# CITRUS ADVANCED TECHNOLOGY PROGRAM

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

**SELECT PERIOD** June 2013

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Accelerating Citrus Gene Discovery for HLB Tolerance/Resistance

| Today's Date | Sponsoring Organization (drop-down) | Category (drop down) |
|---|---|---|
| 8/29/13 | Citrus Research and Development Foundation | Citrus Genomics |

**REPORT UPDATE** (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

A number of Poncirus and Citrus cultivars have been recently found to be tolerant to HLB. Microarray-based profiling of the transcriptomes of two cultivars with HLB tolerance (Poncirus hybrid US-897and rough lemon) and two cultivars without HLB tolerance have identified over 1,150 genes that are differentially expressed in HLB-tolerant cultivars. These genes constitute a highly valuable pool of potential candidate genes from which to identify these true HLB tolerance genes can be identified. This project aims to screen these potential candidate genes using high throughput target capture, massively parallel sequencing of targeted gene regions, and genetic association and linkage analysis to find the most likely candidate gene(s) for HLB tolerance in Poncirus and rough lemon. Toward this goal, we will sequence the genome of rough lemon, and together with the genome sequence of Poncirus currently being produced, we will design a target capture system based on the Agilent SureSelect system. The custom-designed gene capture system will be used with Illumina HiSeq 2000 to rapidly identify sequence variations in the candidate genes in Poncirus and Citrus genotypes and to identify genes most likely associated with HLB tolerance. We had recruited a post-doctoral research associate, but this person decided to decline our offer, and currently we are trying to identify another qualified candidate. In the meantime, sequencing of Poncirus has been initiated and plans have been made to sequence the rough lemon genome, as well. Some of the plant materials to support the project are being collected and grown, to be prepared for downstream applications.


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*Project Number* 724

*Project Duration (years)* 3 *Year of Project* 1

*Total Funds (current year)* $137,216.00

Form PR-12 Quarterly Reports **SUBMIT REPORT**

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.