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4.5 Stage and Organ Specificity of U. maydis Effectors4.6 The Effectors of Smut Fungi Related to U. maydis; 4.7 Outlook; 4.8 Acknowledgements; References; 5: Evolutionary and Functional Dynamics of Oomycete Effector Genes; 5.1 Introduction; 5.2 Oomycete Effectors Target Different Sites in Host Plant Tissue; 5.3 Oomycete Effectors have a Modular Architecture; 5.4 Oomycete Effector Genes Show Distinct Patterns of Expression During Plant Colonization; 5.5 Effector Genes Populate Plastic Regions of Oomycete Genomes; 5.6 Evolution of P. infestans Genome and Effector Genes Following Host Jumps
5.7 Several Oomycete Effectors Suppress Plant Immunity5.8 Effectors Are Useful in Breeding and Deployment of Disease Resistance; 5.9 Outlook; References; Section 3: Microbial Effector Functions: Virulence and Avirulence; 6: Suppression and Activation of the Plant Immune System by Pseudomonas syringae Effectors AvrPto and AvrPtoB; 6.1 Pseudomonas syringae pv. tomato Interactions with Plants; 6.2 AvrPto and AvrPtoB Have Both Redundant and Unique Activities in Plants; 6.3 AvrPto is a Small Effector with Two PTI-Suppressing Domains Both of Which Can Activate ETI in Certain Solanaceous Plants
6.4 AvrPtoB is a Large Modular Effector with Domains that Suppress PTI and ETI but Which Also Activate ETI in Certain Tomato Genotypes6.5 AvrPtoB Virulence Activity; 6.6 An Evolutionary Model of the Tomato-Pseudomonas Interaction; 6.7 Summary; 6.8 Acknowledgments; References; 7: Rust Effectors; 7.1 General Introduction to Rusts; 7.2 Identification of Effectors in Bean Rust and Flax Rust as Haustorial Secreted Proteins; 7.3 Genome-Wide Effector Prediction in the Poplar Rust and Wheat Stem Rust Genomes; 7.4 Comparative Genomics of Effectors; 7.5 Function of Rust Effectors; 7.6 Conclusions References

Sommario/riassunto

Plants and microbes interact in a complex relationship that can have both harmful and beneficial impacts on both plant and microbial communities. Effectors, secreted microbial molecules that alter plant processes and facilitate colonization, are central to understanding the complicated interplay between plants and microbes. Effectors in Plant-Microbe Interactions unlocks the molecular basis of this important class of microbial molecules and describes their diverse and complex interactions with host plants. Effectors in Plant Microbe Interactions is divided into five sections t