

Boller, T., Meins, F. (ed.): **Genes Involved in Plant Defense**. - Springer-Verlag, Wien 1992. 364 pp. DM 218.00. ISBN 3-211-82312-3.

The book represents a volume of series Plant Gene Research - Basic Knowledge and Application. Within four main sections, the role of plant defense-related genes and their regulation as well as the pathogen genes involved in their interactions with host plant are discussed. The volume presents a collection of thirteen chapters.

The first section "Resistance and Susceptibility Genes of Plants" deals with the questions concerning the application of breeding for disease resistance including epidemiology, current techniques for selecting for disease resistance, and considers the potential for genetic engineering. In following part a brief review is given on the genetic basis of gene-for-gene relationships in plant-pathogen interactions using functional models. Virulence and avirulence genes of pathogens are provided in detail in second section. Using the model of *Rhizobium*, the roles of genes involved in plant-microbe interactions including the virulence gene and host range specificity genes, as well as pathogen avirulence genes and elicitors of plant defense are discussed. Main attention is paid to host range determinants, elicitors and suppressors, as well as to signal transduction and defense gene activation. In addition, the pathogenicity determinants in the smut fungi in cereals and identification of fungal genes involved in plant pathogenesis are included in this section. How can microbes respond to chemical signals of plant origin and, on the other hand, the recognition of substances of microbial origin, so-called elicitors, by plants are considered in the third section named „Perception of Pathogens and Signal Transduction“. The events connected with the expression of a set of virulence genes and subsequent induction of an array of defense genes are outlined. The last section "Plant Genes Induced in the Defense Reaction" is devoted mainly to pathogenesis-related proteins genes including glucanohydrolases ( $\beta$ -1,3-glucanases, chitinases) and thionins, as well as regulatory elements controlling developmental and stress-induced expression of phenylpropanoid genes leading to the synthesis of several types of phytoalexins and lignin.

The book can certainly be recommended to libraries of institutions to greatly benefit advanced undergraduates and research students but also at specialist senior scientists with an interest in plant pathology.

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