

Using Citrus Tristeza Virus (CTV)-Based Vector as a Platform for the Management of Huanglongbing (HLB)

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Fig-1 Citrus sweet orange seedlings protected against HLB infection by CTV expressing antimicrobial peptides (right) vs controls (left).

Citrus is commercially propagated from elite scion lines lacking tolerance to HLB on selected rootstocks. *Candidatus liberibacter asiaticus* (CLAs), the causative agent of HLB, is transmitted between trees by the Asian citrus psyllid (ACP) insect vector. CLAs and CTV co-localize in the phloem tissue of citrus where ACP feeds.

To induce resistance/tolerance to HLB, non-disease causing CTV-T36 based vectors are being used to deliver potential therapeutics to the citrus phloem tissue. Promising therapeutics to target HLB include antimicrobial peptides (AMPs). CTV delivered AMPs are screened in both the greenhouse setting and in Florida orchards after acquiring

the required permits. Efficacious CTV-delivered therapeutics will be used in budwood sources as a remedy until a permanent solution for HLB is available. Furthermore, CTV vectors have other uses that include identifying CRISPR targets to engineer resistance against HLB and modifying the ACP phloem diet.

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