EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS
Official Journal of the International Association for Pharmaceutical Technology

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.4

DESCRIPTION

The European Journal of Pharmaceutics and Biopharmaceutics provides a medium for the publication of novel, innovative and hypothesis-driven research from the areas of Pharmaceutics and Biopharmaceutics.

Topics covered include for example: Design and development of drug delivery systems for pharmaceuticals and biopharmaceuticals (small molecules, proteins, nucleic acids) Aspects of manufacturing process design Biomedical aspects of drug product design Strategies and formulations for controlled drug transport across biological barriers Physicochemical aspects of drug product development Novel excipients for drug product design Drug delivery and controlled release systems for systemic and local applications Nanomaterials for therapeutic and diagnostic purposes Advanced therapy medicinal products Medical devices supporting a distinct pharmacological effect

"The Rules of 3"

The Editors and Editorial board have developed the "Rules of 3". Authors must consider the following three criteria before they submit a manuscript and set the whole process of editing and reviewing at work:
1. The paper must report on novel findings that are not merely an unprecedented combination of known aspects in pharmaceutics and biopharmaceutics of major importance.
2. A paper must be based on a thorough and extensive study, using established or well-described methods and including proper controls. Research must be hypothesis-driven and conclusions must be supported by the data presented.
3. The study described in the manuscript must not merely confirm the state of the art in the field of pharmaceutics and biopharmaceutics, but advance it.

AUDIENCE

Pharmaceutical Scientists, Chemical Engineers, Pharmaceutical and Biopharmaceutical Scientists, Medicinal Chemists, Pharmacologists, Analytical Chemists, Clinical Pharmacologists, Pharmaceutical Engineers

IMPACT FACTOR

2018: 4.708 © Clarivate Analytics Journal Citation Reports 2019
ABSTRACTING AND INDEXING

BIOSIS Biological Abstracts
CAB International
Chemical Abstracts
Embase
International Pharmaceutical Abstracts
Pascal Francis
Science Citation Index Expanded
PubMed/Medline
Scopus

EDITORIAL BOARD

Editor-in-Chief
A. Goepperich, University of Regensburg Faculty of Chemistry and Pharmacy, Universitätsstrasse 31, 93040, Regensburg, Germany

Assistant Editor
M. Breunig, University of Regensburg, Regensburg, Germany
M. Gregoritza, F Hoffmann-La Roche AG, Basel, Switzerland

Editors
N. Bertrand, Laval University, Quebec, Quebec, Canada
R. Brock, Radboudumc, Nijmegen, Netherlands
W. Fries, Ludwig Maximilians University Munich, Munich, Germany
H. W. Frijlink, University of Groningen, Groningen, Netherlands
J. Huwyler, University of Basel, Basel, Switzerland
C.-M. Lehr, Saarland University, Saarbruecken, Germany
M. Ogris, University of Vienna, Wien, Austria
T. Rades, University of Copenhagen Faculty of Health and Medical Sciences, Kopenhagen, Denmark
M.J. Rathbone, Universiti Perubatan Antarabangsa Malaysia, Kuala Lumpur, Malaysia
K. Remaut, Ghent University, Gent, Belgium
A. Schwendeman, University of Michigan, Ann Arbor, Michigan, United States

Editorial Board
V. Agrahari, CONRAD, Eastern Virginia Medical School (EVMS), Arlington, Virginia, United States
A. Aigner, Leipzig University, Leipzig, Germany
E. Allémann, University of Geneva Faculty of Science, Geneva, Switzerland
M.J. Alonso, Universidade de Santiago de Compostela Faculty of Pharmacy, Santiago de Compostela, Spain
J.-P. Benoit, University of Angers, Angers, France
A. Bernkop-Schnürch, University of Innsbruck, Innsbruck, Austria
M.J. Blanco-Prieto, University of Navarre Department of Technological Pharmacy and Pharmacy Chemistry, Pamplona, Spain
R. Bodmeier, Free University of Berlin Faculty of Biology Chemistry Pharmacology, Berlin, Germany
J. Breitkreutz, Heinrich Heine University Düsseldorf, Dusseldorf, Germany
H. Bunjes, Braunschweig University of Technology, Braunschweig, Germany
M. Capelle, Therapeomic AG, Riehen, Switzerland
U. Conte, University of Pavia, Pavia, Italy
L. Dailey, Martin Luther University Halle Wittenberg, Halle (Saale), Germany
R. Daniels, Eberhard Karls University Tübingen, Munich, Germany
F. Delie-Salmon, University of Geneva, Geneva, Switzerland
B. Demeule, Genentech Inc, South San Francisco, California, United States
J.-M. Devoisselle, Charles Gerhardt of Montpellier Institute, Montpellier, France
E. Doelker, University of Geneva, Geneva, Switzerland
P. Esposito, SiTec PharmaBio SL, Barcelona, Spain
E. Fattal, Paris-Saclay University Faculty of Pharmacy, Chatenay Malabry, France
C. Fischbach-Teschl, Cornell University, Ithaca, New York, United States
G. Fricker, University of Heidelberg Institute of Pharmacy and Molecular Biotechnology, Heidelberg, Germany
A. Gazzaniga, University of Milan Department of Pharmaceutical Sciences, Milano, Italy
P. Gershkovich, University of Nottingham, Nottingham, United Kingdom
M.A. Gonzalez, P’Kinetics International Inc, Pembroke Pines, Florida, United States
R. Gref, Paris-Saclay University Faculty of Pharmacy, Chatenay Malabry, France
R.H. Guy, University of Bath - Department of Pharmacy and Pharmacology, Bath, United Kingdom
M. Hacker, Leipzig University, Leipzig, Germany
J. Hadgraft, University College London School of Pharmacy, London, United Kingdom
J. Hanes, Johns Hopkins University Center for Nanomedicine, Baltimore, Maryland, United States
S. Hedtrich, The University of British Columbia, Vancouver, British Columbia, Canada
S. Hook, University of Otago, Dunedin, New Zealand
Y. N. Kalia, Pharmacy College Geneva-Lausanne, Geneva, Switzerland
T. Kissel, University of Marburg, Marburg, Germany
S. Klein, University of Greifswald, Greifswald, Germany
P. Kleinebudde, Heinrich Heine University Düsseldorf Institute for Pharmaceutical Technology and Biopharmacy, Düsseldorf, Germany
J. Kopecek, The University of Utah, Salt Lake City, Utah, United States
J. Kreuter, Goethe University Frankfurt, Frankfurt am Main, Germany
J. Kristl, University of Ljubljana, Ljubljana, Slovenia
S. Küchler, Free University of Berlin, Berlin, Germany
U. Lächelt, Ludwig Maximilian University Munich Chair of Pharmaceutical Biology Biotechnology, München, Germany
N. Lange, University of Geneva, Geneva, Switzerland
H. Lindner, Bayer Schering Pharma AG, Berlin, Germany
T. Lühmann, University of Würzburg, Würzburg, Germany
K. Mädler, Martin Luther University Halle-Wittenberg Department of Pharmacy, Halle, Germany
E. Mathiowitz, Brown University, Providence, Rhode Island, United States
O. Merkel, Ludwig Maximilians University Munich, Munich, Germany
A.G. Mikos, Rice University, Houston, Texas, United States
D. Mooney, Harvard University Mooney Laboratory, Cambridge, Massachusetts, United States
C. Müller-Goymann, Braunschweig University of Technology, Braunschweig, Germany
R.H. Müller, Pharmaceutical Technology of Free University of Berlin, Berlin, Germany
T. Nagai, The Nagai Foundation Tokyo, Tokyo, Japan
R.H.H. Neubert, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany
A.F. Öner, Hacettepe University, Ankara, Turkey
N.A. Peppas, University of Texas at Austin Institute for Biomaterials Drug Delivery & Regenerative Medicine, Austin, Texas, United States
C. Rudolph, Ludwig Maximilians University Munich, Munich, Germany
I. Rupenthal, The University of Auckland Faculty of Medical and Health Sciences, Auckland, New Zealand
L. Scapozza, Pharmacy College Geneva-Lausanne, Geneva, Switzerland
R. Scherliess, Kiel University, Kiel, Germany
M. Schneider, University of Marburg, Marburg, Germany
R. Schubert, University of Freiburg, Freiburg im Breisgau, Germany
S.P. Schwendeman, University of Michigan Department of Pharmaceutical Sciences, Ann Arbor, Michigan, United States
J. Siepmann, University of Lille Faculty of Pharmacy, Lille cedex, France
S. Srčič, University of Ljubljana, Ljubljana, Slovenia
V. Torchilin, Northeastern University Center for Pharmaceutical Biotechnology and Nanomedicine, Boston, Massachusetts, United States
C. Valenta, University of Vienna, Wien, Austria
M.G. Wacker, National University of Singapore Department of Pharmacy, Singapore, Singapore
E. Wagner, Ludwig Maximilian University Munich Chair of Pharmaceutical Biology Biotechnology, München, Germany
W. Weitschies, University of Greifswald Institute of Pharmacy, Greifswald, Germany
S. Wilhelm, The University of Oklahoma Stephenson School of Biomedical Engineering, Norman, Oklahoma, United States
C.G. Wilson, University of Strathclyde, Glasgow, Scotland, United Kingdom
G. Winter, Ludwig Maximilians University Munich, Munich, Germany
A. Zimmer, Graz University of Technology, Graz, Austria

Honorary Editor
R. Gurny, Pharmacy College Geneva-Lausanne, Geneva, Switzerland
GUIDE FOR AUTHORS

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

INTRODUCTION
The European Journal of Pharmaceutics and Biopharmaceutics provides a medium for publication of novel and innovative research from areas of pharmaceutical technology, drug delivery systems, controlled release systems, drug targeting, physical pharmacy, biopharmaceutics, drug development, drug and prodrug design, pharmaceutical analysis, drug stability, quality control, GMP, regulatory aspects, pharmaceutical packaging, and phytochemistry.

The pharmaceutical biotechnology section provides a forum for the publication of papers on scientific, developmental, regulatory and manufacturing issues concerning the development of biopharmaceuticals, uniquely combining expert contributions and opinions of authors from the fields of pharmaceutics and biotechnology. This scope encompasses modern biopharmaceuticals (e.g., proteins and nucleic acids), biosimilars/biogenerics as well as 'traditional' products such as antibiotics.

"THE RULES OF 3"
The Editors and Editorial board have developed the "Rules of 3". Authors must consider the following three criteria before they submit a manuscript and set the whole process of editing and reviewing at work. The rules are also used as guidelines for the peer review of manuscripts. CLICK HERE to view the "Rules of 3".

Authors are encouraged to submit video material or animation sequences to support and enhance your scientific research. For more information please see the paragraph on video data below.

Types of paper
The following types of papers are considered by the Editors: Research Papers, Review Articles, Short Reviews, and Notes.

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.

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').
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 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.

Open access
Please visit our Open Access page for more information.

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.

Referees
You are requested to name at least 5 international experts as possible reviewers for your manuscript, providing their names, affiliations and email addresses.

Please note that the reviewers you suggest should: not be from the same country as you not have been collaborators of yours in the past 2 years not be members of the Editorial Board of the journal

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.

Figures and tables embedded in text
Please do not embed your tables and figures in your manuscript text. Please provide tables and figures as separate files.

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

REVISED SUBMISSIONS
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.
To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.
LaTeX
You are recommended to use the Elsevier article class elsarticle.cls to prepare your manuscript and BibTeX to generate your bibliography.
Our LaTeX site has detailed submission instructions, templates and other information.

RESEARCH PAPERS

Should contain the following sections: Introduction, Theoretical Development (if applicable), Materials and Methods, Results, Discussion (or Results and Discussion) and References. For purely theoretical papers, appropriate sections may be selected.

It should define the purpose of the research and reveal its connections with the principal work of other authors in the field.

Materials and methods
It should include materials, standard techniques and procedures relevant to the study. Published procedures and techniques should be cited unless significant modifications are involved. Exact specification of relevant materials and equipment must be given. Chemical terms must conform with IUPAC rules. Trademarks of commercial products must be labelled using a superscripted '(r)'. Names of products and equipment mentioned in the Materials and Methods section must be accompanied by the name of the manufacturer or distributor, location and state or country. This information must be stated in parentheses in the text, and not as a footnote. Any potential hazards connected with materials and procedures must be mentioned. A precise and detailed description should be given of those steps which are of vital importance in carrying out any repetition of the work. The Declarations of Helsinki and Tokyo for humans, and the European Community guidelines as accepted principles for the use of experimental animals, must be adhered to. Therefore, EJPB will only consider manuscripts that describe experiments that have been carried out under approval of an institutional or local ethics committee. Authors must state in the manuscript that the protocol complies with the particular recommendation and that approval of their protocols was obtained.

Equations must be part of the text and consecutively numbered on the right hand side using numbers in parentheses. References to equations in the text are also to be made with parentheses, e.g. using Eq. (3), etc.

Organic formulas, both in figures and in the text, should be numbered in boldface arabic numerals.

SI units must be used throughout.

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 may be presented in tables, figures or schemes which must be referred to in the accompanying text, using appropriate numbering, e.g. Fig. 1, Table 2.

Discussion
It should focus on the interpretation of the results. It might be appropriate to combine RESULTS AND DISCUSSION in one section. If necessary at all, use CONCLUSIONS only to illustrate the general implication of the results and do not summarize the previous text.

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

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

Essential title page information
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
• **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a 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.

It should contain a brief and clear description of the aim of the paper, its principal results and major conclusions (100--200 words). The abstract should include all keywords pertinent to the subject.

**Graphical abstract**

A graphical abstract is mandatory for this journal. It should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership online. Authors must provide images that clearly represent the work described in the article. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: please provide an image with a minimum of $531 \times 1328$ pixels ($h \times w$) or proportionally more. The image should be readable at a size of $5 \times 13$ 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 also in accordance with all technical requirements.

**Keywords**

Indicate 5 to 10 English keywords. They should be carefully selected in order to improve accessibility of scientific information in the manuscript. Keywords commonly used in international abstracting services will be preferred.

**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**

Acknowledgements of financial support, gifts, technical help or other assistance may be given in an unnumbered paragraph under this heading preceding the references.

**Formatting of funding sources**

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

**Funding:** This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

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

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

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

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

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

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

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

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.

Figure captions
Ensure that each illustration has a caption. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Tables
Tables must be presented on separate sheets in consecutive order using Arabic numerals. The table headings must include a descriptive title and additional information to make the table self-explanatory. Some information may be given by using lower-case letter designations referring to footnotes at the bottom of the table. Indicate SI units of measure in parentheses.
References
References must be arranged as follows:


The system used by Chemical Abstracts (Chemical Abstracts Service Source Index) must be followed for the abbreviations of journals. Reference (4) is for patents, including the status, international country code, number of patent and year.

Articles in Special Issues: Please ensure that the words 'this issue' are added (in the list and text) to any references to other articles in this Special Issue.

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.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
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:


**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 you to share data that supports your research publication in an appropriate data repository, and enables you to interlink the data with your published articles. If you are sharing data, 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.

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.

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. Before submitting your article, you can deposit the relevant datasets to Mendeley Data. Please include the DOI of the deposited dataset(s) in your main manuscript file. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the [Mendeley Data for journals page](#).

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

**AFTER ACCEPTANCE**

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

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

Offprints

The corresponding author, at no cost, will be provided with a PDF file of the article via e-mail. The PDF file is a watermarked version of the published article and includes a cover sheet with the journal cover image and a disclaimer outlining the terms and conditions of use.

Additional information

No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of the rapid advances made in the medical sciences, independent verification of diagnoses and drug dosages should be made.

Review of manuscripts

Upon receipt, a manuscript will be peer-reviewed. The reviewers' relevant comments and the editor's decision will be communicated to the authors.

TITLE

It should be carefully chosen to provide precise information about the contents and include important keywords. The title should be followed by the full name(s) of the author(s) and by his (her, their) affiliation(s). Different affiliations should be indicated by suitable superscripts.

To ensure identification of the corresponding author, please indicate full name, full postal address, e-mail address, phone and facsimile on the cover of the manuscript.

RESEARCH PAPERS

Should contain the following sections: Introduction, Theoretical Development (if applicable), Materials and Methods, Results, Discussion (or Results and Discussion) and References. For purely theoretical papers, appropriate sections may be selected.

USE OF DIGITAL OBJECT IDENTIFIER (DOI)

The digital object identifier (DOI) may be used to cite and link to electronic documents. The DOI consists of a unique alpha-numeric character string which is assigned to a document by the publisher upon the initial electronic publication. The assigned DOI never changes. Therefore, it is an ideal medium for citing a document particularly “Articles in press” because they have not yet received their full bibliographic information.

The correct format for citing DOI is shown as follows: https://doi.org/10.1016/j.ejpb.2004.10.006

Notes

The research and technical notes section of the journal (maximum 2500 words) is open to interesting results worthy of publication without requiring extensive introduction and discussion. This section should contain the following subheadings: Abstract, Introduction, Materials and Methods, Results and
Discussion (combined). No more than 10 references should be used. Tables, figures and references are to be arranged according to research papers. Brevity of presentation is essential for this section. Five to 10 keywords should be provided.

Review articles

The organization and subdivision of review articles can be arranged at the author's discretion. Tables, figures and references are to be arranged according to research papers. An abstract, table of contents, and keywords are requested.

Correcting proofs and reprints

Elsevier will send PDF proofs to authors by e-mail for correction. If an author is unable to handle this process, regular print proofs will be sent. Elsevier will do everything possible to get the article corrected and published as quickly and accurately as possible. Therefore, it is important to ensure that all corrections are sent back in one communication. Subsequent corrections will not be possible. Only typesetting errors may be corrected; no changes in, or additions to, the accepted manuscript will be allowed. Proofs should be returned to Elsevier within 48 hours.

*EJPB* has no page charges. Fifty offprints of each paper will be supplied free of charge to the corresponding author. Additional offprints can be ordered at prices shown on the offprint order form that accompanies the copyright form.

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