“A study of root-knot nematode effectors and their manipulation of host plants”

Dr. Cynthia Gleason

Assistant Professor, Washington State University

Root-knot nematodes (*Meloidogyne* spp) cause billions of dollars in losses every year on a global scale. These nematodes tend to have very broad host ranges and can infect most vascular plants. In susceptible crops, the most effective management strategy is to use nematicides. However, nematicides are expensive and pose risks to human health and the environment. Our goal is to develop new tools of nematode resistance. To better understand nematode pathogenicity and the plant-nematode interaction, my lab studies nematode effectors. Two of the effectors we have identified and characterized are presented here. One effector, called Mh265, suppresses plant immune responses, and the second effector, MiPFN3, affects the plant cytoskeleton. The nematode effectors are key to unlocking the compatible interaction in plants. In addition to nematode effectors, my lab is interested in how the plants respond to nematode infections. The defense hormone jasmonic acid (JA) was thought to play a role in nematode defense, but we have shown that the biosynthetic precursor called 12-oxophytodienoic acid (OPDA) is also a defense signaling molecule in plant-nematode interactions.

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