

# Meredith T. Hanlon

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## Molly Hanlon

310 Tyson Building  
University Park, PA 16801  
mth14@psu.edu

## Education

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### **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

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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

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### **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, February 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

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- 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

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- 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

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- 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, [the BRIDGE](#)
- 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

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- 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