DESCRIPTION

Reproductive Biology is an international, quarterly, peer-reviewed journal publishing high quality original research articles, short communication, technical notes, reviews and mini-reviews dealing with all aspects of reproduction.

Reproductive Biology covers a broad scope of reproductive biology and reproductive medicine translational research articles, providing a platform for scientific exchange of knowledge. The journal publishes state-of-the-art articles on reproductive physiology, endocrinology with a special attention to endocrine related cancers, receptor studies, andrology, embryology, infertility, assisted reproduction, contraception, obstetrics and gynecology, as well as animal breeding and animal reproduction (with a special emphasis to farm animals). Papers from both basic and clinical research areas will be considered.

Reproductive Biology is the official journal of the Society for Biology of Reproduction and the Institute of Animal Reproduction and Food Research of Polish Academy of Sciences in Olsztyn, Poland.

IMPACT FACTOR

2018: 1.880 © Clarivate Analytics Journal Citation Reports 2019

EDITORIAL BOARD

Editor-in-Chief
Nafis Rahman, Institute of Biomedicine/Physiology, Faculty of Medicine, University of Turku, Kiinamyllynkatu 10, 20520, Turku, Finland

Associate Editors
Paweł Bartlewski, Dept. of Biomedical Sciences, University of Guelph, Ontario Veterinary College, Guelph, Ontario, Canada
Aleksander Giwercman, Department of Translational Medicine, Molecular Reproductive Medicine, Lund University, Sweden
Monika M. Kaczmarek, Institute of Animal Reproduction and Food Research, Polish Academy of Sciences, Olsztyn, Poland
Rina Meidan, The Robert H Smith Faculty of Agriculture, Food and Environment, The Hebrew University of Jerusalem, Rehovot, Israel
Editorial Board

Leon J.S. Brokken, Department of Natural Sciences, Högskolan Kristianstad, Kristianstad, Sweden
Howard Carp, Department of Obstetrics and Gynecology, Sheba Medical Center at Tel Hashomer, Tel Hashomer, Israel
Renata Ciereszko, Dept. of Animal Physiology, University of Warmia and Mazury, Olsztyn, Poland
Ralf Einspanier, Inst. of Veterinary Biochemistry, Freie Universität Berlin, Berlin, Germany
Graca M. L. Ferreira-Dias, Faculty of Veterinary Medicine, C.I.I.S.A., University of Lisbon, Lisbon, Portugal
Herbert Fluhr, Department of Obstetrics and Gynecology, University of Heidelberg, Heidelberg, Germany
Anna Grażul-Bilska, Ctr. for Nutrition and Pregnancy, North Dakota State University, Fargo, North Dakota, USA
Bernd Hoffmann, The Gynecology Clinic, Obstetrics and Andrology of Large and Small Animals, Justus-Liebig-Universität Gießen, Giessen, Germany
Peter Humaidan, The Fertility Clinic, Skive Regional Hospital, Faculty of Health, Aarhus University, Skive, Denmark
Richard Ivell, School of Biosciences, The University of Nottingham, Nottingham, UK
Tomasz Janowski, Department of Animal Reproduction with Clinic, Faculty of Veterinary, University of Warmia and Mazury, Olsztyn, Poland
Albert Jiang, Molecular Biology and Genetics, Mercer University School of Medicine, Savannah, USA
Jan Kotwica, Institute of Animal Reproduction and Food Research, Polish Academy of Sciences, Olsztyn, Poland
Irina Kowalska, Department of Endocrinology, Diabetology and Internal Medicine, Medical University of Białystok, Białystok, Poland
Maciej Kurpisz, Inst. of Human Genetics, Polish Academy of Sciences, Poznan, Poland
Jerome Levallet, Institut de Biologie Fondamentale et Appliquée, Université de Caen Basse Normandie, Caen, France
XiangDong Li, College of Agriculture and Biotechnology, China Agricultural University, Beijing, China
Antti Perheentupa, Department of Obstetrics and Gynecology, University of Turku, Turku, Finland
Ewa Rajpert-De Meyts, Department of Growth & Reproduction, Copenhagen University Hospital, Copenhagen, Denmark
Adolfo Rivero-Muller, Turku Centre of Biotechnology, University of Turku, Turku, Finland
Mordechai Shemesh, Kimron Veterinary Institute, Bet Dagan, Israel
Joe-Leigh Simpson, Departments of Molecular Human Genetics and Obstetrics and Gynecology, Florida International University, Miami, Florida, USA
Alexander Sirotkin, Animal Production Research Centre Nitra, Luzianky, Slovakia
Roman Smolarecy, Department of Gynecological Endocrinology, Medical University of Warsaw, Warszawa, Poland
Sławomir Wołczynski, Department of Reproduction and Gynecological Endocrinology, Medical University of Białystok, Białystok, Poland
Adam Ziecik, Institute of Animal Reproduction and Food Research, Polish Academy of Sciences, Olsztyn, Poland
Marek Zygmunt, Dept. of Obstetrics and Gynecology, Ernst Moritz Arndt University, Greifswald, Germany
GUIDE FOR AUTHORS

INTRODUCTION

Criteria for manuscripts
The Editorial Board of Reproductive Biology considers for publication the original articles under the understanding that neither the manuscript nor any part of its essential substance, tables or figures have previously been published in print form or electronically, and are not submitted to any other journal or electronic medium. Each submission packet should include the statement signed by the corresponding author that the work has not been published previously or submitted elsewhere for review, and a copyright transfer form.

Types of article
Accepted papers are published in the following journal sections: Research papers (max. 55,000 characters without spaces, excluding abstract and references, References 60 or less, Abstract: up to 250 words, unstructured (i.e., no subheadings), keywords: 3-5, text divided into numbered sections: Introduction, Material and methods, Results, Discussion (more information https://www.elsevier.com/journals/reproductive-biology/1642-431X/guide-for-authors#25000)): scientifically sound and containing novel mechanistic data manuscripts on reproduction, dealing generally with human or farm animal reproduction as well as the reproductive aspects in rodents with a clinical relevance would have priority for publication. Mini-reviews (25,000 characters without spaces, excluding abstract and references, up to 30 references, abstract up to 200 words, unstructured manuscript (i.e., no subheadings), 3-5 keywords, 1 table and/or 1 figure): Mini-reviews address a specific topic and represent literature review and author opinions. Generally, the Editorial Board invites mini-reviews, but exceptional unsolicited mini-review manuscripts will also be considered. Review papers (55,000 words, structured manuscript with subheading with similar conditions as research papers) are published under the invitation from the Editorial Board. Requirements for short communications and technical notes (see articles published previously in Reproductive Biology). Only very highly focused manuscripts that highlight research breakthroughs requiring an accelerated publication (short communications), and novel technical methodologies or hypotheses in the reproductive sciences or transgenic models that may provide a strong foundation for innovative research in the future would be considered in this category (technical notes). Short communications (16,000 characters without spaces): Abstract should consist of 5-6 lines only, Introduction of no more than 2 paragraphs, Materials and Methods section should be undivided into subheadings, and Results and Discussion combined into one part. Limit the number of tables/figures to 2-3, References limited to 15. Technical notes (14,000 characters without spaces): Summary should consist of 5-6 lines, an expanded Methods and Materials section; Introduction of maximum 2-3 paragraphs, and Results and Discussion combined into one part. References limited to a number of 15. Detailed and specific manuscript preparation information is written below in the section "manuscript preparation information".

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
   - Include full Authors' names
   - 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.
For reproduction in black-and-white, please supply black-and-white versions of the figures for printing purposes.

BEFORE YOU BEGIN

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

Studies in humans and animals
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. The manuscript should be in line with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals and aim for the inclusion of representative human populations (sex, age and ethnicity) as per those recommendations. The terms sex and gender should be used correctly.

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. The sex of animals must be indicated, and where appropriate, the influence (or association) of sex on the results of the study.

Declaration of 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 competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. 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.

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior
to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

**Contributors**

Each author is required to declare his or her individual contribution to the article: all authors must have materially participated in the research and/or article preparation, so roles for all authors should be described. The statement that all authors have approved the final article should be true and included in the disclosure.

**Authorship**

All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

**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.

**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 an 'Exclusive 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.
Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

Creative Commons Attribution (CC BY)
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

Green open access
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.

This journal has an embargo period of 12 months.

Language (usage and editing services)
Please prepare your manuscript in the English language (American or British English is accepted, but not a mixture of both). 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 WebShop http://webshop.elsevier.com/languagediting/ or visit our customer support site http://service.elsevier.com for more information.

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://www.evise.com/profile/api/navigate/REPBIO.

Review process
Manuscripts are evaluated on the basis that they present new insights into the investigated topic and are likely to contribute to scientific progress. It is understood that all authors listed on a manuscript have agreed to its submission; the signature of the corresponding author on the letter of submission signifies that this condition has been fulfilled. Initially, the Editors of Reproductive Biology pre-evaluate all received manuscripts. Manuscripts with insufficient priority for publication are rejected promptly. Incomplete packages or manuscripts not prepared in compliance with the required quality or advised style will be sent back to authors without scientific review. The authors are notified with the reference number upon manuscript registration at the Editorial Office. The registered manuscripts are sent to independent experts for scientific evaluation. We encourage authors to suggest the names of possible reviewers, (potential reviewers could be suggested from the editorial board too), but we reserve the right of final selection. Submitted papers are accepted for publication after a positive opinion of the independent reviewers and Editors.
Permissions
A written statement must accompany materials taken from other sources from both the author and publisher giving permission to *Reproductive Biology* for reproduction of the materials. Obtain permission in writing from at least one author of papers in press, unpublished data, and personal communications.

Disclaimer
Every effort is made by the Editor-in-Chief and the Editorial Board of *Reproductive Biology* to see that no inaccurate or misleading data, opinion or statement will appear in *Reproductive Biology*. However, they wish to make it clear that the data and opinions contained in the articles and advertisements herein are the responsibility of the contributor, sponsor or advertiser concerned. Accordingly, the Editor-in-Chief and the Editorial Board accept no liability whatsoever for the consequences of any such inaccurate of misleading data, opinion or statement. Every effort is made to ensure that drug doses and other quantities are presented accurately. Nevertheless, readers are advised that the method and techniques for drug usage and other treatments described in *Reproductive Biology*, should only be followed in conjunction with the drug or treatment specifications released by manufacturers in the readers country of residence.

PREPARATION

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.

Use of word processing software
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format, double spaced with numbered lines. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier: https://www.elsevier.com/guidepublication). Note that source files of figures, tables and text graphics will be required. 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 wordprocessor.

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.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. Avoid extensive citations and discussion of the published literature.
**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.

**Acknowledgements**
Collate acknowledgements in a separate section and include them on the title page only. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

**Abstracts**
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, nonstandard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself. **Abstract should not be divided into sections, aims, methods etc. (not structured).** Abstracts for **Original Articles** should not exceed 250 words.

**Keywords**
Immediately after the abstract, provide a maximum of 5 keywords, avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Use the abbreviations sparingly: only those abbreviations that are firmly established in the field are eligible. The keywords will be used for indexing purposes.

**Abbreviations**
Abbreviations that are unavoidable must be defined twice: (1) at their first mention in the Abstract and (2) at their first mention in the remaining part of the article. Ensure consistency of abbreviations throughout the article.

**Units**
Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

**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 can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

**Artwork**

*Electronic artwork*

*General points*
• Make sure you use uniform lettering and sizing of your original artwork.
• Embed the used fonts if the application provides that option.
• Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Provide captions to illustrations separately.
• Size the illustrations close to the desired dimensions of the published version.
• Submit each illustration as a separate file.

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**

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.

Regardless of the application used other than Microsoft Office, 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 all used fonts.
- TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

**Please do not:**

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- 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. Supply captions separately, not attached to the figure. 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.

Please note: Because of technical complications that can arise by converting color figures to 'gray scale' (for the printed version should you not opt for color in print) please submit in addition usable black and white versions of all the color illustrations.

**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.
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.

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.
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:
Note shortened form for last page number. e.g., 51–9, and that for more than 6 authors the first 6 should be listed followed by 'et al.' For further details you are referred to 'Uniform Requirements for Manuscripts submitted to Biomedical Journals' (J Am Med Assoc 1997;277:927–34) (see also Samples of Formatted References).

Reference style
Format the references in compliance with the recommended style for this journal:
Last name, initial, full paper title, journal full name, year, volume (number) first and last page.
Examples:
Reference to a journal publication:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a conference (only abstracts 2-page long may serve as references):
Reference to a Dataset

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 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
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.

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