Cytotoxicity Of Southeast Asian Snake Venoms Scielo

Targeted therapy has developed significantly in the last one and half decades, prescribing specific medications for treatment of particular diseases, such as cancer, diabetes, and heart disease. One of the most exciting recent developments in targeted therapies was the isolation of disease-specific molecules from natural resources, such as animal venoms and plant metabolites/toxins, for use as templates for new drug motif designs. In addition, the study of venom proteins/peptides and toxins naturally targeted mammalian receptors and demonstrated high specificity and selectivity towards defined ion channels of cell membranes. Research has also focsed intensely on receptors. The focus of this Special Issue of Toxins addressed the most recent advances using animal venoms, such as frog secretions, bee/ant venoms and plant/fungi toxins, as medicinal therapy. Recent advances in venom/toxin/immunotoxins for targeted cancer therapy and immunotherapy, along with using novel disease-specific venom-based protein/peptide/toxin and currently available FDA-approved drugs for combinationtreatments will be discussed. Finally, we included an overview of select promising toad/snake venom-based peptides/toxins potentially able to address the forthcoming challenges in this field. Both research and review articles proposing novelties or overviews, respectively, were published in this Special Issue after rigorous evaluation and revision by expert peer reviewers.

A Primer on Reptiles and Amphibians is an innovative educational resource designed to forge a connection between the reader and the creeping critters of the world. Turtles, frogs, lizards, salamanders, snakes, and crocodiles¿ these animals evoke fear and fascination. This primer dispels myths and unlocks mysteries surrounding these diverse survivors which have mastered virtually every habitat on Earth. Tragically, these animals now face pressures of unprecedented severity, but there is still time to make a difference if more of us work together.Micha Petty is an international award-winning Master Naturalist and wildlife rehabilitator. This critically-acclaimed debut volume is a collection of Micha's interpretive writings, carefully crafted to make learning easy for everyone. These bulletins display his passion for Conservation Through Education while covering topics such as living harmoniously with wildlife, physiology, natural history, observation, and conservation. Flip to any page to be instantly introduced to new facets of reptiles, amphibians, the perils they face, and how you can join the fight to save them.

This title is directed primarily towards health care professionals outside of the United States. A major postgraduate textbook in paediatric emergency medicine, covering all the major topics that present to the trainee doctor in the emergency department. Short concise chapters, with key point boxes at the beginning - easy to use for the hard-pressed trainee. Aims to give a consensus approach to assessment and treatment, based on the latest evidence. Highlights areas of controversy.

A comprehensive textbook of paediatric emergency medicine for trainee doctors - covers all the problems likely to present to a trainee in the emergency department. Short concise chapters, with key point boxes at the beginning - easy to use for the hard-pressed trainee. Aims to give a consensus approach to assessment and treatment,

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Elephants are possibly the most well-known members of the animal kingdom. The enormous size, unusual anatomy, and longevity of elephants have fascinated humans for millenia. Biology, Medicine, and Surgery of Elephants serves as a comprehensive text on elephant medicine and surgery. Based on the expertise of 36 scientists and clinical veterinarians, this volume covers biology, husbandry, veterinary medicine and surgery of the elephant as known today. Written by the foremost experts in the field Comprehensively covers both Asian and African elephants Complete with taxonomy, behavioral, geographical and systemic information Well-illustrated and organized for easy reference

Although many view toxicology as a new science, since man discovered the medicinal properties of plants, it has been known that such materials could produce toxic effects. Recently, developments in analytical chemistry have advanced and specialized the field of toxicology. The analytical chemical approach has altered our thinking. We have become able to recognize smaller and smaller quantities of more and more chemicals. At times it would appear that this analytical approach has blunted our perception of the biological aspects of toxicology. In reality, newer developments have afforded broader insights and a wider range of concerns that are emphasized in this state-of-the-art text. Such concerns include the study of birth defects and chemical effects on the immune system; the worldwide use of pesticides, rodenticides, herbicides, and fungicides for increasing food production and permitting protection from various insects and animals that has resulted in many instances in human population poisonings; studies on the neurotoxicity and tolerance to the organophosphates in an effort to understand these important chemicals and develop better modalities to counter their adverse effects; and target organ toxicity involving the liver, kidney, and lungs. This book considers not only the student and clinician, but also the active practitioner of toxicological investigations. A broad but focused view of toxicology is presented by experts in the field, with particular emphasis on specific target organs and the current state-of-the-art concerns already mentioned, rather than on subjects such as carcinogenesis and mutagenesis that are thoroughly covered in numerous other texts. This unique text will serve to narrow the gaps in the existing knowledge base, gaps that must continue to be filled by ongoing and future research, thus expanding our collective knowledge of biological aspects of toxicology.

This book is a printed edition of the Special Issue "Snake Venom Metalloproteinases" that was published in Toxins

Textbook for EMT training. The DVD walks students through the skills necessary to pass the EMT-Basic practical exam.

The Handbook of Cucurbits: Growth, Cultural Practices, and Physiology contains information on cultural practices, nutrition, and physiological processes of cucurbits under both normal and stressful conditions. It presents the history and importance of cucurbit crop production as well as exhaustive information on growth responses of cucurbits to var

Handbook of Venoms and Toxins of ReptilesCRC Press

Building on the previous edition with contributions from internationally renowned experts this book provides a fully comprehensive resource for managing the post emergency/treatment stage of acute poisoning. Chapters incorporate evidence-based

paradigms with up-to-date citations from the original medical literature. Topic areas covered include: diagnosis and management of the critically poisoned patient, including pediatric patients and poisoning in pregnancy; toxic syndromes including hepatoxic and pulmonary syndromes as well as poisonings from medications, drugs of abuse, chemical and biological agents. This book is an essential resource for Clinical Toxicologists, Intensivists and Emergency Medicine specialists in training and in practice.

Venom research and technology has advanced greatly, rapidly transforming our knowledge of reptile venoms. Research advances, like the development of molecular systematics, provide the framework necessary to reconstruct the evolutionary history of glands and fangs. Such research developments have expanded our understanding of venom's evolution and its usefulness in therapeutic development. The results of this punctuated toxin molecular evolutionary expansion include protein neofunctionalization. While these changes may impact antivenom efficacy, this molecular diversity also facilitates their usefulness in the development of novel drug therapies. Venomous Reptiles And Their Toxins brings together the world's leading toxinologists in this comprehensive study of the entire scope of reptile venoms, from clinical effects to evolution to drug design and development. The book contains detailed applied chapters on clinical care of the envenomed patient, ineffective traditional or modern remedies, occupational considerations involved in the maintenance of institutional venomous reptile collections, veterinary care for venomous reptiles and research methods used in venom research. This book also devotes a chapter to each toxin class found in reptile venoms, detailing the full trajectory of research on the peptide or protein in question. These chapters discuss each toxin's respective role in the envenomation process through to how each has been explored for their biomedical potential. This book is a unique resource for anyone working with venomous reptiles.

In recent years, the field of Toxinology has expanded substantially. On the one hand it studies venomous animals, plants and micro organisms in detail to understand their mode of action on targets. While on the other, it explores the biochemical composition, genomics and proteomics of toxins and venoms to understand their three interaction with life forms (especially humans), development of antidotes and exploring their pharmacological potential. Therefore, Toxinology has deep linkages with biochemistry, molecular biology, anatomy and pharmacology. In addition, there is a fast developing applied subfield, clinical toxinology, which deals with understanding and managing medical effects of toxins on human body. Given the huge impact of toxin-based deaths globally, and the potential of venom in generation of drugs for so-far incurable diseases (for example, Diabetes, Chronic Pain), the continued research and growth of the field is imminent. This has led to the growth of research in the area and the consequent scholarly output by way of publications in journals and books. Despite this ever growing body of literature within biomedical sciences, there is still no all-inclusive reference work available that collects all of the important biochemical, biomedical and clinical insights relating to Toxinology. The Handbook of Toxinology aims to address this gap and cover the field of Toxinology comprehensively.

The purpose of this book is to highlight the potentially dangerous species to humans, with a list of the main potentially medically significant snakes. It is important to note that if a species is not listed below, it does not necessarily mean that it does not exist in

Malaysia nor that its bite cannot cause harmful effects in humans. In particular, the list of colubrid (non-front-fanged) snakes has been selective, to include only a number known to be of potential medical significance. It is also important to note that a poor surveillance of the pet trade and irresponsible importation of exotic snakes may introduce a medically significant species, which is not indigenous to Malaysia. This may add to the complexity of managing envenomings in this country.

Snakebites are well-known medical emergencies in many parts of the world, especially in rural areas. Agricultural workers and children are most affected. The incidence of snakebite mortality is particularly high in South-East Asia. Rational use of snake anti-venom can substantially reduce mortality and morbidity due to snake bites. These guidelines are a revised and updated version of those published in 2011. The geographical coverage extends from India in the west to DPR Korea and Indonesia in the east, Nepal and Bhutan in the north, and to Sri Lanka and Indonesia in the south and south-east. Snakes inhabiting the Indonesian islands east of Wallace's line (West Papua and Maluku Islands) are part of the Australasian elapid fauna, differing from those west of this line. This publication passes on a digest of available knowledge about all clinical aspects of snake-bite to medically trained personnel, including medical doctors, nurses, dispensers and community health workers. They will provide sufficient practical information to allow medically trained personnel to assess and treat patients with snake-bites at different levels of the health service.

Clinical toxinologic conditions are becoming increasingly frequent, more so than is generally recognized. The conditions comprise of clinical aspects such as the diagnosis, management, and prevention of snakebite envenoming, scorpion sting, mushroom toxins, plant toxins, and other natural toxins. Clinical toxinology also deals with the ecology, epidemiology, regional differences, and varieties of fauna accounting for different envenoming manifestations. This handbook includes 30 chapters addressing various topics on clinical toxinology such as the epidemiology and management of snakebites in different Asian and African countries, disability following snakebite, effect of snake venoms on hemostasis, socioeconomic aspects of snakebites, therapeutic application of snake venom, scorpion sting in the Middle East, jellyfish sting, etc. These titles are written by experts currently working in the subspecialty, many of whom have first-hand experience in the relevant research fields. In virtually all the topics, appropriate illustrations are provided to simplify comprehension including tables, figures and pictures. This reference work on Clinical Toxinology in Asia Pacific and Africa, in the Toxinology handbook series, is designed to keep readers abreast with new knowledge and experience in toxinology regionally and globally. Toxinologists, researchers, scientists, and experts in this field from various working areas considered it necessary to collect all the aspects of clinical toxinology in a single, handy handbook. This can be used by medical students, postgraduate students, general practitioners, specialists in internal medicine, critical care physicians, emergency physicians, and anesthetists worldwide.

Focusing on phytochemicals and their potential for drug discovery, this book offers a comprehensive resource on poisonous plants and their applications in chemistry and in pharmacology. Provides a comprehensive resource on phytotoxins, covering historical perspectives, modern applications, and their potential in drug discovery - Covers the mechanisms, benefits, risks and management protocols of phytotoxins in a scientific laboratory and the usefulness in drug discovery - Written and edited by leading researchers in phytochemistry, medicinal chemistry, analytical chemistry, toxicology, and more - Presents chapters in a carefully designed, clear order, making it an ideal resource for the academic researcher or the industry professional at any stage in their career Provides a comprehensive resource on phytotoxins, covering historical perspectives, modern applications, and their potential in drug discovery Covers the mechanisms, benefits, risks and management protocols of phytotoxins in a scientific laboratory and the usefulness in drug discovery Presents chapters in a carefully designed, clear order, making it an ideal resource for the academic researcher or the industry professional at any stage in their career

The thoroughly updated Eighth Edition of this classic three-volume work provides the most comprehensive, current, and authoritative information on diseases of the kidney and urinary tract. This clinically oriented reference focuses on diagnosis and treatment of specific diseases, disorders, and complications and incorporates the basic science practicing physicians need to evaluate and manage the disease process. Each of the fourteen sections is written by internationally renowned contributors and provides coverage comparable to a complete book. The first two sections review renal basic science and describe current diagnostic tools. The remaining twelve sections cover various types of diseases, including hypertension, urological problems, and urinary tract concerns. Each disease-oriented section begins with an up-to-date review of pathophysiology and then focuses on specific diseases. This edition has new lead authors for more than 25 chapters, and separate chapters on heart disease and the kidney, liver disease and the kidney, and the nephrotic syndrome.

Snake bites are a major health concern, especially in tropical countries. Understanding the pathology of envenomation and chemical composition of snake venoms is important in the development of medical countermeasures (including, but not limited to, antivenoms). Furthermore, snake venoms can be considered natural "combinatorial libraries" of proteins and peptides. Thus, it is not surprising that components of snake venom have been found extensively useful in biomedical research as well as clinical use for treating diseases as diverse as cancer and muscle pain. In this book, well-known scientists from the Americas, Asia, and Europe discuss recent trends and outlooks in regards to snake venom research. A distinctively broader coverage of the subject is given, with topics ranging from protein biochemistry to pathology. Several chapters highlight protein biochemistry and enzymology of snake venoms, immune response to envenomation and antivenoms, production and use of snake venom

components as antigens for antivenom preparation, and the therapeutic value of snake venom components in the treatment of various diseases. A comprehensive and authoritative monograph, this book will be equally interesting to both established researchers and graduate students interested in toxinology and pathology of envenomation.

A decade after publication of the first edition, Handbook of Venoms and Toxins of Reptiles responds to extensive changes in the field of toxinology to endure as the most comprehensive review of reptile venoms on the market. The six sections of this new edition, which has nearly doubled in size, complement the original handbook by presenting current information from many of the leading researchers and physicians in toxinology, with topics ranging from functional morphology, evolution and ecology to crystallography, -omics technologies, drug discovery and more. With the recent recognition by the World Health Organization of snakebite as a neglected tropical disease, the section on snakebite has been expanded and includes several chapters dealing with the problem broadly and with new technologies and the promises these new approaches may hold to counter the deleterious effects of envenomation. This greatly expanded handbook offers a unique resource for biologists, biochemists, toxicologists, physicians, clinicians, and epidemiologists, as well as informed laypersons interested in the biology of venomous reptiles, the biochemistry and molecular biology of venoms, and the effects and treatment of human envenomation.

Pharmacognosy is a term derived from the Greek words for drug (pharmakon) and knowledge (gnosis). It is a field of study within Chemistry focused on natural products isolated from different sources and their biological activities. Research on natural products began more than a hundred years ago and has continued up to now with a plethora of research groups discovering new ideas and novel active constituents. This book compiles the latest research in the field and will be of interest to scientists, researchers, and students.

The continuous and rapid improvement of tourism around the whole world and the increasing emigration of peoples from the developing countries to the "old continents" have changed the classical image of tropical diseases, which are now seen more frequently in temperate and highly developed countries. Consequently, over 10 years after its first publication, this second edition of the pathology of tropical diseases has been restructured and expanded to reflect the recent developments and changes in diagnostic techniques. A total of 27 chapters - written by 29 reputed experts from 11 countries - cover such new aspects as technological developments in diagnosing infectious diseases, autopsies in the tropics, renal diseases, geomedicine and genetic disorders. A concentrated and up-to-date review of the field.

Neglected Tropical Diseases and other Infectious Diseases Affecting the Heart provides a comprehensive and systematic review on the literature surrounding Neglected Tropical Diseases and infectious diseases and how they affect the

heart. Written by Emerging Leaders of the Interamerican Society of Cardiology (SIAC), the book includes the latest research findings, covering the cardiac involvement of a range of viral, bacterial and parasitic diseases, including COVID19, HIV, Zika, Lyme Disease, and more. Chapters cover epidemiology, the physiopathology of cardiovascular involvement, symptoms, diagnosis, and treatment options for each disease, making the book suitable to researchers, scientists, clinicians and physicians in the field. Covers the cardiac involvement of a range of viral, bacterial and parasitic diseases, including COVID19, HIV, Influenza, Lyme Disease, and more Explains the diagnosis and management of cardiovascular ailments in neglected tropical diseases Written in an easy to read manner with figures, illustrations and tables to aid understanding Contains chapter formatted with an Introduction, Epidemiology, Physiopathology of Cardiovascular (CV) involvement, Symptoms, Diagnosis, Treatment, Discussion and Conclusions

This eBook examines the 10 deadliest cobras in the world. It provides a direct analysis of each snake's behavioral pattern, aggressive, and venom toxicity. This also includes a general discussion of the "threat level" posed by each cobra to humans and animals.

Africa is a true hotspot for snake diversity, with several hundred species. Unfortunately, a scared snake or one that is trodden on may bite, and some species have venom that can prove fatal. The Dangerous Snakes of Africa is an indispensable guide to these reptiles. It covers all 137 dangerous snake species in Africa, along with another 70 species that are easily confused with them. All are described, with each account looking in detail at their identification, habitat and distribution, behaviour and venom, as well as how to treat bites and a selection of photographs, accompanied by an accurate range map. Introductory sections cover the major snake groups, their venom characteristics, how to avoid snake bites and first-aid advice. This comprehensive book is an essential tool for all naturalists, conservationists, educators, field workers and medical personnel throughout Africa.

This excellent volume was designed and edited with two major ideas in mind: firstly, the field of clinical toxicology is changing and an acknowledgement of these changes is warranted; secondly, no comprehensive compilation of recently published case reports of, and clinical studies on, human poisonings is available, which is in sharp contrast to the closely related field of drug-induced side-effects. The book focusses on issues of recent concern, or issues poorly documented in the past. It is important that clinical toxicologists gain a better knowledge of all the available techniques of toxicological analysis. A better understanding of the way a sound interpretation of results should be conducted for the benefit of the patient's management, and a comprehensive set of data on the kinetics of the most common pharmaceutical drugs and many chemicals is required. Human Toxicology is a timely reference work which will be welcomed by a broad audience of toxicology professionals.

With over 50,000 distinct species in sub-Saharan Africa alone, the African continent is endowed with an enormous wealth of plant resources. While more than 25 percent of known species have been used for several centuries in traditional African medicine for the prevention and treatment of diseases, Africa remains a minor player in the global natural products market largely due to lack of practical information. This updated and expanded second edition of the Handbook of African Medicinal Plants provides a comprehensive review of more than 2,000 species of plants employed in indigenous African medicine, with full-color photographs and references from over 1,100 publications. The first part of the book contains a catalog of the plants used as ingredients for the preparation of traditional remedies, including their medicinal uses and the parts of the plant used. This is followed by a pharmacognostical profile of 170 of the major herbs, with a brief description of the diagnostic features of the leaves, flowers, and fruits and monographs with botanical names, common names, synonyms, African names, habitat and distribution, ethnomedicinal uses, chemical constituents, and reported pharmacological activity. The second part of the book provides an introduction to African traditional medicine, outlining African cosmology and beliefs as they relate to healing and the use of herbs, health foods, and medicinal plants. This book presents scientific documentation of the correlation between the observed folk use and demonstrable biological activity, as well as the characterized constituents of the plants.

Soil is an irreplaceable resource that sustains life on the planet, challenged by food and energy demands of an increasing population. Therefore, soil contamination constitutes a critical issue to be addressed if we are to secure the life quality of present and future generations. Integrated efforts from researchers and policy makers are required to develop sound risk assessment procedures, remediation strategies and sustainable soil management policies. Environmental Risk Assessment of Soil Contamination provides a wide depiction of current research in soil contamination and risk assessment, encompassing reviews and case studies on soil pollution by heavy metals and organic pollutants. The book introduces several innovative approaches for soil remediation and risk assessment, including advances in phytoremediation and implementation of metabolomics in soil sciences.

The second edition of the Encyclopedia of Toxicology continues its comprehensive survey of toxicology. This new edition continues to present entries devoted to key concepts and specific chemicals. There has been an increase in entries devoted to international organizations and well-known toxic-related incidents such as Love Canal and Chernobyl. Along with the traditional scientifically based entries, new articles focus on the societal implications of toxicological knowledge including environmental crimes, chemical and biological warfare in ancient times, and a history of the U.S. environmental movement. With more than 1150 entries, this second edition has been expanded in length, breadth and depth, and provides an extensive overview of the many facets of

toxicology. Also available online via ScienceDirect – featuring extensive browsing, searching, and internal cross-referencing between articles in the work, plus dynamic linking to journal articles and abstract databases, making navigation flexible and easy. For more information, pricing options and availability visit www.info.sciencedirect.com. *Second edition has been expanded to 4 volumes *Encyclopedic A-Z arrangement of chemicals and all core areas of the science of toxicology *Covers related areas such as organizations, toxic accidents, historical and social issues, and laws *New topics covered include computational toxicology, cancer potency factors, chemical accidents, non-lethal chemical weapons, drugs of abuse, and consumer products and many more!

For millennia, humans have regarded snakes with an exceptional combination of fascination and revulsion. Some people recoil in fear at the very suggestion of these creatures, while others happily keep them as pets. Snakes can convey both beauty and menace in a single tongue flick and so these creatures have held a special place in our cultures. Yet, for as many meanings that we attribute to snakes—from fertility and birth to sin and death—the real-life species represent an even wider array of wonders. The Book of Snakes presents 600 species of snakes from around the world, covering nearly one in six of all snake species. It will bring greater understanding of a group of reptiles that have existed for more than 160 million years, and that now inhabit every continent except Antarctica, as well as two of the great oceans. This volume pairs spectacular photos with easy-to-digest text. It is the first book on these creatures that combines a broad, worldwide sample with full-color, life-size accounts. Entries include close-ups of the snake’s head and a section of the snake at actual size. The detailed images allow readers to examine the intricate scale patterns and rainbow of colors as well as special features like a cobra’s hood or a rattlesnake’s rattle. The text is written for laypeople and includes a glossary of frequently used terms. Herpetologists and herpetoculturists alike will delight in this collection, and even those with a more cautious stance on snakes will find themselves drawn in by the wild diversity of the suborder Serpentes.

Providing the latest coverage on emerging and re-emerging diseases from around the world, such as tuberculosis and malaria, this updated guide contains boxes and tables that highlight key information on current therapies. This edition includes online access for more information.

Known for their ease of use, artful presentation of scientific information, and evidence-based approach, James Duke’s comprehensive handbooks are the cornerstone in the library of almost every alternative and complementary medicine practitioner and ethnobotanist. Using the successful format of these bestselling handbooks, Duke’s Handbook of Medicinal Plants of the Bible covers 150 herbs that scholars speculate, based on citations, were used in Biblical times.

This report presents the recommendations of a WHO Expert Committee commissioned to coordinate activities leading to the adoption of international

recommendations for the production and control of vaccines and other biological substances, and the establishment of international biological reference materials. Following a brief introduction, the report summarizes a number of general issues brought to the attention of the Committee. The next part of the report, of particular relevance to manufacturers and national regulatory authorities, outlines the discussions held on the development and adoption of new and revised WHO Recommendations, Guidelines and guidance documents. Following these discussions, a WHO guidance document on Regulatory assessment of approved rDNA-derived biotherapeutics was adopted along with WHO Guidelines on the stability evaluation of vaccines for use under extended controlled temperature conditions and on WHO good manufacturing practices for biological products. In addition, revised WHO Recommendations to assure the quality, safety and efficacy of recombinant human papillomavirus virus-like particle vaccines were also adopted by the Committee. Subsequent sections of the report provide information on the current status and proposed development of international reference materials in the areas of antibiotics; biotherapeutics other than blood products; blood products and related substances; in vitro diagnostic device reagents; and vaccines and related substances. A series of annexes are then presented which include an updated list of all WHO Recommendations, Guidelines and other documents on biological substances used in medicine (Annex 1). The above four WHO documents adopted on the advice of the Committee are then published as part of this report (Annexes 2-5). Finally, all additions and discontinuations made during the 2015 meeting to the list of International Standards, Reference Reagents and Reference Panels for biological substances maintained by WHO are summarized in Annex 6. The updated full catalog of WHO International Reference Preparations is available at: http://www.who.int/bloodproducts/catalogue/en/.

Many hundreds of toxins have been purified and characterized from the complex mixtures of pharmacologically active proteins and polypeptides within snake venoms. The study of these toxins has contributed significantly to our understanding of snake venom toxicity and, perhaps more importantly, has provided numerous research tools which have helped decipher the intricate details of various physiological processes at the molecular level and which have also been used in the development of pharmaceutical agents. Among these toxins, phospholipase A2 enzymes (PLA2 enzymes) are the most fascinating group of proteins and Venom Phospholipase A2 Enzymes is the first comprehensive book covering both fundamental and recent advances in phospholipase research. Particular emphasis is placed on the pharmacological effects of snake venom PLA2 enzymes. All structural aspects are covered, including known protein sequences, 3D structures and their relationship to catalytic properties. Valuable information is included on the molecular, biological and immunological aspects of these enzymes, their catalytic mechanisms, identification and purification, and several chapters are devoted to recent studies

of the neurotoxic, myotoxic, anticoagulant and antiplatelet nature of PLA2 enzymes. The characterization of receptor/acceptor membrane proteins is also discussed in detail. In summary, Venom Phospholipase A2 Enzymes provides a ready reference on all aspects of phospholipase research for toxicologists, pharmacologists, protein chemists, enzymologists and molecular biologists; indeed all researchers working with natural toxins/snake venom will find much of interest within this book.