Pratheek Hadse Pandesha

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EDUCATION

2021- 2026 *(expected)*
Washington University in St. Louis
Ph.D. Candidate, **Donald Danforth Plant Science Center** |
Advisor: R. Keith Slotkin |Thesis: Primary small RNAs that initiate epigenetic silencing in Arabidopsis

2018-2020
Indian Agricultural Research Institute, New Delhi
M.Sc., in Plant Physiology | CGPA – 8.65 | Gold Medal
Advisor: Viswanathan Chinnusamy |Thesis: Investigating the role of DUF1645 proteins in abiotic stress tolerance and grain yield in rice

2014-2018
University of Agricultural Sciences, Bangalore
B.Sc., Agriculture Biotechnology | CGPA-8.66
Advisor: R. Sowdhamini |Thesis title: Structural and functional annotation of multiple stress responsive hypothetical proteins in rice

RESEARCH AND PROFESSIONAL EXPERIENCE

2021-2022
Washington University in St. Louis / Donald Danforth Plant Science Center (*Graduate research rotations*)

- Epigenome engineering using CRISPR / SunTag system for viral disease resistance in Arabidopsis | Advisor: Rebecca Bart
- Effect of nitrogen on circadian regulation of lipid metabolism in Arabidopsis | Advisor: Dmitri Nusinow
- RNA-guided DNA insertion with CRISPR-associated transposases | Advisor: R. Keith Slotkin

2020-2021
Bayer Crop Science
Competitive Intelligence Analyst, Science Competitive Intelligence & Prospecting

2019-2020
Massachusetts Institute of Technology (MIT), Cambridge, USA
Khorana Scholar at the Dept. of Biology & Whitehead Institute for Biomedical Research
Advisor: Mary Gehring | Title: Pathways regulating genome dosage sensitivity in the endosperm of Arabidopsis

2017-2018
National Centre for Biological Sciences (NCBS), Bangalore
Bachelor's Dissertation
Advisor: R. Sowdhamini |Thesis title: Structural and functional annotation of multiple stress responsive hypothetical proteins in rice

2017
Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India
JNCASR- Summer Research Fellow | Advisor: Imran Siddiqi
Development of fluorescent tag-based cell cycle marker system in Arabidopsis

2016 **University of Delhi, New Delhi, India**
Indian Academy of Sciences Summer Research Fellow | Advisor: Surekha Agarwal
Identified and cloned a tetraspanin gene from *Oryza sativa*.

2016 **University of Agricultural Sciences, Bangalore, India**
Summer student | Advisor: Veena S. Anil, Dept. of Plant Biotechnology
Standardized media composition and tissue culture protocol for somatic embryogenesis of Potato (Var. Kufri Jyothi- Late blight resistant cultivar)

PEER REVIEWED PUBLICATIONS

Pandesha P, Slotkin RK. Transcription factor-mediated recruitment of small interfering RNA production. ***Nat Plants***. 2025 Dec;11(12):2453-2454. *(Opinion)*

Montgomery, J. S., Soni, N., Marques Hill, S., Morran, S., Patterson, E. L., Edwards, S. A., ... **Pandesha, P.H**., Slotkin, R.K. and Napier, R., & Gaines, T. (2025). A transposable element insertion in AUX/IAA16 disrupts splicing and causes auxin resistance in Bassia scoparia. ***The Plant Journal***, *123*(2), e70339.

Liu, P., Panda, K., Edwards, S.A., Swanson, R., Yi, H., **Pandesha, P**., Hung, Y.H., Klaas, G., Ye, X., Collins, M.V. and Renken, K.N., 2024. Transposase-assisted target-site integration for efficient plant genome engineering. ***Nature***, 631(8021), pp.593-600.

Adavi B S, **Pandesha PH**, B J, Jha SK, Chinnusamy V, Sathee L. Nitrate supply regulates tissue calcium abundance and transcript level of Calcineurin B-like (CBL) gene family in wheat. ***Plant Physiol Biochem***. 2023 Jun; 199:107724. doi: 10.1016/j.plaphy.2023.107724.

Vineeth TV, Krishna GK, **Pandesha PH**, Sathee L, Thomas S, James D, Ravikiran KT, Taria S, John C, Vinaykumar NM, Lokeshkumar BM. Photosynthetic machinery under salinity stress: Trepidations and adaptive mechanisms. ***Photosynthetica***. 2023 Apr 13;61(1):73-93.

Sathee L, Jagadhesan B, **Pandesha PH**, Barman D, Adavi B S, Nagar S, Krishna GK, Tripathi S, Jha SK, Chinnusamy V. Genome Editing Targets for Improving Nutrient Use Efficiency and Nutrient Stress Adaptation. ***Front Genet***. 2022 Jun 14; 13:900897.

MANUSCRIPTS UNDER REVIEW

Pandesha, P.H., Sajeevan, S., Sandeep, A., Mohamed. S. K., Pandey, R., Sathee, L., Ramanathan, Sowdhamini., Chinnusamy, Viswanathan. DUF1645 is a novel intrinsically disordered transcription factor family specific to plants. *(under review)*

CONFERENCE PRESENTATIONS AND INVITED TALKS

Pandesha, P.H., Edwards, S.A., Ratnayake, S., ... Slotkin RK. The Initiation of RNAi in Plants, *PAG33, San Diego*; 9-14 Jan 2026; ***(Invited talk)***

Pandesha, P.H., Edwards, S.A., Ratnayake, S., ... Slotkin RK. Primary sRNAs that initiate RNAi and *de novo* RdDM, *Keystone Plant Epigenetics and Epigenome engineering meeting 2025, Fort Collins*; 13-16 Oct 2025; ***(Poster)***

Pandesha, P.H., Edwards, S.A., Ratnayake, S., Slotkin RK. Quest for primary sRNAs that initiate epigenetic silencing in plants, *ICAR 2024, San Diego*; 15-19 July 2024; ***(Poster)***

Pandesh P.H, Sandip Adavi, ...Sowdhamini R, Viswanathan Chinnusamy. DUF1645- a novel transcription factor family in plants. *International Plant Physiology Congress (IPPC), Lucknow, India*; 2-5th December 2018; ***(Poster)***

FELLOWSHIPS AND GRANTS

2022 - 2026	William H. Danforth Plant Sciences Fellowship, Washington University in St. Louis
2021	Trinity Henry-Barlow Fellowship and Cambridge Trust Scholarship for doctoral studies at the University of Cambridge, Cambridge Trust, UK *(Not availed)*
2020 - 2021	ASPB Conviron Scholar, American Society of Plant Biologists
2018 - 2020	Junior Research Fellowship, Indian Council of Agricultural Research (ICAR)
2019	Khorana Scholar at MIT, funded by IUSSTF, United States Government and Department of Biotechnology, Government of India
2018	DBT- JNU Fellowship, Department of Biotechnology, Govt. of India *(Not availed)*
2014 - 2018	Merit Scholarship, University of Agricultural Sciences, Bangalore
2014 - 2018	Undergraduate Merit Scholarship, Government of Karnataka, India
2014 - 2018	SDM Education Trust Scholarship, SDM Education Trust
2017	JNCASR- Summer Research Fellowship, Jawaharlal Nehru Center for Advanced Scientific Research
2016	Indian Academy of Sciences Summer Research Fellowship, Indian Academy of Sciences

AWARDS AND HONORS

2025	Best oral presentation award- Donald Danforth Plant Science Center retreat
2024	Best oral presentation award- WashU-Plant and Microbial Biosciences retreat
2024	Danforth Center CSTM professional development award
2024	The International Conference on Arabidopsis Research, San Diego- Registration Fee Award, The North American Arabidopsis Steering Committee (NAASC)
2021	*Gold medal* and best student of the year, Indian Agricultural Research Institute, New Delhi
2020	ASPB Plant Biology 2020 (Virtual) Registration Fee Award, American Society of Plant Biology
2019	Best poster award - National Agricultural Science Congress, Indian Agricultural Research Institute, New Delhi
2017	Travel grant- Nobel Prize Series, India by The Nobel Foundation, Sweden
2017	Travel grant- Indo-German Workshop on Plant-Insect Interactions Across Gradients, NCBS, Bangalore
2017	Travel grant-Advanced Biology Lecture Series (Theme: Gut Microbiome), NCBS, Bangalore
2016	Travel grant-Advanced Biology Lecture Series (Theme: Cancer Biology), NCBS, Bangalore
2014	Inspire Internship, Department of Science and Technology, Government of India

PROFESSIONAL ASSOCIATIONS AND MENTORSHIP

2025- Present	WashU-DBBS Peer mentor (Mentee: Sora Haagensen)
2025	Panelist on a career panel for REU summer students at the Danforth Center
2025	Rotation student mentor, Slotkin Lab (Summer 2025; Mentee: Patrick J. Hunt)
2024 - 2025	Member, DBBS Student Advisory Committee, Washington University in St. Louis
2024 - Present	Member, North American Arabidopsis Steering Committee (NAASC)
2024 - Present	Arts & Sciences Graduate school cross program peer mentor, Washington University (Mentees: Kavya Rokkam, Chandana Sheeja, Dept. of Chemistry)
2023 - 2024	Co-chair, DBBS-SAC (Student Advisory Committee), Washington University in St. Louis
2023 - Present	Member, National Center for Faculty Development & Diversity (through WashU-DBBS)
2022 - 2023	DBBS peer mentor, Washington University in St. Louis (Mentee: Xinrui Ji)
2022	Graduate Teaching Assistant, BIO112-Introduction to Problem-Based Learning in Biology, Washington University in St. Louis
2020 - Present	Member, American Society of Plant Biologists
2020 - 2023	Scholar Mentor, WINStep Forward
2020	Volunteer, GCCR-Global Survey on Respiratory Illnesses and Changes in Smell, Taste, and Flavor in response to COVID-19, Bangalore
2018 - Present	*Co-founder*, *Next Generation Scientist Foundation (NGSF)*, India; Working towards providing internship opportunities at world-class labs for talented undergraduates from challenging social and economic backgrounds (www.ngsf.in)
2017	*Rural Agricultural Work Experience Program, Karnataka, India* Work focused on analyzing the effect of late blight of potato and soft rot of ginger on shifting cropping patterns in rural parts of Karnataka state in India.
2016 - 2017	Student ambassador, iBiology, Bangalore