

Use of quantitative proteomics to study induced resistance of plants to pathogens

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Exogenous chemicals can be used to stimulate induced resistance in susceptible plants against a broad range of pathogens. The identification of molecular components related to induced resistance provides an understanding of the mechanisms related to host resistance to pathogens. Environmentally friendly phosphite based fungicides are increasingly used in controlling oomycete pathogens such as *Phytophthora infestans*, causing late blight of potatoes and other solanaceous crops. To contribute to the understanding of Phi's indirect mode of action, we used iTRAQ-based quantitative comparative proteomics to investigate its effects on potato plants before and after infection with *P. infestans*. The majority of these Phi-responsive proteins revealed two major molecular mechanisms related to defense and metabolism for energy generation. Defense functions include hypersensitive response, reactive oxygen species pathway, salicylic acid-dependent pathway, and antimicrobial activities; energy generating metabolisms include glycolysis, photosynthesis, and starch degradation. The outlook of the induced resistance in selected cultivars brings new strategies to manage the disease in food production systems.

Biography

Gefu Wang-Pruski has completed her Ph.D. from University of Alberta 20 years ago. She is a university professor and researcher specializing in potato production management. He has published more than 50 papers in reputed journals and several patents related to tuber quality and disease controls. Wang-Pruski serves as editor and reviewer for numerous journals and advisors for national and international strategic innovation programs.

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