

Book Review

Parasitic Nematodes: Molecular Biology, Biochemistry and Immunology (ed. Kennedy, M. & Harnett, W.) pp. 486. Commonwealth Agricultural Bureau International (CABI Publishing) UK, 2001. ISBN 0 85199 423 7. £75 (US\$ 140)

The Nematoda includes highly diversified organisms, ranging from free-living species in the soil or water to important pathogens of plants and animals. The most well-known nematode in recent years is the free-living species, *Caenorhabditis elegans*, which has become the icon of molecular biological studies. Many nematodes have become ideal models for basic research. However, due to the extensive breadth of the field, it is extremely difficult for scientists or students to assimilate the latest findings of cutting-edge research into an overview. Rarely is there a text that provides a broad perspective of host-parasite interactions, molecular and biochemical adaptations. This book, edited by two well-established scientists, can fill such a vacuum. It contains numerous original and fascinating new concepts on important topics of nematode biology. There are 45 contributors, and most of them are leading authorities in their respective area of specialization.

The book is divided into five parts, namely, genetics and phylogeny; host modulation and manipulation; specialist products and activities; immunology and immunomodulation; neurobiology. Twenty-one chapters are spread over the five parts. The topics, which are highly diversified, include the following: molecular analysis of evolution, endosymbionts of filarioids, forward genetic analysis of plant-parasitic species and host interactions, study of genetic variations by PCR approach, diversity in population, intestinal niche of *Trichinella spiralis*, genetic reprogramming of skeletal muscle cells by *Trichinella spiralis*, plant-parasitic nematodes, structure and synthesis of cuticle, chitinases of filarioids, acetylcholinesterase secretion, surface antigens of *Toxocara canis*, gut peptidases, pyruvate dehydrogenase metabolism, novel carbohydrate structures, lipid-binding proteins, T-helper cell cytokine response and regulation, gut immunopathology, immunomodulation by filarioids, neuropeptides, neurobiology and anti-parasitic drugs. Each chapter provides an in-depth coverage of the topic, usually with an extensive reference list. The book was well-edited, with a uniform format throughout. This is a formidable task because of the large numbers of contributors. Each chapter ends with concluding remarks that summarize the important ideas and

provide directions for future studies. There are sufficient graphs, figures, tables and photomicrographs to support the text. Unfortunately, to reduce printing cost, all the photographs/illustrations are in black and white only. However, colour photographs, especially for fluorescent data, would greatly enhance the quality of presentation. To overcome this drawback, a website is given by the publisher for downloading the illustrations in colour.

The most striking feature of the book is that besides being informative, it is often thought-provoking. Each chapter, not only gives a review of the relevant publications on a topic, but also provides ample discussion of the latest concept or hypotheses, which are based on the insights of scientists who have made significant original discoveries. After reading each chapter, one can easily grasp the current state of knowledge of an important aspect of nematode biology, which would otherwise be difficult to synthesize from literature search. For example, Chapter 1 gives an insight into the resolution of species complexes by molecular phylogenetics and the evolution of parasitic phenotypes. Chapter 4 provides a good discussion on the advantages and limitations in identifying nematodes by polymerase chain reaction (PCR) and related methods. Chapter 5 attempts to relate phenotypic diversity with arrested development and immunology. This approach may form the basis of control by transmission-reduction. Chapter 6 describes the usefulness of an *in vitro* model of the intestinal epithelium and tyvelose specific antibodies in studying the activities of *Trichinella spiralis* during the intestinal stage of infection. Chapter 7 reviews the possible methods adopted by *T. spiralis* to reprogramme the genomic expression of mammalian skeletal muscles and to control the host cell cycle. Chapter 16 outlines the importance and the possible functions of the little known lipid-binding proteins of nematodes. Lipid transporter proteins have a good potential in anthelmintic drug delivery.

However, a shortcoming of the book is that the depth of coverage is variable between chapters. The approach of each chapter may also be different. For example, chapter 4 is on protocols and technical aspects, whereas other chapters deal with literature review and concepts. Chapter 3 only has seven pages, while other chapters may be more than 20 pages in length. Nevertheless, such a discrepancy is understandable, given the great diversity in topics and the large numbers of contributors. Under such circumstances, a balanced coverage may prove impossible.

In summary, this book has succeeded to compile the most up-to-date information on cutting-edge research using selected plant and animal parasitic nematodes. It is an excellent source of information for research workers, postgraduate students, teachers, nematologists, parasitologists etc. Workers

who wish to acquire a broad perspective of nematode research would also find the book useful.

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