**Jing-Ke Weng**
Whitehead Institute for Biomedical Research
455 Main Street, Cambridge, MA 02142-1479
Email: wengj@wi.mit.edu
Tel: 617-324-4921
Fax: 617-452-3566

## RESEARCH INTERESTS

Metabolic evolution, hormone signaling, bioluminescence, metabolic engineering, biomaterials, drug discovery, herbal medicine

## POSITIONS

| | |
|---|---|
| 2013-present | Member, Whitehead Institute for Biomedical Research, Cambridge, MA |
| 2019-present | Associate Professor of Biology, Massachusetts Institute of Technology, Cambridge, MA |
| 2013-2019 | Thomas D. and Virginia W. Cabot Career Development Assistant Professor of Biology, Massachusetts Institute of Technology, Cambridge, MA |
| 2009-2013 | Pioneer postdoctoral fellow, Howard Hughes Medical Institute & The Jack H. Skirball Center for Chemical Biology and Proteomics, The Salk Institute for Biological Studies, La Jolla, CA<br>Advisor: Joseph P. Noel |

## EDUCATION

| | |
|---|---|
| 2003-2009 | Ph.D. in Biochemistry, Department of Biochemistry, Purdue University, West Lafayette, IN<br>Advisor: Clint Chapple |
| 1999-2003 | B.S. in Biotechnology, *cum laude*, Department of Biotechnology Zhejiang University, Hangzhou, China<br>Advisor: Ji-Zeng Du and Huanxin Weng |

## HONORS AND AWARDS

2021 Purdue University College of Agriculture Distinguished Agriculture Alumni Award
2018 The Smith Family Foundation Odyssey Award
2018 Scialog Fellow of the Research Corporation & the Gordon and Betty Moore Foundation
2016 Beckman Young Investigator Award
2016 Alfred P. Sloan Research Fellow in Computational & Evolutionary Molecular Biology
2016 Buchanan Lecture, UC Berkeley
2015 Searle Scholar
2014 Thomas D. and Virginia W. Cabot Career Development Chair
2014 Pew Scholar in the Biomedical Sciences
2014 American Society of Plant Biologists Early Career Award
2013 Tansley Medal for Excellence in Plant Science
2011 Pioneer Postdoctoral Fellowship
2011 Plant Metabolic Engineering Gordon Research Conference Best Poster Award
2009 PULSe Outstanding Graduate Student in Research Award
2009 PULSe Publication of the Year Award
2009 Bilsland Dissertation Fellowship
2008 Arnold Kent Balls Award for Outstanding Graduate Student in Research
2008 PULSe Travel Award
2007 Beach Travel Award
2005 Phytochemical Society of North America Annual Meeting Best Poster Award
2005 Phytochemical Society of North America Student Travel Award
2003 Lynn Fellowship
2003 Outstanding Undergraduate Researcher Award

## PUBLICATIONS

**Research papers**

†Co-first authors; *Co-corresponding authors.


1. Bessho-Uehara M, Huang W, Patry WL, Browne WE, **Weng JK**, Haddock SHD, (2020) Evidence for de novo biosynthesis of the luminous substrate coelenterazine in ctenophores. *iScience*. 23:101859.
2. Matsumoto T, Harima S, **Weng JK**, Nihei KI. (2020) Systematic approach to the chemical synthesis of arabidopyrones, the unique α-pyrones of Arabidopsis metabolites. *Synth Commun*. 50:2981-2987.
3. Klein IA, Boija A, Afeyan LK, Hawken SW, Fan M, Dall'Agnese A, Oksuz O, Henninger JE, Shrinivas K, Sabari BR, Sagi I, Clark VE, Platt JM, Mrityunjoy Kar M, McCall PM, Zamudio AV, Manteiga JC, Coffey EL, Li CH, Hannett NM, Guo YE, Decker TM, Lee TI, Zhang T, **Weng JK**, Taatjes DJ, Chakraborty A, Sharp PA, Chang YT, Hyman AA, Gray NS, Young RA. (2020) Partitioning of cancer therapeutics in nuclear condensates. *Science.* 368:1386–1392.
4. Cao Y, Lim E, Xu M, **Weng JK**, Marelli B. (2020) Precision delivery of multi-scale payloads to tissue-specific targets in plants. *Adv Sci*. 7:1903551.
5. Torrens-Spence MP, Chiang YC, Smith T, Vicent MA, Wang Y, **Weng JK**. (2020) Structural basis for divergent and convergent evolution of catalytic machineries in plant aromatic amino acid decarboxylase proteins. *Proc Natl Acad Sci U S A*. 117:10806-10817.
6. Kim CY, Mitchell, AJ, Glinkerman CM, Li FS, Pluskal T, **Weng JK**. (2020) The chloroalkaloid (–)-acutumine is biosynthesized via a Fe(II)- and 2-oxoglutarate-dependent halogenase in Menispermaceae plants. *Nat Commun.* 11:1867.
7. Goodheart JA, Minsky G, Brynjegard-Bialik MN, Drummond MS, Munoz JD, Fallon TR, Schultz DT, **Weng JK**, Torres E, Oakley TH. (2020) Laboratory culture of the California Sea Firefly *Vargula tsujii* (Ostracoda: Cypridinidae): Developing a model system for the evolution of marine bioluminescence. *Sci Rep*. 10:10443.
8. Torrens-Spence MP, Bobokalonova A, Carballo V, Glinkerman CM, Pluskal T, Shen A, **Weng JK**. (2019) PBS3 and EPS1 complete salicylic acid biosynthesis from isochorismate in Arabidopsis. *Mol Plant*. 12:1577-1586.
9. Torrens-Spence MP†, Liu CT†, **Weng JK**. (2019) Engineering new branches of the kynurenine pathway to produce oxo-(2-aminophenyl) and quinoline scaffolds in yeast. *ACS Synth Biol*. 8:2735-2745.
10. Chau Y, Levsh O, Li FS, **Weng JK**. (2019) Exploration of icariin analog structure space reveals key features driving potent inhibition of human phosphodiesterase-5. *Plos One*. 14:e0222803.
11. Levsh O, Pluskal T, Carballo V, Mitchell AJ, **Weng JK**. (2019) Independent evolution of rosmarinic acid biosynthesis in two sister families under the Lamiids clade of flowering plants. *J Bio Chem*. 294: 15193-15205. (Featured cover article)
12. Christ B†, Xu C†, Xu M†, Li FS, Wada N, Mitchell AJ, Han XL, Wen ML, Fujita M, **Weng JK**. (2019) Repeated evolution of cytochrome P450-mediated spiroketal steroid biosynthesis in plants. *Nat Commun.* 10:3206.
13. Cheng J, Song T, Wang H, Zhou X, Torrens-Spence MP, Wang D*, **Weng JK***, Wang Q*. (2019) Production of nonnatural straight-chain amino acid 6-aminocaproate via an artificial iterative carbon-chain-extension cycle*. Metab Eng*. 55:23-32.
14. Pluskal T, Torrens-Spence MP, Fallon TR, de Abreu A, Shi CH, **Weng JK**. (2019) The biosynthetic origin of psychoactive kavalactones in kava. *Nat Plants.* 5:867-878.
15. Jacobowitz J, Doyle WC, **Weng JK**. (2019) PRX9 and PRX40 are extensin peroxidases essential for maintaining tapetum and microspore cell wall integrity during Arabidopsis anther development. *Plant Cell*. 31:848–861. (Featured cover article)
16. Li FS, Phyo P, Jacobowitz J, Hong M, **Weng JK**. (2019) The molecular structure of plant sporopollenin. *Nat Plants*. 5:41-46. (Featured cover article)
17. Zhao Q, Yang J, Cui MY, Liu J, Fang Y, Yan M, Qiu W, Shang H, Xu Z, Yidiresi R, **Weng JK**, Pluskal T, Vigouroux M, Steuernagel B, Wei Y, Yang L, Hu Y, Chen XY, Martin C. (2019) The reference genome sequence of *Scutellaria baicalensis* provides insights into the evolution of wogonin biosynthesis. *Mol Plant*. 12:935-950.
18. Torrens-Spence MP†, Liu CT†, Pluskal T, Chung YK, **Weng JK**. (2018) Monoamine biosynthesis via a noncanonical calcium-activatable aromatic amino acid decarboxylase in psilocybin mushroom. *ACS Chem Biol*. 13:3343-3353. (Featured cover article)
19. Kersten RD* and **Weng JK***. (2018) Gene-guided discovery and engineering of branched cyclic peptides in plants. *Proc Natl Acad Sci U S A*. 115:E10961-E10969.
20. Liou G, Chiang YC, Wang Y, **Weng JK**. (2018) Mechanistic basis for the evolution of chalcone synthase catalytic cysteine reactivity in land plants. *J Bio Chem*. 293:18601–18612.

21. Chiang YC, Levsh O, CK Lam, **Weng JK***, Wang Y*. (2018) Structural and dynamic basis of substrate permissiveness in hydroxycinnamoyltransferase (HCT). *PLoS Comput Biol.* 14:e1006511.
22. Fallon TR†, Lower SE†, Chang CH, Bessho-Uehara M, Martin GJ, Bewick AJ, Behringer M, Debat HJ, Wong I, Day JC, Suvorov A, Silva CJ, Stanger-Hall KF, Hall DW, Schmitz RJ, Nelson DR, Lewis S, Shigenobu S, Bybee SM, Larracuente AM, Oba Y, **Weng JK**. (2018) Firefly genomes illuminate parallel origins of bioluminescence in beetles. *eLife*. 7:e36495.
23. Ban Z, Qin H, Mitchell AJ, Liu B, Zhang F, **Weng JK**, Dixon R, Wang G. (2018) Non-catalytic Chalcone Isomerase-fold Proteins in Humulus lupulus are Auxiliary Components in Prenylated Flavonoid Biosynthesis. *Proc Natl Acad Sci U S A*. 115:E5223-E5232.
24. Wada N, Kersten RD, Iwai T, Lee S, Sakurai F, Kikuchi T, Fujita D, Fujita M*, **Weng JK***. (2018) Crystalline Sponge-based Structural Analysis of Crude Natural Product Extracts. *Angew Chem Int Ed*. 57:3671 –3675.
25. Torrens-Spence MP, Pluskal T, Li FS, Carballo V, **Weng JK**. (2018) Complete pathway elucidation and heterologous reconstitution of *Rhodiola salidroside* biosynthesis. *Mol Plant*. 11:205-217.
26. Kersten RD†, Lee S†, Fujita D, Pluskal T, Kram S, Smith JE, Iwai T, Noel JP, Fujita M*, **Weng JK***. (2017) A red algal bourbonane sesquiterpene synthase defined by microgram-scale NMR-coupled crystalline Sponge XRD analysis. *J Am Chem Soc*. 139:16838-16844.
27. Christ B, Hochstrasser R, Guyer L, Francisco R, Aubry S, Hörtensteiner S*, **Weng JK***. (2017) Nonspecific activities of the major herbicide-resistance gene BAR. *Nat Plants.* 3:937–945.
28. Chezem WR, Memon AA, Li FS, **Weng JK**, Clay NK. (2017) SG2-type R2R3-MYB transcription factor MYB15 controls defense-induced lignification and basal immunity in Arabidopsis. *Plant Cell*. 29:1907-1926.
29. Zhao Q, Cui M, Levsh O, Yang D, Liu J, Li J, Hill L, Yang L, Hu Y, **Weng JK**, Chen X, Martin C. (2017) Two CYP82D enzymes function as flavone hydroxylases in the biosynthesis of root-specific 4′-deoxyflavones in *Scutellaria baicelensis*. *Mol Plant*. 11:135–148.
30. Edgar S, Li FS, Qiao K, **Weng JK***, Stephanopoulos G*. (2017) Engineering of taxadiene synthase for improved selectivity and yield of a key taxol biosynthetic intermediate. *ACS Synth Biol*. 6:201-205.
31. Al-Wathiqui N†, Fallon TR†, South A, **Weng JK***, Lewis SM*. (2016) Molecular characterization of firefly nuptial gifts: a multi-omics approach sheds light on postcopulatory sexual selection. *Sci Rep*. 6:38556.
32. Levsh O, Chang YC, Tung C, Noel JP, Wang Y*, **Weng JK***. (2016) Dynamic conformational states dictate selectivity toward native substrate in a substrate-permissive acyltransferase. *Biochemistry.* 55:6314-6326.
33. Fallon TR, Li FS, Vicent-Allende M, **Weng JK**. (2016) Sulfoluciferin is biosynthesized by a specialized luciferin sulfotransferase in fireflies. *Biochemistry.* 55:3341–3344.
34. Zhao Q, Zhang Y, Wang G, Hill L, **Weng JK**, Chen XY, Xue H, Martin C. (2016) A specialized flavone biosynthetic pathway has evolved in the medicinal plant, *Scutellaria baicalensis*. *Sci Adv.* 2:e1501780.
35. **Weng JK**, Ye M, Li B, Noel JP. (2016) Coevolution of hormone metabolism and signaling networks expands plant adaptive plasticity. *Cell.* 166:881-893.
36. **Weng JK**, Li Y, Mo H, Chapple C. (2012) Assembly of an evolutionarily new pathway for α-pyrone biosynthesis in Arabidopsis. *Science*. 337:960-964.
37. Bonawitz ND, Soltau WL, Blatchley MR, Powers BL, Hurlock AK, Seals LA, **Weng JK**, Stout J, Chapple C. (2012) The REF4 and RFR1 subunits of the eukaryotic transcriptional coregulatory complex Mediator are required for phenylpropanoid homeostasis in Arabidopsis. *J Bio Chem*. 287:5434-5445.
38. **Weng JK**, Akiyama T, Ralph J, Chapple C. (2011) Independent recruitment of an *O*-methyltransferase for syringyl lignin biosynthesis in *Selaginella moellendorffii*. *Plant Cell*. 23:2708–2724.
39. Banks JA, Nishiyama T, Hasebe M, Bowman JL, Gribskov M, Depamphilis C, Albert VA, Aono N, Aoyama T, Ambrose BA, Ashton NW, Axtell MJ, Barker E, Barker MS, Bennetzen JL, Bonawitz ND, Chapple C, Cheng C, Correa LG, Dacre M, Debarry J, Dreyer I, Elias M, Engstrom EM, Estelle M, Feng L, Finet C, Floyd SK, Frommer WB, Fujita T, Gramzow L, Gutensohn M, Harholt J, Hattori M, Heyl A, Hirai T, Hiwatashi Y, Ishikawa M, Iwata M, Karol KG, Koehler B, Kolukisaoglu U, Kubo M, Kurata T, Lalonde S, Li K, Li Y, Litt A, Lyons E, Manning G, Maruyama T, Michael TP, Mikami K, Miyazaki S, Morinaga SI, Murata T, Mueller-Roeber B, Nelson DR, Obara M, Oguri Y, Olmstead RG, Onodera N, Petersen BL, Pils B, Prigge M, Rensing SA, Riaño-Pachón DM, Roberts AW, Sato Y, Scheller HV, Schulz B, Schulz C, Shakirov EV, Shibagaki N, Shinohara N, Shippen DE, Sørensen I, Sotooka R, Sugimoto N, Sugita M, Sumikawa N, Tanurdzic M, Theißen G, Ulvskov P, Wakazuki S,

**Weng JK**, Willats WW, Wipf D, Wolf PG, Yang L, Zimmer AD, Zhu Q, Mitros T, Hellsten U, Loqué D, Otillar R, Salamov A, Schmutz J, Shapiro H, Lindquist E, Lucas S, Rokhsar D, Grigoriev IV. (2010) The Selaginella Genome Identifies Genetic Changes Associated with the Evolution of Vascular Plants. *Science*. 332:960-963.
40. **Weng JK**, Mo H, Chapple C. (2010) Over-expression of F5H in COMT-deficient Arabidopsis leads to enrichment of an unusual lignin and disruption of pollen wall formation. *Plant J*. 64:898-911. (Featured cover article)
41. Li X, Bonawitz ND, **Weng JK**, Chapple C. (2010) The growth reduction associated with repressed lignin biosynthesis in *Arabidopsis thaliana* is independent of flavonoids. *Plant Cell*. 22:1620-1632.
42. **Weng JK**, Akiyama T, Bonawitz ND, Li X, Ralph J, Chapple C. (2010) Convergent evolution of syringyl lignin via distinct biosynthetic pathways in the lycophyte *Selaginella* and flowering plants. *Plant Cell*. 22:1033-1045. [Highlighted in the Editor's Choice of *Science* 328:406-407 (2010)]
43. Schilmiller AL, Stout J, **Weng JK**, Humphreys J, Ruegger MO, Chapple C. (2009) Mutations in the *cinnamate 4-hydroxylase* gene impact metabolism, growth and development in Arabidopsis. *Plant J*. 60:771-782.
44. **Weng JK**, Li X, Stout J, Chapple C. (2008) Independent origins of syringyl lignin in vascular plants. *Proc Natl Acad Sci U S A*. 105:7887-7892.
45. Weng HX, **Weng JK**, Yan AL, Hong CL, Yong WB, Qin YC. (2008) Increment of iodine content in vegetable plants by applying iodized fertilizer and the residual characteristics of iodine in soil. *Biol Trace Elem Res*. 123:218-228.
46. Weng HX, Sun XW, **Weng JK**, Qing YC, Dong H. (2008) Crucial roles of iron in the growth of *Prorocentrum micans* Ehrenberg (Dinophyceae). *J Coastal Res*. 24:176-183.
47. **Weng JK**, Tanurdzic M, Chapple C. (2005) Functional analysis and comparative genomics of expressed sequence tags from the lycophyte *Selaginella moellendorffii*. *BMC Genomics*. 6:85.
48. Wang W, Tanurdzic M, Luo M, Sisneros N, Kim HR, **Weng JK**, Kudrna D, Mueller C, Arumuganathan K, Carlson J, Chapple C, de Pamphilis C, Mandoli D, Tomkins J, Wing RA, Banks JA. (2005) Construction of a bacterial artificial chromosome library from the spikemoss *Selaginella moellendorffii*: a new resource for plant comparative genomics. *BMC Plant Bio*. 5:10.
49. Weng HX, Qin YC, **Weng JK**. (2005) Inherent correlation between decreased marine sedimentary phosphorus and glacial atmospheric $CO_2$ decline. *Geophys Res Lett.* 32: L18606.
50. Weng HX, **Weng JK**, Yong WB, Sun XW, Zhong H. (2003) Capacity and degree of iodine absorbed and enriched by vegetable from soil. *J Environ Sci*. 15:107-111.

**Reviews, commentaries, book chapters, and other publications**

1. Torrens-Spence MP, Glinkerman CM, Günther J, **Weng JK**. (2021) Imine chemistry in plant metabolism. *Curr Opin Plant Biol.* 60:101999.
2. Montalbán-López M, Scott TA, Ramesh S, Rahman IR, van Heel A, Viel JH, Bandarian V, Breukink E, Dittmann E, Genilloud O, Goto Y, Burgos MJG, Hill C, Kim S, Koehnke J, Latham J, Link JT, Martínez B, Nair SK, Nicolet Y, Rebuffat S, Sahl HG, Sareen D, Schmidt EW, Schmitt L, Severinov K, Süssmuth RD, Truman A, Wang H, **Weng JK**, van Wezel GP, Zhang Q, Zhong J, Piel J, Mitchell DA, Kuipers OP, van der Donk WA. (2020) New developments in RiPP discovery, enzymology and engineering. *Nat Prod Rep*. 38:130-239.
3. **Weng JK**. (2020) How the flame lily synthesizes a therapeutic natural product. *Nature.* 584:49-50.
4. **Weng JK**. (2020) Plant Solutions for the COVID-19 Pandemic and Beyond: Historical Reflections and Future Perspectives. *Mol Plant.* 13:803-807.
5. Xu SY and **Weng JK**. (2020) Climate change shapes the future evolution of plant metabolism. *Adv Genet*. 1:e10022.
6. Jacobowitz J and **Weng JK**. (2020) Exploring uncharted territories of plant specialized metabolism in the postgenomic era. *Annu Rev Plant Biol*. 71:631-658.
7. Pluskal T, Fallon TR, Schmid R, Korf A, Smirnov A, Du X, **Weng JK**. (2020) Metabolomics data analysis using MZmine. in *Processing Metabolomics and Proteomics Data with Open Software*, edited by Robert Winkler, Royal Society of Chemistry. 232-254.
8. Pluskal T, Hoffmann N, Du X, **Weng JK**. (2020) Mass Spectrometry Development Kit (MSDK): a Java library for mass spectrometry data processing. in *Processing Metabolomics and Proteomics Data with Open Software*, edited by Robert Winkler, Royal Society of Chemistry. 399-405.
9. Mitchell AJ and **Weng JK**. (2019) Unleashing the synthetic power of plant oxygenases: from mechanism to application. *Plant Physiol*. 179:813-829.
10. Renault H*, Werck-Reichhart D*, **Weng JK***. (2019) Harnessing lignin evolution for biotechnological applications. *Curr Opin Biotechnol*. 56:105-111.

11. Christ B, Pluskal T, Aubry S*, **Weng JK***. (2018) Contribution of untargeted metabolomics for future assessment of biotech crops. *Trends Plant Sci*. 23:1047-1056.
12. Hill M and **Weng JK**. (2018) Pièce de Self-Résistance: A New Paradigm for Natural-Product Herbicide Discovery. *Mol Plant*. 11:1115-1116.
13. Pluskal T and **Weng JK**. (2018) Natural product modulators of human sensations and mood: molecular mechanisms and therapeutic potential. *Chem Soc Rev*. 47:1592-1637. (Featured cover article)
14. Li FS and **Weng JK**. (2017) Rediscovering and demystifying ancient herbal medicines with modern approaches. *Nat Plants*. 3:17109.
15. Torrens-Spence MP†, Fallon TR†, **Weng JK**. (2016) A workflow for studying specialized metabolism in non-model organisms. *Methods Enzymol*. 576:69-97.
16. Fallon TR and **Weng JK**. (2014) A molecular gauge for nitrogen economy in plants. *Cell*. 159:977-978.
17. **Weng JK**. (2014) The evolutionary paths towards complexity: a metabolic perspective. *New Phytol*. 201:1141-1149.
18. **Weng JK**. (2013) Elegant Biochemistry, chaotic origin. *New Phytol*. 200:592-594.
19. **Weng JK** and Noel JP. (2013) Chemodiversity in Selaginella: a reference system for parallel and convergent metabolic evolution in terrestrial plants. *Front Plant Sci*. 4:119.
20. **Weng JK** and Noel JP. (2012) The remarkable pliability and promiscuity of specialized metabolism. *Cold Spring Harb Symp Quant Biol*. 77:309-320.
21. **Weng JK**, Philippe RN, Noel JP. (2012) The rise of chemodiversity in plants. *Science*. 336:1667-1670.
22. **Weng JK** and Noel JP. (2012) Structure-function analyses of plant type III polyketide synthases. *Methods Enzymol*. 515:317-335.
23. **Weng JK** and Chapple C. (2010) The origin and evolution of lignin biosynthesis. *New Phytol*. 187:273-285. [Also featured in "a Virtual Special Issue on Sir Arthur Tansley's ecosystem concept". *New Phytol*. 192:561-563 (2011)]
24. **Weng JK**, Banks JA, Chapple C. (2008) Parallels in lignin biosynthesis: a study in *Selaginella moellendorffii* reveals convergence across 400 million years of evolution. *Commun Integr Biol*. 1:20-22.
25. Li X, **Weng JK**, Chapple C. (2008) Improvement of biomass through lignin modification. *Plant J*. 54:569-581.
26. **Weng JK**, Li X, Bonawitz ND, Chapple C. (2008) Emerging strategies of lignin engineering and degradation for cellulosic biofuel production. *Curr Opin Biotechnol*. 19:166-172.
27. **Weng JK**. (1996) A visit to the San Francisco Exploratorium. *Family Education*. 10:33. (in Chinese)

**PATENTS**

1. Chau Y, Li FS, **Weng JK**. Analogs of the natural product icariin. (WO2020033498A1)
2. Kersten RD and **Weng JK**. A biosynthetic approach for heterologous production and diversification of bioactive cyclic peptides. (WO2019144083A1)
3. Pluskal T and **Weng JK**. Enzymatic synthesis of kavalactones and flavokavains. (US2019271015A1)
4. Torrens-Spence MP and **Weng JK**. Compositions and methods for production of salidroside, icariside D2, and precursors of salidroside and icariside D2. (US2019264221A1)
5. Christ B and **Weng JK**. Modified bialaphos resistance acetyltransferase compositions and uses thereof. (US2019249188A1)

**INVITED TALKS**

2021 College of Pharmacy, University of Utah, Salt Lake City, UT (scheduled)
Department of Biological Sciences and Botanic Gardens, Wellesley College, Wellesley, MA (scheduled)

2020 The 2nd China National Conference on Metabolic Biology, Haikou, China (virtual)
Bogor Agricultural University and Sepuluh Nopember Institute of Technology, Indonesia (virtual)
High Value Biorenewables (HVB) Network, UK (virtual)
Applied Pharmaceutical Chemistry annual meeting, Cambridge, MA (virtual)
Plant Biology Seminar Series, Pennsylvania State University, University Park, PA (virtual)
Department of Pharmacology, Capital Medical University, Beijing, China (virtual)
Workshop on Biotechnology and Carbon Removal, Cambridge, MA (virtual)
Cambridge University Biological Society, UK (virtual, video link)
Inari Agriculture, Cambridge, MA (virtual)
The 5th International Conference on Plant Metabolism, Kunming, China (plenary speaker,

postponed)
Royal Society of Chemistry's international conference Directing Biosynthesis VI, Edinburgh, UK (keynote speaker, postponed)
The 59th Annual Meeting of the Phytochemical Society of North America, Kelowna, British Columbia, Canada (keynote speaker, postponed)
Chemistry and Plant Biology Symposium, RIKEN, Tokyo, Japan (keynote speaker, canceled)

2019 Department of Bioengineering, Stanford University, Palo Alto, CA
Plant Synthetic Biology Workshop, UC San Diego, San Diego, CA
Beckman Symposium, Irvine, CA
5th East and West Integrative Medicine Science and Practice Symposium for Allergy and Wellness, New York Medical College, Valhalla, NY
Plant Metabolic Engineering Gordon Research Seminar (keynote speaker), Lucca, Italy
Plants of the Future Conference, New York University, New York City, NY
The Future of Health Technology Summit, Cambridge, MA (video link)
The 1st International Conference on RiPPs, Granada, Spain
BioFrontiers seminar series, Department of Biochemistry, University of Colorado, Boulder, CO
Department of Biochemistry and Molecular Biology, University of Massachusetts, Amherst, MA
Department of Biochemistry, Brandeis University, Waltham, MA
Department of Biochemistry & Biophysics, Texas A & M University, College Station, TX

2018 UNT-PDA Annual Symposium (keynote speaker), University of North Texas, Denton, TX
13th International Conference on Genomics, Shenzhen, China
The Quarter Century Celebration of Boston Biotech Biology Association Symposium, Boston, MA
Department of Chemistry, Purdue University, West Lafayette, IN
Molecular Structure Elucidation Gordon Research Conference, Newry, ME
The 43rd International Conference on Coordination Chemistry, Sendai, Japan
Institute of Plant Molecular Biology, Centre National de la Recherche Scientifique (CNRS), University of Strasbourg, Strasbourg, France
Adventure Innovation, Google, Cambridge, MA
Planetary Biology Connections, Carnegie Institution for Science, Washington, D.C.
Searle Scholar meeting, Chicago, IL
Pew Scholar meeting, Dove Mountain, AZ
Umeå Plant Science Centre, Umeå University, Sweden

2017 Food Allergy Science Initiative Symposium, Broad Institute, Cambridge, MA
MIT ILP Executive Briefing, Cambridge, MA
Whitehead Colloquium, Cambridge, MA
Metabolomics Tech Summit at Weill Cornell, New York City, NY
Conagen, Bedford, MA
Silk Road International Life Science Forum, Yinchuan, China
Department of Chemical Engineering, Tsinghua University, Beijing, China
Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China
Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences, Tianjin, China
Center for Synthetic Biology, Chongqing University, Chongqing, China
The 4th International Conference on Plant Metabolism, Dalian, China
Plant Metabolic Engineering Gordon Research Conference, Waterville Valley, NH
MIT-Educator Program, Cambridge, MA
28th International Conference on Arabidopsis Research, St. Louis, MO
College of Life Sciences, Zhejiang University, Hangzhou, China
China National Gene Bank, Shenzhen, China
Leading Edge Lecture Series, Beckman Research Institute at City of Hope, Duarte, CA
18th Annual Plant Biology Minisymposium, University of Maryland, College Park, MD
3rd East and West Integrative Medicine Science and Practice Symposium for Allergy and Wellness, Icahn School of Medicine at Mount Sinai, New York City, NY
Whitehead Symposium, New York City, NY
School for Integrative Plant Sciences, Cornell University, Ithaca, NY

2016 Biochemistry & Molecular Biology Colloquium Series, Michigan State University, East Lansing, MI
11th International Conference on Genomics, Shenzhen, China

College of Life Sciences, Zhejiang University, Hangzhou, China
Second Institute of Oceanography, State Oceanic Administration, Hangzhou, China
2nd East and West Integrative Medicine Science and Practice Symposium for Allergy and Wellness, Icahn School of Medicine at Mount Sinai, New York City, NY
Department of Genetics, Yale School of Medicine, New Haven, CT
The Inaugural NTU Plant Sciences Symposium (keynote speaker), School of Biological Sciences, Nanyang Technological University, Singapore
Bob B. Buchanan lecture, Department of Plant and Microbial Biology, UC Berkeley, CA
Molecular Structure Elucidation Gordon Research Conference, West Dover, VT
MIT-Educator Program, Cambridge, MA
The 32nd annual meeting of the International Society of Chemical Ecology, Iguazu Falls, Brazil
MIT ILP Executive Briefing, Cambridge, MA
Flagship Ventures, Cambridge, MA
The Future of Health Technology Summit, Cambridge, MA (video link)
Harvard Medical School, Boston, MA
Department of Ecology & Evolutionary Biology, University of Connecticut, Storrs, CT

2015 MIT Annual Research and Development Conference, Cambridge, MA
TEDx Beacon Street, Boston, MA (video link)
DSM Nutritional Products Microbia Inc, Lexington, MA
13th Annual Symposium in Plant Biology (keynote speaker), University of Massachusetts, Amherst, MA
MIT Collaborative Initiatives New Models 7, Cambridge, MA
Next Generation Pteridology, Smithsonian National Museum of Natural History & United States Botanic Garden, Washington D.C.
Beijing Biomedicine Summit (keynote speaker), Beijing, China
The Northeast Section American Society of Plant Biologists Annual Meeting (keynote speaker), Boston, MA
Natural Products Affinity Group Ten-Year Anniversary, UCSD, San Diego, CA
The Broad Institute Gene Circuits LabLinks Symposium, Cambridge, MA
Pew Scholar meeting, Vieques, PR

2014 The Future of Chemistry in Chemical Ecology Symposium, Max Planck Institute for Chemical Ecology, Jena, Germany
Harvard University Herbaria, Cambridge, MA
Department of Biology, Boston University, Boston, MA
PULSe Ten-Year Anniversary Celebration (keynote speaker), Purdue University, West Lafayette, IN
Center of Excellence for Dynamic Molecular Interactions, University of Copenhagen, Copenhagen, Denmark
Plants in New England (PINE) Symposium, Cambridge, MA
Special presentation with Whitehead Institute, New York City, NY
EITA Conference on New Media and Biomedical Research, Cambridge, MA
New Phytologist Next Generation Scientist, John Innes Centre, Norwich, UK
Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing, China
South China Botanical Garden, Chinese Academy of Sciences, Guangzhou, China
The 3rd International Conference on Plant Metabolism, Xiamen, China
School of Life Sciences, Xiamen University, Xiamen, China
The Future of Health Technology Summit, Cambridge, MA (video link)

2013 Natural Products Affinity Group seminar series, San Diego, CA
The Donald Danforth Plant Science Center, St. Louis, MO
Department of Molecular, Cellular and Developmental Biology, Yale University, New Haven, CT
Green Center for Systems Biology, UT Southwestern, Dallas, TX
College of Biological Sciences, UC Davis, Davis, CA
Division of Biological Sciences, UC San Diego, San Diego, CA
Whitehead Institute for Biomedical Research, Cambridge, MA
Department of Biochemistry, Purdue University, West Lafayette, IN
Department of Biochemistry, UCLA, Los Angeles, CA

2012 77th Cold Spring Harbor Symposium on Quantitative Biology: The Biology of Plants, Cold Spring Harbor, NY

2011 Natural Products Affinity Group seminar series, San Diego, CA

2010 Banff Conference on Plant Metabolism, Banff, Canada
Plant and Animal Genome XVIII Conference, San Diego, CA

2009 Plant Cell Walls Gordon Research Conference (keynote speaker), Smithfield, RI

2007 American Society of Plant Biologists Annual Meeting, Chicago, IL
Plant and Animal Genome XV Conference, San Diego, CA

**OTHER OUTREACH ACTIVITIES**

2020 Host of "A day with plants" during the Whitehead Institute summer science program (Expedition: Bio) for middle school students from the greater Boston area (virtual)
Moderator, YOSIA webinar on AI + Chemistry and drug discovery (content link)

2019 Host of MassBioEd's Career Exploration Day for high school students and teachers from Kennedy Academy at Whitehead Institute
Lecturer, Science for the Public Lecture Series (video link)
Host of "A day with plants" during the Whitehead Institute summer science program (Expedition: Bio) for middle school students from the greater Boston area (Two repeated sessions)
Lecturer, YOSIA webinar on synthetic chemistry vs. synthetic biology (content link)
Lecturer, Whitehead Institute Spring into Science lecture series for the Cambridge community
Primary narrator for featured documentary "The Science Behind Traditional Chinese Medicine", LAGP Films (video link)
Host of one-day field trip to Whitehead Institute for high school students from Acton-Boxborough Regional High School, Acton, MA

2018 Panelist, MassBioEd's Career Exploration Day for students from Revere High School
Host of "A day with plants" during the Whitehead Institute summer science program (Expedition: Bio) for middle school students from the greater Boston area (Two repeated sessions)
Host of one-day field trip to Whitehead Institute for high school students from Acton-Boxborough Regional High School, Acton, MA
Panelist, Science and Society Town Hall, Carnegie Institution for Science, Washington, D.C.

2017 Speaker, MassBioEd's Career Exploration Day for students from Essex Technical High School
Panelist, "Food Evolution" panel discussion at Coolidge Corner theater, Brookline, MA
Host of "A day with plants" during the Whitehead Institute summer science program (Expedition: Bio) for middle school students from the greater Boston area (Three repeated sessions)
Host of one-day field trip to Whitehead Institute for high school students from Acton-Boxborough Regional High School, Acton, MA

2016 Guest Scientist at "Science by the Pint" to discuss general topics related to GMO with the general public, Aeronaut Brewery, Somerville, MA
Zaojiu(造就) Talk, Shenzhen, China (TED-style talk channel in China) (video link)
Host of "Exploring the Amazing Plant World" during the Whitehead Institute summer science program (CampBio) for middle school students from the greater Boston area (Three repeated sessions)
Panelist, "The Nuts and Bolts of the Academic Job Search" panel discussion, MIT Graduate Student Council (GSC), Cambridge, MA
Seminar and career discussion with 2nd – 4th graders at Birches School, Lincoln, MA
Host and speaker at the outreach dinner event "Our Dinner Table: The Intersection of Food & Health", Cambridge, MA (Event co-hosted by Community Servings and the Whitehead Institute)
Seminar and career discussion with high school students at the Cambridge Rindge and Latin School, Cambridge, MA

2015 Speaker, MassBioEd's Career Exploration Day for local high school students.
Lecturer, The Science behind Biotech Breakthroughs, Whitehead Seminar Series for High School Teachers, Cambridge, MA

Host of "Biology in Ecology" during the Whitehead Institute summer science program (CampBio) for middle school students from the greater Boston area (Three repeated sessions)
Moderator for panel discussion on "The Safety of Genetically Modified Foods" during the Whitehead Institute spring lecture series for high school students

2014 Host of "Plant Biology Day: Seed for Tomorrow" during the Whitehead Institute summer science program (CampBio) for middle school students from the greater Boston area (Three repeated sessions)
Panelist, "Search for faculty positions" panel discussion, Independent Activities Period (IAP), MIT, Cambridge, MA
Host of one-day field trip to MIT and Whitehead Institute for high school students from Tabor Academy, MA

**TEACHING**

| | | | |
|---|---|---|---|
| 2020-present | MIT | 7.003 | Molecular Biology Laboratory |
| 2020-present | MIT | 7.546/15.480/20.586 | The Science and Business of Biotechnology |
| 2017-present | MIT | 7.015 | Introductory Biology |
| 2016-2018 | MIT | 7.41/7.73 | Principles of Chemical Biology |
| 2015-2017 | MIT | 7.15 | Experimental Molecular Genetics |
| 2017 | Zhejiang University | | Introduction to Life Sciences (guest lecturer) |
| 2016 | MIT | 7.50 | Method and Logic in Molecular Biology (guest lecturer) |
| 2014 | MIT | 7.89 | Topics in Comp & Sys Biology (guest lecturer) |
| 2006 | Purdue University | BCHM307 | Biochemistry (teaching assistant) |

**MENTORING**

2014-present Whitehead Institute and MIT

Postdocs

Current (5): Chris Glinkerman (2018-present), Jason Matos (2019-present), Michelle McKee (2020-present), Corina Simian (2019-present), Menglong Xu (2019-present)

Completed (7): Fu-Shuang Li (2014-2019, Current: Research Scientist, Whitehead Institute), Bastien Christ (2015-2018, SNF postdoctoral fellow, Current: Group Leader, Agroscope, the Swiss Confederation's centre of excellence for agricultural research), Roland Kersten (2015-2019, LSRF postdoctoral fellow, Current: Assistant Professor, University of Michigan), Andrew Mitchell (2017-2019, Current: Scientist, Ginkgo Bioworks), Tomáš Pluskal (2015-2020, HHWF postdoctoral fellow, Current position: Group Leader, Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences), Michael Torrens-Spence (2014-2020, Current: Scientist, Ginkgo Bioworks), Chengchao Xu (2016-2020, HFSP postdoctoral fellow, Current: Group Leader, Shenzhen People's Hospital)

Graduate students

Current (6): Matthew Hill (2018-present, NSF graduate fellow), Wentao Huang (2019-present), Colin Kim (2019-present), Carly Martin (2020-present, NSF graduate fellow), Erin Reynolds (2021-present), Sophia Xu (2017-present, NSF graduate fellow)

Completed (5): Yasmin Chau (Ph.D. 2019, MIT Biology, Current: Scientist, DoubleRainbow Biosciences), Timothy Fallon (Ph.D. 2019, MIT Biology, Current: Postdoc, UCSD), Joseph Jacobowitz (Ph.D. 2020, MIT Biology, Current: Scientist, Ginkgo Bioworks), Olesya Levsh (Ph.D. 2018, MIT Biology, Current: Associate, L.E.K. Consulting), Geoffrey Liou (Ph.D. 2019, MIT Biology, Current: Postdoc, RIKEN)

Undergraduate students (research mentoring)

Current (1): Anru Tian (Undergraduate researcher, MIT Biology, 2020-present)

Completed (27): Andrea De Abreu* (UROP, MIT Biology, 2016-2017), Claire Albright (Undergraduate researcher, Wheaton College, 2019-2020), Maria Vicent Allende* (Williams College, 2015 Williams-Whitehead Summer Internship Program), Anastassia Bobokalonova (UROP, MIT Biology, 2014-2016), Alex Yin-Kwan Chung (The Hong Kong University of Science and Technology, 2017 Summer Internship), Reese Caliman (UROP, MIT Biological Engineering, 2018-2019), Willian Doyle (Williams College, 2017 Williams-Whitehead Summer Internship Program), Jeandele Elliot* (Howard University, 2019 MIT Summer Research Program), Uriel Garcia (Williams College, 2019 Williams-Whitehead Summer Internship Program), Thomas Gate (University of Oxford, Laidlaw

Undergraduate Research and Leadership Fellow, 2018 Summer), Fanqi (QeeQee) Gao (UROP, MIT Biology, 2015), Edoardo Gianni (University College London, 2016 Summer internship), Michael Gutierrez* (Boston College, 2018-2019), Matthew Hill (Purdue University, 2016 Summer Internship), Maya Huffman (Williams College, 2020 Williams-Whitehead Summer Internship Program), Eleane Lema* (UROP, MIT Chemistry, 2019-2020), Brian Levine (Williams College, 2014 Williams-Whitehead Summer Internship Program), Chun-Ting Liu (UROP, MIT Chemistry, 2017-2019), Paul Schwein (UROP, MIT Biology, 2015-2016), Amber Shen (UROP, MIT Biology, 2019), Cindy Shi (MIT Biology, 2017 summer UROP), Alberto Sofra (UROP, Case Western Reserve University, 2020-present), Sheena Vasquez* (Georgia Perimeter College, 2014 HHMI-MIT Summer Research Program), George Yacoub (Williams College, 2019 Williams-Whitehead Summer Internship Program), Jocelyn Yao (UROP, MIT Biological Engineering, 2019-2020), Amy Zhang (UROP, MIT Biology, 2014), Vivian Zhong (UROP, MIT Biological Engineering, 2018-2019)

Undergraduate students (academic advising at MIT)

Current (5): Hieu Dinh (course 6-7, 2020-present), Julia Grim (course 6-7, 2019-present), Stephen Lostetter (course 7, 2019-present), Sahithi Madireddy (course 7, 2020-present), Zachary Prewitt (course 5-7, 2020-present)

Completed (10): Andrea De Abreu* (course 7-8, 2015-2019), Ricardo Albino* (course 6-7, 2015-2018), Yun Boyer (course 6-7, 2017-2019), Karen Gu (course 6-7, 2017-2020), George Hartoularos (course 7, 2014-2016), Chun-Ting Liu (course 5-7, 2019-2020), Jorge Perez (course 6-7, 2019-2021), Miguel Aguilar Ramos* (course 5-7, 2017-2020), Venkatesh Sivaraman (course 6-7, 2017-2020), Jacqueline Xu (course 6-7, 2014-2016)

Visiting scientists (5): Daishi Fujita (University of Tokyo, Japan, 2017-2020), Lea Gram Hansen (University of Copenhagen, Denmark, 2016), Cecilia Ruibal (Universidad de la República, Uruguay, 2014), Naoki Wada (University of Tokyo, Japan, 2018), Menglong Xu (Zhejiang University, 2017-2019)

2009-2013 Salk Institute

Graduate students (3)

Jonathan Hetzel, Helena Sun, Christopher Vickery

2005-2009 Purdue University

Undergraduate students (3)

Kevin Donohue, Yongxiang Hu, Claire Goldsbrough

Graduate students (4)

Tara Anderson*, Nicolas Anderson, Elizabeth Buescher, Yi Li

* denotes students who are underrepresented minorities.

**THESIS COMMITTEE**

Current (5): Yoon Andrew Cho-Park (Ph.D. candidate, MIT Biology, 2016-present), Jianqiao Cui (Ph.D. candidate, MIT Chemical Engineering, 2020-present), Dia Ghose (Ph.D. candidate, MIT Biology, 2019-present), Sora Kim (Ph.D. candidate, MIT Biology, 2017-present), Tyler Toth (MIT Biological Engineering, 2018-present)

Completed (19): Spencer T. Adams Jr. (Ph.D. 2020, University of Massachusetts Medical School, Biochemistry and Molecular Pharmacology), Jessie Berta-Thompson (Ph.D. 2015, MIT Microbiology), Andres Cubillos-Ruiz (Ph.D. 2015, MIT Microbiology), Christopher Dawson (Ph.D. 2020, MIT Biology), Steven Edgar (Ph.D. 2016, MIT Chemical Engineering), Sonya Entova (Ph.D. 2019, MIT Biology), Emerson Glassey (Ph.D. 2021, MIT Biological Engineering), Tedrick Thomas Salim Lew (Ph.D. 2020, MIT Chemical Engineering), Zhaoqi Li (Ph.D. 2020, MIT Biology), Xiaoxiao Ma (Ph.D. 2017, Beckman Research Institute at City of Hope), Conor McClune (Ph.D. 2019, MIT Biology), Nadia Mirza (Ph.D. 2014, University of Copenhagen, Molecular Plant Biology), Ben Morehouse (Ph.D. 2017, Brandeis University, Biochemistry), Robert Saxton (Ph.D. 2018, MIT Biology), Mark Sullivan (Ph.D. 2019, MIT Biology), Levi Teitz (Ph.D. 2018, MIT Biology), Jernej Turnšek (Ph.D. 2019, Harvard University, Biological and Biomedical Sciences), Jacob Wirth (Ph.D. 2019, Brandeis University, Biochemistry), Xiaoqian Yu (Ph.D. 2019, MIT Biological Engineering)

**OTHER PROFESSIONAL ACTIVITIES**

| | |
|---|---|
| 2018-present | Member, Editorial Board, Trends in Biochemical Sciences |
| 2017-present | Member, Editorial Board, The Plant Cell |
| 2014-present | Guest editor for *eLife* and *Current Opinion in Plant Biology* |
| 2014-present | *Ad hoc* reviewer for grant and project proposals<br>U.S. Department of Agriculture (NIFA 2019), U.S. Department of Energy (BER 2019), U.S. National Science Foundation (CHE 2018, MCB 2019, MCB 2020, DEB 2021), University of Strasbourg Institute for Advanced Study (2017), Taylor & Francis Group (2014), Charles A. King Trust Postdoctoral Fellowship (2014), and United States-Israel Binational Science Foundation (2014) |
| 2017-present | Co-Founder and Board Director, DoubleRainbow Biosciences |
| 2019-present | Member, Scientific Advisory Board, Galixir |
| 2016-present | Member, Scientific Advisory Board, Inari Agriculture |
| 2016-2019 | Member, Scientific Advisory Board, BGI |
| 2014-2016 | Member, Scientific Advisory Board, Phylos Bioscience |
| 2014-present | Member, Advisory Board, Harvard Medical School - Chinese Scholars and Scientists Association (HMS-CSSA) |
| 2018 | MIT Biology IAP faculty coordinator |
| 2013 | Co-Chair of the 2013 Gordon Research Seminar on Plant Metabolic Engineering |
| 2011-2013 | Editorial Board, ISRN Botany |
| 2008-2011 | Curator for the Selaginella genome project |
| 2007-present | Guest Editor for peer-reviewed journals<br>*Current Opinion in Plant Biology, eLife* |
| 2007-present | *Ad hoc* reviewer for peer-reviewed journals<br>*ACS Central Science, ACS Chemical Biology, ACS Synthetic Biology, Biochemistry, Bioinformatics and Biology Insights*, *Cell Research, Crystal Growth & Design, Current Topics in Medicinal Chemistry, eLife, Frontiers in Plant Science, International Journal of Biological Macromolecules, ISRN Botany, Journal of Experimental Botany, Microbial Biotechnology, Molecular Biology and Evolution, Molecular Plant, Nature, Nature Biotechnology, Nature Chemical Biology, Nature Communications, Nature Plants, New Phytologist, Plant Biology, Plant Cell, Plant Journal, Plant Physiology, Plant Science, Plos Genetics, Plos One, PNAS, Science, Science Advances, Phytochemistry, Scientific Reports, Recent Advances in Phytochemistry*, *Tetrahedron, Trends in Biochemical Sciences*. |

**GRANT SUPPORT**

Chan Zuckerberg Initiative, “A plant small-molecule discovery platform to study neurodegeneration”, 12/1/20-11/30/21, Co-PI

Gordon & Betty Moore Foundation, “Symbiosis in Aquatic Systems Initiative: symbiosis model systems solicitation”, 4/25/20-3/1/23, Co-PI

Mathers Foundation, “A branched cyclic peptide engine for target-based drug discovery in living cells”, 12/1/19-11/30/22, PI

Keck Foundation, “Harnessing plant-virus interactions for evolving biocatalysts at will”, 7/1/19-6/30/22, PI

Scialog/Research Corporation for Science Advancement, “Synthetic Organelle Biology: Engineering Photosynthetic Animal Cells”, 3/1/19-5/1/20, Co-PI

Scialog/Gordon & Betty Moore Foundation, “A plant cell-based platform to target human proteostasis diseases”, 3/1/19-5/1/20, Co-PI

The Smith Family Foundation Odyssey Award, “Novel Psychiatric Therapeutics Inspired by Bioactive Plant Polyketides”, 8/1/18-7/31/20, PI

National Science Foundation, “Elucidation and engineering of complete firefly luciferin biosynthesis”, 9/1/18-8/31/21, PI

Charles E. Reed Faculty Initiatives Fund, MIT, “Single-molecule Protein Encapsulation by Self-assembly Chemistry”, 7/1/18-6/30/19, PI

National Science Foundation, “Thiol-based redox switch in plant flavonoid biosynthesis”, 07/20/2017-07/19/2020, PI

Edward N. & Della L. Thome Memorial Foundation, “Bioactive cyclic peptides as potential therapeutics for Alzheimer’s Disease”, 04/01/17-12/31/18, PI

The Larsson-Rosenquist Foundation, “Probing the effective and toxic principles of four herbal galactagogues”, 01/01/17-12/31/21, PI

Beckman Foundation, “Exploring and exploiting firefly and coelenterate luciferin biosynthesis”, 09/01/16-8/31/20, PI

MIT Alumni Class Funds, “Implementing a modern multi-omics approach in experimental molecular genetics project lab (7.15)” (for undergraduate teaching), 07/01/16-06/30/17, PI

Jeptha and Emily V. Wade Award, “Tapping plant chemodiversity to find cures for protein folding diseases”, 07/01/15-06/30/16, PI

Searle Scholars Program, “Mechanistic basis for thiol-based redox switches in metabolic enzymes”, 07/01/15-06/30/18, PI

Pew Scholars Program, “Elucidating the key action mechanisms of guanidine-based, anti-diabetic drugs”, 07/01/14-06/30/18, PI