Ira A. Herniter

PhD Scientist

CONTACT

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https://sites.rutgers.edu/ira-herniter/ https://scholar.google.com/citations?user=fOWLY_wAAAAJ

EDUCATION

PhD	Plant Biology	University of California, Riverside (UCR) Thesis title: Genetics of Consumer-Related Traits in Cowpea (*Vigna unguiculata* [L.] *Walp*.)	2015-2019
BS	Cell Biology & Genetics	University of Maryland, College Park (UMD)	2011-2015

SKILLS

Genetics: PCR, genotype-by-sequencing, genome-wide association, quantitative trait locus analysis, bulked segregant analysis DNA extraction, gel electrophoresis, genetic modification, CRISPR, plant breeding, phenotypic analysis, marker-assisted selection.

Statistical analysis: R programming, Excel, shape analysis, ImageJ.

Communication: Microsoft Office, publications, cooperative relationships with stakeholders, stakeholder communication, course instruction, mentorship.

EXPERIENCE

Scientist — Galy.co, Boston, MA — 2022-2023

- Full-time position, 40 hours per week
- Duties: Developing lab-grown cotton (*Gossypium hirsutum*) fiber, using tissue culture, protoplast transformation, and CRISPR. The goal of this project using cellular agriculture is to reduce negative externalities of conventional agriculture, such as greenhouse gas emission and fertilizer runoff.

Post-Doctoral Associate — Nicholi Vorsa Lab, Rutgers University — 2020-2022

- Full-time position, 40 hours per week
- Duties: Research on blueberry (*Vaccinium* spp.) genetics, including development of genetic resources. A better understanding of the population genetics is key to improving crops for a changing climate and developing market conditions. Fieldwork and labwork, including DNA extraction, PCR, and genotyping-by-sequencing from over 2,000 genotypes.

PhD Student Researcher — Timothy J. Close Lab, University of California, Riverside — 2015-2019

- Full-time position, 40 hours per week
- Duties: Research on cowpea (*Vigna unguiculata*) genetics, including development of genetic resources. Trait mapping using R statistical methods, GWAS, and bulked segregant analysis. Cowpea is a major source of calories and protein in the developing world, especially in sub-Saharan Africa. Developing markers for marker-assisted selection methods in plant breeding helps develop new varieties to improve the lives of farmers and consumers.

Undergraduate Student Researcher & Lab Manager — Zhongchi Liu Lab, University of Maryland, College Park — 2011-2015

- Part-time position, 10 hours per week
- Duties: Research on siRNA function in diploid strawberry (*Fragaria vesca*), using CRISPR to perform knockouts and over-expressions, interacting with sales representatives, purchasing and managing lab supplies, maintaining mutant populations.

JOURNAL PUBLICATIONS

1. **Herniter, I.A.**, Y. Kim, Y. Wang, J.S. Havill, J. Johnson-Cicalese, G.J. Muehlbauer, M. Iorizzo, N. Vorsa. 2023. "Trait Mapping of Phenolic Acids in an Interspecific (*Vaccinium corymbosum* var. *caesariense* × *V. darrowii*) Diploid Blueberry Population." *Plants* 12(6), 1346 doi: 10.3390/plants12061346

2. Traband, R.C.; Wang, X.; Lui, J.; Yu, L.; Hiraoka, Y.; **Herniter, I.A.**; Bowman, C.; Resendiz, M.; Wang, Z.; Knowles, S.P.; et al. "Exploring the Phylogenetic Relationship among Citrus through Leaf Shape Traits: A Morphological Study on Citrus Leaves." Horticulturae 2023, 9, 793. https://doi.org/10.3390/horticulturae9070793

3. Bowman, C.S., R. Traband, X. Wang, S.P. Knowles, S. Lo, Z. Jia, N. Vorsa, **I.A. Herniter**. 2023. "Multiple Leaf Sample Extraction System (MuLES): A tool to improve automated morphometric leaf studies." *Applications in Plant Sciences* 2023;e11513 doi: 10.1002/aps3.11513

4. Gang, J.E., W. Jia, **I.A. Herniter**. 2022. "Sand and fire: applying the sandpile model of self-organised criticality to wildfire mitigation." *International Journal of Wildland Fire*. 2022:1-10 doi: 10.1071/WF22017

5. Muñoz-Amatriaín, M., S. Lo, **I.A. Herniter**, O. Boukar, C. Fatokun, M. Carvalho, I. Castro, Y.-N. Guo, B.-L. Huynh, P.A. Roberts, V. Carnide, T.J. Close. 2021. "The UCR Minicore." *Legume Science* 2021:1-15 doi: 10.1002/leg3.95

6. **Herniter, I.A.**, M. Muñoz-Amatriaín, T.J. Close. 2020. "Genetic, textual, and archaeological evidence of the historical global spread of cowpea (*Vigna unguiculata* [L.] Walp." *Legume Science* 2020:e57 doi: 10.1002/leg3.57

7. **Herniter, I.A.**, Z. Jia, and F. Kusi. 2019. "Market preferences for cowpea (*Vigna unguiculata* [L.] Walp) dry grain in Ghana." *African Journal of Agricultural Research* 14(22):928-934. doi: 10.5897/AJAR2019.13997

8. **Herniter, I. A.**, R. Lo, M. Muñoz-Amatriaín, S. Lo, Y.-N. Guo, B.-L. Huynh, M. Lucas, Z. Jia, P.A. Roberts, S. Lonardi, and T.J. Close. 2019. "Seed Coat Pattern QTL and Development in Cowpea (*Vigna unguiculata* [L.] Walp.)" *Frontiers in Plant Science* 10:1346. doi: 10.3389/fpls.2019.01346

9. **Herniter, I. A.**, M. Muñoz-Amatriaín, S. Lo, Y.N. Guo, T.J. Close. 2018. "Identification of candidate genes controlling black seed coat and pod tip color in cowpea (*Vigna unguiculata* [L.] Walp)." *G3* 8(10):3347-3355. doi: 10.1534/g3.118.200521

10. Huynh, B. L., J.D. Ehlers, M. Muñoz-Amatriaín, S. Lonardi, J.R.P. Santos, A. Ndeve, B.J. Batieno, O. Boukar, N. Cissé, I. Drabo, C. Fatokun, F. Kusi, R.Y. Agyare, Y.N. Guo, **I. Herniter**, S. Lo, S. Wanamaker, T.J. Close, P.A. Roberts. 2018. "A multi-parent advanced generation inter-cross population for genetic analysis of multiple traits in cowpea (*Vigna unguiculata* L. Walp.)." *The Plant Journal* 93(6):1129-1142. doi: 10.1111/tpj.13827

11. Lo, S., M. Muñoz-Amatriaín, O. Boukar, **I. Herniter,** N. Cissé, Y.N. Guo, P.A. Roberts, S. Xu, C. Fatokun, T.J. Close. 2018. "Identification of genetic factors controlling domestication-related traits in cowpea (*Vigna unguiculata* L. Walp)." *Scientific Reports* 8(1):6261. doi: 10.1038/s41598-018-24349-4

INVITED/CONFERENCE TALKS

1. Liu, Z., R. Shahan, C. Kang, R. Xia, **I. Herniter.** "Genome-scale insights into early-stage fruit development in diploid strawberry." American Society of Plant Biology Conference, 2015. Minneapolis, Minnesota.

2. **Herniter, I. A.**, M. Muñoz-Amatriaín, S. Lo, Y.N. Guo, T.J. Close. "P0690 Identification of a Candidate Gene Controlling Black Seed Coat Color in Cowpea Seed Coats." Plant and Animal Genome Conference XXV. 14-18 January 2017. Town and Country Hotel, San Diego, CA.

3. Lo, S., M. Muñoz-Amatriaín, **I.A. Herniter**, O. Boukar, N. Cissé, Y.N. Guo, P.A. Roberts, S. Xu, C. Fatokun, T.J. Close. "P0689 Identification of Loci Controlling Domestication-Related Traits in Cowpea (*Vigna unguiculata* L. Walp). Plant and Animal Genome Conference XXV. 14-18 January 2017. Town and Country Hotel, San Diego, CA.

4. Huynh, B.L., J.L. Gracin-Dixon, Y.N. Guo, J.R.P. Santos, A. Ndeve, M. Muñoz-Amatriaín, S. Lo, **I. Herniter**, S.I. Wanamaker, T.T.T. Duong, S. St. Clair, M.R. Lucas, J.D. Ehlers, T.J. Close, P.A. Roberts. "P1015 A Multiparent Advanced Generation Inter-Cross Population for Genetic Analysis and Breeding in Cowpea (*Vigna unguiculata* L. Walp.)" Plant and Animal Genome Conference XXIV. 9-13 January 2017. Town and Country Hotel, San Diego, CA.

5. **Herniter, I. A.** "Seed Coat and Leaf Shape Traits in Cowpea (*Vigna unguiculata*)." Botany and Plant Sciences 250 Fall Seminar Series 2017. 18 October 2017. Genomics, University of California, Riverside, Riverside, CA. Seminar Presentation.
6. **Herniter, I. A.**, M. Muñoz-Amatriaín, S. Lo, Y.N. Guo, T.J. Close. "P0817 Mapping Consumer Related Traits in Cowpea (*Vigna unguiculata* L. walp)." Plant and Animal Genome Conference XXVI. 13-17 January 2018. Town and Country Hotel, San Diego, CA.
7. **Herniter, I. A.** "QTL Mapping training session." CSIR-SARI training session. 17-18 September 2018. Manga Station, Manga, Upper East Region, Ghana.
8. **Herniter, I. A.,** F. Kusi, T.J. Close. "Consumer Preferences for Cowpea (*Vigna unguiculata* [L.] Walp) in Ghana." College of Natural and Agricultural Sciences Poster Session. 9 November 2018. University of California, Riverside, Riverside, CA.
9. **Herniter, I. A.**, M. Muñoz-Amatriaín, S. Lo, Y.N. Guo, E. Castillo, S. Phengsy, T.J. Close. "Towards a model of seed coat pattern in cowpea (*Vigna unguiculata* [L.] Walp)." Plant and Animal Genome Conference XXVII. 12-16 January 2019. Town and Country Hotel, San Diego, CA.
10. **Herniter, I. A.** "Developing resources for research and breeding in blueberry (*Vaccinium* sect. *Cyanococcus*)." Botany and Plant Sciences 250 Winter Seminar Series 2022. 19 January 2022. University of California, Riverside, Riverside, CA. Seminar Presentation.
11. **Herniter, I.A.** "Developing genetic resources for blueberry (*Vaccinium* spp.)." American Society of Plant Biologists, Plant Biology 2022. 9-13 July 2022. Portland, Oregon.

AWARDS

- 2020 Research Article of the Year Award, *Legume Science*
- W.W. Thompson Award for Outstanding Research, 2019
- Research Innovation Fellowship for Agriculture, 2018
- James and Margaret Lesley Annual Prize, 2018
- Appleman-Norton Award in Botany, 2015
- College Park Scholars Citation, Global Public Health, 2013
- President's Scholarship (University of Maryland, College Park), 2011-2015
- Eagle Scout (Boy Scouts of America), 2011

PROFESSIONAL AND SERVICE ACTIVITIES:

- Organizations and Societies:

- Planning Committee, California Agriculture and Food Enterprise
- American Society of Plant Biologists

❖ Service
- BSA Scouting adult leader and merit badge counselor, Troop 55, Highland Park, NJ
- Project Food, a social service project of the First Congregational Church of Riverside, Riverside, California

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TEACHING & MENTORING

❖ Lectures
- Plant and Human Affairs (UCR)

❖ Teaching/Learning Assistant
- Plant and Human Affairs (UCR)
- Physics for Life Sciences (UMD)
- Physics for Life Sciences II (UMD)

❖ Mentoring Undergraduate Researchers at both Rutgers and UCR

❖ Mentoring Graduate Students at both Rutgers and UCR

REFERENCES

Dr. Peter Oudemans
Professor, Rutgers University and Director of the Philip E. Marucci Center for Blueberry and Cranberry Research and Extension

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