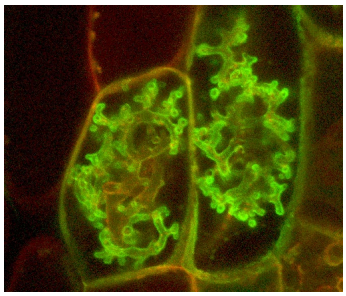
Boyce Thompson Institute, Ithaca, NY

Postdoctoral position: Phosphate transport at the symbiotic interface and molecular mechanisms regulating maintenance of AM symbioses.

Background: Research in our group asks (at the molecular level) how do plants develop endosymbiotic associations with fungi from the Glomeromycotina (also known as arbuscular mycorrhizal fungi)? How is nutrient exchange regulated and why is phosphate transport essential for maintenance of the association? We explore these questions in *Medicago truncatula* and *Brachypodium distachyon* in association with several AM fungi, using a combination of genetics, genomics, biochemistry and cell imaging approaches.
This project builds on earlier research from our group [1-10].


(Fig. 1) *Rhizophagus irregularis* in *M. truncatula* root cell (credit: S. Ivanov)

Requirements and Application: Applicants must have a Ph.D. in plant biology or other relevant discipline, a strong publication record and demonstrated expertise with molecular biology, genetics and/or biochemistry. A background in membrane transport, plant cell biology or plant-fungal interactions is advantageous.

To Apply: Applicants should submit a CV, a statement of research interests including relevant experience, and contact information of three referees to Maria J. Harrison, (mjh78@cornell.edu.). Review of applications will begin immediately and continue until the position is filled.

Project Location: The Boyce Thompson Institute is a non-profit research institute affiliated with Cornell University and located on the Cornell University campus in Ithaca, New York, www.bti.cornell.edu. EOE M/F/D/V.
Lab Website: www.bti.cornell.edu
https://scholar.google.com/citations?hl=en&user=4qZ00UwAAAAJ

Literature cited:

1. Bravo, A., et al., *Genes conserved for arbuscular mycorrhizal symbiosis identified through phylogenomics.* Nature Plants, 2016. **2**: p. 1-6.
2. Bravo, A., et al., *Arbuscular mycorrhiza-specific enzymes FatM and RAM2 fine tune lipid biosynthesis to promote development of arbuscular mycorrhiza.* New Phytologist, 2017. **214**: p. 1631-1645.
3. Ivanov, S. and M.J. Harrison, *Receptor-associated kinases control the lipid provisioning program in plant-fungal symbiosis.* Science, 2024. **383**(6681): p. 443-448.
4. Ivanov, S., et al., *Extensive membrane systems at the host–arbuscular mycorrhizal fungus interface.* Nature Plants, 2019. **5**(2): p. 194-203.
5. Lindsay, P.L., et al., *Distinct ankyrin repeat subdomains control VAPYRIN locations and intracellular accommodation functions during arbuscular mycorrhizal symbiosis.* Nature Communications, 2022. **13**(1).
6. Floss, D.S., et al., *A transcriptional program for arbuscule degeneration during AM symbiosis regulated by MYB1.* Current Biology, 2017. ***27***: p. 1-27.
7. Breuillin-Sessoms, F., et al., *Suppression of Arbuscule Degeneration in Medicago truncatula phosphate transporter4 Mutants Is Dependent on the Ammonium Transporter 2 Family Protein AMT2;3.* Plant Cell, 2015. **27**(4): p. 1352-1366.
8. Zhang, Q., L.A. Blaylock, and J. Harrison M, *Two Medicago truncatula half-ABC transporters are essential for arbuscule development in arbuscular mycorrhizal symbiosis.* Plant Cell, 2010. **22**: p. 1483-1497.

9. Zhang, X.C., et al., *EXO70I Is required for development of a sub-domain of the periarbuscular membrane during arbuscular mycorrhizal symbiosis.* Current Biology, 2015. **25**(16): p. 2189-2195.
10. Javot, H., et al., *A Medicago truncatula phosphate transporter indispensable for the arbuscular mycorrhizal symbiosis.* Proceedings of the National Academy of Sciences, USA, 2007. **104**: p. 1720-1725.