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Immunological Adjuvants and Vaccines

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PREFACE

Vaccination, chiefly responsible for the eradication of smallpox and the control of poliomyelitis and German measles in man and of foot-and-mouth, Marek's and Newcastle disease in domestic animals, remains the best answer to infectious diseases. Early vaccines were live wild type organisms but these have been largely replaced by attenuated or killed organisms or by purified components (subunits) thereof. More recently, developments in recombinant DNA techniques, the advent of monoclonal antibodies and progress in our understanding of the immunological structure of proteins, have laid the foundations for a new generation of vaccines. For instance, subunit vaccines have been produced through gene cloning and a number of peptides mimicking small regions of proteins on the outer coat of viruses and capable of eliciting virus neutralizing antibodies, have been synthesized. Such vaccines are defined at the molecular level, can elicit immune responses controlling specific infectious organisms and are, thus, potentially free of the problems inherent in conventional ones. However, because subunit and peptide vaccines are only weakly or non-immunogenic, they require the presence of immunological adjuvants. These are a diverse array of agents that promote specific humoural and/or cell-mediated immunity responses to antigens.

This book contains the proceedings of the 1st NATO Advanced Studies Institute "Immunological Adjuvants and Vaccines" held in Cape Sounion Beach, Greece during 24 June-5 July, 1988. It deals with traditional and modern immunological adjuvants as applied to a variety of conventional and new generation vaccines, mechanisms of adjuvanticity and related immune responses as well as optimization of such responses by the use of appropriate adjuvant formulations. We express appreciation to Professors Ruth Arnon and J.H.L. Playfair for their advice in the planning of the ASI, to Dr. G. Deliconstantinos who, as Chairman of the local committee, contributed most effectively to its success, and to Mrs. A. Massaro for her help with practical aspects of the ASI. We are particularly grateful to Mrs. Susan Gregoriadis for her invaluable input in the editing of the book. The ASI was held under the sponsorship of NATO Scientific Affairs Division and co-sponsored and generously financed by Smith Kline and French Laboratories (Philadelphia). Financial assistance was also provided by Syntex (Palo Alto), Biophor (College Station), Sclavo (Sienna), Institut Merieux (Lyons), Hoffmann-La-Roche (Basle), Boehringer (Mannheim), Merck Sharp and Dohme (West Point), Organon (Oss), Connaught Laboratories (Willowdale), Schering (W. Berlin), Ciba Geigy (Horsham), Merz and Dade (Dudingen), Johnson and Johnson (La Jolla) and Northumbria Biologicals (Cramlington).

June 1989

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