), with seminars at Academia Sinica, National Taiwan University, National Cheng Kung University and National Chung Hsing University, Taiwan (October 13–19, 2019) (main organizer)

Referee service for scientific journals

[Web of Science](#)

Acta Protozoologica, Antonie van Leeuwenhoek, Archives of Virology, BMC Evolutionary Biology, BMC Genomics, Communications Biology, Critical Reviews in Microbiology, Evolution, Frontiers in Ecology and Evolution, Frontiers in Microbiology, Frontiers in Molecular Biosciences, Genes, Genome Biology and Evolution, Genome Biology, Genomics, International Journal of Molecular Sciences, ISME Journal, Journal of Applied Microbiology, Journal of Molecular Evolution, Microbes and Environments, Microbial Cell, Microbial Genomics, Microbiology Spectrum, Microbiome, Molecular Biology and Evolution, Molecular Ecology, Molecular Ecology Resources, Molecular Plant-Microbe Interactions, Nature Communications, New Phytologist, Nucleic Acids Research, Plants, PLoS Biology, PLoS Genetics, PLoS One, PNAS, Proceedings of the Royal Society B, Scientific Reports, Science, Sustainability, Virology Journal

Editorial service for scientific journals

Associate Editor, *Genome Biology and Evolution* (2024–)

Referee service for grant funding agencies

National Research, Development and Innovation Office, Hungary

National Science and Technology Council (Ministry of Science and Technology), Taiwan

Academia Sinica, Taiwan

Swiss National Science Foundation and National Research Foundation of Korea

Agence Nationale de la Recherche, France

UK Research and Innovation, United Kingdom

National Taiwan University, Taiwan

Referee service for PI appointment/renewal/promotion

Academia Sinica (1 in 2024)

National Taiwan University (2 in 2026)

Service for Taiwanese Communities

Councilor, Taiwan Society of Microbial Ecology (2024–2027)

Service for popular science

Book review/recommendation: 藻的祕密 (2019 Faces Publishing Ltd.), Mandarin translation of Slime: How Algae Created Us, Plague Us, and Just Might Save Us (2019 Mariner Books)

Book proofreading and revision: 4D 百科：微生物奧秘 (2023 Morning Star Publishing Inc.), Mandarin translation of 4D Encyclopedia of Microworld in Augmented Reality (2020 Devar Entertainment Ltd.)