

Citrus sinensis Hsp90 Seems to Participate in the Infection Caused by
Phytopathogen *Xanthomonas axonopodis* pv. *citri*

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Gram-negative bacterial pathogens developed sophisticated strategies to infect hosts. They use specialized secretion systems to secrete and translocate virulence proteins across the eukaryotic cell membrane directly into the cell cytoplasm. The translocation process depends on virulence proteins being in an unfolded or partially folded conformation allowing proper transportation through the secretion system into the target inner cell. Once inside, the virulence proteins are received by the host chaperone machinery, folded to its native state, and start to interfere with cellular processes. *Xanthomonas axonopodis* pv. *citri* (Xac) is the bacterial phytopathogen of citrus species that causes canker disease. The main virulence proteins of Xac constitute a family of four proteins name pthA 1 to 4. An interaction between pthA and two Hsp90 cochaperons of sweet orange, HIP and cyclophilin, was previously observed in the laboratory of one of us. In this research we identify the interaction, by combining immunostaining and pull-down assays, between all four isoforms of pthA and Hsp90 from *Citrus sinensis*, a constitutive molecular chaperone highly related to biotic stress in plants and involved in a wide range of eukaryotic diseases. The interaction between Hsp90 and Hip from orange was also observed. These results are reported for the first time and may show the possible formation of a folding complex that activates Xac virulence proteins inside infected citrus cells.

Key Words: chaperone, Hsp90, infection, protein interaction, *Xanthomonas axonopodis* pv *citri*

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