Tomokazu Kawashima, PhD

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Google Scholar: https://scholar.google.com/citations?user=by0rMJ4AAAAJ&hl=en
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Degrees Received

2009 Ph.D. in Molecular, Cell, & Developmental Biology, University of California, Los Angeles, CA, USA
2002 B.S. in Biology, University of Tsukuba, Ibaraki, JAPAN

Present and Past Positions

2022.7 – Present	Chair, Agricultural and Medical Biotechnology Undergraduate Program, University of Kentucky, USA
2022.7 – Present	Associate Professor, Dept. of Plant and Soil Sciences, University of Kentucky, USA
2016.9 – 2022.6	Assistant Professor, Dept. of Plant and Soil Sciences, University of Kentucky, USA
2014.4 – 2016.8	Senior Post-doc, Fred Berger Group, Gregor Mendel Institute, Vienna, AUSTRIA
2010.7 – 2014.4	Research Fellow, Fred Berger Group, Temasek Life Sciences Laboratory, Singapore, SINGAPORE
2009.12 – 2010.6	Post-doc, Bob Goldberg Laboratory, University of California, Los Angeles, CA, USA

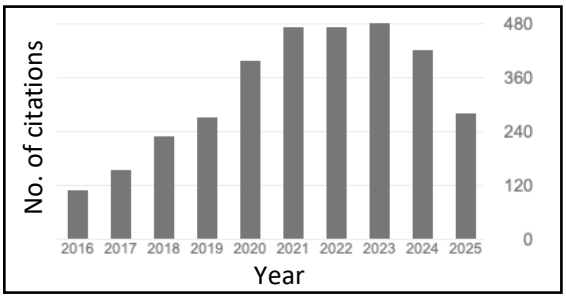
Research Interests

The goal of my research program is to understand the molecular, cellular, and evolutionary mechanisms of how flowering plants control double fertilization and seed development. Using confocal time-lapse live-cell imaging, genetics, and molecular and cell biology techniques, we are investigating *Arabidopsis thaliana* gamete nuclear migration at fertilization and endosperm development of the seed. In addition, using soybean as a crop model, we are dissecting out the mechanism of how soybean plants integrate environmental cues into seed gene expressions that alter seed development and yields.

During land plant evolution, plants have changed sperm delivery strategies to the female gamete for fertilization. In early diverging land plants such as bryophytes and ferns, their sperm are motile and swim to the female gamete. By contrast, flowering plants produce immotile sperm cells, which are delivered to the female gamete via a pollen tube. We use the liverwort, *Marchantia polymorpha*, as the early diverging land plant model, and perform comparative genetics/genomics to elucidate the molecular mechanism of how differences in the mode of sperm delivery were established.

Publications

The following citation metrics were downloaded from Google Scholar (8/25/2025).



- Publication No.: 43
- No. of citations: 3,627
- h-index: 20
- i10-index: 30

h-Index = number of papers (*h*) with a citation number ≥ *h*.
i10-Index = the number of publications with at least 10 citations.

Peer-Reviewed

* indicates corresponding author, † indicates my PhD student, ‡ indicates my postdoc scholar, § indicates my lab technician, and ¶ indicates my undergraduate student. The impact factor (IF) of the journal for the year published was taken from the Web of Science.

1. Zhang Y‡, **Kawashima T***. The mechanism of sperm (pro)nuclear migration in plants and animals. ***Current Topics in Developmental Biology*** (2025)
   https://www.sciencedirect.com/science/article/pii/S0070215324001108
   This is an invited contribution and my postdoc and I are drafting the manuscript.

2. Roy T, Lee JY, **Kawashima T**, Monroe G, Chakrabarty P. The PO-Driven Model: A Basic Science Pipeline for the Bioeconomy with Solutions Inspired by Convergent Evolution. ***Integrative & Comparative Biology*** (2024)
   https://academic.oup.com/icb/advance-article/doi/10.1093/icb/icae156/7929016
   I contributed the section of convergent evolution example observed between flowering plant endosperm and drosophila embryo development.

3. Unêda-Trevisoli SH, Dirk LMA, Bezerra Pereira FEC, Chakrabarti M, Hao G, Campbell JM, Nayakwadi BSD, Morrison S; Joshi S, Perry SE, Vijyesh Sharma†, Mensah C; Willard B; Lorenzo Ld, Afroza B, Hunt AG, **Kawashima T**, Vaillancourt L, Guariz Pinheiro D, Downie AB. Dehydrin client proteins identified using phage display affinity selected libraries processed with Paired-End PhAge Sequencing (PEPA-Seq). ***Molecular & Cellular Proteomics***
   https://www.sciencedirect.com/science/article/pii/S1535947624001579
   My PhD student and I supervised confocal microscopy work. *IF = 6.1*

4. Sugi N, Calhau ARM, Jacquier NMA, Millan-Blanquez M, Becker JD, Begcy K, Berger F, Bousquet-Antonelli C, Bouyer D, Cai G, Cheung AY, Coimbra S, Denninger P, Dresselhaus T, Feijó JA, Fowler JE, Geelen D, Grossniklaus U, Higashiyama T, Honys D, Igawa T, Ingram G, Jaillais Y, Johnson MA, Kato M, Kawachi M, **Kawashima T**, Kim YJ, Li HJ, Mongrand S, Motomura K, Nagahara S, Nakajima KP, Nelms B, Qu LJ, Schnittger A, Scholten S, Sprunck S, Sun MX, Twell D, Weijers D, Yang WC, Maruyama D, Widiez T. The peri-germ cell membrane: poorly characterized but key interface for plant reproduction. ***Nature Plants*** (2024)
   https://www.nature.com/articles/s41477-024-01818-5
   As a part of the community members, I contributed to the discussion and manuscript editing. *IF = 15.8*

5. Sharma V[†], Ali MF[†], **Kawashima T***. Insights into Dynamic Endosperm Development: Unraveling Molecular, Cellular, and Growth Complexity. ***Current Opinion in Plant Biology*** 81:102566 (2024) https://www.sciencedirect.com/science/article/abs/pii/S1369526624000578
I was invited to write this review. My students wrote this manuscript under my supervision. IF = 9.5

6. Ohnishi Y[‡]*, **Kawashima T***. Evidence of a novel silencing effect on transgenes in the Arabidopsis thaliana sperm cell. ***Plant Cell*** 35:3926-3936 (2023) https://doi.org/10.1093/plcell/koad219
My postdoc led the project under my supervision. IF = 12.085

7. Ali MF[†], Shin JM[‡], Fatema U[†], Kurihara D, Berger F, Yuan L, **Kawashima T***. Cellular dynamics of coenocytic endosperm in Arabidopsis thaliana. ***Nature Plants*** 9:330-342 (2023) https://www.nature.com/articles/s41477-022-01331-7
My PhD students and postdoc performed the work under my supervision. IF = 17.352

8. Susaki D, Izumi R, Oi T, Takeuchi H, Shin JM[‡], Sugi N, Kinoshita T, Higashiyama T, **Kawashima T**, Maruyama D. F-actin regulates polarized secretion of pollen tube attractants in *Arabidopsis* synergid cell. ***Plant Cell*** 35:1222-1240 (2023) https://doi.org/10.1093/plcell/koac371
We contributed F-actin lines and image data quantitative analyses. IF = 12.085

9. Shin JM[‡], **Kawashima T***. Live-cell imaging reveals the cellular dynamics in seed development. ***Plant Science*** 325:111485 (2022) https://www.sciencedirect.com/science/article/pii/S0168945222003107
We were invited to contribute this review to the journal. IF = 5.363

10. Ali MF[†], Brown P, Thomas J[¶], Salmeron M*, **Kawashima T***. Effect of shading and pod competition during early soybean seed development. ***Plant Reproduction*** 35:179-188 (2022) https://link.springer.com/article/10.1007/s00497-022-00439-2
My PhD student led the project under my supervision. IF = 4.217

11. Julca I, Ferrari C, Flores-Tornero M, Proost S, Lindner AC, Hackenberg D, Steinbachová L, Michaelidis C, Pereira SG, Misra CS, **Kawashima T**, Borg M, Berger F, Goldberg J, Johnson M, Honys D, Twell D, Sprunck S, Dresselhaus T, Becker JD, Mutwil M. Comparative transcriptomic analysis reveals conserved programms underpinning organogenesis and reproduction in land plants. ***Nature Plants*** 7:1143-1159 (2021) https://doi.org/10.1038/s41477-021-00958-2
I contributed Marchantia polymorpha sperm RNA-seq data. IF = 15.793

12. Chiluwal A, **Kawashima T**, Salmeron M*. Soybean weight responds to increase in assimilate supply during late seed-fill. ***Journal of Crop Improvement*** (2021) https://doi.org/10.1080/15427528.2021.1943732
I participated in the work of Dr. Montse Salmeron's group and edited the manuscript. IF = 0.44

13. Sharma V[†], Clark AJ[§], **Kawashima T***. Insights into the molecular evolution of fertilization mechanism in land plants. ***Plant Reproduction*** 34:353-346 (2021) https://doi.org/10.1007/s00497-021-00414-3
My PhD students and lab tech wrote the manuscript and I edited it for submission. IF = 4.087

14. Ali MF[†] and **Kawashima T***. Formins control dynamics of F-actin in the central cell of Arabidopsis thaliana. ***Plant Signaling & Behavior*** 1920192 (2021) https://doi.org/10.1080/15592324.2021.1920192
My PhD student carried out the experiment and wrote the manuscript under my supervision. *IF = 2.734*

15. Ali MF[†], Fatema U[†], Peng X, Hacker SW[¶], Maruyama D, Sun MX, **Kawashima T***. ARP2/3-independent WAVE/SCAR pathway and class XI myosin control sperm nuclear migration in flowering plants. ***Proceedings of the National Academy of Sciences of the U.S.A.*** 117:32757-32763 (2020) https://doi.org/10.1073/pnas.2015550117
This is the work based on my PhD student's project. *IF = 11.205*

16. Shin JM[‡], Yuan L, Ohme-Takagi M, **Kawashima T***. Cellular dynamics of double fertilization and early embryogenesis in flowering plants. ***JEZ-B Molecular and Developmental Evolution*** (2020) https://doi.org/10.1002/jez.b.22981
I was invited to write this review. My postdoc wrote this manuscript under my supervision. *IF = 2.656*

17. Borg M, Jacob Y, Susaki D, LeBlanc C, Buendía D, AxelssonE, **Kawashima T**, Voigt P, Boavida L, Becker J, Higashiyama T, Martienssen R, Berger F. Targeted reprogramming of H3K27me3 resets epigenetic memory in plant paternal chromatin. ***Nature Cell Biology*** 22:621-629 (2020) https://doi.org/10.1038/s41556-020-0515-y
I contributed sperm cell RNA-seq data generation and analysis. *IF = 28.824*

18. Pampolini F, Rodrigues TB, Leelesh RS, **Kawashima T**, Rieske LK. Confocal microscopy provides visual evidence and confirms the feasibility of dsRNA delivery to emerald ash borer through plant tissues. ***Journal of Pest Science*** 93:1143-1153 (2020) https://doi.org/10.1007/s10340-020-01230-w
I helped Rieske's lab for confocal microscopy and image analysis. *IF = 5.918*

19. Ohnishi Y[‡] and **Kawashima T*** Plasmogamic paternal contributions to early zygotic development in flowering plants. ***Frontiers in Plant Science*** 11:871 (2020) https://doi.org/10.3389/fpls.2020.00871
My postdoc and I wrote this manuscript. *IF = 5.753*

20. Hisanaga T[1], Yamaoka S[1], **Kawashima T**[1], Higo A, Nakajima K, Araki T, Kohchi T, Berger F. Building new insights in plant gametogenesis from an evolutionary perspective. ***Nature Plants*** 5:663-669 (2019) https://doi.org/10.1038/s41477-019-0466-0
This is a collaborative work among labs internationally. I contributed 1/3 of the manuscript content. ***[1]co-first authors.*** *IF = 13.256*

21. Fatema U[†], Ali MF[†], Hu Z[†], Clark JA[§], **Kawashima T***. Gamete nuclear migration in animals and plants ***Frontiers in Plant Science*** 10:517 (2019) https://doi.org/10.3389/fpls.2019.00517
My PhD students wrote this manuscript under my supervision. *IF = 4.402*

22. Higo A[1], **Kawashima T**[1], Borg M, Zhao M, Lopez-Vidriero I, Sakayama H, Montgomery SA, Sekimoto H, Hackenberg D, Shimamura M, Nishiyama T, Sakakibara K, Tomita Y, Togawa T, Kunimoto K, Suzuki Y, Osakabe A, Yamato KT, Ishizaki K, Nishihama R, Kohchi T, Franco-Zorrilla JM, Twell D, Berger F, Araki T. Transcription factor DUO1 generated by neo-functionalization is associated with evolution of sperm differentiation in plants ***Nature Communications*** 9:5283 (2018) https://doi.org/10.1038/s41467-018-07728-3

As the lead scientist during my postdoc, I conceived the project, organized the international collaborative work, carried out half of the work, and wrote the manuscript. ***[1]co-first authors****.* *IF = 11.878*

23. Henry KF, Bui AQ, **Kawashima T**, Goldberg, RB. A shared *cis*-regulatory module activates transcription in the suspensor of plant embryos. ***Proceedings of the National Academy of Sciences of the U.S.A.*** 115:E5824-E5833 (2018) https://doi.org/10.1073/pnas.1805802115
This paper is based on a part of my PhD work. I contributed a portion of the data as well as manuscript editing. *IF = 9.580*

24. Motomura K, **Kawashima T**, Berger F, Kinoshita T, Higashiyama T, Maruyama D. A pharmacological study of *Arabidopsis* cell fusion between the persistent synergid and endosperm. ***Journal of Cell Science*** 131, jcs204123 (2018) https://doi.org/10.1242/jcs.204123
I contributed essential constructs and edited a manuscript. *IF = 4.517*

25. Bowman JL, *et al.* Insights into land plant evolution garnered from the *Marchantia polymorpha* genome. ***Cell*** 171 2:287-304 (2017) https://doi.org/10.1016/j.cell.2017.09.030
This is a huge international collaborative work and I contributed analyzing chromatin related genes in the Marchantia polymorpha genome. *IF = 30.410*

26. Kimata Y, Higaki T, **Kawashima T**, Kurihara D, Sato Y, Yamada T, Hasezawa S, Berger F, Higashiyama T, Ueda M. Cytoskeleton dynamics control the first asymmetric cell division in *Arabidopsis* zygote. ***Proceedings of the National Academy of Sciences of the U.S.A.*** 113: 14157-14162 (2016) https://doi.org/10.1073/pnas.1613979113
I contributed essential constructs and edited a manuscript. *IF = 9.661*

27. Motomura K, Berger F, **Kawashima T**, Kinoshita T, Higashiyama T, Maruyama D. Fertilization-independent cell-fusion between the synergid and central cell in the polycomb mutant. ***Cell Structure and Function*** 41:121-125 (2016) https://doi.org/10.1247/csf.16010
I contributed essential constructs and edited a manuscript. *IF = 2.391*

28. **Kawashima T**, Lorković ZJ, Yelagandula R, Nishihama R, Ishizaki K, Axelsson E, Kohchi T, Berger F. Identification and phylogeny of histone H2A variants in non-flowering plants. ***Trends in Plant Science*** 20:419-425 (2015) https://doi.org/10.1016/j.tplants.2015.04.005
I led the organization of this manuscript and wrote the major part. *IF = 10.889*

29. Henry KF, **Kawashima T**, Goldberg RB. A *cis*-regulatory module activating transcription in the suspensor contains five *cis*-regulatory elements. ***Plant Molecular Biology*** 88:207-217 (2015) https://doi.org/10.1007/s11103-015-0308-z
This paper is based on a part of my PhD work. *IF = 3.905*

30. Maruyama D, Völz R, Takeuchi H, Mori T, Igawa T, Kurihara D**, Kawashima T**, Tiedemann S, Ueda M, Itoh M, Masaaki U, Nishikawa S, Groß-Hardt R, Higashiyama T. Rapid elimination of the persistent synergid through a cell fusion mechanism. ***Cell*** 161:907-918 (2015) https://doi.org/10.1016/j.cell.2015.03.018
I contributed essential constructs and data analysis, and I led the manuscript editing. *IF = 28.710*

31. **Kawashima T** and Berger F. The central cell nuclear position at the micropylar end is maintained by the balance of F-actin dynamics, but dispensable for karyogamy. ***Plant Reproduction*** 28:103-110 (2015) https://doi.org/10.1007/s00497-015-0259-1
This is my postdoc work. I did all the work and writing. *IF = 2.629*

32. **Kawashima T**, Maruyama D, Shagirov M, Li J, Hamamura Y, Yelagandula R, Toyama Y, Berger F. Dynamic F-actin movement is essential for fertilization in Arabidopsis thaliana. ***eLIFE*** 2014;3:e04501 (2014) https://doi.org/10.7554/eLife.04501.001
This is my postdoc work. I did the majority of the work and all the writing. *IF = 9.322*

33. **Kawashima T** and Berger F. Epigenetic reprogramming in plant sexual reproduction. ***Nature Reviews Genetics*** 15:613-24 (2014) https://doi.org/10.1038/nrg3685
This review was written together with my postdoc advisor. *IF = 36.978*

34. Yelagandula R, Stroud H, Holec S, Zhou K, Feng S, Zhong X, Muthurajan M, Nie X, **Kawashima T**, Groth M, Luger K, Jacobsen SE, Berger F. The histone variant H2A.W defines heterochromatin and promotes chromatin condensation in *Arabidopsis*. ***Cell*** 158:98-109 (2014) https://doi.org/10.1016/j.cell.2014.06.006
I contributed essential constructs and data analysis. *IF = 32.242*

35. **Kawashima T** and Berger F. Green love talks; cell–cell communication during double fertilization in flowering plants. ***AoB Plants*** 2011:plr015 (2011) https://doi.org/10.1093/aobpla/plr015
This is my postdoc work. I did all the work and writing. *IF = 1.743*

36. **Kawashima T** and Goldberg RB. The suspensor: not just suspending the embryo. ***Trends in Plant Science*** 15:23-30 (2010) https://doi.org/10.1016/j.tplants.2009.11.002
This is my PhD work. Under my PhD supervisor's direction, I wrote this manuscript. *IF = 10.095*

37. **Kawashima T**, Wang X, Henry KF, Bi Y, Weterings K, Goldberg RB. Identification of *cis*-regulatory sequences that activate transcription in the suspensor of plant embryos. ***Proceedings of the National Academy of Sciences of the U.S.A.*** 106:3627-3632 (2009) https://doi.org/10.1073/pnas.0813276106
This is my main PhD work. *IF = 9.432*

38. Le BH[1], Wagmaister JA[1], **Kawashima T**[1], Bui AQ, Harada JJ, Goldberg RB. Using genomics to study legume seed biology. ***Plant Physiology*** 144:562-574 (2007) https://doi.org/10.1104/pp.107.100362
Three co-first authors wrote this manuscript together. ***[1]co-first authors*** *IF = 6.367*

Book Chapter & Commentary

39. **Kawashima T*** Sperm chromatin needs to relax to get seed started. ***Plant & Cell Physiology*** 61:1-2 (2020) https://doi.org/10.1093/pcp/pcz211 *I was invited to write this commentary.* *IF = 4.062*

40. **Kawashima T*** and Johnson M. Gifu 2018: meeting of the International Association of Sexual Plant Reproduction. ***Plant Reproduction*** 32:137-139 (2018) https://doi.org/10.1007/s00497-018-00352-7

I was invited to write this meeting report. *IF = 2.976*

41. Susaki D, Maruyama D, Yelagandula R, Berger F, **Kawashima T***. Live-cell imaging of F-actin dynamics during fertilization in *Arabidopsis thaliana*. In: Schmidt A. (eds) Plant Germline Development. **Methods in Molecular Biology**, vol 1669. Humana Press, New York, NY (2017) https://doi.org/10.1007/978-1-4939-7286-9_4 *I was invited to write this book chapter.* *IF = 1.828*

42. Yelagandula R, Osakabe A, Axelsson E, Berger F, **Kawashima T***. Genome wide profiling of histone modifications and histone variants in *Arabidopsis thaliana* and *Marchantia polymorpha.* In: Busch W. (eds) Plant Genomics. **Methods in Molecular Biology**, vol 1610. Humana Press, New York, NY (2017) https://doi.org/10.1007/978-1-4939-7003-2_7 *I was invited to write this book chapter.* *IF = 1.828*

43. Maruyama D, **Kawashima T**, Higashiyama T. Selective nuclear elimination in multinucleate cells. ***Oncotarget*** 6:30447-30448 (2015) https://doi.org/10.18632/oncotarget.5450
I edited the first author's draft for publication. *IF = 5.008*

Under Review or In Preparation

44. Nagahage I[‡], **Kawashima T***. Chapter 7 on Fertilization. In: Hojsgaard D. (eds). **Molecular Embryology of Angiosperms**. Springer. (Under review)
This is an invited book chapter contribution and my postdoc and I are drafting the manuscript.

45. Shivakumar A[†], Ali MF[†], Kromer K[¶], **Kawashima T***. The early seed development phase predetermines the potential maximum size of seeds in soybean. (Under review)
My PhD students conducted the research and wrote this manuscript. My undergraduate student also participated in this project.

46. Sharma V[†], Sullivan J[¶], **Kawashima T***. Exploring the expression of Class II formin during sexual plant reproduction in Arabidopsis thaliana. In Preparation
My undergraduate and PhD students conducted the research and wrote this research manuscript.

47. Shivakumar A[†], Ali MF[†], **Kawashima T***. Investigating relationships among seed development, final seed size, and genotypes in soybean. In Preparation
My PhD students conducted the research and wrote this manuscript.

Research Presentations

I have presented my research more than 100 times *as the first author* at national/international conferences, workshops, and institutional meetings. The list shows the ones that *I was selected or invited for oral presentation*.

Conferences & Workshops

1. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. Gregor Mendel Institute 25th Anniversary Symposium. Vienna, Austria. May 23, 2025 (*Invited*)

2. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. Cold Spring Harbor Asia, Plant Reproductive and Genomics. Awaji, Japan. May 18-21, 2025 (*Invited*)
3. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. FMC Young Investigator Award. Newark, DE. April 15, 2025 (*Invited*)
4. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. UC Davis Seed Company Consortium. Davis, CA. January 28, 2025 (*Invited*)
5. Unlocking the Secrets: Sperm Nuclear Migration in Flowering Plant Fertilization. *Gordon Research Conference on Plant and Microbial Cytoskeleton*, Andover, NH. August 11-16, 2024 (*Invited*)
6. Unveiling the Actin Symphony: Orchestrating Endosperm Growth for Bountiful Seeds. *Gordon Research Conference on Plant Molecular Biology*, Holderness, NH. June 9-14, 2024 (*Invited*)
7. Dynamics in plant fertilization. *ASPB annual meeting.* Savannah, GA. August 6-9, 2023 (*Invited*)
8. *Cellular dynamics of coenocytic endosperm development in Arabidopsis thaliana*. *Biannual International Conference on Seed Sciences.* Paris, France. July 3-7, 2023 (*Invited as the **keynote speaker** of the session*)
9. Dynamics in plant fertilization. *Plant Cell Dynamics XI.* UW-Madison. May 22-25, 2023 (*selected*)
10. Dynamics in coenocytic endosperm development. *Plant Biology of the Next Generation, SFB924, Technical University of Munich, Germany.* April 12-14, 2023 (*Invited*)
11. Cellular dynamics of endosperm development in *Arabidopsis thaliana*. *The Mechanism of Plant Development Conference, Federation of American Societies for Experimental Biology,* Vermont, July 24-29, 2022 (*Invited*)
12. Novel pathways controlling sperm nuclear migration during flowering plant fertilization. *The 26th International Congress on Sexual Plant Reproduction*. Prague, Czech Republic, June 20-24, 2022 (*Invited as the **keynote speaker** of the session)*
13. Molecular and cellular dynamics of fertilization and endosperm development in Arabidopsis thaliana. *The 85th Annual Meeting of the Botanical Society of Japan.* September 16-20, 2021 (*Invited*)
14. Molecular mechanism controlling sperm nuclear migration in flowering plants. *Gametes meet in the time of COVID-19, the replacement virtual meeting for the canceled the Gordon Research Conference: Fertilization and Activation of Development.* July 25-30, 2021 (*Invited*)
15. Deciphering dynamics of seed endosperm development. *Japan XR Science Forum 2020 in Midwest.* July 12, 2020 (*Invited*)
16. Dynamic F-actin movement and structures from fertilization through early developmental stage in *Arabidopsis thaliana* endosperm. *The 25th International Congress on Sexual Plant Reproduction.* Gifu, Japan, June 2018 (*Selected*)
17. Cellular dynamics in *Arabidopsis* fertilization. *The 59th Annual Meeting of the Japanese Society of Plant Physiologists.* Hokkaido, Japan, March 2018 (*Invited*)
18. Extended comparative approaches to identify agriculturally useful genes in plants. *Global Biotechnology Congress.* Boston, MA, USA, July 2017 (*Invited)*
19. Cytoskeleton dynamics in seeds and evolution of sexual plant reproduction in land plants. *The 2nd International Marchantia Training Course*. Kyoto, Japan, December 2016 (*Invited*)
20. Evolution of male germline development in the green plant lineage. *The 24th International Congress on Sexual Plant Reproduction*. Tucson, AZ, USA, March 2016 *(Selected)*
21. Evolution of plant-specific histone variant H2A.M/W in the green plant lineage. *The 3rd Histone Variant Meeting.* Tokyo, Japan, February 2016 (*Invited*)
22. Dynamic F-actin movement is essential for fertilization in flowering plants. *The 79th Annual Meeting of the Botanical Society of Japan*, Niigata, Japan, September 2015 (*Invited*)

23. Dynamic F-actin movement is essential for fertilization in flowering plants. *Viennese Plant Networking,* Vienna, Austria, February 2015 (*Invited*)
24. Dynamic F-actin movement is essential for fertilization in flowering plants. *XXII Cytoskeletal Club,* Vranovská Ves, Czech Republic, May 2014 (*Invited*)
25. Dynamic F-actin movement is essential for fertilization in flowering plants. *The 55th Annual Meeting of the Japanese Society of Plant Physiologists*. Toyama, Japan, March 2014 (*Selected)*
26. Novel cytoskeleton dynamics for fertilization in flowering plants. *The 36th Annual Meeting of the Molecular Biology Society of Japan*. Kobe, Japan, December 2013 (*Invited*)
27. Novel cytoskeleton dynamics for fertilization in flowering plants. *Gordon Research Conferences: Fertilization & Activation of Development*. NH, USA, July 2013 (*Selected*)
28. Dissecting suspensor gene regulatory networks. *The 20th International Congress on Sexual Plant Reproduction.* Brasilia, Brazil, August 2008 (*Selected*)

Department Seminar (Invited)

1. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. Department of Plant and Soi Sciences, University of Delaware. Newark, DE. April 16, 2025 (*Invited*)
2. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. INRES de Lyon, France. March 17, 2025 (*Invited*)
3. Actin Tug of War: Controlling Nuclear Movement in Endosperm for Seed Size. Max Planck Institute – Plant Molecular Biology, Potsdam, Germany. 19, 2025 (*Invited*)
4. Dynamics in plant fertilization and endosperm development. *Dept. of Biology, Tokyo University,* JAPAN, October 22, 2024
5. Dynamics in plant fertilization and endosperm development. *Dept. of Biology, Toyo University,* JAPAN, October 18, 2024
6. Dynamics in plant fertilization and endosperm development. *Dept. of Biology, Indiana University,* Bloomington, September 3, 2024
7. Dynamics in plant fertilization and endosperm development. *Dept. of Biology, Tokyo Metropolitan University*, Japan. June 27, 2024
8. Dynamics in plant fertilization and endosperm development. *Dept. of Biology, Nagoya University,* Japan. June 19, 2024
9. Dynamics in plant fertilization and endosperm development. *New York University*, NY. July 11, 2024
10. Dynamics in plant fertilization and endosperm development. *UC Riverside*, CA. March 4, 2024
11. Dynamics in plant fertilization and endosperm development. *Dept. of Plant Science, UC Davis*, CA. February 28, 2024
12. Dynamics in plant fertilization. *White Head Institute, MIT*. Boston, MA. November 3, 2023
13. Dynamics in plant reproduction: from fertilization to seed development. *University of Tubeingen, Germany.* April 9, 2023
14. Dynamics in plant reproduction: from fertilization to seed development. *Dept. of Cell Biology & Molecular Genetics, University of Maryland.* November 4, 2022
15. Dynamics in plant reproduction: from fertilization to seed development. *Dept. of Biochemistry & Cellular and Molecular Biology, University of Tennessee, Knoxville.* September 15, 2022
16. Dynamics of plant sexual reproduction in flowering plants. *Department of Biology, West Virginia State University.* February 18, 2022

17. Molecular and cellular dynamics of fertilization and endosperm development in Arabidopsis thaliana. *Yokohama City University, Japan.* November 29, 2021
18. Deciphering dynamics of plant fertilization and seed endosperm development. *Botany & Plant Pathology, Purdue University.* Indiana, USA, March 5, 2020
19. Cellular dynamics in coenocytic endosperm and its role in the subsequent seed development in Arabidopsis thaliana. *The School of Plant Sciences, University of Arizona* March 12, 2019
20. Identification of cis-regulatory sequences required for suspensor-specific transcription. *Kyushu University seminar series*. Fukuoka, Japan, July 2009

Awards and Honors

2025 **Prestigious Research Paper Award**, College of Agriculture, Food, and Environment, University of Kentucky

2025 Promoted to be a Reviewing Editor of *The Plant Cell*

2024 Nominated to be a candidate for the member of North American Arabidopsis Steering Committee (NAASC). https://www.arabidopsiscommunity.org/steering-committee

2024 **Bobby Pass Excellence in Grantsmanship Award**, College of Agriculture, Food, and Environment, University of Kentucky

2022 **FMC Young Investigator Award** ($50,000) https://www.fmc.com/en/fmc-new-investigator-award

2022 Nominated to be a candidate for the position of **Editor-in-Chief** of Plant Reproduction.

2022 Nominated to be a candidate for the position of **2023 Chair-Elect/2024 Chair** of Division C-4 Seed Physiology, Production, and Technology within Crop Science Society of America.

2021 **Prestigious Research Paper Award**, College of Agriculture, Food, and Environment, University of Kentucky

2020 **Bristol Myers Squibb Best Presenter Award**, *Japan XR Science Forum 2020 in Midwest.* (July 12)

2018 **The most fan favorite among the faculty speakers**, *IPSS Annual 3-Minute-Thesis Talk*, UK IPSS graduate study program (February 16)

2014 **Nature Reviews Genetics** cover inspired by our accepted review http://www.nature.com/nrg/journal/v15/n9/index.html

2014 **H.F. Linskens Award for Best Oral Presentation,** 23rd International Congress on Sexual Plant Reproduction, Porto, Portugal

2013 **Travel Grant for Early Career Researchers in Overseas,** 36th Annual Meeting of the Molecular Biology Society of Japan

2013 **Nikon Small World, Honorable Mention** http://www.nikonsmallworld.com/people/image/tomokazu-kawashima/1

2008 **H.F. Linskens Award for Best Oral Presentation**, 20th International Congress on Sexual Plant Reproduction, Brasilia, Brazil

2006 **M.T.M. Willemse Award for Best Poster Presentation**, 19th International Congress on Sexual Plant Reproduction, Budapest, Hungary

2004 **Best Poster Presentation Award**, Department Retreat, Department of Molecular, Cell, and Developmental Biology, University of California, Los Angeles, CA

Outreach

- UK MG-CAFE 4-H outreach program (2025)
- Providing high school students with a plant biology research opportunity:
  - Ms. Skyler Trowel – Paul Laurence Dunbar High School Lexington, Kentucky (Spring 2021 – Spring 2022)
    - *The 3rd place in the section of plant biology at the State Science Fair.*
  - Mr. Alex Staykov – Paul Laurence Dunbar High School Lexington, Kentucky (Fall 2023 – Summer 2025)
    - *The 1st place in the section of plant biology at the State Science Fair (2024).*
    - *The 1st Place in the section of Plant biology at the Fayette County Science Fair (2025).*
  - Mr. Ben Burch – Paul Laurence Dunbar High School Lexington, Kentucky (Fall 2024 – Current)
    - *The 2nd place in the section of plant biology at the Fayette County Science Fair (2025).*
    - *The 2nd place in the section of plant biology at the State Science Fair (2025).*
- Kentucky Soybean Board meeting (2017-2024). *I presented my soybean work to Ky soybean farmers.*
- Family Science Night at Yates, Yates Elementary Science Lab (2018, 2019). *I presented a booth showing Ky seed biology group work.*
- Kentucky American Water – Fayette County Public Schools District Science Fair (2018-2020, 2025). *I presented a booth showing Ky seed biology group work.*
- Corn, Soybean, and Tobacco Field Day (2018, 2019, 2021). *My students presented a poster.*

Service

University/College

- Chair, Agricultural and Medical Biotechnology Program Steering Committee, 2022 – Present
- Agricultural and Medical Biotechnology Program Steering Committee, 2018 – 2022
- Olympus FV3000 confocal microscope trainer of the Center for Agricultural Fluorescence-microscopy Experiments and Biological Imaging
- James B. Beam Institute Faculty Fellow: https://beaminstitute.ca.uky.edu/people/faculty-fellows/college-agriculture-food-environment
- UK Seed Biology Group member: https://seedbiology.ca.uky.edu/faculty

Scientific Community

- ASPB 2025 Workshop chair: **JSPP-ASPB Joint Symposium Bridging Gaps in Understanding of Dynamic Plant Cell Behaviors**
- The member of the organizing committee for the 27th International Congress on Sexual Plant Reproduction, https://sites.brown.edu/27th-icspr/
- Reviewed research articles for Cell, PNAS, Nature Plants, Nature Communications, Current Biology, Plant Cell, Plant Physiology, Current Opinion in Plant Biology, Plant and Cell Physiology, Scientific Reports, Frontiers in Plant Science, Plant Reproduction, Plant Signaling & Behavior, and Journal of Visualized Experiments, and Plants.
- Panel reviewer of NSF-BIO-IOS (2023), NSF-BIO-MCB (2024, declined due to schedule conflict), NSF-BIO-MCB & Plant Genome (2025, declined due to schedule conflict)
- Member of the International Association of Sexual Plant Reproduction Research, 2014 – Present
- Member of the American Society of Plant Biologists, 2019 – Present
- Member of the Crop Science Society of America, 2022 – 2023

Editorial Board

- ***The Plant Cell,*** Reviewing Editor https://academic.oup.com/plcell/pages/editorial-board
- ***Seed Biology,*** Senior Editor https://www.maxapress.com/seedbio/editorial_board
- ***Frontiers in Plant Science*** - *Plant Cell Biology*, Associate Editor https://www.frontiersin.org/journals/plant-science/sections/plant-cell-biology/editors
- ***Frontiers in Cell and Developmental Biology*** - *Molecular and Cellular Reproduction*, Associate Editor
- ***Plant Cell & Physiology***, Advisory Editorial Board https://academic.oup.com/pcp/pages/Editorial_Board
- ***PLOS Genetics,*** Plant Biology Section Editor https://journals.plos.org/plosgenetics/static/editorial-board?ae_name=Tomokazu+Kawashima