## CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY \& FINAL REPORTS: Control of Citrus Greening, Canker \& Emerging Diseases of Citrus
$>$ SELECT PERIOD
March
2016

Proposal Title
Cell Penetrating Peptides for Citrus Genetic Improvement

| Today's Date | Sponsoring Organization (drop-down) | Category (drop down) |  |
| :--- | :--- | :--- | :--- |
|  | 6/13/2016 | Citrus Research and Development Foundation |  |
|  | Infection Consequences |  |  |

REPORT UPDATE ( 500 words-lt is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)
Cell-penetrating peptides (CPPs) are a class of peptides (short stretchers of amino acids, the building blocks of proteins) known to translocate across most organic membranes. CPPs are currently revolutionizing the pharmaceutical and medical industries where CPPs are being investigated as vehicles for the delivery of therapeutic compounds and other "cargos" (proteins, RNA, DNA, antibiotics). Surprisingly, CPPs have also been found to function in plant cells to ferry cargos across cell membranes. The goals of this project were 1) To determine if CPPs could be systemically transported in citrus. 2) To develop a CPP transformation protocol without Agrobacterium in citrus. 3) To evaluate the use of CPPs as delivery tools for disease therapies and study the role of defense genes. Experiments with CPPs alone were unsuccessful with DNA, although protein could be transported. The addition of CRISPR/Cas to the systems appears to be successful. Importantly, plants altered with this system are not being regulated as transgenic.

## Pl First Name

Pl Last Name
Email
Phone

## Organization

## Project Number

Project Duration (years)
Year of Project
Total Funds (current year)

