**TOXICON**
An Interdisciplinary Journal on the Toxins Derived from Animals, Plants and Microorganisms

---

**DESCRIPTION**

*Toxicon* has an open access mirror *Toxicon: X*, sharing the same aims and scope, editorial team, submission system and rigorous peer review. An introductory offer *Toxicon: X* - full waiver of the Open Access fee.

*Toxicon's* "aims and scope" are to publish: articles containing the results of original research on problems related to toxins derived from animals, plants and microorganisms papers on novel findings related to the **chemical**, **pharmacological**, **toxicological**, and **immunological** properties of natural toxins molecular biological studies of toxins and other genes from poisonous and venomous organisms that advance understanding of the role or function of toxins clinical observations on poisoning and envenoming where a new therapeutic principle has been proposed or a decidedly superior clinical result has been obtained. material on the use of toxins as tools in studying biological processes and material on subjects related to venom and antivenom problems. articles on the translational application of toxins, for example as drugs and insecticides epidemiological studies on envenoming or poisoning, so long as they highlight a previously unrecognised medical problem or provide insight into the prevention or medical treatment of envenoming or poisoning. Retrospective surveys of hospital records, especially those lacking species identification, will not be considered for publication. Properly designed prospective community-based surveys are strongly encouraged. articles describing well-known activities of venoms, such as antibacterial, anticancer, and analgesic activities of arachnid venoms, without any attempt to define the mechanism of action or purify the active component, will not be considered for publication in *Toxicon*. review articles on problems related to **toxinology**. To encourage the exchange of ideas, sections of the journal may be devoted to Short Communications, Letters to the Editor and activities of the affiliated societies.

*Toxicon* strives to publish articles that are current and of broad interest and importance to the toxinology research community. Emphasis will be placed upon articles that further the understanding and knowledge of toxinology.

**Types of paper**

**Full-Length Research Papers:** Articles containing the results of original research on problems related to toxins derived from animals, plants and microorganisms.
**Short Communications:** Short communications differ from full manuscripts only in that the research study does not lend itself to an extended presentation. Even though brief, the Short communication should represent a complete, coherent and self contained study. The quality of Short Communications is expected to be as good as that of full articles, and both full articles and Short communications will be refereed in an identical manner. The form is identical to that for a full article except that the report should not be divided into Introduction, Materials and Methods, Results and Discussion. An abstract of not more than 75 words should be provided. The Short Communication may not be longer than five double-spaced typewritten pages (not including references, tables and figures) and should include not more than two tables or two figures or one of each.

**Letters to the Editor:** These may be published if judged by the Editor to be of interest to the broad field of toxinology or of special significance to a smaller group of workers in a specialized field of toxinology. They should be headed `Letter to the Editor' which should be followed by a title for the communication. Names of authors and affiliations should be at the end of the letter.

**Announcements:** *Toxicon* will only accept for publication announcements of great interest to toxinologists, such as notices of relevant meetings and symposia and activities of the International Society of Toxinology, The Brazilian Society of Toxinology, and the North American Society of Toxinology.

**Reviews and mini-Reviews:** *Toxicon* will publish reviews and mini-reviews on topics of interest to toxinologists. Suggestions for reviews or mini-reviews can be made at any time to the Editor-in-Chief or the relevant Associate Editor. In addition, articles of significant broad interest to toxinologists that are published in journals other than *Toxicon* may be abstracted in the Reviews section of *Toxicon*. Readers who feel that a particular article or book should be abstracted in this section are encouraged to bring their opinion to the attention of one of the Editor-in-Chief.

**Clinical reports:** *Toxicon* will publish clinical reports on poisoning or envenoming where a new therapeutic principle has been proposed or a decidedly superior clinical result has been established. Please consult the Clinical Reports Guidelines.

**AUDIENCE**

Toxicologists, toxinologists, molecular biologists and chemists.

**IMPACT FACTOR**

2019: 2.201 © Clarivate Analytics Journal Citation Reports 2020

**ABSTRACTING AND INDEXING**

EMBiology
Research Alert
BIOSIS Citation Index
Elsevier BIOBASE
Cambridge Scientific Abstracts
Chemical Abstracts
Current Contents - Life Sciences
Embase
Current Contents
Pascal Francis
Current Contents
Current Contents
PubMed/Medline
Scopus
EDITORIAL BOARD

Editor-in-Chief

Glenn King, The University of Queensland Institute for Molecular Bioscience, Brisbane, 4072, Australia, Fax: +61 7 3346-2101
Venoms-based discovery of drugs and bioinsecticides; venom-derived ion channel modulators; venom evolution; toxin structure and function.

Honorary Editor-in-Chief

Alan L. Harvey, Strathclyde Institute of Pharmacy and Biomedical Sciences, G4 0NR, Glasgow, United Kingdom
Physiology and pharmacology of synaptic signalling; Drugs and toxins affecting receptors and ion channels

Associate Editors

Envenoming & Antivenoms

Jose Maria Gutiérrez, Costa Rica University Clodomiro Picado Institute, Contiguo a la plaza de deportes, Dulce Nombre de Coronado, 11501-2060, San José, Costa Rica
Toxinology; Tissue lesions in envenomings; Viperidae envenomings; Antivenoms

Bacterial Toxins

Ornella Rossetto, University of Padova Department of Biomedical Sciences, Via Ugo Bassi 58/B, 35121, Padova, Italy
Bacterial neurotoxins; Botulism

Environmental Toxins

Brett A. Neilan, The University of Newcastle School of Environmental and Life Sciences, University Drive, Callaghan, 2308, Australia
Synthetic Biology, Cyanobacteria, Complex Biosynthesis, Microbiology, Biotechnology

Venom Toxins

Denise Tambourgi, Butantan Institute Immunochemistry Laboratory, 05503-900, Sao Paulo, Brazil
Venom toxins

Plant Toxins

Kevin Welch, USDA-ARS Poisonous Plant Research, 1150 E 1400 N, Logan, Utah, UT 84341, United States
Toxicology and poisonous plants

Editorial Council

Klaus Aktories, University of Freiburg Institute of Experimental and Clinical Pharmacology and Toxicology, Freiburg, Germany
Bacterial toxins; Bacterial pathogenesis

Isaac Asuzu, University of Nigeria, Dept. of Veterinary Pharmacology and Physiology, Nsukka, Nigeria
Pharmacology and toxicology of natural products (plants and animal origin). Alternative treatments for snakebite envenoming.

Gregory L. Boyer, SUNY College of Environmental Science and Forestry Department of Chemistry, Syracuse, New York, United States
Biochemistry and bioactive natural products; Aquatic ecosystems; Eutrophication

Bryan W. Brooks, Baylor University Department of Environmental Science, Waco, Texas, United States
Water Quality, Environmental and Aquatic Eco- Toxicology, Risk and Hazard Assessment, Comparative Pharmacology and Toxicology, Environmental Public Health, Harmful Algal Blooms, Green and Sustainable Chemistry, Urban and Aquatic Ecology, Water Reuse.

Juan Calvete, Biomedical Institute of Valencia, Valencia, Spain
Evolutionary and translational proteomics of snake venoms, "venomics" and "antivenomics", for exploring the evolution, composition, interactions with antivenoms, and biotechnological applications of venoms and toxins

Célia R. Carlini, Pontificial Catholic University of Rio Grande do Sul, Brain Institute & School of Medicine, Porto Alegre, Brazil
Neurotoxins, hemotoxins, microbial toxins, plant toxins, toxic proteins and peptides, protein characterization

Frederic Ducancel, Center for Immunology of Viral, Auto-immune, Hematological and Bacterial diseases, Paris-Saclay University Inserm CEA, Fontenay aux Roses, France
Protein toxins

Ponnampalam Gopalakrishnakone, National University Singapore Department of Anatomy, Singapore, Singapore
Identification and characterization of channel toxins; Venom secreting apparatus; Immunology and cloning of toxins; Naturally occurring antitoxic factors

Robert Harrison, Liverpool School of Tropical Medicine Centre for Snakebite Research & Interventions, Liverpool, United Kingdom
Therapeutic, diagnostic, public health and medical aspects of snakebite

Wayne Hodgson, Monash University Department of Pharmacology, Clayton, Victoria, Australia
Venom, toxin, snake, antivenom, neuromuscular, vascular

Ryan Huxtable, University of Arizona College of Medicine, Tucson, Arizona, United States
Pharmacology and toxicology

Geoff Isbister, The University of Newcastle Faculty of Health and Medicine, Callaghan, Australia
Snake antivenom; Spider antivenom; Clotting disorders due to snake envenoming

Evanguedes Kalapothakis, Universidade Federal de Minas Gerais Departamento de Genetica Evolucao e Ecologia, BELO HORIZONTE, Brazil
Scorpion and spider toxins, molecular biology, transcriptome

William Kem, University of Florida Department of Pharmacology and Therapeutics, Gainesville, Florida, United States
Molecular pharmacology of peptide, protein and alkaloid toxins; nicotonic acetylcholine receptors; drug design

R. Manjunatha Kini, NUS Department of Biological Sciences, Singapore, Singapore
Protein chemistry; structure-function relationships; thrombosis and hemostasis; protein design and engineering; cardiovascular drugs

Igor Krizaj, Jožef Stefan Institute, Department of Molecular and Biomedical Sciences, Ljubljana, Slovenia
Toxintoxinology, haematotoxicity, molecular mechanisms, venoms to drugs; Phospholipases A2, their inhibitors and activators; Proteomics and protein structure: structure-function relationships.

Michel LZadunski, Institute of Molecular and Cellular Pharmacology, Valbonne, France
Molecular pharmacology; Ion channels; Venoms; Toxins

Richard Lewis, The University of Queensland Institute for Molecular Bioscience, Brisbane, Australia
Acetylcholine receptors, nicotine, N-methyl-D-aspartate (NMDA), ion channels, receptor gated ion channels, transporters

Marie-France Martin-Eauclaire, Mediterranean University Hospital Institute for Infectious Diseases, Marseille, France
Pharmacology and toxicology; Scorpion venoms and toxins; Structure-function relationships of toxins

Dietrich Mebs, Goethe University Frankfurt Institute of General Medicine, Frankfurt am Main, Germany
Toxinology, Natural Toxins

Cesare Montecucco, University of Padova Department of Neuroscience, Padova, Italy
Bacterial and animal neurotoxins, tetanus neurotoxin, botulism neurotoxins, neurotoxic snakes, neuromuscular junction

Graham M. Nicholson, University of Technology Sydney School of Life Sciences, Broadway, New South Wales, Australia
Voltage-gated ion channels, spider toxins, biopesticides, snake neurotoxins

Raymond S. Norton, Monash Institute of Pharmaceutical Sciences, Parkville, Australia
Peptides, Proteins, Drug design, Structural biology, Marine toxins, Malaria, Biophysics

Baldomero Olivera, The University of Utah School of Biological Sciences, Salt Lake City, Utah, United States
Ion channels; Membrane receptors; Sensory transduction; Conotoxins

Mark A. Poli, United States Army Medical Research Inst. of Infectious Diseases (USAMRIID), Div. of Integrated Toxicology, Ft. Detrick, Maryland, United States
Toxicology; Immunodiagnostics

Lourival Domingos Possani, Biotechnology Institute, Morelos, Mexico
Scorpion venom components: isolation structure and function

Solange M.T. Serrano, Butantan Institute Special Laboratory of Applied Toxicology, Sao Paulo, Brazil
Snake venoms, proteomic analysis of animal toxic secretions, serine proteinases, metalloproteinases

W. Thomas Shier, University of Minnesota Department of Chemistry, Minneapolis, Minnesota, United States
Mycotoxins, particularly aflatoxins, fumonisins and botryodiplodin; mycotoxin biosynthesis; mycotoxins in food safety; mycotoxin mechanisms of action; effects of food processing on mycotoxins; agricultural impacts of mycotoxins.

Kaarina Sivonen, University of Helsinki Department of Food and Environmental Sciences, HELSINKI, Finland
Cyanobacteria; Toxins; Bioactive compounds

Toru Tamiya, Sophia University Faculty of Science and Technology Graduate School of Science and Technology Department of Chemistry, Chiyoda-Ku, Japan
Marine toxins; Snake venom

Aurelia Tubaro, University of Trieste Department of Life Sciences
In vivo and in vitro Toxic effects of algal toxins, including studies on their mechanism of action - New methods for the detection of algal and cyanobacteria toxins (Palytoxins, Azaspiracids, okadaic acid, dynophysistoxin, yessotoxins).

Jan Tytgat, KU Leuven Toxicology and Pharmacology, Leuven, Belgium
Animal, plant and bacterial toxins; Xenobiotics (drugs, medication, pesticides, industrial products like solvents, PAKs, ...)

David Warrell, University of Oxford Nuffield Department of Medicine, Oxford, United Kingdom
Clinical toxicology, snakebite envenoming, venomous bites and stings, scorpions, spiders, hymenoptera, clinical trials of antivenoms

Julian White, Women's and Children's Hospital Adelaide Department of Toxinology, North Adelaide, South Australia, Australia
Clinical toxicology; snakebite; arthropod envenoming; mushroom poisoning; toxinology training; antivenom production and use

Yun Zhang, Kunming Institute of Zoology Chinese Academy of Sciences, Kunming, China
Toxins from various bio-resources

Russolina Zingali, Federal University of Rio de Janeiro Institute of Medical Biochemistry, RIO DE JANEIRO, Brazil
Toxinology, Hemostasis, Proteomics

International Society on Toxinology

Secretary-Treasurer
Julian White, Women's and Children's Hospital Adelaide Department of Toxinology, 72 King William Road, 7th Fl. Samuel Way Building, North Adelaide, S.A. 5006, South Australia, Australia, Fax: +61 8 8204 6049
Clinical toxicology; snakebite; arthropod envenoming; mushroom poisoning; toxinology training; antivenom production and use
GUIDE FOR AUTHORS

Your Paper Your Way
We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

INTRODUCTION
[TOXICON] has an open access mirror journal, [TOXICON: X]

Official Journal of The International Society on Toxinology (http://www.toxinology.org/), Toxicon’s "aims and scope" are laid down in the journal as:

To publish:
• articles containing the results of original research on problems related to toxins derived from animals, plants and microorganisms
• papers on novel findings related to the chemical, pharmacological, toxicological, and immunological properties of natural toxins
• molecular biological studies of toxin and other genes from poisonous and venomous organisms that advance understanding of the role or function of toxins
• clinical observations on poisoning and envenoming where a new therapeutic principle has been proposed or a decidedly superior clinical result has been obtained. Toxicon will not accept single-case reports unless they describe new, previously unreported, clinical features; envenomings or poisonings by rare animals, plants, fungi or microorganisms for which there is little or no clinical information in the literature; or treatment that employs a new therapeutic principle for which effectiveness is convincingly demonstrated. Such case reports must include: (1) expert species identification; (2) meticulous clinical documentation of symptoms, signs, laboratory data, treatment and clinical outcomes; (3) originality (adding to knowledge of the clinical phenotype); (4) where feasible, photographic documentation of clinical signs.
• material on the use of toxins as tools in studying biological processes and material on subjects related to venom-antivenom problems
• articles on the translational application of toxins, for example as drugs and insecticides
• epidemiological studies on envenoming or poisoning, so long as they highlight a previously unrecognised medical problem or provide insight into the prevention or medical treatment of envenoming or poisoning. Retrospective surveys of hospital records, especially those lacking species identification, will not be considered for publication. Properly designed prospective community-based surveys are strongly encouraged.
• articles describing well-known activities of venoms, such as antibacterial, anticancer, and analgesic activities of venoms, without any attempt to define the mechanism of action or purify the active component, will not be considered for publication in Toxicon
• review articles on problems related to toxinology.

And
To encourage the exchange of ideas, sections of the journal may be devoted to Short Communications, Letters to the Editor and activities of the International Society on Toxinology.

Toxicon strives to publish articles that are current and of broad interest and importance to the toxinology research community. Emphasis will be placed upon articles that further the understanding and knowledge of toxinology.

Types of paper
Full-Length Research Papers: Articles containing the results of original research on problems related to toxins derived from animals, plants and microorganisms.

Short Communications: Short communications differ from full manuscripts only in that the research study does not lend itself to an extended presentation. Even though brief, the Short communication should represent a complete, coherent and self contained study. The quality of Short Communications is expected to be as good as that of full articles, and both full articles and Short communications will
be refereed in an identical manner. The form is identical to that for a full article except that the report should not be divided into Introduction, Materials and Methods, Results and Discussion. An abstract of not more than 75 words should be provided. The Short Communication may not be longer than five double-spaced typewritten pages (not including references, tables and figures) and should include not more than two tables of two figures or one of each.

**Correspondence:** These may be published if judged by the Editor to be of interest to the broad field of toxinology or of special significance to a smaller group of workers in a specialized field of toxinology. They should be headed `Correspondence ' which should be followed by a title for the communication. Names of authors and affiliations should be at the end of the letter.

**Reviews and Short Reviews:** Articles of interest to toxinologists which are published in journals other than *Toxicon* may be abstracted in the Reviews section of *Toxicon*. Readers who feel that a particular article or book should be abstracted in this section are encouraged to bring their opinions to the attention of one of the Review Editors. Mini-Reviews and proposals for mini-Reviews are welcome.

**Case reports:** *Toxicon* will publish clinical reports on poisoning where a new therapeutic principle has been proposed or a decidedly superior clinical result has been established. Please observe the following: Case Reports Guidelines.

**Submission checklist**

You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

**Ensure that the following items are present:**

One author has been designated as the corresponding author with contact details:
- E-mail address
- Full postal address

All necessary files have been uploaded:
**Manuscript:**
- Include keywords
- All figures (include relevant captions)
- All tables (including titles, description, footnotes)
- Ensure all figure and table citations in the text match the files provided
- Indicate clearly if color should be used for any figures in print
**Graphical Abstracts / Highlights files** (where applicable)
**Supplemental files** (where applicable)

Further considerations
- Manuscript has been 'spell checked' and 'grammar checked'
- All references mentioned in the Reference List are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Internet)
- A competing interests statement is provided, even if the authors have no competing interests to declare
- Journal policies detailed in this guide have been reviewed
- Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

**BEFORE YOU BEGIN**

**Ethics in publishing**

Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

**Human and animal rights**

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to
Biomedical journals. Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. For all experiments involving humans or animals, details of the appropriate ethics committee approval(s) must be provided.

Declaration of competing interest
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors should complete the declaration of competing interest statement using this template and upload to the submission system at the Attach/Upload Files step. Note: Please do not convert the .docx template to another file type. Author signatures are not required. If there are no interests to declare, please choose the first option in the template. This statement will be published within the article if accepted. More information.

Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they are relevant and valid. These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.
Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

**Article transfer service**
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal.

**More information.**

**Copyright**
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

**Elsevier supports responsible sharing**
Find out how you can share your research published in Elsevier journals.

**Role of the funding source**
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

**Open access**
Authors wishing to publish open access can choose to publish open access in [TOXICON: X] [https://www.journals.elsevier.com/toxicon-x/], the open access mirror journal of [TOXICON]. One, unified editorial team manages the peer-review for both titles using the same submission system. The authors choice of publishing model will determine in which journal, [TOXICON] or [TOXICON:X], the accepted manuscript will be published. The choice of publishing model will be blinded to referees, ensuring the editorial process is identical.

**Language (usage and editing services)**
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's Author Services.

**Submission**
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

**Submit your article**
Please submit your article via [https://ees.elsevier.com/toxcon/default.asp](https://ees.elsevier.com/toxcon/default.asp). Please note that one, unified editorial team manages the peer-review for both [TOXICON] and [TOXICON:X] using the same submission system.
**Referees**
The Editors welcome submissions by the authors of the names and addresses of up to five individuals who could expertly review the paper, and who are not from the same institutions as the authors. The Editors reserve the right to use these or other reviewers.

**PREPARATION**

**NEW SUBMISSIONS**
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

**References**
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

**Formatting requirements**
All manuscripts must have double or 1.5-line spacing, and must contain both page numbers and consecutive line numbering. Articles must be divided into clearly numbered sections as outlined below. Aside from this, there are no strict formatting requirements, but all manuscripts must contain the essential elements needed to convey the details of the study, including Abstract, Keywords, Highlights, Introduction, Materials and Methods, Results, Discussion, Conclusions, and Figures/Tables with Captions.

If your article includes Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

**Figures and tables embedded in text**
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

**Peer review**
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor’s decision is final. More information on types of peer review.

**REVISED SUBMISSIONS**

**Use of word processing software**
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

**LaTeX**
You are recommended to use the latest Elsevier article class to prepare your manuscript and BibTeX to generate your bibliography. Our Guidelines has full details.
Article structure

Subdivision - numbered sections
Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to ‘the text’. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Experimental
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Experimental procedures
All animal experiments should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, the European Communities Council Directive of 24 November 1986 (86/609/EEC) or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. All animal studies need to ensure they comply with the ARRIVE guidelines. More information can be found at http://www.nc3rs.org.uk/page.asp?id=1357.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information
- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
• **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

• **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

**Highlights**

Highlights are mandatory for this journal, as they increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the major findings of your research as well as new methods that were used during the study (if any). Please take a look at the examples here: example Highlights. Highlights should not be used to provide a summary of background information or methods.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 125 characters, including spaces, per bullet point). Highlights should NOT contain abbreviations/acronyms

**Abstract**

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

**Graphical abstract**

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.

Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

**Keywords**

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

**Abbreviations**

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

**Acknowledgements**

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

**Formatting of funding sources**

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].
It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

Artwork
Electronic artwork
General points
- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Indicate per figure if it is a single, 1.5 or 2-column fitting image.
- For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
- Please note that individual figure files larger than 10 MB must be provided in separate source files.

A detailed guide on electronic artwork is available.
You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
Regardless of the application used, when your electronic artwork is finalized, please 'save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):
- EPS (or PDF): Vector drawings. Embed the font or save the text as 'graphics'.
- TIFF (or JPG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
- TIFF (or JPG): Bitmapped line drawings: use a minimum of 1000 dpi.
- TIFF (or JPG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

Please do not:
- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.
- Supply files that are too low in resolution.
- Submit graphics that are disproportionately large for the content.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.
Figure captions
Ensure that each illustration has a caption. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Tables
Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references
This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal’s style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.
Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
http://open.mendeley.com/use-citation-style/toxicon
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference formatting
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style

Text: All citations in the text should refer to:
1. Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;
2. Two authors: both authors' names and the year of publication;
3. Three or more authors: first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999).... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...

List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

Examples:
Reference to a journal publication:
Reference to a journal publication with an article number:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Reference to a dataset:

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.

Taxonomy and toxin nomenclature
Authors should ensure that they are using the most up-to-date taxonomic description of any animal or plant described in their manuscript. For some taxa, up-to-date taxonomic information is readily available online (e.g., for spiders at http://www.wsc.nmbe.ch). For new, unidentified, or potentially cryptic species, a voucher specimen should be deposited in a natural history museum, or other facility, as appropriate.

Authors are encouraged to use rational nomenclature for all toxins described in their manuscript. Ad hoc naming schemes only serve to introduce confusion and make it difficult to compare toxins and establish evolutionary relationships. Suggested nomenclature has been published for spider toxins (King et al., Toxicon 52, 264-276, 2008; PMID 18619481), centipede toxins (Undheim et al., Mol. Biol.
Evol.31, 2124-2148, 2014; PMID 24847043), sea anemone toxins (Oliveira et al., Toxicon 60, 539-550, 2012; PMID 22683676), and some classes of scorpion toxins (Tytgat et al., Trends Pharmacol. Sci. 20, 444-447, 1999; PMID 10542442).

**Video**
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

**Data visualization**
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

**Supplementary material**
Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

**Research data**
This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

**Data linking**
If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.
In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**
This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

**Data in Brief**
You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for Data in Brief as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to Data in Brief where it will be editorially reviewed and published in the open access data journal, Data in Brief. Please note an open access fee of 600 USD is payable for publication in Data in Brief. Full details can be found on the Data in Brief website. Please use this template to write your Data in Brief.

**MethodsX**
You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use this template to prepare your MethodsX article.

**Data statement**
To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**AFTER ACCEPTANCE**

**Online proof correction**
To ensure a fast publication process of the article, we kindly ask authors to provide us with their proof corrections within two days. Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.
**Offprints**
The corresponding author, at no cost, will be provided with a PDF file of the article via e-mail (the PDF file is a watermarked version of the published article and includes a cover sheet with the journal cover image and a disclaimer outlining the terms and conditions of use). For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Author Services.

**AUTHOR INQUIRIES**
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.

© Copyright 2018 Elsevier | https://www.elsevier.com