Martin Casimir Jonikas, Ph.D.
Investigator, Howard Hughes Medical Institute
Associate Professor, Department of Molecular Biology, Princeton University
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updated 8/18/2023

VISION

My group seeks to advance the basic understanding of cell biology. We study the pyrenoid, a phase-separated organelle that enhances CO_2 capture in nearly all eukaryotic algae. Understanding the pyrenoid is important for three reasons: (1) the pyrenoid plays a central role in our planet's carbon cycle, (2) the pyrenoid can inform the fundamental understanding of organelle biogenesis, and (3) engineering a pyrenoid into land plants could dramatically increase crop yields. To accelerate progress, we are developing community resources for the unicellular green alga *Chlamydomonas reinhardtii* as a model system for photosynthetic organisms. My group also seeks to nurture and train future world-leading scientists.

EDUCATION

2004	B.S.,	Aerospace Engineering, Massachusetts Institute of Technology
2009	Ph.D.,	Biochemistry and Molecular Biology, University of California, San Francisco. Research advisors: Dr. Jonathan Weissman and Dr. Peter Walter

PROFESSIONAL POSITIONS

2010-2016	Young Investigator (faculty position equivalent to Assistant Professor), Department of Plant Biology, Carnegie Institution for Science, Stanford, CA
2011-2016	Assistant Professor by courtesy, Department of Biology, Stanford University, Stanford, CA
2016-2021	Assistant Professor, Department of Molecular Biology, Princeton University, Princeton, NJ
2019-present	Affiliated Faculty, Princeton Quantitative and Computational Biology Program
2021-present	Associate Professor, Department of Molecular Biology, Princeton University, Princeton, NJ
2021-present	Investigator, Howard Hughes Medical Institute
2023-present	Associated Faculty, Princeton Bioengineering Initiative

AWARDS AND HONORS

2002	1st place, MIT 2.007 Robotics Competition
2005	National Science Foundation Graduate Research Fellowship
2010	Air Force Office of Scientific Research Young Investigator Award
2015	National Institutes of Health Director's New Innovator Award
2016	HHMI-Simons Faculty Scholar Award
2020	Vilcek Prize for Creative Promise in Biomedical Science
2022	International Society of Photosynthesis Research Melvin Calvin-Andrew Benson Award

TEACHING

2012-2016	Stanford BIO 214 Advanced Cell Biology
2014	Stanford BIOC 223 Open Problems in Biology (MOOC)
2017-2021	Princeton MOL 380 Modern Microbiology
2023-present	Princeton MOL 380 Modern Microbiology

DEPARTMENTAL AND UNIVERSITY SERVICE

2010	Member, Carnegie Department of Plant Biology website committee
2011, 2012	Co-wrote NSF Major Research Instrumentation (MRI) proposals for the Carnegie Department of Plant Biology
2011-2016	Co-organizer, Carnegie Department of Plant Biology seminar series
2012-2016	Member, Carnegie Plant Biology/Global Ecology Joint IT Committee
2014	Co-organizer, Carnegie Plant Biology retreat
2017-2018	Member, Princeton Molecular Biology Cryo Electron Microscopy Search Committee
2017-present	Chair, Princeton Molecular Biology Postdoctoral Career Development
2019	Andlinger E-ffiliates partnership Review Panel Member
2019-2020	Member, Princeton Molecular Biology Cryo Electron Microscopy Search Committee
2019-present	Member, Princeton Molecular Biology Graduate Committee
2020, 2021	Co-organizer, Princeton Molecular Biology Retreat
2023-2024	Member, Princeton Molecular Biology Cryo Electron Microscopy Search Committee

PROFESSIONAL SERVICE

2010-present	Reviewer for *Nature, Cell, Nature Biotechnology*, *Nature Microbiology*, *Nature Communications*, *Proceedings of the National Academy of Sciences*, *The Plant Cell*, *eLife*, *New Phytologist*, *Plant Physiology*, *The Plant Journal*, *Scientific Reports*, and other journals.

2013-present	Reviewer for the U.S. National Science Foundation, U.S. Department of Energy, the Howard Hughes Medical Institute, the U.S.-Israel Binational Science Foundation, the Human Frontiers Science Program, the Swedish Research Council, the Gordon and Betty Moore Foundation, the Royal Netherlands Academy of Arts and Sciences, Princeton University, and other funders.
2017-2021	Member, Merck Future Insight Prize Jury.
2018	Panelist, U.S. Department of Energy Workshop on Breaking the Bottleneck of Genomes.
2021	Convener, 12th International Phycological Congress, Puerto Varas, Chile.
2022	Chair, 10th International Symposium on Inorganic Carbon Utilization by Aquatic Photosynthetic Organisms, Princeton, NJ.
2022-present	Member, Advisory Board, York Physics of Pyrenoids Project.
2023	Co-Chair, 20th International Chlamydomonas Meeting, Princeton, NJ.

PUBLICATIONS FROM PH.D. STUDIES

Haass FA, **Jonikas M**, Walter P, Weissman JS, Jan YN, Jan LY, & Schuldiner M. 2007. Identification of yeast proteins necessary for cell-surface function of a potassium channel. ***Proceedings of the National Academy of Sciences U S A.*** 104: 18079-18084. PMCID: PMC2084299

Jonikas MC, Collins SR, Denic V, Oh E, Quan EM, Schmid V, Weibezahn J, Schwappach B, Walter P, Weissman JS, & Schuldiner M. 2009. Comprehensive characterization of genes required for protein folding in the endoplasmic reticulum. ***Science.*** 323: 1693-1697. PMCID: PMC2877488

Vembar SS, **Jonikas MC**, Hendershot LM, Weissman JS, & Brodsky JL. 2010. J domain co-chaperone specificity defines the role of BiP during protein translocation. ***Journal of Biological Chemistry.*** 285: 22484-22494. PMCID: PMC2903355

Battle A, **Jonikas MC**, Walter P, Weissman JS, & Koller D. 2010. Automated identification of pathways from quantitative genetic interaction data. ***Molecular Systems Biology.*** 6: 379. PMCID: PMC2913392

Shurtleff MJ, Itzhak DN, Hussmann JA, Schirle Oakdale NT, Costa EA, **Jonikas M**, Weibezahn J, Popova KD, Jan CH, Sinitcyn P, Vembar SS, Hernandez H, Cox J, Burlingame AL, Brodsky JL, Frost A, Borner GH, & Weissman JS. 2018. The ER membrane protein complex interacts cotranslationally to enable biogenesis of multipass membrane proteins. ***eLife.*** doi: 10.7554/eLife.37018. PMID: 29809151

PUBLICATIONS AS PRINCIPAL INVESTIGATOR

Jonikas laboratory members' names are bolded.

Zhang R**, ***Patena W**, **Armbruster U**, **Gang SS**, **Blum SR**, & **Jonikas MC**. 2014. High-Throughput Genotyping of Green Algal Mutants Reveals Random Distribution of Mutagenic Insertion Sites and Endonucleolytic Cleavage of Transforming DNA. ***The Plant Cell. 26: 1398-1409. PMCID: PMC4036561. *equal contribution

Avasthi P, Onishi M, Karpiak J, Yamamoto R, **Mackinder L**, **Jonikas MC**, Sale WS, Shoichet B, Pringle JR, & Marshall WF. 2014. Actin is required for IFT regulation in *Chlamydomonas reinhardtii*. ***Current Biology.*** 24: 2025-2032. PMCID: PMC4160380

Li X, Umen JG, & **Jonikas MC**. 2014. Waking sleeping algal cells. ***Proceedings of the National Academy of Sciences U S A.*** 111: 15610-15611. PMCID: PMC4226088

Yang W, Catalanotti C, D'Adamo S, Wittkopp TM, Ingram-Smith CJ, **Mackinder L**, Miller TE, Heuberger AL, Peers G, Smith KS, **Jonikas MC**, Grossman AR, & Posewitz MC. 2014. Alternative Acetate Production Pathways in *Chlamydomonas reinhardtii* during Dark Anoxia and the Dominant Role of Chloroplasts in Fermentative Acetate Production. ***The Plant Cell.*** 26: 4499-4518. PMCID: PMC4277214

Armbruster U, Carrillo LR, Venema K, Pavlovic L, Schmidtmann E, Kornfeld A, Jahns P, Berry JA, Kramer DM, & **Jonikas MC**. 2014. Ion antiport accelerates photosynthetic acclimation in fluctuating light environments. ***Nature Communications.*** 5: 5439. PMCID: PMC4243252

Terashima M, **Freeman ES**, **Jinkerson RE**, & **Jonikas MC**. 2015. A fluorescence-activated cell sorting-based strategy for rapid isolation of high-lipid Chlamydomonas mutants. ***The Plant Journal.*** 81: 147-59. PMCID: PMC4280329

Jinkerson RE & **Jonikas MC**. 2015. Molecular techniques to interrogate and edit the Chlamydomonas nuclear genome. ***The Plant Journal.*** 82: 393–412. PMID: 25704665

Atkinson N, Feike D, **Mackinder LC**, Meyer MT, Griffiths H, **Jonikas MC**, Smith AM, & McCormick AJ. 2015. Introducing an algal carbon-concentrating mechanism into higher plants: location and incorporation of key components. ***Plant Biotechnology Journal.*** 14: 1302-15. PMID: 26538195

*Yang W, *Wittkopp TM, **Li X**, Warakanont J, Dubini A, Catalanotti C, Kim RG, Nowack EC, Mackinder LC, Aksoy M, Page MD, D'Adamo S, Saroussi S, Heinnickel M, Johnson X, Richaud P, Alric J, Boehm M, **Jonikas MC**, Benning C, Merchant SS, Posewitz MC, & Grossman AR. *equal contribution. 2015. Critical role of *Chlamydomonas reinhardtii* ferredoxin-5 in maintaining membrane structure and dark metabolism. ***Proceedings of the National Academy of Sciences U S A.*** 112: 14978-83. PMID: 26627249

Li X**, ***Zhang R**, ***Patena W**, **Gang SS**, **Blum SR**, **Ivanova N**, **Yue R**, **Robertson JM**, Lefebvre P, Fitz-Gibbon ST, Grossman AR, & **Jonikas MC**. *equal contribution. 2016. An indexed, mapped mutant library enables reverse genetics studies of biological processes in *Chlamydomonas reinhardtii*. ***The Plant Cell. 28: 367-87. PMID: 26764374
Highlighted in "Best of 2016: Top Topics in The Plant Cell journal".

Li X & **Jonikas MC**. 2016. High-throughput genetics strategies for identifying new components of lipid metabolism in the green alga *Chlamydomonas reinhardtii*. Chapter 10 in ***Lipids in Plant and Algae Development***, Y. Nakamura, Y. Li-Beisson (eds.), Springer. PMID: 27023238

Armbruster U, Leonelli L, Correa Galvis V, Strand D, Quinn EH, **Jonikas MC**, & Niyogi KK. 2016. Regulation and Levels of the Thylakoid K+/H+ Antiporter KEA3 Shape the Dynamic Response of Photosynthesis in Fluctuating Light. ***Plant Cell Physiology.*** 57: 1557-1567. PMID: 27335350

Mackinder LC, Meyer MT, Mettler-Altmann T, **Chen VK**, Mitchell MC, Caspari O, **Freeman Rosenzweig ES**, **Pallesen L**, **Reeves G**, **Itakura A**, Roth R, Sommer F, Geimer S, Mühlhaus T, Schroda M, Goodenough U, Stitt M, Griffiths H, & **Jonikas MC**. 2016. A repeat protein links Rubisco to form the eukaryotic carbon-concentrating organelle. ***Proceedings of the National Academy of Sciences U S A.*** 113: 5958-63. PMID: 27166422

Freeman Rosenzweig ES, †Xu B, †Kuhn Cuellar L, Martinez-Sanchez A, Schaffer M, Strauss M, Cartwright HN, Plitzko JM, Förster F, *Wingreen NS, *Engel BD, ‡**Mackinder LCM**, & ‡***Jonikas MC**. †These authors contributed equally to this work. ‡These authors contributed equally to this work. *Corresponding authors. 2017. The eukaryotic CO_2 concentrating organelle is liquid-like and exhibits dynamic reorganization. ***Cell.*** 171:148-162. PMID: 28938114
Highlighted on the cover of *Cell* and in a *Nature Plants* Research Highlight.

Mackinder LCM, **Chen C**, Leib RD, **Patena W**, **Blum SR**, **Rodman M**, Ramundo S, Adams CM, & **Jonikas MC**. 2017. A spatial interactome reveals the anatomy of the algal CO_2 concentrating mechanism. ***Cell.*** 171:133-147. PMID: 28938113
Highlighted in a Cell Preview.

Küken A, Sommer F, Yaneva-Roder L, **Mackinder LC**, Höhne M, Geimer S, **Jonikas MC**, Schroda M, Stitt M, Nikoloski Z, & Mettler-Altmann T. 2018. Effects of microcompartmentation on flux distribution and metabolic pools in *Chlamydomonas reinhardtii* chloroplasts. ***eLife.*** doi: 10.7554/eLife.37960. PMID: 30306890

Li X, **Patena W**, **Fauser F**, **Jinkerson RE**, Saroussi S, **Meyer MT**, **Ivanova N**, **Robertson JM**, **Yue R**, **Zhang R**, Vilarrasa-Blasi J, Wittkopp TM, Ramundo S, **Blum SR**, **Goh A**, Laudon M, Srikumar T, Lefebvre PA, Grossman AR, & **Jonikas MC**. 2019. A genome-wide algal mutant library reveals a global view of genes required for eukaryotic photosynthesis. ***Nature Genetics.*** 51: 627-635. PMID: 30886426

Cable J, Brangwynne C, Seydoux G, Cowburn D, Pappu RV, Castañeda CA, Berchowitz LE, Chen Z, **Jonikas M**, Dernburg A, Mittag T, & Fawzi NL. 2019. Phase separation in biology and disease-a symposium report. ***Annals of the New York Academy of Sciences.*** 1452: 3-11. PMID: 31199001

†**Itakura AK**, †Chan KX, Atkinson N, **Pallesen L**, Wang L, **Reeves G**, **Patena W**, Caspari O, Roth R, Goodenough U, McCormick AJ, *Griffiths H, & ***Jonikas MC**. †These authors contributed equally to this work. *Corresponding authors. 2019. A Rubisco-binding protein is required for normal pyrenoid number and starch sheath morphology in *Chlamydomonas reinhardtii*. ***Proceedings of the National Academy of Sciences U S A.*** 116: 18445-18454. PMID: 31455733

Perlaza K, Toutkoushian H, Boone M, Lam M, Iwai M, **Jonikas MC**, Walter P, & Ramundo S. 2019. The Mars1 kinase confers photoprotection through signaling in the chloroplast unfolded protein response. ***Elife.*** 8:e49577. PMID: 31612858

Hennacy JH & **Jonikas MC**. 2020. Prospects for Engineering Biophysical CO_2 Concentrating Mechanisms into Land Plants to Enhance Yields. ***Annual Review of Plant Biology.*** 71: 461-485 PMID: 32151155

Xu B, **He G**, Weiner BG, Ronceray P, Meir Y, **Jonikas MC**, & Wingreen NS. 2020. Rigidity enhances a magic-number effect in polymer phase separation. ***Nature Communications.*** 11: 1561. PMID: 32214099

Wang L & **Jonikas MC**. 2020. The Pyrenoid. ***Current Biology.*** 30:R456-R458. PMID: 32428480

Ramundo S, Asakura Y, Salomé PAA, Strenkert D, Boone M, **Mackinder LCM**, Takafuji K, Dinc E, Rahire M, Crèvecoeur M, Magneschi L, Schaad O, Hippler M, **Jonikas MC**, Merchant S, *Nakai M, *Rochaix JD, *Walter P. 2020. *Corresponding authors. Co-expressed subunits of dual genetic origin define a conserved supercomplex mediating essential protein import into chloroplasts. ***Proceedings of the National Academy of Sciences U S A*** 3: 202014294. PMID: 33273113

Meyer MT, **Itakura AK**, **Patena W**, **Wang L**, **He S**, Emrich-Mills T, Lau CS, Yates G, Mackinder LCM, & **Jonikas MC**. 2020. Assembly of the algal CO2-fixing organelle, the pyrenoid, is guided by a Rubisco-binding motif. ***Science Advances*** 6: eabd2408. PMID: 33177094

He S, Chou HT, Matthies D, Wunder T, **Meyer MT**, Atkinson N, Martinez-Sanchez A, Jeffrey PD, Port SA, **Patena W**, **He G**, **Chen VK**, Hughson FM, McCormick AJ, Mueller-Cajar O, Engel BD, Yu Z, & **Jonikas MC**. 2020. The structural basis of Rubisco phase separation in the pyrenoid. ***Nature Plants*** 6: 1480-1490. PMID: 33230314

Franklin E & **Jonikas M**. 2020. Increasing the uptake of carbon dioxide. ***eLife*** 9:e64380. doi: 10.7554/eLife.64380. PMID: 33270556

Prior MJ, Selvanayagam J, Kim J-G, Tomar M, **Jonikas M**, Mudgett M, Smeekens S, Hanson J, Frommer WB. 2021. *Arabidopsis* bZIP11 Is a Susceptibility Factor During *Pseudomonas syringae* Infection. ***Molecular Plant-Microbe Interactions*** 34: 439-447. PMID: 33400562

†**Fauser F**, †Vilarrasa-Blasi J, Onishi M, Ramundo S, **Patena W**, **Millican M**, **Osaki J**, **Philp C**, **Nemeth M**, Salomé PA, **Li X**, Wakao S, Kim RG, Kaye Y, Grossman AR, Niyogi KK, Merchant S, Cutler S, Walter P, *Dinneny JR, ***Jonikas MC**, & ***Jinkerson RE**. †Equal contribution. *Corresponding authors. 2022. Systematic characterization of gene function in the photosynthetic alga *Chlamydomonas reinhardtii*. ***Nature Genetics*** 54: 705-714. PMID: 35513725

†Fei C, †**Wilson AT**, *Mangan NM, *Wingreen NS, & ***Jonikas MC**. †Equal contribution. *Corresponding authors. 2022. Modelling the pyrenoid-based CO2-concentrating mechanism provides insights into its operating principles and a roadmap for its engineering into crops. ***Nature Plants*** 8: 583-595. PMID: 35596080

He G, GrandPre T, Wilson H, Zhang H, **Jonikas MC**, Wingreen NS, & Wang Q. Phase-separating pyrenoid proteins form complexes in the dilute phase. 2023. ***Communications Biology*** 6: 19 PMID: 36611062

He S, **Crans VL**, & **Jonikas MC**. 2023. The pyrenoid: the eukaryotic CO_2-concentrating organelle. ***The Plant Cell*** koad157 PMID: 37279536

Wang L, **Patena W**, **Van Baalen K**, **Xie Y**, **Singer E**, **Gavrilenko S**, **Warren-Williams M**, Han L, **Harrigan HR**, **Chen V**, **Ton V**, Kyin S, Shwe H, Cahn M, **Wilson A**, Onishi M, Hu J, Schnell DJ, **McWhite CD**, & **Jonikas M**. 2023. A chloroplast protein atlas reveals novel structures and spatial organization of biosynthetic pathways. ***Cell*** 186: 1. PMID: 37437571 **Highlighted on the cover of *Cell*.**

PREPRINTS

Vilarrasa-Blasi J, Vellosillo T, **Jinkerson RE**, **Fauser F**, Xiang T, Minkoff BB, Wang L, Kniazev K, Guzman M, Osaki J, Sussman MR, **Jonikas MC**, & Dinneny R. 2021. Identification of green lineage osmotic stress pathways. *bioRxiv preprint.* doi: https://doi.org/10.1101/2021.07.19.453009

Kafri M, **Patena W**, **Martin L**, **Wang L**, **Gomer G**, **Sirkejyan AK**, **Goh A**, **Wilson AT**, **Gavrilenko SE**, Breker M, Roichman A, **McWhite CD**, Rabinowitz JD, Cross FR, Wühr M, & **Jonikas MC**. Systematic identification and characterization of novel genes in the regulation and biogenesis of photosynthetic machinery. *bioRxiv preprint.* doi: https://doi.org/10.1101/2022.11.12.515357

GrandPre T, Zhang Y, Pyo AGT, Weiner B, Li J-L, **Jonikas MC**, & Wingreen N. 2023. Effects of linker length on phase separation: lessons from the Rubisco-EPYC1 system of the algal pyrenoid. *bioRxiv preprint.* https://doi.org/10.1101/2023.06.11.544494

BOOK

Fauser F & **Jonikas M**, editors. 2018. *Plant Chemical Genomics: Methods and Protocols.* **Methods in Molecular Biology.** Springer. ISBN 978-1-4939-7874-8.

PATENTS AND PATENT APPLICATIONS

Armbruster U, Niyogi KK, & **Jonikas MC**. 2015. Photosynthetic Acclimation and Increased Biomass Production in Fluctuating Light Environments.

Mackinder LCM, Meyer MT, Mettler-Altmann T, Pallesen L, Stitt M, Griffiths H, & **Jonikas MC**. 2016. Algal Components of the Pyrenoid's Carbon Concentrating Mechanism.

Mackinder LCM & **Jonikas MC**. 2017. Spatial Interactome Reveals the Anatomy of the Algal CO_2 Concentrating Mechanism.

Jonikas MC, **Meyer MT**, **He S**, **Itakura A**, **Chen VK**, Mackinder LCM, Chou HT, Yu Z, & Matthies D. 2019. Rubisco-Binding Protein Motifs and Uses Thereof.

Jonikas MC, **Fauser FA**, **Jinkerson RE**, & Vilarrasa Blasi J. 2020. Genes With Roles in the Algal CO_2 Concentrating Mechanism, and Others.

SELECTED SEMINARS

2009	Center for Systems Biology, Harvard, Cambridge, MA
2009	Department of Plant Sciences, Weizmann Institute of Science, Rehovot, Israel
2009	Department of Plant Biology, Carnegie Institution for Science, Stanford, CA
2011	Invited talk, Donald Danforth Plant Sciences Center, St. Louis, MO

2012	15th International Conference on the Cell & Molecular Biology of Chlamydomonas, Potsdam, Germany
2012	Student-Invited Seminar, Michigan State University, East Lansing, MI
2013	Session Chair, 22nd Western Photosynthesis Conference, Asilomar, CA
2013	Invited Seminar, Plant Biology Graduate Group, UC Davis, Davis, CA
2013	16th International Congress on Photosynthesis, St Louis, MO
2013	Invited Seminar, Arizona State University, Tempe, AZ
2014	23rd Western Photosynthesis Conference, Asilomar, CA
2014	Invited Speaker, UC San Diego Food & Fuel for the 21st Century Symposium, San Diego, CA
2014	Invited Speaker, Gordon Research Conference on Photosynthesis, West Dover, VT
2014	Keynote Speaker, Harvard Medical School Systems Biology Ph.D. Program Retreat, Woods Hole, MA
2015	Invited Speaker and Session Chair, 24th Western Photosynthesis Conference, Asilomar, CA
2015	Invited Speaker, ASCB Bay Area Meeting on Organelle Biology 2015, San Francisco, CA
2015	Co-chair and Speaker, Organelle Minisymposium, ASCB 2015 Meeting, San Diego, CA
2016	Department of Molecular Biology, Princeton University, Princeton, NJ
2016	Plant Research Laboratory, Michigan State University, East Lansing, MI
2016	ChEM-H Institute, Stanford University, Stanford, CA
2016	17th International Conference on the Cell and Molecular Biology of Chlamydomonas, Kyoto, Japan
2016	Invited Speaker, 17th International Congress on Photosynthesis Research, Maastricht, Netherlands
2016	HHMI Faculty Scholars Orientation, Chevy Chase, MD
2017	Invited Speaker, Gordon Research Conference on Chloroplast Biotechnology, Ventura, CA
2017	Invited Speaker, Gordon Research Conference on CO_2 Assimilation in Plants from Genome to Biome, Lucca, Italy
2017	Invited Speaker, Chloroplast Metabolism and Photosynthesis Symposium, Neuchâtel, Switzerland
2017	Invited Speaker, ETH Zürich Plant Sciences Symposium, Zürich, Switzerland
2017	Invited Seminar, Department of Embryology, Carnegie Institution for Science, Baltimore, MD
2018	Invited Speaker, Plant and Animal Genome Conference, San Diego, CA
2018	Invited Seminar, Department of Plant Biology and Pathology, Rutgers University, NJ
2018	Invited Speaker, HHMI Science Meeting, Ashburn, VA
2018	Invited Seminar, J. Craig Venter Institute, La Jolla, CA
2018	Invited Seminar, Nature Publishing Group, New York, NY
2018	Invited Seminar, Rockefeller University, New York, NY
2018	EMBO/EMBL Symposium: Cellular Mechanisms Driven by Liquid Phase Separation, EMBL, Heidelberg, Germany

2018 Invited Speaker, 18th International Conference on the Cell and Molecular Biology of *Chlamydomonas*, Washington, DC
2018 Invited Speaker, Society for Experimental Biology Annual Meeting, Florence, Italy
2018 Invited Speaker, Mitochondria and Chloroplasts Gordon Research Conference, Lucca, Italy
2018 Invited Speaker, Princeton China Executive Summit Program
2019 Plenary Speaker, Phase Separation in Biology and Disease, New York Academy of Sciences, New York, NY
2019 Invited Seminar, Department of Geosciences, Princeton University, Princeton, NJ
2019 Invited Seminar, Department of Plant Biology, Carnegie Institution for Science, Stanford, CA
2019 Keynote Speaker, Eastern Regional Photosynthesis Conference, Woods Hole, MA
2019 Invited Seminar, John Innes Centre, Norwich, United Kingdom
2019 Invited Speaker, Centre for Organismal Studies Symposium, Heidelberg University, Heidelberg, Germany
2019 Invited Speaker, American Society of Plant Biologists Annual Meeting, San Jose, CA
2019 Invited Speaker, American Society for Cell Biology/European Molecular Biology Organization Meeting, Washington, DC
2020 Invited Speaker, Plant and Animal Genome Conference, San Diego, CA
2020 Invited Speaker, W2F2 Meeting, University of California, San Francisco, CA *(via teleconference)*
2020 Invited Speaker, Plant Cell Atlas, Carnegie Institution for Science, Stanford, CA *(via teleconference)*
2020 Keynote Speaker, Princeton Intracellular Phase Transition/Condensate Symposium, Princeton, NJ *(via teleconference)*
2020 Invited Speaker, Understanding the Rules of Life: Complexity in Algal Systems DOE & NSF Joint Workshop Virtual Summer Symposium *(via teleconference)*
2020 Invited Speaker, Synthetic Biology for Sustainability, Caltech, Pasadena, CA *(via teleconference)*
2020 Invited Speaker, Princeton BioEngineering Symposium, Princeton, NJ *(via teleconference)*
2020 Invited Seminar, IDPseminars *(via teleconference)*
2021 Plenary Speaker, 12th International Phycological Congress *(via teleconference)*
2021 Invited Seminar, Langebio, Irapuato, Mexico *(via teleconference)*
2021 Invited Seminar, University of California Los Angeles, CA *(via teleconference)*
2021 Keynote Speaker, Chlamydomonas 2021 Meeting, Île des Embiez, France
2021 Invited Lecture, Chloroplast Symposium, Ludwig-Maximilians-Universität München, Munich, Germany *(via teleconference)*
2021 Invited Seminar, Princeton Adult School, Princeton, NJ
2021 Invited Seminar, University of Michigan, Ann Arbor, MI *(via*

	teleconference)
2021	Invited Speaker, Princeton Biomolecular Condensates Meeting, Princeton, NJ
2022	Invited Seminar, University of Illinois at Urbana-Champaign, Champaign, IL
2022	Invited Seminar, University of California, Berkeley, CA
2022	Invited Seminar, University of Nebraska, Lincoln, NE
2022	Invited Speaker, Carnegie Embryology Mini-Symposium, Baltimore, MD
2022	Plenary Speaker, International Congress on Photosynthesis Research, New Zealand *(via teleconference)*
2022	Invited Speaker, Howard Hughes Medical Institute Science Meeting, Chevy Chase, MD
2022	Invited Seminar, University of Texas Southwestern
2023	Invited Speaker, American Society for Biochemistry and Molecular Biology Annual Meeting, Seattle, Washington

OUTREACH

Toward our goal of increasing inclusivity in science, my laboratory is heavily involved in outreach efforts; we currently average approximately 300 person-hours per year. For instance, we recently hosted undergraduates from Harrisburg University, a minority-serving institution, allowing the students to obtain firsthand knowledge of the daily workings of a laboratory and explore potential Ph.D. prospects. Our lab trainees also actively participate in community outreach through department's dedicated outreach initiative (MBOP). Through events such as microscopic examination of produce at the farmers market, mentoring at and judging school science fairs, and Science by the Cup events at local breweries, our trainees engage with both young and adult community members, fostering scientific literacy and enthusiasm for science.

In collaboration with songwriter Jonathan Mann, the Jonikas laboratory has produced three outreach music videos:

2015	Sammy the Chlamy (>2,600 views) https://www.youtube.com/watch?v=f1F4lxKF41g&feature=youtu.be A puppet music video about an alga helping crops do better photosynthesis. This video was the subject of an ASCB article: http://www.ascb.org/ascb-post/sammy-chlamy-superhero-environment/
2016	The Photosynthesis Song (>7,300 views) https://www.facebook.com/Jonathanmann/videos/10153653902265741/?l=578396365785804152 A song of fun facts about photosynthesis.
2016	The Jonikas Lab Song (>4,400 views) https://www.youtube.com/watch?v=fKncJDUNAlU A song about life in an algal research laboratory.

RESEARCH SUPERVISION

High School Trainees:

2013-2014	**Augustine Chemparathy**, was a finalist in the 2015 Intel Science Talent Search competition as a result of his project in my laboratory.
2014	**Zoe Friedberg**
2014-2015	**Shriya Ghosh**

Undergraduate Trainees:

2012	**Graciela Watrous**
2012	**Elisabeth Schmidtmann**
2012	**Rachel Purdon**
2013	**Jason Middleton**
2013	**John Nguyen**
2014	**Jessie Bacha**
2014	**Rachel Vasquez**
2014	**Matthew Rodman**
2014-2015	**Chris Chen**
2015-2016	**Kyssia Mendoza**
2016	**Jackie Osaki**
2016	**Matthew Millican**
2016	**Matthew Nemeth**
2016	**Charlotte Philp**
2017	**Katie Kavanaugh**
2017	**Bradley Spicher**
2017	**Michael Hill-Oliva**
2018	**Toluwalase Olusola**
2018	**Izabela Szymanski**
2017-2019	**Kelly Van Baalen**, graduated with honors.
2017-2019	**Yihua Xie**
2019	**Gillian Gomer**
2019	**Xiaofei Ge**
2018-2020	**Alexandra Wilson**, graduated with highest honors; Global Health Program Senior Thesis Prize; MOL Sigma Xi Book Award.
2018-2020	**Sophia Gavrilenko,** graduated with honors.
2019-2022	**Henry Harrigan**
2019-2022	**Angelo Kayser-Browne**, graduated with highest honors
2020-2023	**Keenan Duggal**, graduated with highest honors
2020-2021	**Vinh Ton**
2020-2023	**Luke Bunday**
2021-2022	**Arthur Sirkejyan**
2021-2023	**Vivian Chen**
2021-present	**Kevin Zhang**
2022-present	**Colton Wang**
2023-present	**Mason Hooks**
2023-present	**Arosheny Puvanenthirarajah**

2023-present **Oscair Page**
2023-present **Claire Dignazio**

Predoctoral Trainees:

2012-2017 **Elizabeth Freeman Rosenzweig**, Achievement Rewards for College Students Scholar. Now Associate, Morrison & Foerster LLP.
2012-2017 **Matthew Prior** (was joint with Wolf Frommer). Now Assistant Professor, Clinton College, Rockhill, SC.
2012 **Madeline Mitchell** (visiting Ph.D. student). Now Director of Agri-food at Breakthrough Victoria, Australia.
2013 **Oliver Caspari** (visiting Ph.D. student). Now Junior Group Leader, Microbiology Institute, University of Bonn.
2014-2016 **Alan Itakura**, transferred to Dan Jarosz lab when we moved to Princeton. Now Life Science Expert at DeciBio.
2014-2016 **Vivian Chen**, National Science Foundation Graduate Research Fellow. Transferred to Gavin Sherlock lab when we moved to Princeton.
2017-2022 **Guanhua He** (joint with Ned Wingreen), China Scholarship Council Fellow. Now Senior Scientist at Abbvie.
2018-2023 **Jessica Hennacy**. Now Science Disclosure Analyst in the Center for Biologics Evaluation and Research at the Food and Drug Administration.
2019-present **Eric Franklin**
2020-present **Micah Burton**, HHMI Gilliam Fellow.
2020-present **Victoria Crans**
2022-present **Haoyu Wu**, China Scholarship Council Fellow.
2023-present **Sophie Skanchy**, National Science Foundation Graduate Research Fellow.

Postdoctoral Trainees:

2010-2016 **Ru Zhang, Ph.D.** Now Principal Investigator, Donald Danforth Plant Sciences Center.
2011-2014 **Ute Armbruster, Ph.D.** DFG German Research Foundation Postdoctoral Fellow. Now Group Leader, Max Planck Institute for Molecular Plant Physiology.
2011-2013 **Mia Terashima, Ph.D.** Agriculture and Food Research Initiative Postdoctoral Fellow. Now Professor, Cell and Molecular Biology of Phototrophic Organisms, Berliner Hochschule fur Technik.
2011-2015 **Leif Pallesen, Ph.D.** Went on to be an Instructor, Foothill College, CA. With deep sadness, we learned that he passed away in 2023.
2012-2016 **Luke Mackinder, Ph.D.** Carnegie McClintock Postdoctoral Fellow. Now Professor, University of York, United Kingdom.
2012-2018 **Xiaobo Li, Ph.D.** Now Assistant Professor, Westlake Institute for Advanced Study, Hangzhou, China.
2014-2017 **Robert Jinkerson, Ph.D.** Simons Foundation Postdoctoral Fellow. Now Assistant Professor, U.C. Riverside, CA.
2015-2017 **Friedrich Fauser, Ph.D.** DAAD German Academic Exchange Service Postdoctoral Fellow. Now Scientist III, Sangamo Therapeutics.
2016-present **Shan He, Ph.D.**

2017-2020	**Moritz Meyer, Ph.D.**
2017-present	**Lianyong Wang, Ph.D.**
2017-present	**Moshe Kafri, Ph.D.** European Molecular Biology Organization and Human Frontiers Science Program Postdoctoral Fellow.
2020-present	**Alice Lunardon, Ph.D.**
2021-2023	**Claire McWhite, Ph.D.** Lewis-Sigler Scholar; now Assistant Professor at University of Arizona.
2021-present	**Linnea Lemma, Ph.D.** Princeton Bioengineering Initiative - Innovators (PBI2) Distinguished Postdoctoral Fellow and HHMI Hanna H. Gray Fellow (joint with Cliff Brangwynne and Ned Wingreen).
2022-present	**Sabrina Ergun, Ph.D.**
2022-present	**Yana Kazachkova, Ph.D.**
2022-present	**Aastha Garde, Ph.D.**
2022-present	**Ashwani Rai, Ph.D.**

Bioinformatics Analyst:

2011-present	**Weronika Patena.**

Technical staff:

2010-2012	**Spencer Gang.** Now Postdoctoral Scholar, U.C. San Diego.
2011-2013	**Sean Blum.** Now Senior Full Stack Engineer at Sight Machine.
2012-2016	**Nina Ivanova.** Now Registered Nurse at San Francisco VA Medical Center.
2013	**Saman Parsa.** Now Associate Winemaker at E. & J. Gallo Winery.
2013-2014	**Gregory Reeves.** Now Ph.D. student, Cambridge University, United Kingdom.
2013-2015	**Rebecca Yue.** Now Technical Staff Member, Augmedix, Inc., San Francisco.
2015-2016	**Jacob Robertson.** Now Ph.D. student, U.C. San Diego.
2016	**Chris Chen.** Now General Dentist at Cameo Dentistry.
2016	**Ana Benveniste.** Now Laboratory Assistant, Carnegie Institution for Science.
2016-2019	**Audrey Goh.** Now Ph.D. student, Princeton University.
2019-present	**Michelle Warren-Williams.**
2020-2021	**Vidalia Ariza.** Now Food Service Worker, Princeton University.
2020-2021	**Jennifer Ayer.**
2020-2021	**Alexandra Wilson.** Now Ph.D. student, Massachusetts Institute of Technology.
2020-present	**Warham (Lance) Martin.**
2020-2022	**Emily Singer.** Now Ph.D. student, Princeton University.
2021-present	**Yuliya Zubak.**
2022-present	**Angelo Kayser-Browne.**
2022-present	**Cole Pacini.**
2022-present	**Linnea Hartz.**

Sabbatical visitor:

2019 **Cornelia Spetea Wiklund**, Professor, Department of Biological & Environmental Sciences, University of Gothenburg, Sweden.

Non-Research Staff Awards:

Ellen Brindle-Clark, my faculty assistant, was selected for a Princeton Tiger Award in 2017 for going above and beyond her normal job responsibilities in helping my laboratory move from Stanford to Princeton.

Elizabeth (Betsy) Hart, a graduate teaching assistant for my MOL380 class, won the Graduate Student Teaching Award in 2018.