TABLE OF CONTENTS

- Description: p.1
- Audience: p.1
- Impact Factor: p.1
- Abstracting and Indexing: p.2
- Editorial Board: p.2
- Guide for Authors: p.5

DESCRIPTION

Drawing from a large number of disciplines, Reproductive Toxicology publishes timely, original research on the influence of chemical and physical agents on reproduction. Written by and for obstetricians, pediatricians, embryologists, teratologists, geneticists, toxicologists, andrologists, and others interested in detecting potential reproductive hazards, the journal is a forum for communication among researchers and practitioners. Articles focus on the application of in vitro, animal and clinical research to the practice of clinical medicine.

All aspects of reproduction are within the scope of Reproductive Toxicology, including the formation and maturation of male and female gametes, sexual function, the events surrounding the fusion of gametes and the development of the fertilized ovum, nourishment and transport of the conceptus within the genital tract, implantation, embryogenesis, intrauterine growth, placentation and placental function, parturition, lactation and neonatal survival. Adverse reproductive effects in males will be considered as significant as adverse effects occurring in females. To provide a balanced presentation of approaches, equal emphasis will be given to clinical and animal or in vitro work. Typical end points that will be studied by contributors include infertility, sexual dysfunction, spontaneous abortion, malformations, abnormal histogenesis, stillbirth, intrauterine growth retardation, prematurity, behavioral abnormalities, and perinatal mortality.

In addition to original research articles, Reproductive Toxicology also publishes interpretative review articles, editorials, letters, book reviews, and conference announcements. The first section of each issue of the journal is devoted to an in-depth, timely review of research on the effect of particular chemical or physical agents on reproduction. Potential authors are encouraged to contact the Editor-in-Chief before submitting such a review.

AUDIENCE

Obstetricians, pediatricians, embryologists, geneticists.

IMPACT FACTOR

2019: 3.121 © Clarivate Analytics Journal Citation Reports 2020
ABSTRACTING AND INDEXING

Current Contents - Life Sciences
Reproduction Research
Science Citation Index
Web of Science
Biomedical Database
Embase
EMBiology
BIOSIS Citation Index
Elsevier BIOBASE
Scopus

EDITORIAL BOARD

Editor-in-Chief
Anna Bal-Price, European Commission Joint Research Centre Ispra Sector, TP 263, I-21020, Ispra, Italy
Developmental neurotoxicity, In vitro mechanistic toxicology, Human stem cells-derived models, Adverse Outcome Pathway (AOP), Endocrine disruptors, Environmental Contaminants, Mixture toxicity, Alternative methods, Regulatory acceptance

Associate Editors
Sofie Christiansen, National Food Institute, Technical University of Denmark, Division of Diet, Disease Prevention and Toxicology, Kongens Lyngby, Denmark
Reproductive toxicity, Developmental Biology, Endocrine disruption, in vivo studies, OECD test guidelines and AOP
Jodi A. Flaws, University of Illinois at Urbana Champaign Department of Comparative Biosciences, Urbana, Illinois, United States of America
Endocrine toxicology, Molecular toxicology, Ovarian toxicology and metabolism, Female reproductive toxicology
Wilma G. Kempinas, Sao Paulo State University Julio de Mesquita Filho Botucatu Campus Institute of Biosciences, Botucatu, Brazil
Reproductive toxicity, Developmental toxicology
Susan E. Maier, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, United States of America
Women’s Health, ME/CFS, Developmental alcohol exposure on fetal and neonatal brain development
Aldert Piersma, National Institute for Public Health and the Environment Centre for Health Protection, Bilthoven, Netherlands
Reproductive toxicity, developmental toxicology, new approach methodologies, innovative chemical risk assessment, embryonic stem cells, zebrafish embryo test
Francesca Pistollato, European Commission Joint Research Centre Ispra Sector, Ispra, Italy
Human stem cell biology, developmental neuroscience, 3Rs, alternative methods, developmental neurotoxicity, brain cancer biology, mixture risk assessment, nutrition, Alzheimer’s disease

Founding Editor
Anthony R. Scialli, MD, Scialli Consulting, LLC, Washington, United States of America

Editorial Board Members
Richard Bartlett, Delphic HSE Solutions Ltd, Camberley, United Kingdom
Scott Belcher, North Carolina State University Department of Biology, Raleigh, North Carolina, United States of America
Maria Bondesson Bolin, Indiana University Bloomington School of Informatics and Computing, Bloomington, Indiana, United States of America
Cibele Borges, Federal Rural University of the Semi-Arid, MOSSORO, Brazil
Developmental and Reproductive Toxicology, Sperm Quality and Fetal Reprogramming
Kimberly Brannen, Merck Research Laboratories West Point, Lansdale, Pennsylvania, United States of America
Deirdre Brennan, University College Dublin School of Medicine, Dublin, Ireland
Michael J. Carvan III, University of Wisconsin-Milwaukee School of Freshwater Sciences, Milwaukee, Wisconsin, United States of America
Zelieann Craig, University of Arizona, Tucson, Arizona, United States of America
Ovary, follicle, endocrine disruptors, infertility, phthalates
Christine Curran, Northern Kentucky University, Highland Heights, Kentucky, United States of America
Developmental neurotoxicology, benzo[a]pyrene, polychlorinated biphenyls, energy drinks, aryl hydrocarbon receptor, CYP1A1, CYP1A2, neurobehavior, mouse models, gene-environment interactions

Daniel Cyr, INRS-Centre Armand Frappier Santé Biotechnologie, Quebec, Canada
Male reproduction, cellular junctions, endocrinology, toxicology, epididymis

John DeSesso, Exponent Inc, Menlo Park, California, United States of America
Developmental toxicology, teratology, reproductive toxicology, embryology, developmental biology, anatomy, risk assessment

Jamie DeWitt, East Carolina University Brody School of Medicine, Greenville, North Carolina, United States of America
Per- and polyfluoroalkyl substances (PFASs), persistent organic pollutants (POPs), developmental neurotoxicity, neuroimmunotoxicity, Alzheimer’s disease, autism spectrum

Malgorzata Duda, Jagiellonian University Institute of Zoology, Krakow, Poland
Reproductive biology, ovary, steroidogenesis, endocrine disruptors, stem cells

Ali Faqi, ASF Scientific Solutions, Portage, Michigan, United States of America
Toxicology, Drug Development, Juvenile Toxicology, Developmental & Reproductive Toxicology

Warren (Lauren) Foster, McMaster University, Hamilton, Ontario, Canada
Endometriosis, microRNA, ovarian regulation, reproductive toxicology, endocrine disrupters

Xiangchao Geng, Institute for Food and Drug Safety Evaluation Division of Reproductive and Genetic Toxicology, Beijing, China

Nina Hallmark, ExxonMobil Petroleum and Chemical BVBA, Machelen, Belgium

Bethany Hannas, Dow Chemical Company Toxicology and Environmental Research and Consulting, Midland, Michigan, United States of America

Ruixin (Rachel) Hao, The Pennsylvania State University - University Park Campus, State College, Pennsylvania, United States of America

Karim Hougaard, National Research Centre for the Working Environment, København, Denmark
Developmental toxicology, reproductive toxicology, inflammation, nanoparticles

Kamin Johnson, Dow Chemical Company Toxicology and Environmental Research and Consulting, Midland, Michigan, United States of America

Claudia Kappen, Pennington Biomedical Research Foundation, Baton Rouge, Louisiana, United States of America
Peggy M. Pennington Cole Chair in Maternal Biology

Nicole Kleinstreuer, National Institute of Environmental Health Sciences National Toxicology Program Division, Durham, North Carolina, United States of America

Thomas Knudsen, University of Louisville Birth Defects Center, Louisville, Kentucky, United States of America
Computational Biology and Developmental Toxicity

Christopher Lau, US Environmental Protection Agency, Washington, District of Columbia, United States of America
Developmental toxicology, birth defects research, developmental origins of health and diseases

Geertje Lewin, Preclinical Science - Foell, Mecklenburg and Partner GmbH, Münster, Germany

Elise Lewis, Charles River Laboratories Preclinical Services Pennsylvania, Horsham, Pennsylvania, United States of America

Alberto Mantovani, National Institute of Health, Roma, Italy

Francesca Maranghi, National Institute of Health, Roma, Italy
Toxicology, nano toxicology, risk assessment, reproductive and developmental toxicity, endocrine disrupters, juvenile toxicity

Dirk Marien, Janssen Research and Development Beersel, Beerse, Belgium

Barry S. McIntyre, National Institute of Environmental Health Sciences National Toxicology Program Division, Durham, North Carolina, United States of America
Reproduction, Teratology, Spermatogenesis, Development, Fetal

Colette Miller, US Environmental Protection Agency, Washington, District of Columbia, United States of America
Air pollution, nutrition, obesity, DOHaD, adverse pregnancy outcomes

Timothy Nurkiewicz, West Virginia University Health Sciences Center, Morgantown, West Virginia, United States of America

Scott Parnell, The University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America
Fetal Alcohol Spectrum Disorders, Teratology, Developmental Biology, Brain and Craniofacial Development, Genetic/Environmental Interactions

Heather Patisaul, North Carolina State University, Raleigh, North Carolina, United States of America
Endocrine disrupting chemicals, sex differences, neuroendocrinology, neurotoxicology, developmental neuroendocrinology, brain and behavior

Francisco Paumgartten, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil
Reproductive Toxicology, Epidemiology, Clinical trials, Drug safety and efficacy

Birgit Peter, Charles River Laboratories Den Bosch, ’s-Hertogenbosch, Netherlands
Developmental and reproduction toxicology (DART)
Michele Pisano, University of Louisville Birth Defects Center, Louisville, Kentucky, United States of America
Molecular, genetic, and epigenetic mechanisms of craniofacial development and anomalies, developmental toxicity of maternal cigarette and e-cigarette use.

Nicola Powles-Glover, AstraZeneca UK Ltd Macclesfield, Macclesfield, United Kingdom
Betxabet Quintanilla-Vega, Center for Research and Advanced Studies of the National Polytechnic Institute Department of Toxicology, Mexico City, Mexico
Male reproductive toxicology Sperm chromatin integrity: alterations and mechanisms Lead toxicity Genetic susceptibility to lead Organophosphate toxicity Metal interaction with proteins

Jayanth Ramadoss, Texas A&M University Department of Veterinary Physiology and Pharmacology, College Station, Texas, United States of America
Vascular, E-cigarette, Alcohol, Utero-placental, Fetus.

Joshua Robinson, University of California San Francisco Department of Obstetrics Gynecology and Reproductive Sciences, San Francisco, California, United States of America

Christof Schaefer, Charite University Hospital Berlin Pharmacovigilance and Advisory Centre for Embryonic Toxicology Campus Virchow Klinikum, Berlin, Germany

Steffen Schneider, BASF SE, Ludwigshafen, Germany

Nisha Sipes, National Toxicology Program, Research Triangle Park, North Carolina, United States of America

Lena Smirnova, Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland, United States of America

Qing-Yuan Sun, Guangdong Second Provincial General Hospital, Guangzhou, China

Gian Mario Tiboni, University Gabriele d'Annunzio of Chieti and Pescara Department of Medicine and Aging Science, Chieti, Italy

Jorma Toppari, University of Turku Integrative Physiology and Pharmacology, Turku, Finland

Steven Van Cruchten, University of Antwerp, Department of Veterinary Sciences, Antwerp, Belgium

Developmental toxicity, juvenile toxicity, developmental pharmacology, animal models, alternative models

Laura Vandenberg, University of Massachusetts Amherst School of Public Health and Health Sciences, Amherst, Massachusetts, United States of America

Neil Vargesson, University of Aberdeen School of Medicine Medical Sciences and Nutrition, Aberdeen, United Kingdom

Thalidomide, Primodos, Embryology, Teratogens, Vascular Development

Richard Vogel, Berlin Toxicology Office GmbH, Königs Wusterhausen, Germany

Shuo Xiao, Rutgers University, Piscataway, United States of America

Female reproductive toxicology, ovary toxicology, ovary biology, endocrine disrupting chemicals (EDCs), organ-on-a-chip

Peixin Yang, University of Maryland Department of Obstetrics Gynecology and Reproductive Sciences, Baltimore, Maryland, United States of America

Diabetic embryopathy, pregestational diabetes, neural tube defects, congenital heart defects, embryonic vasculopathy, stem cell therapy, autism

Ayelet Ziv-Gal, University of Illinois at Urbana-Champaign, Champaign, Illinois, United States of America

Endocrine disrupting chemicals, Toxicology, Female reproductive system, Reproductive aging
GUIDE FOR AUTHORS

INTRODUCTION
Drawing from a large number of disciplines, Reproductive Toxicology publishes timely, original research on the influence of chemical and physical agents on reproduction. Written by and for obstetricians, pediatricians, embryologists, teratologists, geneticists, toxicologists, andrologists, and others interested in detecting potential reproductive hazards, the journal is a forum for communication among researchers and practitioners. Articles focus on the application of in vitro, animal and clinical research to the practice of clinical medicine.

All aspects of reproduction are within the scope of Reproductive Toxicology, including the formation and maturation of male and female gametes, sexual function, the events surrounding the fusion of gametes and the development of the fertilized ovum, nourishment and transport of the conceptus within the genital tract, implantation, embryogenesis, intrauterine growth, placental function, parturition, lactation and neonatal survival. Adverse reproductive effects in males will be considered as significant as adverse effects occurring in females. To provide a balanced presentation of approaches, equal emphasis will be given to clinical and animal or in vitro work. Typical end points that will be studied by contributors include infertility, sexual dysfunction, spontaneous abortion, malformations, abnormal histogenesis, stillbirth, intrauterine growth retardation, prematurity, behavioral abnormalities, and perinatal mortality.

Types of paper
In addition to original research articles, Reproductive Toxicology also publishes interpretative review articles, editorials, letters, book reviews, and conference announcements. The first section of each issue of the journal is devoted to an in-depth, timely review of research on the effect of particular chemical or physical agents on reproduction. Potential authors are encouraged to contact the Editor-in-Chief before submitting such a review.

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.

**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.**

**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 create a declaration of competing interest statement using this tool and upload to the submission system at the Attach Files step. **Note: Please do not convert the .docx template to another file type. Author signatures are not required.**

**Submission declaration**
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.

**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 or as part of a published lecture or academic thesis or as an electronic preprint, see https://www.elsevier.com/postingpolicy), 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 CrossCheck https://www.elsevier.com/editors/plagdetect.

**Acknowledgements.** All sources of funding supporting the work are to be declared. Authors are to disclose all financial relationships with any persons or organizations that could be perceived to bias the work described in the manuscript. These acknowledgements should be placed after the text and before the references, under the heading "Acknowledgements". In submitting the article for consideration for publication, the author(s) attest that all potential conflicts of interest have been disclosed and addressed in the manuscript.

**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.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete a 'License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

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
Please visit our Open Access page for more information.

Elsevier Researcher Academy
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.
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.

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
There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.
Divide the article into clearly defined sections.
Please ensure the text of your paper is double-spaced and has consecutive line numbering– this is an essential peer review requirement.

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 anonymized 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 one independent expert reviewer 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. Editors are not involved in decisions about papers which they have written themselves or have been written by family members or colleagues or which relate to products or services in which the editor has an interest. Any such submission is subject to all of the journal's usual procedures, with peer review handled independently of the relevant editor and their research groups. 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.

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.

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.

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 lower-case 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 optional yet highly encouraged 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 novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

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 85 characters, including spaces, per bullet point).

**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. The abstract should contain no more than 250 words.

**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 8 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 JPEG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
TIFF (or JPEG): Bitmapped line drawings: use a minimum of 1000 dpi.
TIFF (or JPEG): Combinations bitmapped line/halftone (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/reproductive-toxicology
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:** Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.

Example: '..... as demonstrated [3, 6]. Barnaby and Jones [8] obtained a different result ....'

**List:** Number the references (numbers in square brackets) in the list in the order in which they appear in the text.

**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:


Reference to software:


**Journal abbreviations source**

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

**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 a data article published in Data in Brief. A data article is a new kind of article that ensures that your data are actively reviewed, curated, formatted, indexed, given a DOI and made publicly available to all upon publication (watch this video describing the benefits of publishing your data in Data in Brief). You are encouraged to submit your data 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, published open access and linked to your research article on ScienceDirect. Please note an open access fee 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 data 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 will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. 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. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

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.