CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

▶ INSTRUCTIONS

○ *Quarterly Report* ◉ *Annual Report* ○ *Final*

Required: What is the "headline" for this report (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Proposal Title

145 - Evaluate Differences in Response to HLB by Scions on Different Rootstocks

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
4/1/11	Citrus Research and Development Foundation	Citrus Genomics

REPORT UPDATE (500 words; summarize your accomplishments)

During the past year we developed and standardized 8 more gene expression assays for the study of defense response in citrus using real time PCR. The 18 genes we have selected are either important in the early induction and regulation of SAR (AZI1, EDR1, EDS1, EDS5, NDR1, NPR1, NPR3, PBS1, R13032, R20540, RAR1, and SGT1), are targets of the regulatory SAR pathway (BLI, CHI, PR1 and RdRp) or are components of the jasmonic acid (JA) pathway (COI1 and JAR1) that works antagonistically to SAR. Several of these genes were previously undescribed for citrus, however our microarray studies indicated that these sequences were differentially regulated by chemical and pathogen treatment. Additionally, we continued to propagate more AtNPR1 'Carrizo' citrange transgenic plants. To our previous lines (854, 857, 859 and 884) we have added 757, 775, 854, 890, 896 and also more of 857, the most promising line. We also studied the response of lines 854, 857, 859, 884 and wild type (WT) to Actigard (Syngenta Corporation), a commercial version of the SAR inducer salicylic acid (SA). We studied the effect of Actigard on gene expression levels either alone or followed by treatment with a Candidatus Liberibacter asiaticus Flagellin-like peptide (L-Fgl, as a proxy for the pathogen). In general, Actigard significantly induced some SAR genes (For example: CHI, EDS1, PBS1, RAR1 and RdRp) compared to water treated plants, these same genes were induced significantly higher in transgenic lines, specially 857 and these effects were observed as early as 6 hours after treatment . We are still analyzing the effect of the L-Fgl, although it seems to repress the expression of some SAR target genes, at least in the WT plants. We have not started the HLB inoculation experiments yet as the number of plants is limited and we wanted to characterize their response before the plants were permanently confined to a containment facility. However, we will initiate this part of the research as soon as we receive the last year of funding for this project.

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Organization University of Florida

Contract Number NAS145

Project Duration (years) 3 *Year of Project* 2

Total Funds (current year) $55,000.00

SUBMIT REPORT

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.