CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD June 2015

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Anti-psyllid artifical miRNAs are being evaluated in plants

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
1/20/15	Citrus Research and Development Foundation	Vector Management

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

During this period we continued efforts for artificial micro RNA (amiRNA) delivery and efficacy assessment towards B. cockerelli, but also performed a series of new experiments targeting D. citri via artificial diet, dsRNA feeding. We chose 7 D. citri targets based on our analysis of which target RNAs may be susceptible to RNAi activity, and which could give detectable phenotypic effects. Our intent was to use dsRNAs to help identify mRNAs that we could later target by amiRNAs. We took two approaches. First we generated dsRNAs in vitro, and second, we purchased some in order to perform larger scale experiments. Like in previous studies by ourselves and others, we found that artificial diet feeding of dsRNAs to adult D. citri can induce mortality. All seven tested by us (AI, ATA, ATD, CD, CL, CS and TR) induced effects significantly greater than did the GFP dsRNA controls used at the same concentrations and over the same testing periods. The CS, CD and AI dsRNAs gave slightly greater effects in some experiments. Therefore, we next assessed quantitative effects of these dsRNAs on their specific mRNA targets by using RT-qPCR. All three gave significant target mRNA knockdown, even at very low concentrations used by us. Our efforts now will proceed to design amiRNAs for these targets by using bioinformatics approaches, but also NGS analysis of the D. citri degradome.

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Project Number 531

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

Total Funds (current year) $139,859.00

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

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.