

ESTABLISHMENT OF FUSARIUM OXYSPORUM-ARABIDOPSIS PATHOSYSTEM

Stefan Nakollari¹, Li Guo, Li-Jun Ma, Andy Berg

¹Department of Biochemistry and Molecular Biology, University of Massachusetts, Amherst

Fusarium oxysporum is a fungal pathogen that causes vascular wilt diseases on a broad range of plants including field and plantation crops worldwide. *F. oxysporum* infection is economically important and can cause severe losses to host plants. Being a soil-borne pathogen, *F. oxysporum* is difficult to control and disease management currently relies on soil sterilization and the application of resistant cultivars. To make more effective disease control strategies, understanding of both pathogen virulence and host defense mechanisms is critically important. Using genetic and genomic resources of the host and pathogen, we are studying the interaction of *F. oxysporum* and model plant *Arabidopsis thaliana* in our lab. A pathosystem using *Arabidopsis* and *F. oxysporum* (Strain Fo5176) was established in a controlled environment. Fo 5176 causes necrosis and wilting on *Arabidopsis* Col-0 plants within one week post inoculation. The fungal colonization progress in plant root tissues was also visualized by glycoside-based root staining assay. RNA sequencing will be used to study the time-coursed transcriptomes of both host and pathogen during different infection stages ranging from 0 to 5 days post inoculation. Differential gene expression analysis will shed light on the molecular basis of host defense and pathogenicity and the transcriptional regulation networks responsible for disease development.