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Disrupt the bacterial growth in the insect vector to block the transmission of *Candidatus* Liberibacter asiaticus to citrus, the causal agent of citrus greening disease

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The genome of *Candidatus* Liberibacter asiaticus (CLas) reveals the presence of luxR, encodingLuxR protein, one of a two component cell-to-cell communication system. However, the genome lacks the second component, luxl, that produces acyl-homoserine lactones (AHLs), suggesting that CLas has a solo LuxR system. Interestingly, we detected compounds that may act as AHLs in the insect vector (psyllids) that are healthy or infected with CLas, but not in the citrus plants. This finding suggests that the insect is the AHL source. The fact that CLas forms a biofilm on the surface of the insect gut indicates the presence of a cell-cell communication system. Here the system is solo LuxR. Moreover, we have confirmed the activity of CLas-LuxR by its expression in *E. coli* and detection of LuxR-AHL complex. In order to block the vector transmission of CLas, we produced plants that express LuxR. Insects will acquire CLas and luxR. LuxR will compete with the bacteria for binding to AHL and consequently, CLas will not be able to colonize the insect or form biofilm and fails in the transmission. We aim to provide an environmental friendly solution for the most destructive disease in citrus (Huanglongbing) by producing specific LuxR in citrus to interfere with the vector transmission. As an alternative, we also aim to use synthetic molecules that mimic the specific AHL as an application to disrupt CLas transmission from plant to plant by its vector. More AHL in the insect may confuse the bacteria and induce a strong sticky biofilm that hardly releases cells to plants during insect feeding. Accordingly, the transmission from plant to plant will be diminished or blocked.