

PREFACE

When Elsevier published the seven-volume series *Comprehensive Molecular Insect Science* in 2005, the original series was targeted mainly at libraries and larger institutions. While this gave access to researchers and students of those institutions, it has left open the opportunity for an individual volume on one of the most popular areas in entomology: pharmacology. Such a volume is of considerable value to an additional audience in the insect research community — individuals who either had not had access to the larger work or desired a more focused treatment of these topics.

As two of the three editors of the *Comprehensive* series, we felt that it was time to update the field of insect pharmacology by providing a volume for professional researchers and students that was updated by adding addenda to the original chapters. The new summaries for each chapter provide an overview of developments in the related article since its original publication. As editors of the original chapters, we expended a great deal of effort in finding the best available authors for each of those chapters. In most instances, authors who contributed to *Comprehensive Molecular Insect Science* also provided updates to our new volume, *Insect Pharmacology*.

The chapters included in *Insect Pharmacology* incorporate major targets for many of the insecticides currently in use. Most insecticides in use affect a small set of molecular targets. Chapters in this volume include "Sodium Channels," which are targets for pyrethroids, indoxacarb, and peptide toxins; "GABA Receptors," a target for fipronil; and "Esterases," some of which are targeted by organophosphates and carbamates. Other chapters cover "G-protein Coupled Receptors" that modulate peptide function; "Amino Acid Transporters" that play a role regulating the transport of neurotransmitters and amino acids critical in insect function; and "Glutathione Transferases," some of which are involved in insecticide detoxification and resistance. Chapters on "Avermectins," "Spider Toxins," and "Baculoviruses" address compounds that have been used successfully or show potential for insect control.

Chapters in the companion volume, *Insect Control*, would also be of interest to readers. That volume includes chapters on "Neonicotinoid Insecticides," which discusses insect nicotinic receptors, and "Insect Growth Regulators and Development Disrupting Insecticides," which includes recent progress on target sites involved in insect growth and regulation. Chapters on "*Bacillus thuringiensis*" and "*Bacillus sphaericus*" provide comprehensive discussion of the molecular targets for toxins produced by these bacteria.

Several years of effort was expended by both of us and our colleagues in choosing topics for the seven-volume series, in the selection of authors, and in the editing of the original manuscripts and galley proofs. Each and every chapter in those volumes was important, and even essential, to make it a "Comprehensive" series. Nevertheless, we feel strongly that having this volume with the updated material and many references on these important aspects of insect pharmacology will be of great help to professional insect biologists, to graduate students conducting research for advanced degrees, and even to undergraduate research students contemplating an advanced degree in insect science.

— LAWRENCE I. GILBERT,
Department of Biology,
University of North Carolina,
Chapel Hill

— SARJEET S. GILL,
Cell Biology and Neuroscience,
University of California,
Riverside