CITRUS ADVANCED TECHNOLOGY PROGRAM

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

SELECT PERIOD December 2012

(●) *Quarterly Report* ( ) *Final*

Proposal Title

Genome-enabled metabolic reconstruction of Ca. Liberibacter asiaticus and its use in culturing and controlling the pathogen.

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
4/2/13	Citrus Research and Development Foundation	Culture, Molecular Biology, Koch's Postulates

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

The L. crescens BT-1 genome was shared with Chris Henry at Argonne National Laboratory. He and his group are using this information along with the culturing medium formulation provided by Dr. Michael Davis to optimize the metabolic reconstruction of Liberibacter asiaticus. This has been hindered slightly by the absence of a defined growth medium for L. crescens. We have begun development of a defined version of the standard L. crescens culture medium developed by Dr. Davis.

Manual curation of the L. crescens genome annotation and comparison of this with the genomes of L. asiaticus and L. solanacearum continues. The RAST annotation is the starting point for this comparison. In this system the gene functions are divided into 28 different metabolic subsystems. Of these subsystems the greatest differences between L. crescens and L. asiaticus were observed in: 'amino acids and derivatives' with 154 genes in L. crescens vs. 69 in L. asiaticus; 'membrane transport' with 26 in L.c. and 18 in Las; 'motility and chemotaxis' with 39 in Lc vs. 14 in Las; 'stress response' with 40 in Lc vs. 28 in Las; and 'virulence, disease, and defense' with 28 genes in Lc and only 19 in Las. These differences have implications in both culturing and disease development.

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Organization University of Florida, IFAS

Project Number 336

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

Total Funds (current year) $249,000.00

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

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.