Meredith T. Hanlon

Molly Hanlon

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Education

Ph.D. Intercollege Graduate Program in Plant Biology, Huck Institute of Life Sciences, Pennsylvania State University

Anticipated Graduation Date: Fall 2016
Adviser: Dr. Kathleen M. Brown
Dissertation Title: Genetic and Molecular control of root traits important for nutrient acquisition in rice and Arabidopsis

B.S. Biochemistry, minor in Creative Writing, Allegheny College, Meadville, PA

Graduation Date: May 2009
Research Adviser: Dr. Catharina Coenen
Thesis: Roles for auxin and peroxidases in the formation of the arbuscular mycorrhizal symbiosis between *Glomus intraradices* and tomato

Publications

Burton AL, Johnson J, Foerster J, Hanlon MT, Kaeppler SM, Lynch JP, Brown KM (2014) QTL mapping and phenotypic variation of root anatomical traits in maize (Zea mays L.). Theor Appl Genet. doi: 10.1007/s00122-014-2414-8

Burton AL, Johnson JM, Foerster JM, Hirsch CN, Buell CR, Hanlon MT, Kaeppler SM, Brown KM, Lynch JP (2014) QTL mapping and phenotypic variation for root architectural traits in maize (Zea mays L.). Theor Appl Genet. doi: 10.1007/s00122-014-2353-4

Hanlon, M. T. and Coenen, C. (2011), Genetic evidence for auxin involvement in arbuscular mycorrhiza initiation. New Phytologist, 189: 701–709.

Onyeiwu, S., Pallant, E., and Hanlon, M. (2011). Sustainable and Unsustainable Agriculture in Ghana and Nigeria: 1960 – 2009. In Ecosystems and Sustainable Development (Y. Villacampa and C.A. Brebbia Eds.) WIT Press: 211 – 222.

Presentations

Oral:

Do *real* plants do that? Creating a realistic system to study phosphorus deficiency in Arabidopsis

- 2016 Mid-Atlantic Meeting of the American Society of Plant Biologists. Swarthmore, PA, April 9, 2016.
  - **Marsho Award for Best Oral Presentation by a graduate student or post-doc**

Understanding rice root hair control using GWAS

- Penn State Plant Biology seminar series, Feburary 22, 2016.

Poster:

Buffered delivery of phosphorus drastically affects Arabidopsis growth responses to low phosphorus

- International Workshop on Plant Membrane Biology. Annapolis, MD, July 5-10, 2016.
  - **Excellent Poster Award**

Genome wide association studies of rice (*Oryza sativa*) root hairs

- 2015 American Society of Plant Biology Meeting. Minneapolis, MN, July 2016.
- 20th Penn State Plant Biology Symposium. Penn State University, May, 2015.

Buffered delivery of phosphorus drastically alters the phenotype and gene expression in Arabidopsis roots

- 2014 American Society of Plant Biology Meeting. Portland, OR, July 2014.

Elucidating control of lateral root plagiogravitropism in Arabidopsis

- 2013 American Society of Plant Biology Meeting. Providence, RI, July 2013.
- 2013 Interdisciplinary Plant Group Symposium: Root Biology. University of Missouri, Columbia, MO, May 2013.

A role for auxin in the arbuscular mycorrhizal symbiosis

- 17th Annual Plant Physiology Symposium at Pennsylvania State University, May 2009.
- Sigma Xi Conference for Undergraduate Research, Pennsylvania State University, The Behrend College, April 2009.

Awards

- National Science Foundation Graduate Research Fellowship (NSF GRF) - 2011-2014
- NSF Graduate Opportunities Worldwide (GROW) Fellowship - 2014-2015
- Company of Biologists Travelling Fellowship - 2012
- University Graduate Fellowship - 2010-2011
- NASA Space Grant (PA Space Grant Consortium) - 2012-2014
- ARCS Scholarship - 2010-2013
- Harold M. State Research Fellowship (Allegheny College) - 2008

Teaching

- AgEco 134: Sustainable Agriculture, Science, and Policy (2015), teaching assistant.
- Horticulture 402W: Plant Nutrition (2012 - 2014), teaching assistant and guest lecturer
- Plant Biology 514: Plant Ecophysiology (2012)
- Informal instructor for R for data visualization, bioinformatics, and GWAS (2013 - present)
- Biology 580: Plant Microbe Interactions (2007- 2008), Allegheny College
- Biology 360: Plant Physiology (2008), Allegheny College
- Chemistry 110: Introduction to Chemistry (2006), Allegheny College

Service, outreach, and mentoring

- Organizer of Farmer's Market educational outreach program (2016)
- Student organizer, Penn State plant biology symposium (2015)
- Plant Biology Program Student Representative (2012 - present)
- Huck Institute Graduate Student Advisory Committee (2015 - present)
- Managing editor, Huck Graduate Student Advisory Committee blog
- ASPB iConnect Team (2014 - present)
- Faculty search committees (2009, geneticist and physiologist, Allegheny College)
- Mentoring: multiple undergraduate students, both at Allegheny College and Penn State

- Planting Science - 2012 - present
- ASPB Easter Egg Roll outreach - 2015 & 2016
- Girl Scout workshops and Penn State Science Day events (2010 - 2012)
- "This is what a scientist looks like" presentation to middle and high school students (2010 - present)
- Community Poster Presentations:
    - ARCS Scholar Event, “What’s up with roots?” Pittsburgh, PA, March 2013.
    - Penn State Graduate School Donor Outreach, “Roots, the hidden half,” Pittsburgh, PA, February 2012.
    - Council for Undergraduate Research Posters on the Hill event, “Mechanisms of Plant-Microbe Interactions.” Washington, DC, May 2009.

Other Preparation and Professional Organization Involvement

- Visiting Scholar: Umeå Plant Science Centre, Umeå, Sweden. September 2014 - January 2015.
    - Funding: NSF GROW Fellowship
    - Project: The auxin metabolome of lateral roots
    - Supervisor: Dr. Karin Ljung

- Visiting Scholar: The Centre for Plant Integrative Biology, University of Nottingham UK. July – September 2012.
    - Funding: Travelling Fellowship, the Company of Biologists
    - Project: Lateral root growth and the development of auxin gradients during growth
    - Supervisor: Dr. Malcolm Bennett.

- Research Technician: The Center for Lignocellulose Structure and Formation, Pennsylvania State University, University Park, PA. August 2009- August 2010.
    - Project: Binding partners of the cellulose-synthase complex of *Acetobacter xylinus*.
    - Supervisor: Dr. Tei-Hui Kao.

- Member: American Society of Plant Biologists