CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL PROGRESS REPORT FORM: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

PROJECT QUARTER END October 2024 ● *Quarterly Report* ○ *Final*

Proposal Title

A combined approach to reduce CLas and reverse symptoms in orchard trees

Today's Date	Sponsoring Organization (drop-down)	Category (drop down)
11/01/2024	Citrus Research and Development Foundation	Other

ABSTRACT (Executive Summary-public report-do not disclose proprietary information or intellectual property)

1. Please state project objectives and what work was done this quarter to address them:

Objective 3.1: Evaluate the modified SoD2* for enhanced expression levels and antimicrobial activities using the CTV vector.

This quarter, five constructs (CTV-SoD2*, CTV-2x-SoD2*, CTV-Cmpp16-SoD2*, CTV-p13-SoD2*, and CTV-SoD2*-p13) were tested for SoD2* expression in Nicotiana benthamiana using Western blot analysis. While SoD2* was undetectable in the CTV-SoD2* construct, detectable levels were observed with the CTV-2x-SoD2* construct. Western blot protocols are being optimized with monoclonal SoD2* antibodies to achieve specific detection for the remaining constructs (CTV-Cmpp16-SoD2*, CTV-p13-SoD2*, and CTV-SoD2*-p13).

Objective 3.2 Evaluate SoD2* antimicrobial activities in citrus against CLas using the CTV vector

Bark-flap inoculation of the CTV constructs into Citrus macrophylla plants continued this quarter. Positive mother trees were successfully generated for CTV-SoD2*, CTV-2x-SoD2*, CTV-Cmpp16-SoD2*, and CTV-p13-SoD2*, along with the control CTV-GFP. Propagation of these mother trees is ongoing in the greenhouse.

2. Please state what work is anticipated for next quarter:

a. Generate sufficient mother trees for all five constructs using bark-flap inoculation and grafting techniques.
b. Initiate in-house trials to evaluate the resistance of the constructs to HLB disease via graft-inoculation with HLB-positive scions.

3. Please state budget status (underspend or overspend, and why):

The project remains on track with the budget. Expenditures are aligned with the planned schedule, all necessary resources have been procured, and project milestones are being achieved within the allocated budget.

4. Please show all potential commercialization products resulting from this research, and the status of each:

The modified CTV vectors expressing SoD2* are the primary commercialization products anticipated from this research. Key updates include:
a. Silvec has secured a USDA permit for product deployment across all counties in Florida.
b. EPA regulatory approval is expected by late 2025, paving the way for full commercial sales within Florida by 2026.

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Organization Silvec Biologics Inc.
Sponsor Project Number #23-044
Project Duration (years) 1 *Year of Project* 1
% Completion of Objectives (FDACS requirement) 50.00%

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.