

## Book review

T.L. Wang (Ed.), 1986. Immunology in plant science. Society for Experimental Biology, Seminar Series 29. Cambridge University Press, Cambridge, UK. 256 pages: 60 figures; 8 tables. Hardback ISBN 0-521-30746-5, £ 27.50 (\$ 49.50); paperback ISBN 0-521-31480-1, £ 9.95 (\$ 19.95).

This book represents nine invited papers presented at the Leeds meeting of the Society for Experimental Biology in January 1985. After a brief introduction to immunology including the diary of a successful experiment to derive a set of monoclonal antibodies (McAb), several authors demonstrate the impact of immunology in different fields of plant science in eight following chapters. The paper has been carefully edited by T.L. Wang, as appropriate cross-references to other chapters are given and hardly any typographic errors occur. Besides tables of contents, contributors and protocols, there is an extensive index.

In Chapter 2, antibody-based immunoassays of plant hormones are summarized showing quantitation at the femtomole level. Both antisera and McAb are used in radioimmunoassay (RIA), enzyme-linked immunosorbent assay (ELISA) and fluoroimmunoassay (FIA) with comparable specificities. The localization of enzymes at tissue, cellular and subcellular levels is studied in Chapter 3 and the preparation of suitable tissue sections by fixation, dehydration and embedding is discussed in view of different immunocytochemical procedures.

The potential of immunofluorescence with different probes and the use of epifluorescence microscopy is demonstrated in Chapter 4 with the cell surface as research object and is further emphasized with the cytoskeleton in Chapter 5.

In Chapter 6, the use of antibodies in molecular biology is treated. The experimental approach is shown of how the cascade of information transfer, which comprises the expression of genes, can be unravelled with antibodies against DNA, RNA and polypeptides. Chapter 7 deals with the immunochemical analysis of the legume root nodule. Monoclonal antibodies have been used to identify and isolate the molecular components involved in the surface interactions between the endosymbiotic nitrogen-fixing bacteroid and the enveloping peribacteroid of plant origin.

In Chapter 8, quantification of phytochrome by immunoassay (ELISA, FIA and RIA) and its cytochemical localization are studied. Here, also blotting procedures to transfer protein from gels to nitrocellulose membranes and subsequent immunological detection are described. This technique is called Western blotting, distinct from Northern and Southern blotting where RNA and DNA, respectively, are transferred.

Chapter 9, the last, describes possible choices of immunoassay procedures (ELISA, FIA and RIA) in plant pathology. One of the authors (M.F. Clark) is the originator of ELISA in plant virology.

Almost all chapters contain several protocols (total of 19) and very illustrative figures, schedules and flow diagrams giving newcomers a quick view or informing potential users about experimental details. At the end of each chapter key and general references till 1985 are given; both review articles and specialized papers are listed.

The book is recommended to all plant pathologists, both the novice in immunology and the more experienced. Using this book, one should realize that immunoassay is such a flexible technique that there seems little limitation, other than imagination of the researcher, for the improvement of existing assays and the development and use of new ones.

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