

Yi-Hong Ke

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EDUCATION

Duke University Ph.D., Biology	2022
National Taiwan University B.S., Life Science	2015

ACADEMIC APPOINTMENTS

University of Michigan Postdoctoral Research Fellow, Ecology and Evolutionary Biology	2023–present
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PUBLICATIONS

- Y.-H. Ke**, Y.-W. Wang, A.L. Bazzicalupo, L. Lofgren, S. Branco, R. Vilgalys. Not all roads lead to selfing: mating-system stability in an invasive ectomycorrhizal fungus. In prep.
- Y.-H. Ke**, T.Y. James. Non-obligate anaerobic genomic and transcriptomic features of the first sequenced *Blastocladia*. In prep.
- M.S. Hosseini Moghaddam, S. Rahimlou, N. Sedighian, H. Soleimani, **Y.-H. Ke**, K. Marzani, M. Bouazar, H. Ghasemi, E. Bakhshi, S. Khodadadi Manesh, M. Izadi, K. Kariman, N. Safaie, K. Abarenkov, M. Bahram, L. Tedersoo. (2026) FunEndo: a comprehensive global-scale fungal endophyte repository. *Fungal Diversity* 136:136016. doi:10.65390/fdiv.2026.136016
- Y.-H. Ke**, A. Bazzicalupo, J. Ruytinx, L. Lofgren, T. Bruns, S. Branco, B. Looney, D. Hirose, L. Tedersoo, U. Peintner, J.A. Rojas, H.-L. Liao, J.M. Plett, I.C. Anderson, A. Lipzen, A. Kuo, K. Barry, I. Grigoriev, J.D. Hoeksema, P.G. Kennedy, N.H. Nguyen, R. Vilgalys. (2026) Global population structures and demographic history of *Suillus luteus*, a pine co-introduced ectomycorrhizal fungus associated with exotic forestry and invasion. *New Phytologist* 251(5):2964–2979. doi:10.1111/nph.71381
- Y.-H. Ke**, M. Orozco-Quime, J. Bauman, T. Carvalho, G.A. Landry, S. Ge, A. Kumar, T.Y. James. (2026) Estimating the distribution of fitness effects of loss of heterozygosity (LOH) events using an engineered library of *Saccharomyces cerevisiae*. *PLoS Genetics* 22(3):e1012083. doi:10.1371/journal.pgen.1012083
- M. Thines, G.W. Beakes, A.T. Buaya, I. Tsai, K. Seto, **Y.-H. Ke**, T.Y. James, M. Kagami. (2025) Zoosporic fungi. *Current Biology* 35(11):R475–R479. doi:10.1016/j.cub.2025.04.054
- L. Lofgren, N.H. Nguyen, P.G. Kennedy, E. Pérez-Pazos, J. Fletcher, H.-L. Liao, H. Wang, K. Zhang, J. Ruytinx, A.H. Smith, **Y.-H. Ke**, H.V.T. Cotter, E. Engwall, K.M. Hameed, R. Vilgalys, S. Branco. (2024) *Suillus*: an emerging model for the study of ectomycorrhizal ecology and evolution. *New Phytologist* 242:1448–1475. doi:10.1111/nph.19700
- B.M. Allen, C. Stevens, R.J. Vilgalys, **Y.-H. Ke**, M. Drott, J.D. Hoeksema. (2024) Biosynthetic gene cluster diversity across native and introduced populations of an ectomycorrhizal fungus, *Suillus luteus*. *bioRxiv* (preprint). doi:10.1101/2024.09.16.612996
- R.A. Swenie, B.P. Looney, **Y.-H. Ke**, J.A. Rojas, M.A. Cubeta, G.J. Langer, R. Vilgalys, P.B. Matheny. (2024) PacBio high-throughput multi-locus sequencing reveals high genetic diversity in mushroom-forming fungi. *Molecular Ecology Resources* 24(1):e13885. doi:10.1111/1755-0998.13885
- Y.-H. Ke**, S. Branco, A.L. Bazzicalupo, N.H. Nguyen, H.-L. Liao, P. Kennedy, T.D. Bruns, A. Kuo, K. LaButti, K. Barry, I. Grigoriev, R. Vilgalys. (2023) Genomic determination of breeding systems and trans-specific evolution of *HD MAT* genes in suilloid fungi. *Genetics* 224(2):iyad069. doi:10.1093/genetics/iyad069

- A. Bazzicalupo, J. Ruytinx, **Y.-H. Ke**, L. Coninx, J. Colpaert, N. Nguyen, R. Vilgalys, S. Branco. (2020) Fungal heavy metal adaptation through single nucleotide polymorphisms and copy-number variation. *Molecular Ecology* 29(21):4157–4169. doi:10.1111/mec.15618
- Y.-H. Ke**, Y.-M. Ju. (2015) Two rare ophiocordycipitaceous fungi newly recorded in Taiwan. *Botanical Studies* 56(1):30. doi:10.1186/s40529-015-0110-x

FELLOWSHIPS AND AWARDS

Duke University Summer Research Fellowship	2021, 2019
Duke Graduate School Conference Travel Award	2017, 2019
Taiwan Hung-Duke University Fellowship	2016–2018
Mitchell Meritorious Research Travel Award	2017
Dean's Award, College of Life Science, National Taiwan University	2015

GRANTS AND FUNDING AWARDS

Genetic mechanisms influencing evolution by loss of heterozygosity	2026, Pending
NIH/NIGMS R01. Primary PI: Timothy Y. James. Role: contributing writer and preliminary data	
EDGE FGT: Developing forward and reverse genetic tools to study sex and giant viruses in a model zoosporic fungus	2025, Not funded
NSF Division of Integrative Organismal Systems (IOS), EDGE program. Primary PI: Timothy Y. James. Role: contributing writer and preliminary data	
PurSUiT: Biodiversity exploration and phylogenetic systematics of the zoosporic fungal phylum Blastocladiomycota	2024, Funded
NSF Division of Environmental Biology (DEB). Primary PI: Timothy Y. James. Role: contributing writer	
EDGE FGT: Developing forward and reverse genetic tools to study sex and giant viruses in a model zoosporic fungus	2024, Not funded
NSF Division of Integrative Organismal Systems (IOS), EDGE program. Primary PI: Timothy Y. James. Role: contributing writer and preliminary data	

INVITED TALKS

45th New Phytologist Symposium: Ecological and Evolutionary Consequences of Plant–Fungal Invasions	2024
Global population genomics of <i>Suillus luteus</i> , a pine co-introduced ectomycorrhizal fungus associated with exotic forestry and invasion	<i>Campinas, Brazil</i>
Biology Seminar Series, Eastern Michigan University	2023
Global population genomics of pine-co-introduced ectomycorrhizal fungus <i>Suillus luteus</i>	<i>Ypsilanti, MI</i>
New Zealand Fungal Foray	2018
Mating gene alleles in introduced fungal populations	<i>Lake Brunner, NZ</i>

CONFERENCE PRESENTATIONS

Mycological Society of America Meeting	2026
Integrative genomics and metagenomics approaches to resolving the evolution and ecology of the phylum Blastocladiomycota	<i>Portland, OR</i>

SuilluCamp No. 2 Workshop, International Suillus Consortium	2026
MATdetangler: an automated de Bruijn graph searcher to extract alleles of the <i>HD MAT</i> locus from dikaryotic sequences in <i>Suillus</i> and beyond	Portland, OR
Mycological Society of America Meeting	2025
Fitness consequences of loss of heterozygosity (LOH) in <i>Saccharomyces cerevisiae</i> using transposon insertion	Madison, WI
CIFAR Fungal Kingdom Next Generation Workshop	2024
Development of a genome-wide library of loss of heterozygosity in <i>Saccharomyces</i> using transposon insertion	Geneva, Switzerland
Mycological Society of America Meeting	2024
First genomic and ITS sequences of genus <i>Blastocladia</i> (Blastocladiomycota: Blastocladales: Blastocladiaceae) from an anaerobic species <i>B. springshiemii</i>	Toronto, ON, Canada
Fungal Genetics Conference	2024
Convergent genome expansion in fungi linked to evolution of root-endophyte symbiosis	Pacific Grove, CA
Mycological Society of America Meeting	2023
Development of a genome-wide library of loss of heterozygosity in <i>Saccharomyces</i> using transposon insertion	Flagstaff, AZ
Botany 2021	2021
Global introduction patterns of the pine ectomycorrhizal fungus <i>Suillus luteus</i>	Virtual
DOE Biological Systems Science Division Principal Investigators' Meeting	2021
Plant-microbe interfaces: comparative genome evolution of <i>Populus</i> root endophytes	Virtual
Mid-Atlantic States Mycology Conference	2021
Comparative genome evolution of <i>Populus</i> root endophytes	Virtual
Mycological Society of America Meeting	2019
Population genomic study of an introduced ectomycorrhizal fungus <i>Suillus luteus</i>	Minneapolis, MN
Mid-Atlantic States Mycology Conference	2019
Population genomic study of an introduced ectomycorrhizal fungus <i>Suillus luteus</i>	Knoxville, TN
International Mycological Congress	2018
Mating loci and their population genetics in <i>Suillus brevipes</i>	San Juan, Puerto Rico
Fungal Genetics Conference	2017
Mating system and mating gene evolution in <i>Suillus brevipes</i>	Pacific Grove, CA
Mycological Society of America Meeting	2017
Mating system and mating gene evolution in <i>Suillus brevipes</i>	Athens, GA

TEACHING

Teaching Assistantships

BIO 201 Molecular Biology	Duke University
BIO 212 General Microbiology	Duke University
BIO 540 Mycology	Duke University

MENTORING

Collecting and isolating the fruit-associated aquatic fungus *Blastocladia*

Mentee: Reaghan Higgins, undergraduate student

University of Michigan
2026

Fitness consequences of loss of heterozygosity through experimental evolution in yeast

Mentee: Victor P. Garcia, undergraduate student (UROP)

University of Michigan
2023–2026

Multilocus sequence genotyping for mushroom identification

Mentee: Corbin T. Bryan, undergraduate student

Duke University
2021–2022

Soil metabarcoding of fungal communities in a heavy-metal-contaminated mine

Mentee: Nur Kader, high school student, North Carolina School of Science
and Mathematics

Duke University
2019

PCR identification of fungi from a heavy-metal-contaminated mine

Mentee: Eudora (Ruolin) Miao, undergraduate student

Duke University
2017–2018

PCR genotyping of mating-type loci in *Suillus*

Mentee: Reena Debray, undergraduate student

Duke University
2016

SERVICE AND OUTREACH

Journal Peer Review

- Fungal Biology
- Genes|Genomes|Genetics (G3)
- Journal of Biogeography
- Mycologia
- Scientific Reports

Conference Organization

- 2026 SPORES Mentor, Mycological Society of America Meeting
- 2025 Session Chair, Mycological Society of America Meeting

Presentation Judging

- 2025 Graduate Oral and Poster, Mycological Society of America Meeting
- 2023 Graduate Oral and Poster, Mycological Society of America Meeting
- 2021 Undergraduate Poster, Mycological Society of America Meeting

Outreach

- 2023 University of Michigan Museum of Natural History ID Day, Ann Arbor, MI
- 2023 Midwest American Mycological Information Annual Foray, Clear Lake Education Center, MI
- 2018 Mushroom Cultivation Workshop, Duke Campus Farm, NC
- 2018 New Zealand Fungal Foray, Lake Brunner, New Zealand
- 2016 North American Mycological Association Annual Foray, Shenandoah National Park, VA
- 2014 Lecturer and Night Field Trip Leader, National Taiwan University Conservation Club
- 2011 Lecturer, National Taiwan University Life Science Camp

PROFESSIONAL MEMBERSHIPS

Society for the Study of Evolution	2019–present
Genetics Society of America	2017–present
Mycological Society of America	2016–present