

Book Review

Plant Resistance to Viruses. Ciba Foundation Symposium 133.
(D. Evered and S. Harnett, eds.) John Wiley, 1987. 215 pp.
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Lectures and discussions by 30 experts in the field of plant resistance to viruses together in a symposium held in London from 31 March to 2 April 1987 were collected in a book published by John Wiley under the editorship of David Evered (organizer) and Sara Harnett.

Genetics of plant resistance to viruses is treated by Fraser in a general paper.

Bruening and coworkers report on a case of resistance in cowpeas against cowpea mosaic virus due to a protease inhibitor that blocks the processing of viral proteins.

The N gene of *Nicotiana* species causes hypersensitivity to tobacco mosaic virus. The infection site is surrounded by dead leaf tissue and so the spread of the virus is prevented. Three papers by Sela's, Fritig's and Zaitlin's groups deal with this phenomenon. The products of resistance genes are still unknown. Sela has claimed the isolation of an interferon-like molecule but definite proof is lacking. Remarkably, Sela and others could demonstrate that human β interferon induces virus resistance in plants. However, despite much effort other workers could not reproduce these results.

It has been found recently that tobacco mosaic virus for its transport through the plant is dependent on a viral gene product, the 30k or movement protein. Studies on mutations in this gene are dealt with by Nishiguchi and Motoyoshi.

Plants react in several ways to infection by viruses. A superinfection with a different virus strain some time after the first infection is often strongly counteracted. It is not clear what mechanism is responsible for this seemingly immunological response. But it has now been found that transgenic plants expressing a viral coat protein gene are cross-protected against the homologous or related virus. Papers by Sherwood and Beachy and colleagues deal with this phenomenon of cross-protection, whereas Hohn and coworkers describe the use of plant DNA viruses as gene vectors.

Satellite RNAs which accompany some plant viruses may have great influence on the symptoms induced either positively or negatively. In a paper by Baulcombe and coworkers it is shown that a DNA sequence coding for a satellite RNA of cucumber mosaic virus introduced into the host genome reduces the replication of this virus.

Hypersensitivity is accompanied by the induction of a number of extracellular proteins, the so-called pathogenesis-related (PR) proteins. Some of these have antifungal activity in that they are chitinases, but it is not known whether there is a direct antiviral function of any of these PR proteins. A number of PR protein genes have been cloned and sequenced by Bol and coworkers, and this forms the subject of one of the chapters, whereas Antoniwi and White discuss the work on the role of PR proteins.

In conclusion, this book covers in an admirable way our present knowledge in the field of plant defence mechanisms to viruses and the extensive record of discussions makes it even more valuable.

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