

**CURRICULUM
VITAE
Joel P. Hague**

Present address:

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Joel P. Hague
Biographical
Sketch

Joel P. Hague is currently a Research Associate II in the laboratory of Dr. Albert Kausch at the University of Rhode Island in the Department of Cell and Molecular Biology. Dr. Kausch's research focuses on molecular improvement, gene discovery, transformation biology and genome editing in grasses and cereal crops. Joel received his undergraduate degree, a Bachelor of Arts degree with a double major in Biology and Philosophy, from the University of Rhode Island in 1997. After completing a Level II Teaching Certificate Teacher Certification Program (NCATE, NASDTEC) at the University of Rhode Island, Mr. Hague received licenses to teach secondary science in Rhode Island, New York State, and New York City. He is currently certified to teach secondary biology in RI public schools.

He then relocated to New York City and taught biology and gardening at Eugenio Maria De Hostos Intermediate School (I.S. 318) in Brooklyn, NY. I.S. 318 is a multi-ethnic, multi-lingual inner city public middle school noted for its academic success and championship-winning chess team. Mr. Hague used a variety of instructional and assessment techniques to reach a diverse group of learners while coordinating a school-wide program for composting lunchroom waste as well as managing the school's community garden.

Subsequently, Mr. Hague began graduate studies in the laboratory of Dr. Albert Kausch, where he gained a wide variety of experiences in transgenic plant research utilizing both *Agrobacterium*-mediated and biolistic transformation systems in rice, turfgrass, switchgrass, and maize. Mr. Hague's master's thesis focused on an analysis of a maize pollen-specific promoter isolated from the gene *Zm13*, and utilized transgenic rice carrying said promoter fused to the *gusA* reporter gene. His laboratory work in molecular genetic analysis utilized a variety of techniques including DNA extraction, gel electrophoresis, and PCR analysis, as well as many techniques standard to molecular cloning. He completed course work in advanced microbiology, microbial genetics, biochemistry, plant molecular biology, plant biotechnology, and successfully defended his thesis in 2009 and received an M.S. in molecular genetics.

Mr. Joel P. Hague currently resides with his wife and daughter in South Kingstown, Rhode Island.

I. Personal History and Professional Experience

A. Educational Background

B.A. in Biology and Philosophy, 1997. University of Rhode Island, Kingston

M.S. in the Molecular Genetics program, Department of Cell and Molecular Biology, 2009.
University of Rhode Island, Kingston, RI

B. List of Academic and Industry Positions since Final Degree

The Plant Biotechnology Laboratory at The University of Rhode Island.
(May 2009-present).

Research Associate II

The Plant Biotechnology Laboratory (PBL) at The University of Rhode Island is a grant funded research and educational laboratory with a focus on genetic improvement of plants using genome editing, genomics, advanced breeding, tissue culture and genetic modification. The PBL maintains active programs in Research, Education, Outreach, and Industry Interactions. Responsibilities include: management, transformation, and maintenance of laboratory *Agrobacteria* strains, management of undergraduate interns, contributing to publications, grants, and patents (see below), development of PCR (Polymerase Chain Reaction) protocols for the detection and characterization of transgenes in transgenic plants, characterization of unique T-DNA insertion events via DNA blots, and conducting research projects on genetic modification of rice, switchgrass, maize, and sorghum.

Plant Advancements, Inc. An Agricultural Biotechnology Company, West Kingston, RI
(2007-2008)

Research Associate/Laboratory Manager

Research Technician: Plant Advancements LLC, Meadville, PA, Jan. 2008–April 2009. Responsible for developing *Agrobacterium*-mediated transformation systems for the biofuels crops switchgrass and maize. Personally conducted numerous transformation experiments in switchgrass and maize, handling the entire transformation process from the appropriate culture of *Agrobacterium* strains to the selection and regeneration of genetically-transformed plants from selected plant cell cultures, as well as the molecular analysis of putative transgenic plants. Additional responsibilities included inventory and management of laboratory supplies, training laboratory interns, and greenhouse care of transgenic plants.

HybriGene, Inc An Agricultural Biotechnology Company, West Kingston, RI
(2005 – 2007)

Research Associate II

HybriGene Inc was an agricultural biotechnology company with a focus on genetic improvement of grasses and cereal crops. Primary research focus on molecular mechanisms for the prevention of transgene escape in creeping bentgrass (*Agrostis stolonifera*), with an emphasis on male-sterile approaches. Performed transformation experiments while directing student intern assistants in both biolistic and *Agrobacterium*-mediated transformation of creeping bentgrass for the evaluation of sterility-inducing genetic constructs. Responsibilities included management of plant tissue culture media, maintenance of *Agrobacterium* strains, selection and regeneration of genetically-transformed plants, as well as the molecular analysis of putative transgenics.

C. Teaching Experience

University of Rhode Island, Kingston, RI (Summer Session I and II, 2021): Course taught: General Genetics.

University of Rhode Island, Kingston, RI (Summer Session II, 2020): Course taught: General Genetics.

University of Rhode Island, Kingston, RI (2017, 2018, 2019, 2020): Course taught: Genetics Recitation Instructor.

Community College of Rhode Island, Lincoln, RI: Adjunct Faculty (Fall semesters 2014 – 2016): Course taught: Introduction to Biology: Cellular.

University of Rhode Island, Kingston, RI: Staff Instructor/Tutor Special Programs for Talent Development (SPTD) (Summer Sessions 2000, 2001, 2002, 2003)

Mt. Pleasant High School, Providence, RI: Student Teacher (Jan 2001-May2001): Course taught: Biology.

Eugenio Maria De Hostos Intermediate School, Brooklyn, NY (2001-2003): Course taught: Biology.

University of Rhode Island, Kingston, RI: Graduate Teaching Assistant (2003-2005): Courses taught: General Biology Laboratory; Human Anatomy Laboratory; Human Physiology Laboratory.

III. Publications

A. Thesis titles

M.S., 2009. Development of systems for molecular trait improvement and transgene confinement in grasses and cereals.

B. Publications

Kausch A.P., Nelson-Vasilchik K., Tilelli M., Hague J. (in press) Maize Tissue Culture, Transformation and Genome Editing, *In Vitro Cellular & Developmental Biology – Plant*.

Hague J.H., Nelson, K., Yonchak, A., Kausch A.P. (July 2021) qPCR methods for the quantification of transgene insert copy number and zygosity using the comparative Ct method in transgenic Sorghum bicolor L. Moench, In: *Accelerated Breeding for Cereal Crops*, (Laurie J.D., Bilichak, A., eds), Springer Protocols Handbook, Humana Press.

Kausch A.P., Nelson-Vasilchik K., Hague J., Mookkan M., Quemada H., Dellaporta S., Frago C., Zhang Z.J. (2019) Edit at Will: Genotype Independent Plant Transformation in the Era of Advanced Genomics and Genome Editing, *Plant Science*, <https://doi.org/10.1016/j.plantsci.2019.01.006>

Mookkan, M., Nelson-Vasilchik, K., Hague, J., Zhang, Z.J., and Kausch, A.P. (2018) Morphogenic

regulator-mediated transformation of maize inbred B73. *Current Protocols in Plant Biology* 3 (4), e20075. doi: 10.1002/cppb.20075

Nelson-Vasilchik, K., Hague, J., Mookkan, M., Zhang, Z.J., and Kausch, A.P. (2018) Transformation of recalcitrant sorghum varieties facilitated by baby boom and wuschel2. *Current Protocols in Plant Biology* 3(4), e200076. doi: 10.1002/cppb.20076

Mookkan, M., Nelson-Vasilchik, K., Hague, J., Zhang, Z.J., and Kausch, A.P. (2017) Selectable marker independent transformation of recalcitrant maize inbred B73 and sorghum P898012 mediated by morphogenic regulators *BABY BOOM* and *WUSCHEL2*. *Plant Cell Reports* 36 (9), doi:10.1007/s00299-017-2169-1

Hayward, A.P., Moreno, M.A., Howard, T.P., Hague, J., Nelson, K., Heffelfinger, C., Romero, S., Kausch, A.P., Glauser, G., Acosta, I.F., Mottinger, J.P. and Dellaporta, S.L. (2016) Control of sexuality by the sk1-encoded UDP-glycosyltransferase of maize. *Science Advances (AAAS)* 2 (10), doi: 10.1126/sciadv.1600991.

Kausch, A.P., Tilelli, M., Hague, J., Heffelfinger, C., Cunha, D., Moreno, M., Dellaporta, S.L. and Nelson K. (2016) *In situ* embryo rescue for generation of wide intra- and interspecific hybrids of *Panicum virgatum* L. *Plant Biotechnology Journal* 14 (11), doi: 10.1111/pbi.12573.

Heffelfinger, C., A. P. Deresienski, K. A. Nelson, M. A. Moreno, J. P. Hague, S. L. Dellaporta, and A. P. Kausch. (2015) Genomic Characterization of Interspecific Hybrids and an Admixture Population Derived from *Panicum amarum* × *P. virgatum*. *Plant Genome* 8. doi:10.3835/plantgenome2015.01.0001.

Kausch, AP, Deresienski A, Hague, J, Tilelli M, Dellaporta SD, Nelson, K and Li, Yi. (2013) Hybrid Plant Systems for Breeding and Gene Confinement in Bioenergy Crops. In: *New and Future Developments in Catalysis* (Suib, S.L. ed) pp. 141-171. Amsterdam: Elsevier.

Male Sterility and Hybrid Plant Systems for Gene Confinement Albert P. Kausch, Joel Hague, Adam Deresienski, Michael Tilelli, Chip Longo Jr. and Kimberly Nelson. 2012 *Plant Gene Confinement* (M. Oliver and Y. Li, eds). Wiley-Blackwell John Wiley & Sons MA .

Joel P. Hague, Steven L. Dellaporta, Maria Moreno, Chip Longo, Kimberly Nelson, Albert P. Kausch (2012). Pollen Sterility - A Promising Approach to Gene Confinement and Breeding for Genetically Modified Bioenergy Crops. *Agriculture* 2:295-315

Albert P. Kausch, Joel P. Hague, Melvin J. Oliver, Yi Li, Henry Daniell, Peter Mascia, Lidia S. Watrud, and C. Neal Stewart Jr (2010). Transgenic perennial biofuel feedstocks and strategies for bioconfinement. *Biofuels* 1:163-176.

Albert P. Kausch, Joel Hague, Melvin Oliver, Yi Li, Henry Daniell, Peter Mascia, and C. Neal Stewart Jr. (2010). Genetic Modification in Dedicated Bioenergy Crops and Strategies for Gene Confinement. In: *Plant Biotechnology for Sustainable Production of Energy and Co-products*, Biotechnology in Agriculture and Forestry 66, (P.N. Mascia et al., eds). Springer-Verlag Berlin Heidelberg, pp. 299-313.

Albert P. Kausch, Joel Hague, Melvin Oliver, Lidia S. Watrud, Carol Mallory-Smith, Virgil Meier, and C. Neal Stewart Jr. (2010). Gene Flow in Genetically Engineered Perennial Grasses: Lessons for Modification of Dedicated Bioenergy Crops. In: *Plant Biotechnology for Sustainable Biotechnology in*

Agriculture and Forestry 66, (P.N. Mascia et al, eds.) Springer-Verlag Berlin Heidelberg. pp. 285-296.

Chip Longo, Colin Lickwar, Qian Hu, Kimberly Nelson, David Viola, Joel Hague, Joel M. Chandlee, Hong Luo and Albert P. Kausch (2006). Turfgrasses. In: Methods in Molecular Biology - *Agrobacterium* Protocols, Vol. 344: *Agrobacterium* Protocols, 2/e, Vol. 2, (Wang K., ed.). Humana Press Inc., Totowa, NJ, pp. 83

IV. Biotechnology Related Patents

Kausch AP, Hague, J, Deresienski, A, Tilelli, M, and Nelson, K (2013) The use of genetically modified plants for recovery of non-genetically modified hybrids from wide crosses. United States Patent Application. US 2013/004769 Assignee; University of Rhode Island.

Kausch AP, Hague, J, Deresienski, A, Tilelli, M, and Nelson, K (2013) In Situ Embryo Rescue as a Method for Recovery of Wide Crosses. United States Patent Application. US 2013/005832 Assignee; University of Rhode Island.