

Michael Gruenstaeudl (Grünstäudl), PhD

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Education and Professional Positions

EDUCATION

| | | |
|--|------------------------------------|------|
| Habilitation in Bioinformatics and Botany | Freie Universität Berlin, Germany | 2023 |
| Habilitation thesis: "Development and application of bioinformatic tools toward process automation in plant phylogenetics" | | |
| Ph.D. in Plant Biology | University of Texas at Austin, USA | 2013 |
| M.Sc. in Plant Biology | University of Vienna, Austria | 2007 |

PROFESSIONAL POSITIONS

| | | |
|---|-----------------------------------|--------------|
| Assistant Professor (Tenure-Track) Dept. Biological Sciences | Fort Hays State University, USA | 2023–ongoing |
| Postdoctoral Researcher Dept. Biology, Chemistry, Pharmacy | Freie Universität Berlin, Germany | 2015–2022 |
| Postdoctoral Researcher Dept. Evolution, Ecology & Organismal Biology | Ohio State University, USA | 2014–2015 |

Research

GRANT FUNDING

| | | |
|--------------------------------------|---|------------|
| NSF-2417083 Co-PI | National Science Foundation – IUSE: EDU Grant#: 2417083 , Duration: 2024–ongoing | \$ 385,971 |
| NIH-1R01LM014506 Single PI | National Institutes of Health – National Library of Medicine Grant#: 1R01LM014506 , Duration: 2024–ongoing | \$ 239,206 |
| DFG-418670221 Single PI | Deutsche Forschungsgemeinschaft – Sachbeihilfe Grant#: 418670221 , Duration: 2018–2022 | € 69,360 |
| KINBRE-GR00848 Single PI | Kansas IDeA Network of Biomedical Research Excellence Grant#: P20GM103418/GR00848, Duration: 2025–ongoing | \$ 33,210 |
| UT-F816842 Single PI | University of Texas at Austin Graduate Research Fellowship Grant#: F816842, Duration: 2011–2012 | \$ 26,772 |
| KINBRE-GR509061 Single PI | Kansas IDeA Network of Biomedical Research Excellence Grant#: P20GM103418/GR509061, Duration: 2023–2024 | \$ 24,765 |
| FHSU-GR00807 | Kansas legislature via the FHSU Water Office | \$ 24,059 |

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|--------------------|---|----------|
| Single PI | Grant#: GR00807, Duration: 2025–ongoing | |
| FU-21224600 | Freie Universität Berlin Forschungskommission | € 11,470 |
| Single PI | Grant#: 21224600, Duration: 2016–2018 | |

PUBLICATIONS

Graduate and undergraduate student mentees are underlined

- [27] N Jenke, Smith, GM, Magar Thapa, B, and **M Gruenstaeudl**. “Variation of and associations with the depth and evenness of sequencing coverage in archived plastid genomes”. In: *Scientific Reports* 15 (2025). <https://doi.org/10.1038/s41598-025-11568-9>, p. 26294.
- [26] JA Roestel, JH Wiersema, RK Jansen, T Borsch, and **M Gruenstaeudl**. “On the importance of sequence alignment inspections in plastid phylogenomics – an example from revisiting the relationships of the water-lilies”. In: *Cladistics* 40 (2024). <https://doi.org/10.1111/cla.12584>, pp. 469–495.
- [25] E Giorgashvili, K Reichel, C Caswara, V Kerimov, T Borsch, and **M Gruenstaeudl**. “Software choice and sequencing coverage can impact plastid genome assembly – A case study in the narrow endemic *Calligonum bakuense*”. In: *Frontiers in Plant Science* 13 (2022). <https://doi.org/10.3389/fpls.2022.779830>, p. 779830.
- [24] B Escobari, T Borsch, TS Quedensley, and **M Gruenstaeudl**. “Plastid phylogenomics of the Gynoxoid group (Senecioneae, Asteraceae) highlights the importance of motif-based sequence alignment amid low genetic distances”. In: *American Journal of Botany* 108 (2021). <https://doi.org/10.1002/ajb2.1775>, pp. 2235–2256.
- [23] T Mehl and **M Gruenstaeudl**. “airpg: Automatically accessing the inverted repeats of archived plastid genomes”. In: *BMC Bioinformatics* 22 (2021). <https://doi.org/10.1186/s12859-021-04309-y>, p. 413.
- [22] I Duran, A Marrero, F Msanda, C Harrouni, **M Gruenstaeudl**, J Patino, J Caujape-Castells, and C Garcia-Verdugo. “Iconic, threatened, but largely unknown: Biogeography of the Macaronesian dragon trees (*Dracaena* spp.) as inferred from plastid DNA markers”. In: *Taxon* 69 (2020). doi: <https://doi.org/10.1002/tax.12215>, pp. 217–233.
- [21] **M Gruenstaeudl**. “annonex2embl: automatic preparation of annotated DNA sequences for bulk submissions to ENA”. In: *Bioinformatics* 21 (2020). doi: <https://doi.org/10.1093/bioinformatics/btaa209>, p. 207.
- [20] **M Gruenstaeudl** and N Jenke. “PACVr: Plastome Assembly Coverage Visualization in R”. In: *BMC Bioinformatics* 36 (2020). doi: <https://doi.org/10.1186/s12859-020-3475-0>, pp. 3841–3848.
- [19] A Szukala, N Korotkova, **M Gruenstaeudl**, AN Sennikov, GA Lazkov, SA Litvinskaya, SA Gabrielian, T Borsch, and E von Raab-Straube. “Phylogeny of the Eurasian genus *Jurinea* (Asteraceae: Cardueae): Support for a monophyletic genus concept and a first hypothesis on overall species relationships”. In: *Taxon* 68 (2019). doi: <https://doi.org/10.1002/tax.12027>, pp. 112–131.
- [18] **M Gruenstaeudl**. “Why the monophyly of Nymphaeaceae currently remains indeterminate: An assessment based on gene-wise plastid phylogenomics”. In: *Plant Systematics and Evolution* 305 (2019). doi: <https://doi.org/10.1007/s00606-019-01610-5>, pp. 827–836.
- [17] **M Gruenstaeudl** and Y Hartmaring. “EMBL2checklists: A Python package to facilitate the user-friendly submission of plant and fungal DNA barcoding sequences to ENA”. In: *PLoS ONE* 14 (2019). doi: <https://doi.org/10.1371/journal.pone.0210347>, e0210347.

- [16] V Di Vincenzo, **M Gruenstaeidl**, L Nauheimer, M Wondafrash, P Kamau, S Demissew, and T Borsch. "Evolutionary diversification of the African achyranthoid clade (Amaranthaceae) in the context of sterile flower evolution and epizoochory". In: *Annals of Botany* 122 (2018). doi: <https://doi.org/10.1093/aob/mcy055>, pp. 69–85.
- [15] TS Quedensley, **M Gruenstaeidl**, and RK Jansen. "Phylogenetic relationships of the Mexican tussilaginoid genera (Asteraceae: Senecioneae)". In: *Journal of the Botanical Research Institute of Texas* 12 (2018), pp. 481–498. ISSN: 1934-5259.
- [14] **M Gruenstaeidl**, N Gerschler, and T Borsch. "Bioinformatic workflows for generating complete plastid genome sequences - An example from *Cabomba* (Cabombaceae) in the context of the phylogenomic analysis of the water-lily clade". In: *Life* 8 (2018). doi: <https://doi.org/10.3390/life8030025>, p. 25.
- [13] N Korotkova, G Parolly, A Khachatryan, L Ghulikyan, H Sargsyan, J Akopian, T Borsch, and **M Gruenstaeidl**. "Towards resolving the evolutionary history of Caucasian pears (*Pyrus*, Rosaceae) - Phylogenetic relationships, divergence times and leaf trait evolution". In: *Journal of Systematics and Evolution* 56 (2017). doi: <https://doi.org/10.1111/jse.12276>, pp. 35–47.
- [12] E Maharramova, I Huseynova, S Kolbaia, **M Gruenstaeidl**, T Borsch, and LAH Muller. "Phylogeography and population genetics of the riparian relict tree *Pterocarya fraxinifolia* (Juglandaceae) in the South Caucasus". In: *Systematics and Biodiversity* 16 (2017). doi: <https://doi.org/10.1080/14772000.2017.1333540>, pp. 14–27.
- [11] **M Gruenstaeidl**, BC Carstens, A Santos-Guerra, and RK Jansen. "Statistical hybrid detection and the inference of ancestral distribution areas in *Tolpis* (Asteraceae)". In: *Biological Journal of the Linnean Society* 121 (2017). doi: <https://doi.org/10.1093/biolinnean/blw014>, pp. 133–149.
- [10] **M Gruenstaeidl**, L Nauheimer, and T Borsch. "Plastid genome structure and phylogenomics of Nymphaeales: Conserved gene order and new insights into relationships". In: *Plant Systematics and Evolution* 303 (2017). doi: <https://doi.org/10.1007/s00606-017-1436-5>, pp. 1251–1270.
- [9] BC Carstens, **M Gruenstaeidl**, and NM Reid. "Community trees: Identifying codiversification in the Paramo dipteran community". In: *Evolution* 70 (2016). doi: <https://doi.org/10.1111/evo.12916>, pp. 1080–1093.
- [8] **M Gruenstaeidl**. "WARACS: Wrappers to automate the reconstruction of ancestral character states". In: *Applications in Plant Sciences* 4 (2016). doi: <https://doi.org/10.3732/apps.1500120>, p. 1500120.
- [7] **M Gruenstaeidl**, NM Reid, GL Wheeler, and BC Carstens. "Posterior predictive checks of coalescent models: P2C2M, an R package". In: *Molecular Ecology Resources* 16 (2015). doi: <https://doi.org/10.1111/1755-0998.12435>, pp. 193–205.
- [6] **M Gruenstaeidl**, CV Hawkes, A Santos-Guerra, and RK Jansen. "Preliminary investigations of correlated diversification between plants and their associated arbuscular mycorrhizal fungi in Macaronesia". In: *Proceedings of the Amurga International Conferences on Island Biodiversity 2011*. Ed. by J Caujape-Castells, G Nieto-Feliner, and JM Fernandez-Palacios. Las Palmas, Spain: Fundacion Canaria Amurga Maspalomas, 2013, pp. 146–153. ISBN: 978-84-616-7394-0.
- [5] **M Gruenstaeidl**, A Santos-Guerra, CV Hawkes, and RK Jansen. "Molecular survey of arbuscular mycorrhizal fungi associated with *Tolpis* on three Canarian islands (Asteraceae)". In: *Vieraea* 41 (2013). doi: <http://dx.doi.org/10.31939/vieraea.2013.41.17>, pp. 233–252. ISSN: 0210-945X.

- [4] **M Gruenstaeudl**, A Santos-Guerra, and RK Jansen. "Phylogenetic analyses of *Tolpis* Adans. (Asteraceae) reveal patterns of adaptive radiation, multiple colonization and interspecific hybridization". In: *Cladistics* 29 (2013). doi: <https://doi.org/10.1111/cla.12005>, pp. 416–434.
- [3] V Funk, A Anderberg, B Baldwin, R Bayer, J Bonifacino, I Breitwieser, L Brouillet, R Carbajal, R Chan, A Coutinho, D Crawford, J Crisci, M Dillon, S Freire, M Galbany Casals, N Garcia-Jacas, B Gemeinholzer, **M Gruenstaeudl**, HW Lack, and L Watson. "Compositae metatrees: the next generation". In: *Systematics, Evolution and Biogeography of the Compositae*. Ed. by VA Funk, A Susanna, TF Stuessy, and R Bayer. Vienna, Austria: International Association For Plant Taxonomy (IAPT), 2009, pp. 747–777. ISBN: 978-39-501-7543-1.
- [2] TF Stuessy, E Urtubey, and **M Gruenstaeudl**. "Barnadesieae (Barnadesioideae)". In: *Systematics, Evolution and Biogeography of the Compositae*. Ed. by V.A. Funk, A. Susanna, T.F. Stuessy, and R. Bayer. Vienna, Austria: IAPT, 2009, pp. 215–228. ISBN: 978-39-501-7543-1.
- [1] **M Gruenstaeudl**, E Urtubey, RK Jansen, R Samuel, MHJ Barfuss, and TF Stuessy. "Phylogeny of Barnadesioideae (Asteraceae) inferred from DNA sequence data and morphology". In: *Molecular Phylogenetics and Evolution* 51 (2009). doi: <https://doi.org/10.1016/j.ympev.2009.01.023>, pp. 572–587.

CONFERENCE PRESENTATIONS

2026 Session Moderator

K-INBRE Symposium 2026: Overland Park, Kansas, USA

2026 Invited Seminar

Universität Wien, Austria

2025 Invited Seminar

Universität Regensburg, Germany

2025 Contributed Talk

OLC Accelerate 2025: Orlando, Florida, USA

2024 Invited Seminar

Wichita State University, USA

2024 Contributed Talk

20th Int'l Botanical Congress: Madrid, Spain

2024 Contributed Talk

Austrian Bioinform. Workshop 2024: Graz, Austria

2021 Contributed Talk (online)

Deutsche Bot. Gesellsch.: Oldenburg, Germany

2021 Contributed Talk (online)

19. Österreich. Botanik-Tagung: Krems, Austria

2021 Workshop Organizer (online)

Botanical Soc. of America Conf.: Connecticut, USA

2021 Contributed Talk (online)

Botanical Soc. of America Conf.: Connecticut, USA

2020 Contributed Talk (online)

Barcode of Life Initiative: Vienna, Austria

2019 Workshop Organizer

Gesellsch. für Biol. Systematik: Munich, Germany

2019 Contributed Talk

Gesellsch. für Biol. Systematik: Munich, Germany

2018 Contributed Talk

Deutsche Bot. Gesellsch.: Klagenfurt, Austria

2018 Workshop Organizer

Gesellsch. für Biol. Systematik: Vienna, Austria

2018 Contributed Talk

Gesellsch. für Biol. Systematik: Vienna, Austria

2017 Contributed Talk

Genomics in Biodiversity Res.: Berlin, Germany

2016 Contributed Talk

Dahlem Center of Plant Sciences: Berlin, Germany

2015 Contributed Talk

VISCEA Ecology & Evolution Conf.: Vienna, Austria

2015 Invited Seminar

Universität Leipzig, Germany

2014 Contributed Talk

Society for the Study of Evolution Conf., USA

2011 Invited Seminar

University of Wageningen, The Netherlands

2010 Contributed Talk

Flora Macaronesia Int'l Symp.: Azores, Portugal

- 2010 Contributed Talk**
9th Int'l Mycological Conf.: Edinburgh, UK
- 2009 Contributed Talk**
Botanical Soc. of America Conf.: Utah, USA

- 2008 Contributed Talk**
Botany 2008 Conf.: Vancouver, Canada
- 2007 Contributed Talk**
Botany & Plant Biology 2007 Conf.: Chicago, USA

Teaching

— LIST OF UNIVERSITY COURSES TAUGHT —

(G) graduate-level course

Assistant Professor at Fort Hays State Univ.

| | | |
|---|-----------------|---|
| Genetics (BIOL325, 3 credits) – Lectures | Sole instructor | 5 semesters Spring 2023, Spring 2024, Fall 2024, Fall 2025, Spring 2026 |
| Genetics (BIOL325, 1 credit) – Labs | Sole instructor | 5 semesters Spring 2023, Spring 2024, Fall 2024, Fall 2025, Spring 2026 |
| Principles of Biology (BIOL180, 3 credits) – Lectures | Sole instructor | 4 semesters Spring 2025, Fall 2024, Fall 2023, Spring 2023 |
| Topics in Biology: Bioinformatics (BIOL607/G, 3 credits) (G) | Sole instructor | 2 semesters Fall 2023, Fall 2025 |
| Topics in Biology: Molecular Biology, 4 credits (BIOL607/G) (G) | Sole instructor | 2 semesters Fall 2023, Spring 2026 |
| Botany (BIOL250, 3 credits) – Lectures | Sole instructor | 2 semesters Fall 2023, Spring 2025 |
| Botany (BIOL250L, 1 credit) – Labs | Sole instructor | 2 semesters Fall 2023, Spring 2025 |
| Plant Anatomy (BIOL330, 3 credits) – Lectures | Sole instructor | 1 semester Fall 2025 |
| Plant Anatomy (BIOL330L, 1 credit) – Labs | Sole instructor | 1 semester Fall 2025 |
| Topics in Biology: Crafting Scientific Presentations (BIOL607/G, 2 credits) (G) | Sole instructor | 1 semester Spring 2026 |
| Readings in Biology: The Impact of AI on Biology and Medicine (BIOL482/BIOL882, 2 credits) (G) | Sole instructor | 1 semester Fall 2023 |

Lecturer at the Freie Universität Berlin

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| Genetik & Genomforschung (LVNr. 23771a) – Vorlesung Genetics & Genomics – Lectures | Co-instructor | 4 semesters Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
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|---|---------------|---|
| Genetik & Genomforschung (LVNr. 23771b) – Praktikum Genetics & Genomics – Labs | Co-instructor | 4 semesters Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
| Einführung in Botanik & Biodiversität (LVNr. 23106) – Vorlesung Introduction to Botany & Biodiversity – Lectures | Co-instructor | 5 semesters Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
| Einführung in Botanik & Biodiversität (LVNr. 23108a-e) – Praktikum Introduction to Botany & Biodiversity – Labs | Co-instructor | 6 semesters Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
| Botanik & Mikrobiol. für das Fach Biochemie (LVNr. 23700) – Vorlesung Botany & Microbiol. for Biochemists – Lectures | Co-instructor | 5 semesters Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
| Allg. Botanik & Pflanzenphys. für Veterinärmed. (LVNr. 23760b-c) – Vorlesung Botany & Plant Phys. for Veterinary Sci. – Lectures | Co-instructor | 5 semesters Fall 2017, Fall 2018, Fall 2019, Fall 2020 (online), Fall 2021 (online) |
| Prakt. Vertiefung Fachwissenschaft Biologie–Evolution (LVNr. 23653) – Seminar Topics in Biology: Evolution – Seminar  | Co-instructor | 5 semesters Spring 2017, Spring 2019, Spring 2020 (online), Spring 2021 (online) |
| Prakt. Vertiefung Fachwissenschaft Biologie–Evolution (LVNr. 23654a-b) – Praktikum Topics in Biology: Evolution – Labs  | Co-instructor | 5 semesters Spring 2017, Spring 2019, Spring 2020 (online), Spring 2021 (online) |
| Forschungspraktikum Bioinformatik (LVNr. 19400432) – Praktikum Research in Bioinformatics – Labs | Co-instructor | 1 semester Spring 2019 |
| Current Topics in Plant Systematics & Evolution (LVNr. 23815) – Seminar  | Co-instructor | 1 semester Fall 2018 |
| Evolution & Biodiversität–Botanik (LVNr. 23303a-e) – Vorlesung Evolution & Biodiversity–Botany – Lectures  | Co-instructor | 1 semester Spring 2015 |

— GRADUATE STUDENT SUPERVISION —

| | | | | |
|-------------------------|-------------------|-----------------------|---------------------|--------------|
| David Esteban Bohorquez | Master of Science | Fort Hays State Univ. | Primary/Thesis Adv. | 2025–ongoing |
| Thanina Hamitouche | Master of Science | Fort Hays State Univ. | Primary/Thesis Adv. | 2025–ongoing |
| Buddha Thapa Magar | Master of Science | Fort Hays State Univ. | Primary/Thesis Adv. | 2024–ongoing |
| Louisa Acquah | Master of Science | Fort Hays State Univ. | Primary/Thesis Adv. | 2023–ongoing |

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| Nils Jenke | Master of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2020–2021 |
| Yannick Hartmaring | Master of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2020–2021 |
| Eka Giorgashvili | Master of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2019–2020 |
| Jessica Röstel | Master of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2019–2020 |
| Griffin Davis | Master of Science | Fort Hays State Univ. | Committee Member | 2024–ongoing |
| Gabriella Rueschhoff | Master of Science | Fort Hays State Univ. | Committee Member | 2024–ongoing |
| Alfred Appiah | Master of Science | Fort Hays State Univ. | Committee Member | 2023–2025 |
| Jacob Alexander | Master of Science | Fort Hays State Univ. | Committee Member | 2023–2025 |
| Isaac Odoi | Master of Science | Fort Hays State Univ. | Committee Member | 2023–2024 |

— UNDERGRADUATE STUDENT SUPERVISION —

Note: In Austria and Germany, B.S. degrees require a mandatory research thesis.

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|--------------------|---------------------|--------------------|---------------------|------|
| Tilman Mehl | Bachelor of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2020 |
| Nils Jenke | Bachelor of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2019 |
| Yannick Hartmaring | Bachelor of Science | Freie Univ. Berlin | Primary/Thesis Adv. | 2019 |

— HONORS, AWARDS & CERTIFICATES FOR TEACHING —

| | | |
|---|---------------------------------------|------|
| Certificate in Effective Teaching Practices | Assoc. of College and Univ. Educators | 2025 |
| 9-month (25-module) course in effective teaching practices on implementation of evidence-based instructional approaches | | |
| Research award—Outstanding scholarship award | Fort Hays State University | 2025 |
| Teaching grant—Experiential learning innovation | Fort Hays State University | 2023 |
| Teaching grant—Undergraduate research experience | Fort Hays State University | 2023 |
| Teaching grant—Industry 4.0 | Freie Universität Berlin | 2018 |
| Teaching award | Freie Universität Berlin | 2017 |
| Scholarship of excellence | Land Niederösterreich | 2012 |
| Graduate student research award | American Society of Plant Taxonomists | 2011 |
| Graduate student research award | Mycological Society of America | 2010 |
| Graduate student research award | Botanical Society of America | 2010 |
| Teaching assistant award | University of Texas at Austin | 2007 |

Service

— LEADERSHIP TRAINING —

| | | |
|---|------------------------------|------|
| LHH Executive Program for Leaders & Managers | LHH OTM Career Development | 2022 |
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4-month training in communication, transition management, interviews, hearings, and assessments

— COMMITTEE WORK —

University committees

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|---|----------------------------|--------------|
| Strategic Planning & Improv. Committee , Chair | Fort Hays State University | 2025–ongoing |
| Faculty Senate , Full Member | Fort Hays State University | 2025–ongoing |
| Departm. Hiring Committee , Chair | Fort Hays State University | 2025 |
| Faculty Senate , Alternate Member | Fort Hays State University | 2024–2025 |
| Departm. Graduate Education Committee , Member | Fort Hays State University | 2024–ongoing |
| Departm. Hiring Committee , Member | Fort Hays State University | 2024 |
| Departm. Scholarship Committee , Member | Fort Hays State University | 2024 |
| Departm. Infrastructure Committee , Member | Freie Universität Berlin | 2017–2018 |

— PEER-REVIEW —

Funding Agencies

- Deutsche Forschungsgemeinschaft (DFG)

Scientific Journals

- Annals of Botany
- BMC Plant Biology
- Botanical Journal of the Linnean Society
- Frontiers in Plant Science
- GigaScience
- Mathematical Biosciences
- Mitochondrial DNA Part B
- Molecular Ecology
- Molecular Ecology Resources
- Nordic Journal of Botany
- Plant Systematics and Evolution
- PLOS One
- Systematic Botany
- Taxon
- Willdenowia

— SCIENTIFIC MEMBERSHIPS —

- International Society for Computational Biology (ISCB)
- International Association for Plant Taxonomy (IAPT)
- Austrian Scientists & Scholars in North America (ASCINA)
- German Association of University Professors and Lecturers (DHV)
- German Botanical Society (DBG)
- Council on Undergraduate Research (CUR)

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