**Abbreviated CV**


# Jacob L. Steenwyk

Howard Hughes Medical Institute
Gilliam Fellow, Vanderbilt University
jacob.steenwyk@vanderbilt.edu
http://jlsteenwyk.com/


## BRIEF BIOGRAPHY

I am a Howard Hughes Medical Institute Gilliam Fellow and Ph.D. candidate in the Department of Biological Sciences at Vanderbilt University, Nashville TN. I received my undergraduate degree in Biochemistry and Molecular Biology from Clark University, Worcester MA (2015) where I graduated Summa Cum Laude (GPA: 3.84). I then received an accelerated master's degree in Biochemistry and Molecular Biology from the same institution (2016) before starting my doctoral work later that year.

My research focuses on understanding genome function and evolution with an emphasis on technologically and medically important fungi. I also develop bioinformatic command-line toolkits that process and analyze diverse data types such as sequence and phylogenetic tree data. More broadly, I aim to elucidate the evolutionary processes that underpin fungal lifestyle as well as reconstruct the tree of life.

My project proposals have been accepted for funding by multiple agencies including the Howard Hughes Medical Institute (2019), National Institutes of Health (2019), and Ford Foundation (2019). My research has been recognized by multiple awards including Trainee-of-the-Year at the Vanderbilt Institute for Infection, Immunology and Inflammation (2020), Graduate Research Excellence Awards (2019 & 2020), and presentation awards at multiple conferences and university departments (e.g., 2020, 2021, 2022).

These scientific projects have been successful in part because of my stance on diversity, equity, and inclusion as well as my professional etiquette. I believe that diversity is essential for excellence and that inclusion is required for everyone to benefit from diversity. To this end, I currently serve as the Inclusion Coordinator at The Evolutionary Studies Initiative at Vanderbilt University, was the former president of the Inclusivity in the Biosciences Association at Vanderbilt University, and participate in several other activities that promote diversity, equity, and inclusion in my department, university, and beyond.

## SELECT AWARDS

| | |
|---|---|
| **2021** | Graduate Research Excellence Award in Biological Sciences, Vanderbilt University |
| **2020** | Oral presentation award, SACNAS – The National Diversity in STEM Virtual Conference |
| **2020** | Trainee-of-the-Year, Vanderbilt Institute for Infection, Immunology and Inflammation |
| **2019** | Gilliam Predoctoral Fellowship, Howard Hughes Medical Institute |
| **2019** | Ann Bernard Martin Award for Excellence in Graduate Research, Vanderbilt University |
| **2019** | Ruth L. Kirschstein National Research Service Award, National Institutes of Health |
| **2019** | Ford Foundation Predoctoral Fellowship, Ford Foundation |

## SELECT INVITED TALKS

| | |
|---|---|
| **2022** | 31$^{th}$ Fungal Genetics Conference at Asilomar, Pacific Grove, CA |
| **2021** | Department of Ecology, Evolution, and Organismal Biology, Iowa State University |
| **2021** | MicroSeminar, International Society for Microbial Ecology (Link) |
| **2020** | Institute of Insect Sciences, Zhejiang University |
| **2020** | The National Diversity in STEM Conference, SACNAS |
| **2020** | Trainee-of-the-year talk, Vanderbilt Institute for Infection, Immunology and Inflammation |
| **2019** | Gordon Research Conference, Molecular Mechanisms in Evolution, Easton, MA |

## FIFTEEN HIGHLIGHTED PUBLICATIONS

**First author**

(1) orthoSNAP: a tree splitting and pruning algorithm for retrieving single-copy orthologs from gene family trees (2021). First and corresponding author. ***bioRxiv***. DOI: 10.1101/2021.10.30.466607

(2) BioKIT: a versatile toolkit for processing and analyzing diverse types of sequence data (2021). First and corresponding author. ***bioRxiv***. DOI: 10.1101/2021.10.02.462868

(3) A gene coevolution network provides insight into eukaryotic cellular and genomic structure and function (2021). ***bioRxiv***. DOI: 10.1101/2021.07.09.451830

(4) PhyKIT: a UNIX shell toolkit for processing and analyzing phylogenomic data (2021). First and corresponding author. ***Bioinformatics***. DOI: 10.1093/bioinformatics/btab096

(5) ClipKIT: a multiple sequence alignment-trimming software for accurate phylogenomic inference (2020). First and corresponding author. ***PLOS Biology***. DOI: 10.1371/journal.pbio.3001007

(6) Pathogenic allodiploid hybrids of *Aspergillus* fungi (2020). ***Current Biology***. DOI: 10.1016/j.cub.2020.04.071

(7) Biosynthetic gene clusters, secondary metabolite profiles, and cards of virulence in the closest nonpathogenic relatives of *Aspergillus fumigatus* (2020). ***Genetics***. DOI: 10.1534/genetics.120.303549

(8) Extensive loss of cell cycle and DNA repair genes in an ancient lineage of bipolar budding yeasts (2019). ***PLOS Biology***. DOI: 10.1371/journal.pbio.3000255

(9) A robust phylogenomic timetree for biotechnologically and medically important fungi in the genera *Aspergillus* and *Penicillium* (2019). ***mBio***. DOI: 10.1128/mBio.00925-19

(10) Copy number variation in fungi and its implications for wine yeast genetic diversity and adaptation (2018). ***Frontiers in Microbiology***. DOI: 10.3389/fmicb.2018.00288

**Middle author**

(11) Shen, Xing-Xing^, **J.L. Steenwyk**, & A. Rokas (2021). Dissecting incongruence between concatenation- and quartet-based approaches in phylogenomic data. ^Corresponding author. ***Systematic Biology***. DOI: 10.1093/sysbio/syab011

(12) Li, Y., **J.L. Steenwyk**, *et al*. (2021). A genome-scale phylogeny of the kingdom Fungi. ***Current Biology***. DOI: 10.1016/j.cub.2021.01.074

(13) LaBella, A.L., D. Opulente, **J.L. Steenwyk**, *et al.* (2021). Signatures of optimal codon usage in metabolic genes inform budding yeast ecology. ***PLOS Biology***. DOI: 10.1371/journal.pbio.3001185

(14) Shen, X.-X.^, **J.L. Steenwyk**, *et al.* (2020). Genome-scale phylogeny and contrasting modes of genome evolution in the fungal phylum Ascomycota. ^Corresponding author. ***Science Advances***. DOI: 10.1126/sciadv.abd0079

(15) Shen, X.-X.*, D.A. Opulente*, J. Kominek*, X. Zhou*, **J.L. Steenwyk**, *et al.* (2018). *Equal contributors. Tempo and mode of genome evolution in the budding yeast subphylum. ***Cell***. DOI: 10.1016/j.cell.2018.10.023

**Full length CV**

# Jacob L. Steenwyk

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http://jlsteenwyk.com/

## EDUCATION

| | | |
|---|---|---|
| **Present** | Ph.D. Candidate, Biological Sciences<br>Advisor: Antonis Rokas<br>GPA: 3.97 | **Vanderbilt University** |
| **2016** | M.S. Biochemistry and Molecular Biology<br>Advisor: John G. Gibbons<br>GPA: 3.98 | **Clark University** |
| **2015** | B.A. Biochemistry and Molecular Biology<br>Advisor: Denis Larochelle<br>Cumulative GPA: 3.84<br>Science GPA: 3.84 | **Clark University** |

## AWARDS

| | |
|---|---|
| **2021** | Honorable mention, Next Generation Faculty Symposium, Stanford.Berkeley.UCSF |
| **2021** | Presentation award, Canadian Fungal Research Network and Great Lakes Mycology Conference |
| **2021** | Graduate Research Excellence Award in Biological Sciences, Vanderbilt University |
| **2021** | Smriti Bardhan Scholarship, Vanderbilt University |
| **2021** | Registration award, Science Talk '21 |
| **2020** | Favorite Artist Award, Catalyst: A Virtual Sci-Art Exhibition |
| **2020** | Oral presentation award, SACNAS – The National Diversity in STEM Virtual Conference |
| **2020** | Registration scholarship, SACNAS – The National Diversity in STEM Virtual Conference |
| **2020** | Best Talk Honorable Mention, Canadian Fungal Research Network Meeting |
| **2020** | Trainee-of-the-Year, Vanderbilt Institute for Infection, Immunology and Inflammation |
| **2019** | Gilliam Predoctoral Fellowship, Howard Hughes Medical Institute |
| **2019** | Ann Bernard Martin Award for Excellence in Graduate Research, Vanderbilt University |
| **2019** | Ruth L. Kirschstein National Research Service Award, National Institutes of Health |
| **2019** | Ford Foundation Predoctoral Fellowship, Ford Foundation |
| **2019** | Graduate student travel grant, Vanderbilt University |
| **2019** | Curb Center Fellow, ArtLab, Vanderbilt University |
| **2018** | *GENETICS* Peer Review Training Program, Genetics Society of America |
| **2018** | Best poster award, Cellular and Molecular Fungal Biology, Gordon Research Seminar |
| **2018** | Best poster award, Cellular and Molecular Fungal Biology, Gordon Research Conference |
| **2018** | Best poster award, Department of Biological Sciences, Vanderbilt University |
| **2018** | T-shirt design contest winner, Department of Biological Sciences, Vanderbilt University |
| **2017** | Graduate student travel grant, Vanderbilt University |
| **2016** | Graduate student council travel awards, Clark University |
| **2015** | Summa cum laude, Clark University |
| **2014** | Summer research scholar, Bridging the gaps, University of Southern California Keck School of Medicine |

**2013** Global environmental microbiology scholar, Center for dark energy biosphere investigations, University of Southern California
**2011** Jonas Clark Scholar, Clark University

## RESEARCH INTERESTS

- Evolution of technologically and medically significant fungi
- Evolution and function of DNA repair
- Genome and gene evolution
- Phylogenomics and phylogenetics
- Software development

## SOFTWARE

ClipKIT: a multiple sequence alignment-trimming software for accurate phylogenomic inference. Publication PDF; Documentation; Source code

PhyKIT: a UNIX shell toolkit for processing and analyzing phylogenomic data. Publication PDF; Documentation; Source code

BioKIT: a versatile toolkit for processing and analyzing diverse types of sequence data. Publication PDF; Documentation; Source code

orthoSNAP: a tree splitting and pruning algorithm for retrieving single-copy orthologs from gene family trees. Publication PDF; Documentation; Source code

orthofisher: a broadly applicable tool for automated gene identification and retrieval. Publication PDF; Documentation; Source code

treehouse: a user-friendly application to obtain subtrees from large phylogenies. Publication PDF; Documentation & source code

ggpubfigs: an R package for creating color blind friendly figures with ggplot2. Publication PDF; Documentation & source code

## SOCIETIES

*Genetics Society of America, American Society for Microbiology, Mycological Society of America, Society for the Advancement of Chicanos/Hispanics and Native Americans in Science*

## FUNDING

| | |
|---|---|
| **Howard Hughes Medical Institute** | Principal co-investigator (shared with Antonis Rokas), 09/19-09/22, Examining the loss of diverse DNA repair genes and long-term hypermutation in a lineage of budding yeasts, Gilliam Fellowship, Individual Predoctoral Fellowship, $150,000 |
| **National Institutes of Health** | Principal investigator, 08/19-08/22, Examining the loss of diverse DNA repair genes and long-term hypermutation in a lineage of budding yeasts, Ruth L. Kirschstein National Research Service Award, Individual Predoctoral Fellowship (Parent F31), $88,128 (declined) |
| **Ford Foundation Predoctoral Fellow** | Principal investigator, 08/19-08/22, The consequences of aberrant cell cycle and DNA repair processes in budding yeast, Individual Predoctoral Fellowship, $72,000 (declined) |
| **Curb Center** | Principal investigator, 12/18-04/19, Bridging the gap between artist and scientist, |

**ArtLab Fellow** ArtLab, Vanderbilt University, $300

## INVITED TALKS

**2022** 31th Fungal Genetics Conference at Asilomar, Pacific Grove, CA
**2021** Artist-in-Residence program, Vanderbilt Institute for Infection, Immunology and Inflammation
**2021** CanFunNet and Great Lakes Mycology Conference
**2021** Sandler Fellows Finalists Seminar, University of California, San Francisco
**2021** Department of Ecology, Evolution, and Organismal Biology, Iowa State University
**2021** Medical Mycology Trainee Seminar Series, University of Utah (Link)
**2021** Mycology Graduate Student Organization, University of Georgia
**2021** MicroSeminar, International Society for Microbial Ecology (Link)
**2021** Alliance for Diversity in Science and Engineering, Young Researchers Conference
**2021** Andrew Murray Lab seminar, Harvard University, Cambridge
**2020** Institute of Insect Sciences, Zhejiang University
**2020** Evan Eichler Lab seminar, University of Washington, Seattle
**2020** Genetics Society of America, Early Career Scientist Seminar Series
**2020** Nicole King Lab seminar, University of California Berkeley
**2020** The National Diversity in STEM Conference, SACNAS
**2020** Canadian Fungal Research Network Meeting
**2020** Trainee-of-the-year talk, Vanderbilt Institute for Infection, Immunology and Inflammation
**2020** Day of Wond'ry, Vanderbilt University, Nashville, TN
**2019** Genetics Society of America, Early Career Scientist Seminar Series
**2019** Gordon Research Conference, Molecular Mechanisms in Evolution, Easton, MA
**2019** Gordon Research Seminar, Molecular Mechanisms in Evolution, Easton, MA (declined)
**2019** Focal Point, ArtLab, Vanderbilt University, Nashville, TN
**2019** 30th Fungal Genetics Conference at Asilomar, Pacific Grove, CA
**2019** Phylogenomics and Evolution Group, North Carolina State University, Raleigh, NC
**2018** ArtLab Seminar Series, Vanderbilt University, Nashville, TN
**2015** TedXClarkUniversity, Clark University, Worcester, MA

## CONTRIBUTED TALKS

**2021** Students' Mycology Colloquium, Mycological Society of America
**2020** Evolution Seminar Series, Vanderbilt University (Link)
**2019** DNA Damage and Response Journal Club, Vanderbilt University, Nashville, TN
**2019** Research in Progress Seminar, Vanderbilt University, Nashville, TN
**2019** Biological Sciences Annual Retreat, Vanderbilt University, Nashville, TN
**2019** Science club at the library, Nashville Public Library, Nashville, TN
**2018** Nashville Science Club, Jackalope Brewing Company, Nashville, TN
**2017** Mycological Society of America, University of Georgia, Athens, GA
**2016** Mycological Society of America, University of California Berkeley, Berkeley, CA
**2016** Graduate Student Multidisciplinary Conference, Clark University, Worcester, MA

## ADVISING

**Undergraduates**

**2019-Pres.** Olivia Zheng
**2018-2021** Megan A. Phillips
**2018-2019** Benjamin Buckman
**2018** Devin G. Arrants

## WORKSHOP TEACHING

**2019** Organizer and instructor, Values-based leadership, Vanderbilt University, Nashville, TN
**2019** Founder and instructor, 'A beginner's guide to making figures in R', Vanderbilt University, Nashville, TN
**2019** Instructor, Workshop on Phylogenomics, Evolution and Genomics, Český Krumlov, Czech Republic
**2019** Instructor, Workshop on Genomics, Evolution and Genomics, Český Krumlov, Czech Republic

## TEACHING EXPERIENCE

**2020** Guest lecture, Science Communication Tools and Techniques, Vanderbilt University, Nashville, TN
**2017-2019** Teaching Assistant, Introductory Biology Lab, Vanderbilt University, Nashville, TN
**2016** Teaching Assistant, Introduction to Biostatistics, Clark University, Worcester, MA
**2014-2015** Teaching Assistant, Cell Biology, Clark University, Worcester, MA

## POSTER PRESENTATIONS

**2021** HHMI Gilliam Fellows Meeting, Howard Hughes Medical Institute
**2021** Biology of Genomes, Cold Spring Harbor Laboratories
**2021** Science Talk '21, Science Talk
**2020** HHMI Gilliam Fellows Meeting, Howard Hughes Medical Institute
**2020** Vanderbilt Institute for Infection, Immunology and Inflammation Annual Symposium, Virtual Conference
**2020** The Allied Genetics Conference, Virtual Conference
**2019** HHMI Investigators Science Meeting, Howard Hughes Medical Institute, Bethesda, MD
**2019** Gilliam Fellows Annual Meeting, Howard Hughes Medical Institute, Bethesda, MD
**2019** Molecular Mechanisms in Evolution, Gordon Research Conference, Easton, MA
**2019** Molecular Mechanisms in Evolution, Gordon Research Seminar, Easton, MA
**2019** 30$^{th}$ Fungal Genetics Conference at Asilomar, Pacific Grove, CA
**2019** Asperfest pre-meeting at 30$^{th}$ Fungal Genetics Conference at Asilomar, Pacific Grove, CA
**2018** Cellular and Molecular Fungal Biology, Gordon Research Conference, Holderness, NH
**2018** Cellular and Molecular Fungal Biology, Gordon Research Seminar, Holderness, NH
**2018** Department of Biological Sciences Annual Retreat, Vanderbilt University, Nashville, TN
**2015** Bumpus Symposium, Clark University, Worcester, MA
**2015** Traina Scholars Presentation, Clark University, Worcester, MA
**2015** Summer Research Presentation, Clark University, Worcester, MA

## RESEARCH EXPERIENCE

**2016-Pres.** Antonis Rokas Lab at Vanderbilt University, Nashville, TN. Doctoral Research. Evolution of medically and technologically significant fungi.
**2015-2016** John Gibbons Lab at Clark University, Worcester, MA. Undergraduate and Master's Research. Copy number variation in the human pathogen, *Cryptococcus gattii.*
**2015-2016** Robert Drewell Lab at Clark University, Worcester, MA. Undergraduate and Master's Research. Genome-wide methylation patterns in the social amoeba, *Dictyostelium discoideum.*

**2014** Ite A. Laird-Offringa Lab at University of Southern California, Los Angeles, CA. Bridging the Gaps Summer Scholar. Mapping the autoimmune triggering epitope of *ELAVL4* in small cell lung cancer.

**2013** John Heidelberg and Eric Webb Labs at University of Southern California, Los Angeles, CA. Global Environmental Microbiology Summer Scholar. Fresh and marine water microbial diversity.

## SERVICE

**2020-Pres.** Founder and Chief Officer, SciArt with Purpose, https://jlsteenwyk.com/sciart.html

**2019-Pres.** Member, Steering Committee, Early Career Leadership Program, Genetics Society of America

**2019-Pres.** Inclusion Coordinator, The Evolutionary Studies Initiative at Vanderbilt, Vanderbilt University, Nashville, TN

**2019-Pres.** Graphic Illustrator, The Evolutionary Studies Initiative at Vanderbilt, Vanderbilt University, Nashville, TN

**2017-Pres.** Educational outreach booth design and execution, MEGA*Microbe*, Nashville, TN

**2017-Pres.** Member of the Dean of Graduate Student's survey quantitative analysis subgroup, Graduate Diversity and Inclusion Committee, Vanderbilt University, Nashville, TN

**2017-Pres.** Judge, Middle Tennessee Science and Engineering Fair, Belmont University, Nashville, TN

**2019-2021** Co-chair, Communication and Outreach Subcommittee, Genetics Society of America

**2018-2021** Volunteer Deputy, American Society of Microbiology Vanderbilt University Chapter, Nashville, TN

**2017-2021** Communications chair, Inclusivity in Biosciences Association, Vanderbilt University, Nashville, TN

**2020** Panelist at the Communication and Outreach Workshop, The Allied Genetics Conference, Genetics Society of America

**2019-2020** President, Inclusivity in Biosciences Association, Vanderbilt University, Nashville, TN

**2019-2020** Co-chair, MEGA*Microbe*, Vanderbilt Institute for Infections, Immunology and Inflammation, Nashville, TN

**2018-2019** Vice President, Inclusivity in Biosciences Association, Vanderbilt University, Nashville, TN

**2013-2019** Administrator and Owner, Molecular Biology and Biochemistry for Researchers and Students Group, LinkedIn

**2019** Peer review workshop leader, 30$^{th}$ Fungal Genetics Conference at Asilomar, Pacific Grove, CA

**2018-2019** Vice President, Graduate Student Association, Department of Biological Sciences, Vanderbilt University, Nashville, TN

**2018-2019** Vice co-chair, MEGA*Microbe*, Vanderbilt Institute for Infections, Immunology and Inflammation, Nashville, TN

**2017-2018** Secretary, Graduate Student Association, Department of Biological Sciences, Vanderbilt University, Nashville, TN

**2017-2018** Scientific consultant, Little Harpeth Brewing, Nashville, TN

**2017** Vanderbilt Student Volunteers for Science, Volunteer Science Teacher, West End Middle School, Nashville, TN

**2014-2015** Undergraduate Subcommittee for Department of Chemistry, Biochemistry and Molecular Biology Faculty Search Committee, Clark University, Worcester, MA

**2014-2015** Science Education Outreach Blogger, C-DEBI Sci-Curious Blog

## ART SHOWS

**2021** Science Talk '21, Science Talk

**2020** Catalyst: A Virtual Sci-Art Exhibition, Michigan State University
**2020** Day of Wond'ry, Vanderbilt University, Nashville, TN
**2020** Fire-Exhibition, Kefi Collective at Vanderbilt University, Nashville, TN
**2019** Biomedical Sciences Winter Show, Vanderbilt University, Nashville, TN
**2019** Focal point, ArtLab, Vanderbilt University, Nashville, TN
**2019** Connecting the Dots, ArtLab, Vanderbilt University, Nashville, TN
**2018** ArtLab opening reception, ArtLab, Vanderbilt University, Nashville, TN
**2018** The Intersection between Art and Science, ArtLab, Vanderbilt University, Nashville, TN

## MANUSCRIPT REVIEWER

*Nature Communications; Molecular Biology and Evolution; Systematic Biology; Methods in Ecology and Evolution; Genome Biology and Evolution; Genetics; Microbial Genomics; G3: Genes | Genomes | Genetics; FEMS Yeast Research; BMC Genomics; Nature Communications Biology; PLOS One; Molecular Genetics and Genomics;* and others

## POPULAR SCIENCE ARTICLES

(5) Simopoulos, M.A.C., A.F. Cisneros, A.D. Mendoza, C. Bautista, **J.L. Steenwyk**, N. Ahmad. Hurdles and advances to making science gender-neutral, *ecrLife*. November 26, 2020

(4) Mendoza, A.D., C. Bautista, E.A. Marnik, C.M.A. Simopoulos, & **J.L. Steenwyk**. Navigating fake news as a scientist, *ecrLife*. October 8, 2020

(3) **Steenwyk, J.L.** & M. Jonika. How to get started in science communication, *ecrLife*. August 21, 2020

(2) **Steenwyk, J.L.** & A. Rokas. A new hybrid fungus is found in hospitals and linked to lung disease, *The Conversation*. June 4, 2020

(1) **Steenwyk, J.L.** & A. Rokas. An outlaw yeast thrives with genetic chaos – and could provide clues for understanding cancer growth, *The Conversation*. May 21, 2019

## PUBLICATIONS

### Preprints/Submitted

(7) **Steenwyk, J.L.**^, D.C. Goltz, T.J. Buida III, Y. Li, X.-X. Shen, & A. Rokas^ (2021). orthoSNAP: a tree splitting and pruning algorithm for retrieving single-copy orthologs from gene family trees. ^Corresponding authors. bioRxiv. DOI: 10.1101/2021.10.30.466607

(6) Brown, A., M.E. Mead, **J.L. Steenwyk**, G.H. Goldman, & A. Rokas (2021). Extensive sequence divergence of non-coding regions between *Aspergillus fumigatus*, a major fungal pathogen of humans, and its relatives. bioRxiv. DOI: 10.1101/2021.10.26.465918

(5) Bradley, N.P.*, K.L. Wahl*, **J.L. Steenwyk**, A. Rokas, & B.F. Eichman (2021). Resistance-guided mining of bacterial genotoxins defines a family of DNA glycosylases. *Equal contributors. *Submitted.*

(4) **Steenwyk, J.L.**^, T.J. Buida III, C. Gonçalves, D.C. Goltz, G. Morales, M. Mead, A.L. LaBella, C.M. Chavez, J.E. Schmitz, M. Hadjifrangiskou, Y. Li, & A. Rokas^ (2021). BioKIT: a versatile toolkit for processing and analyzing diverse types of sequence data. ^Corresponding authors. bioRxiv. DOI: 10.1101/2021.10.02.462868

(3) de Castro, P.A., A. Moraes, A.C. Colabardini, M.A.C. Horta, S.L. Knowles, H.A. Raja, N.H. Oberlies, Y. Koyama, M. Ogawa, K. Gomi, **J.L. Steenwyk**, A. Rokas, L.N.A. Ries, & G.H. Goldman (2021). Regulation of gliotoxin biosynthesis and protection in *Aspergillus* species.

bioRxiv. DOI: 10.1101/2021.08.16.456458

(2) **Steenwyk, J.L.**, M.A. Phillips, F. Yang, S.S. Date, T. Graham, J. Berman, C.T. Hittinger, & A. Rokas (2021). A gene coevolution network provides insight into eukaryotic cellular and genomic structure and function. bioRxiv. DOI: 10.1101/2021.07.09.451830

(1) **Steenwyk, J.**, J. St. Denis, J. Dresch, D. Larochelle, & R. Drewell (2017). Whole genome bisulfite sequencing reveals a sparse, but robust pattern of DNA methylation in the *Dictyostelium discoideum* genome. bioRxiv. DOI: 10.1101/166033

**Peer Review Published**

(43) **Steenwyk, J.L.**^ & A. Rokas^ (2021). ggpubfigs: colorblind friendly color palettes and ggplot2 graphic system extensions for publication-quality scientific figures. ^Corresponding authors. Microbiology Resource Announcements. *in press*.

(42) Phillips, M.A., **J.L. Steenwyk**^, X.-X. Shen, & A. Rokas^ (2021). Examination of gene loss in the DNA mismatch repair pathway and its mutational consequences in a fungal phylum. ^Corresponding authors. Genome Biology and Evolution. PMID: 34554246; DOI: 10.1093/gbe/evab219.

(41) Santos, R.A.C., M.E. Mead, **J.L. Steenwyk**, O. Rivero-Menéndez, A. Alastruey-Izquierdo, G.H. Goldman^, & A. Rokas^ (2021). Examining signatures of natural selection in antifungal resistance genes across *Aspergillus* fungi. ^Corresponding authors. Frontiers in Fungal Biology. DOI: 10.3389/ffunb.2021.723051

(40) **Steenwyk, J.L.** & A. Rokas (2021). orthofisher: a broadly applicable tool for automated gene identification and retrieval. G3 Genes|Genomes|Genetics. PMID: 34544141; PMCID: PMC8496211; DOI: 10.1093/g3journal/jkab250

(39) Ries, L., P. de Castro, L. Silva, C. Valero, T. dos Reis, R. Saborano, I. Duarte, G. Persinoti, **J.L. Steenwyk**, A. Rokas, F. Almeida, J. Costa, T. Fill, S.S.W. Wong, V. Aimanianda, F. Rodrigues, R. Gonçales, C. Duarte-Oliveira, A. Carvalho, & G.H. Goldman (2021). *Aspergillus fumigatus* acetate utilization impacts virulence traits and pathogenicity. mBio. PMID: 34311583; PMCID: PMC8406206; DOI: 10.1128/mBio.01682-21

(38) Mead, M.E.*, **J.L. Steenwyk***, L.P. Silva, P.A. de Castro, N. Saeed, F. Hillmann, G.H. Goldman, & A. Rokas (2021). An evolutionary genomic approach reveals both conserved and species-specific genetic elements related to human disease in closely related *Aspergillus* fungi. *Equal contributors. Genetics. PMID: 33944921; PMCID: PMC8225353; DOI: 10.1093/genetics/iyab066

(37) **Steenwyk, J.L.**, M.E. Mead, P.A. Castro, C. Valero, A. Damasio, R.A.C. Santos, A.L. LaBella, Y. Li, S.L. Knowles, H.A. Raja, N.H. Oberlies, X. Zhou, O.A. Cornely, F. Fuchs, P. Koehler^, G.H. Goldman^, A. Rokas^ (2021). Genomic and phenotypic analysis of COVID-19-associated pulmonary aspergillosis isolates of *Aspergillus fumigatus*. ^Corresponding authors. Microbiology Spectrum. PMID: 34106569; PMCID: PMC7654854; DOI: 10.1128/Spectrum.00010-21

(36) LaBella, A.L., D. Opulente, **J.L. Steenwyk**, C.T. Hittinger, & A. Rokas (2021). Signatures of optimal codon usage in metabolic genes inform budding yeast ecology. PLOS Biology. PMID: 33872297; PMCID: PMC8084343; DOI: 10.1371/journal.pbio.3001185

(35) **Steenwyk, J.L.** (2021). Evolutionary divergence in the DNA damage response among fungi. mBio. PMID: 33727357; PMCID: PMC8092291; DOI: 10.1128/mBio.03348-20

(34) Shen, Xing-Xing, **J.L. Steenwyk**, & A. Rokas (2021). Dissecting incongruence between concatenation- and quartet-based approaches in phylogenomic data. Systematic Biology. PMID: 33616672; DOI: 10.1093/sysbio/syab011

(33) **Steenwyk, J.L.**^, T.J. Buida III, A.L. LaBella, Y. Li, X.-X. Shen, & A. Rokas^ (2020). PhyKIT: a UNIX shell toolkit for processing and analyzing phylogenomic data. ^Corresponding authors. Bioinformatics. PMID: 33560364; PMCID: PMC8388027; DOI: 10.1093/bioinformatics/btab096

(32) Li, Y., **J.L. Steenwyk**, Y. Chang, Y. Wang, T.Y. James, J.E. Stajich, J.W. Spatafora, M. Groenewald, C. Dunn, C.T. Hittinger, X.-X. Shen^, A. Rokas^ (2020). A genome-scale phylogeny of the kingdom Fungi. ^Corresponding authors. Current Biology. PMID: 33607033; PMCID: PMC8347878; DOI: 10.1016/j.cub.2021.01.074

(31) **Steenwyk, J.L.** (2021). A portrait of budding yeasts: A symbol of the arts, sciences and a whole greater than the sum of its parts. Yeast. PMID: 32869892; DOI: 10.1002/yea.3518

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